



COLLEGE OF ENGINEERING AND TECHNOLOGY, BAMBHORI POST BOX NO. 94, JALGAON – 425001. (M.S.)

(With NBA Accredited Programmes)

Website : www.sscoetjalgaon.ac.in

Email : sscoetjal@gmail.com

Mandatory Disclosure

Part-I

January 2024 - 2025

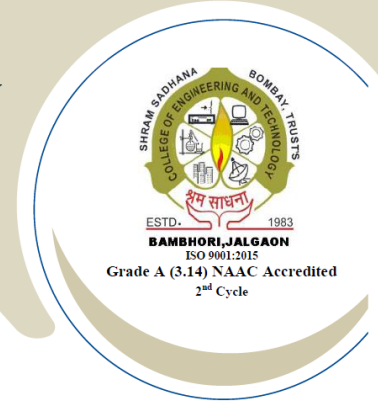


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UG Programs- Engineering: Chemical, Civil, Computer, Electrical, Electronics & Telecommunication, Mechanical
PG Programs - Engineering: MCA
- Management: MBA

Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY

Principal: Dr. G. K. Patnaik
M.E.(CSE), Ph.D. (CSE)



Ref. No _____ Date: _____

CERTIFICATE

Certified that all enclosures contained in PART-I , PART-II & PART-III bearing page no. 01 to page no. 2482 are pertaining to our institution which are being submitted in two separate above mentioned bound booklets/box file of Mandatory Disclosure. All xerox copies may be treated as original.

PRINCIPAL

SSBT's College of Engineering & Technology, Bambhori, Jalgaon.

Mandatory Disclosure

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MANDATORY DISCLOSURE

Mandatory Disclosure by Institutions running AICTE approved Engineering /Technology /Pharmacy programmes to be included in their respective Information Brochure, displayed on their website and to be submitted to AICTE every year latest by 30th April together with its URL

The following information is to be given in the Information Brochure besides being hosted on the Institution's official Website.

"The information has been provided by the concerned institution and the onus of authenticity lies with the institution and not on AICTE."

I. NAME OF THE INSTITUTION

| | | | |
|-----------|---|---------|--|
| Name | SSBT's College of Engineering & Technology, Bambhori, Jalgaon. | | |
| Address | Post Box No. 94, Jalgaon (Maharashtra State) | | |
| Pin Code | 425 001 | | |
| Phone No. | (0257) 2258393 | | |
| Fax No. | (0257) 2258392 | | |
| Web site | www.ssoetjalgaon.ac.in | E-Mail: | ssoetjal@gmail.com |

II. NAME & ADDRESS OF THE DIRECTOR

| | |
|--------------------------------|--|
| <u>Name</u> | Dr. Girish Kumar Patnaik |
| <u>Designation</u> | Principal |
| <u>Address</u> | PQ, SSBT's C.O.E.T. Campus, P.B. No.94, Bambhori, Jalgaon-425001 |
| <u>STD Code With Phone No.</u> | 0257 – 2258393 (O) |
| <u>Fax No.</u> | 0257- 2258392 (O) |
| <u>E-mail</u> | girishpat2001@yahoo.com |

III. NAME OF THE AFFILIATING UNIVERSITY

| | | | |
|-----------|---|----------|--|
| Name | K.B.C. North Maharashtra University, Jalgaon | | |
| Address | Umavi Nagar, Post Box No.80, Jalgaon Dist. Jalgaon Pine Code :- 425 001. | | |
| Phone No. | (0257) -2258428, 429 | | |
| Fax No. | (0257) 2258403, 2258406 | E-Mail | info@nmu.ac.in ,registrar@nmu.ac.in |
| | | Web site | www.nmu.ac.in |

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UG Programs- Engineering: Chemical, Civil, Computer, Electrical, Electronics & Telecommunication, Mechanical
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IV] GOVERNANCE

* Members of the Board and their brief background.

Shram Sadhana Bombay Trust (Phone No. 022-26435608/24950888) is the promoting body of the College of Engineering and Technology, Bambhori, Jalgaon. The trust is a charitable organization registered with Charity Commissioner Bombay vide registration number E-6942 dated 12 Oct. 1978 and status of registration is current and valid. The trust strives to enhance human productivity through various welfare measures and is a leading light in educational research.

Brief background of the promoters are as follows :-

- | | | | |
|----|---------------------------------|------------------|---------------|
| 1. | Shri. Rajendrasing D. Shekhawat | Managing Trustee | Ex-M.L.A. |
| 2. | Mrs. Manjiri Shekhawat | Trustee | Social Worker |
| 3. | Shrimati Lata Karamsot | Trustee | Social Worker |

* Shram Sadhana Bombay Trust has entrusted the responsibility of running the college to the Board of Governors who are the apex decision making body. The members of the Board are as under.:-

- | | | |
|----|--|----------|
| 1. | Shri. Raosaheb alias Rajendrasingh D. Shekhawat | Chairman |
| 2. | Mrs. Surabhi Thakur | Member |
| 3. | Shri. S.R. Girase | Member |
| 4. | Nominee of the AICTE – Regional Officer (Ex-officio) | Member |
| 5. | An Industrialist/Technologist/Educationist from the region nominated by the regional committee as nominee of the Council, out of the panel approved by the Chairman of the Council | Member |
| 6. | Nominee of the Affiliating University | Member |
| 7. | Nominee of the State Government – DTE (Ex-officio) | Member |
| 8. | Industrialis from the region nominated by | Member |

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the State Government

9. Dr. G.K. Patnaik, Principal Member Secretary
9. Dr. S.B. Pawar, Professor Faculty Member
10. Shri. M.M. Ansari, Assistant Professor Faculty Member

CONSTITUTION OF COLLEGE DEVELOPMENT COMMITTEE

| Sr. No. | Name | Designation |
|----------------|---|--------------------------------|
| 1) | Shri Raosaheb alias Rajendrasingh D. Shekhawat | Chairman |
| 2) | Shri. Y.K. Chitte, <i>Management's nominee for Secretary</i> | Member |
| 3) | Dr. M. Husain, <i>HOD, Nominated by Principal</i> | Member |
| 4) | Dr. S.B. Pawar, <i>Elected Faculty Member</i> | Member |
| 5) | Shri. M.M. Ansari, <i>Elected Faculty Member</i> | Member |
| 6) | Mrs. Meera Deshpande, <i>Elected Faculty Member</i> | Member |
| 7) | Shri. S.R. Girase, <i>Elected Non-Teaching Staff Member</i> | Member |
| 8) | Nominee from Educational Sector | Member |
| 9) | Alumni Nominee from Industrial Sector | Member |
| 10) | Nominee from Research Sector | Member |
| 11) | Shri. B.L. Ahirrao <i>Nominated from Social Work Sector</i> | Member |
| 12) | Dr. S.A. Thakur, <i>IQAC Coordinator</i> | Member |
| 13) | Secretary, Student Council | Member |
| 14) | Dr. G.K. Patnaik, <i>Principal</i> | Ex-officio Member Secretary |

* **Organizational Chart and Processes**

The style of management is integrative, participative and consultative at every decision making stage. Duties and responsibilities of various functionaries are well laid down. The organizational chart clearly depicts the flow of authority, responsibility and accountability. Hence the decision making process is transparent.

* **Nature and Involvement of faculty and Students in Academic Affairs and Improvements.**

Extent of faculty involvement in academic affairs is governed at three levels . Principal meets all Heads of Department every month to take stock of academic progress, course coverage activities. A more detailed interaction of faculty is held fortnightly under direction of Director Academics. Heads of Department are on daily contact with respective faculty, attend their class, offer guidance on teaching skill and methodology besides weekly meeting with all faculties on weekly academic performance, identifying deficiencies and suggesting means to improve upon the same.

Every student gives feedback on all relevant subjects with regard to syllabi, course content, degree of difficulty, if any, in assimilation of the subject and suggestion on improvement. Students have direct access to any faculty, heads of department, coordinator academics and Principal to make suggestion on academic subject.

* **Mechanism /Norms & Procedure for Democratic & Good Governance.**

As mentioned earlier, Apex decision making body is the Board of Governance who decides and give broad direction. Governing Body has nominated local committees i.e.

College Development Committee which meet once in a quarter or earlier to check compliance of direction given by Governing Body. Day to day operation of the college is managed by Principal and other appointed staff. Various Local Management Committees are well represented by both teaching and non-teaching staff who effectively participate in the respective proceedings and help in observance of democratic and good governance practice of the college.

* **Student feedback on Institutional Governance/Faculty Performance.**

A committee of three Heads of Department under guidance of Director Academics and Principal meets students of all classes in each department and takes feedback on teaching

methodology and performance of faculties as perceived by them. This process takes place twice in a semester. The feedback is scrutinized and analyzed with a view to improve faculty performance.

* **Grievance Redressal Mechanism for Faculty, Staff and Students.**

Transparent management and administrative policy is by itself aids the redressal process in the college. The organizational chart gives out clear flow of authority and responsibility on both academic and administrative front. Faculty, Staff and Students are thus aware of the various processes and policies and can approach any functionary with any supposed difficulty which need to be resolved.

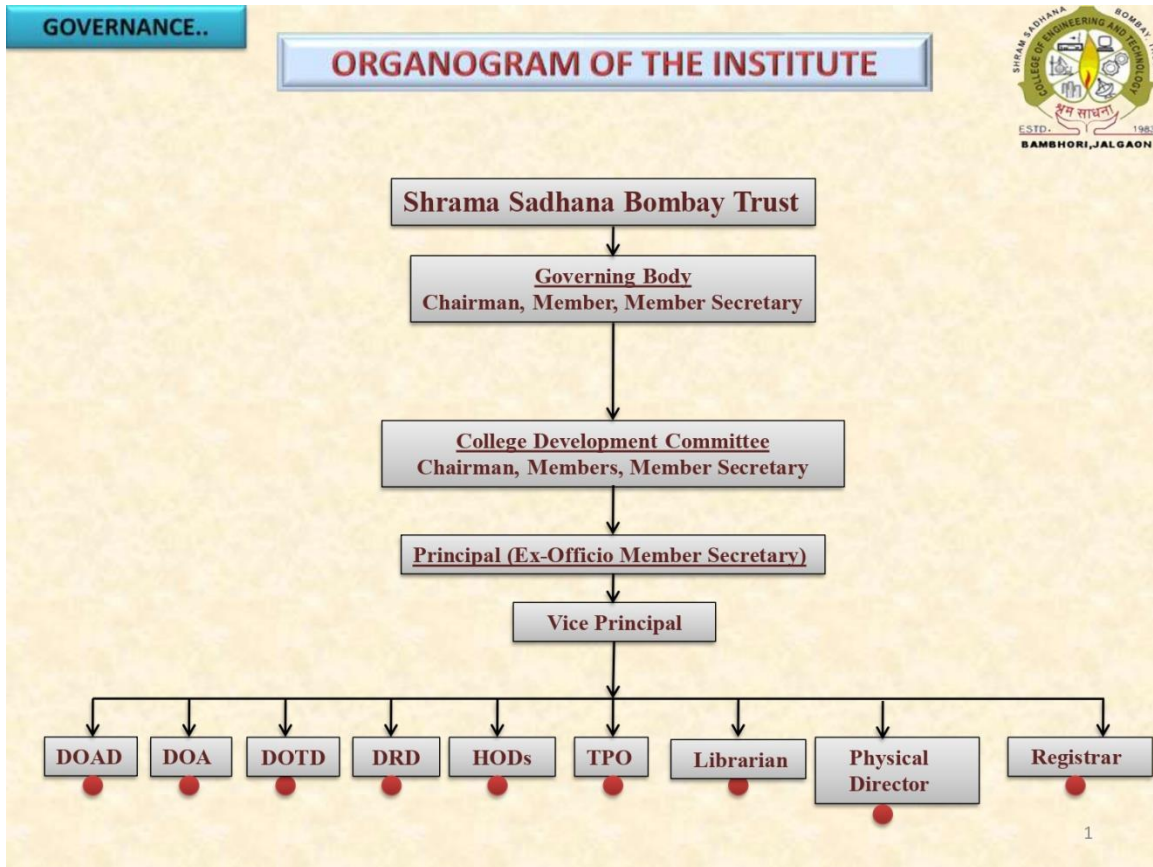
There are suggestion boxes placed at vantage points for all personnel to drop their ideas in confidence which are looked into with all seriousness.

* **Grievance Redressal Mechanism as per affiliating University.**

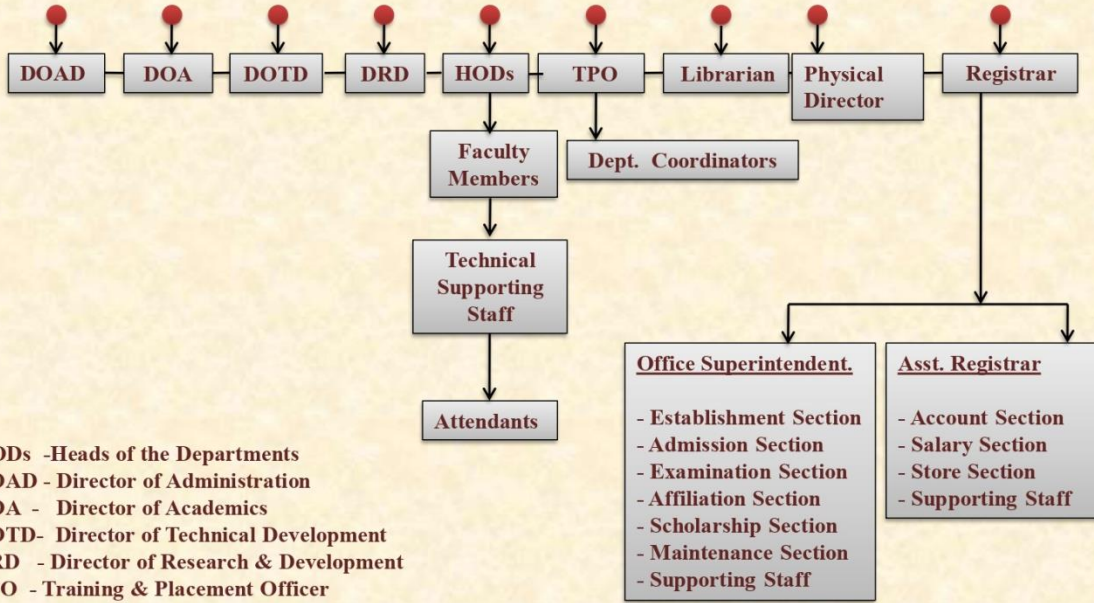
The vigilance committee is formed and which consists of Chairman (Member of CDC). All HODs, Rectors and Students Representative.

Also grievance cell is functioning in the college. The students grievances are looked into by the H.O.D. Concerned, Principal and if needed, they are referred to the management for appropriate decision. For Hostel the students approach the Rectors (Girls' Hostel and Boys' Hostel) and then they are referred to the Principal for appropriate decision.

Organogram of the Institution



ORGANOGRAM OF THE INSTITUTE



Ix. ADMISSION

A) Number of seats sanctioned with the year of approval.

| Sr. | Branch | Year | | | | |
|-----|----------------------------------|------------|------------|------------|------------|------------|
| | | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| 1 | Chemical Engineering | 30 | 30 | 30 | 30 | 30 |
| 2 | Civil Engineering | 60 | 60 | 60 | 60 | 60 |
| 3 | Computer Engineering | 120 | 180 | 180 | 180 | 180 |
| 4 | Mechanical Engineering | 60 | 60 | 30 | 30 | 30 |
| 5 | Electrical Engg. | 60 | 60 | 60 | 60 | 60 |
| 6 | Electronics and Tele-comm. Engg. | 60 | 60 | 30 | 30 | 30 |
| 7 | Information Technology | 60 | 00 | 00 | 00 | 00 |
| 8 | Bio-Technology | 30 | 00 | 00 | 00 | 00 |
| | Total | 480 | 450 | 390 | 390 | 390 |
| | PG Courses | | | | | |
| 06 | M.B.A. | 60 | 60 | 60 | 60 | 60 |
| | Total | 60 | 60 | 60 | 60 | 60 |

Number of students admitted under various categories each year in the last four years.

| Year | UG | | | | | | | | | |
|----------------|------|----|----|-----|-----|-----|----|-----|-----|-------|
| | Open | SC | ST | NT1 | NT2 | NT3 | VJ | OBC | SBC | Total |
| 2021-22 | 66 | 24 | 02 | 10 | 07 | 07 | 12 | 160 | 12 | 292 |
| 2022-23 | 71 | 25 | 10 | 16 | 10 | 05 | 19 | 214 | 09 | 379 |
| 2023-24 | 92 | 25 | 05 | 25 | 18 | 11 | 32 | 229 | 11 | 442 |
| 2024-25 | 87 | 33 | 05 | 13 | 14 | 07 | 21 | 221 | 19 | 424 |

| PG | | | | | | | | | | |
|----------------|------|----|----|-----|-----|-----|----|-----|-----|-------|
| MBA | | | | | | | | | | |
| Year | Open | SC | ST | NT1 | NT2 | NT3 | VJ | OBC | SBC | Total |
| 2023-24 | 26 | 02 | 00 | 00 | 01 | 00 | 03 | 33 | 03 | 60 |
| 2024-25 | 15 | 04 | 01 | 02 | 01 | 00 | 00 | 35 | 08 | 66 |

C) Number of applications received during last two years for admission under Management Quota and number admitted.

| Sr. | Year | Application received | Admitted Number |
|-----|----------------|----------------------|-----------------|
| 1 | 2023-24 | 110 | 45 |
| 2 | 2024-25 | 150 | 58 |

X. Admission Procedure (UG COURSES)

A) Mention the admission test being followed, name and address of the Test Agency and its URL (website).

| Sr. | Admission Test | Name and Address of Test Agency | URL (Website) |
|-----|----------------|--|---|
| 1 | MHT-CET | Director of Technical Education, Maharashtra State 3, Mahapalika Marg, Mumbai -1 | Home - State Common Entrance Test Cell (mahacet.org) |
| 2 | JEE | CBSE, New Delhi | Home - State Common Entrance Test Cell (mahacet.org) |

Number of seats allotted to different Test Qualified candidates separately
[JEE/CET (State conducted test/University tests)/Association conducted test]

2024-25

| Sr. | MH-CET/JEE State Conducted test | AI(CET/JEE) | Management Quota(CET / JEE) |
|-----|------------------------------------|----------------|--------------------------------|
| 1 | 65% (429 Seats) | 15% (99 Seats) | 20% (132 Seats) |

C) Calendar for admission against management/vacant seats 2024-25

| Sr. No. | Particular | Institute level Seats |
|---------|--|-----------------------|
| 1. | Sale of Information Broacher | 09/08/2024 |
| 2. | Last date for submission of application. | 10/08/2024 |
| 3. | Admission counseling & conformation of admission | 13/08/2024 |

Admission Procedure (PG COURSES)

RULES & REGULATIONS FOR M.E. COURSE

The postgraduate degree in Engineering consisting of 2 years (4 semesters) shall be designated as Master of Engineering in prescribed branches

A candidate may be permitted to register him/er self for the M.E. degree under the faculty of Engineering & Technology of North Maharashtra University, Jalgaon only if the candidate holds a Bachelor's Degree in Engineering/Technology of North Maharashtra University, Jalgaon or its equivalent by AICTE, and North Maharashtra University, Jalgaon.

Preference will be given to graduates of North Maharashtra University, Jalgaon.

The students shall be admitted to second term of first year if his/her first term is granted.

The students shall be admitted to second year if his/her second term of first year is granted. However he/she will not be allowed to submit his/her thesis/ dissertation unless he/she has cleared all the Theory papers and has completed all the presentations of first term of second year.

Every students will be required to produce a record of laboratory work in the form of journal, duly certified for satisfactory completion of the Term Work by the concerned teacher and head of the department.

A student whose term is not granted on account of unsatisfactory attendance/ term work is required to repeat the semester.

The policy of refund of the fee, in case of withdrawal, should be clearly notified.

The candidate who has been provisionally admitted may cancel admission by submitting as application in duplicate, in the prescribed pro forma – O and may request for refund of fees. The refund of fees as applicable shall be made in due course. It is made clear that such application for cancellation will be considered if and only if the admission is confirmed by paying the prescribed tuition fee and other fees in full and by submitting the original documents. Refund shall be made after deduction of the cancellation charges as shown below:

In the event of student/candidate withdrawing before the starting of the course, the waitlisted candidates should be given admissions against the vacant seat. The entire fee collected from the student, after a deduction of the processing fee of not more than Rs. 1000/- (Rupees one thousand only) shall be refunded and returned by the Institution/University to the student/candidate withdrawing from the programme.

Should a student leave after joining the course and if the seat consequently falling vacant has been filled by another candidate by the last date of admission, the Institution must return the fee collected with proportionate deductions of monthly fee and proportionate hostel rent, where applicable.

XI. CRITERIA AND WEIGHTAGES FOR ADMISSION

Each criteria with its respective weightages i.e. Gate examination marks & qualifying examination marks etc.

2 Eligibility Criteria:

2.1 Eligibility criteria for Maharashtra State Candidate and Outside Maharashtra State Candidate:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** (minimum **45 % marks**, in case of Backward class categories and Persons with Disability candidates belonging to Maharashtra State only) in **the subjects**

Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject added together.

AND

Obtained a **positive Composite score*** i.e., marks obtained after adding 50% of JEE (Main)2014 (Paper 1) marks and 50% of normalized Standard XII (Board or Equivalent Examination) marks in Physics, Chemistry and Mathematics.

**Note: -1) * - The details for calculating positive Composite score shall be notified separately.
2) Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.**

2.2 Eligibility Criteria for All India Candidates:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** (minimum **45 % marks**, in case of Backward class categories and Persons with Disability candidates belonging to Maharashtra State only) in **the subjects Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject added together.**

AND

Obtained All India Rank in JEE (Main) 2014 (Paper 1) given by CBSE

Note: 1) Maharashtra Candidates eligible as per rule 2.1 and 2.2 shall submit single Application and Option form for the CAP for both Maharashtra State Seats and All India Seats. Such candidates will be given best single allotment through CAP as per inter-se-merit.

2) Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable

2.3 Eligibility Criteria for Foreign National/PIO/Children of Indian workers in the Gulf countries/ Children of NRI

Candidate should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** in **the subjects Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject added together.**

Note :-

- The eligibility of the candidates passing the HSC (Std. XII) or equivalent examination from a school/college/Examination Board situated outside India shall be further decided by the University Authorities to which the candidate is admitted. Hence such candidates are advised to get their eligibility verified by the respective University Authorities before seeking admission to the Engineering courses in the State of Maharashtra.
- The candidate belonging to this type is not required to appear for the JEE Main 2014(Paper 1)
- Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.

2.4 Eligibility criteria for GoI Nominees:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent

examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** (minimum **45 % marks**, in case of Backward class categories and Persons with Disability candidates of respective States) in the subjects **Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject** added together.

AND

Obtained All India Rank in JEE (Main) 2014 (Paper 1) given by CBSE

Note: -

Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.
The candidate belonging to this type is required to appear for the JEE (Main) 2014 (Paper 1).

2.5 Eligibility criteria for J & K Migrant candidates:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** in the subjects **Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject** added together.

AND

Obtained All India Rank in JEE (Main) 2014 (Paper 1) given by CBSE

Note: -

Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.
The candidate belonging to this type is required to appear for the JEE (Main) 2014 (Paper 1).

2.6 Eligibility criteria for MKB candidates:

In addition to the basic eligibility criterion mentioned in rule no. 2.1, candidates belonging to the Maharashtra Karnataka Disputed Border Area are required to fulfill following additional eligibility criterions.

- Candidates should be from such villages/towns, from the Maharashtra Karnataka disputed border areas, on which Maharashtra puts its claim.
- The candidate should produce the certificate that his/her father/mother/candidate himself/herself is a domicile of Karnataka in the disputed border area as specified in the Proforma G1/G2 OR The candidate should produce the domicile certificate of his/her father/mother/candidate himself/herself stating that he/she is a resident of a village.
- The candidate should have passed SSC (or equivalent) and/or HSC (or equivalent) from an Institution situate in the disputed border area. The candidate must produce a certificate from the Principal/Head Master of the College/School stating that the candidate has passed SSC/HSC (or equivalent) Examination from that Institution.
- Mother tongue of the candidate must be Marathi. The candidate must produce a certificate from the Principal/Head Master of the School from which he/she has passed the SSC (or

equivalent) Examination, stating that the candidate's Mother tongue is Marathi as per the original School record.

- Candidate should have passed SSC or HSC (or equivalent) Examination with Marathi as one of the subject.
- **Composite Score of MKB Candidates shall be calculated in the manner similar as applied to Maharashtra state board students considering he /she has passed HSC from Maharashtra board.**
- **Composite Score of MKB Candidates shall be calculated by mapping his or her HSC performance with Maharashtra state board.**

2.7 Eligibility criteria for Candidates who are sons/daughters of Defence Service personnel:

In addition to the basic eligibility criterion mentioned in rule no.2.1, candidates who satisfying any one of the following criteria as are eligible to seek admission against seats for sons/daughters of defence service personnel.

- Candidate is a son/daughter of ex-service personnel who is domiciled in Maharashtra State (Def-1).
- Candidate is a son/daughter of active service personnel who is domiciled in Maharashtra State (Def-2).
- Candidate is a son/daughter of active service personnel (Def -3)
 - Who is transferred to Maharashtra State but is not domiciled in Maharashtra State
 - Who is not domiciled in Maharashtra State but his/her family is stationed in Maharashtra State under the provision of retention of family accommodation at the last duty station on the grounds of children's' education, provided further that, such candidate should have appeared and passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination from a school/college situated in the State of Maharashtra.

Note: This provision is NOT available to the children of CIVILIAN STAFF who is working/ who has worked with the Indian Defence Services.

2.8 Eligibility criteria for Candidates who are Persons with Disability:

In addition to the basic qualification mentioned in rule no. 2.1, candidate who is suffering from any one of the following permanent disability is eligible to seek admission against seats for Persons with Disability candidates

- Candidate who is visually impaired (blind) candidate (type P1)
- Candidate who is speech & hearing impaired (deaf & dumb) candidate (type P2)
- Candidate who is with orthopedic disorders, learning disabilities, Dyslexia, Dyscalculia, Dysgraphica, Spastic (type P3)

Note: The certificate (Proforma F/F-1) should clearly state that the extent of disability is more than 40% and the disability is permanent in nature.

2.9 Other eligibility criteria for specialized branches of Engineering/Technology:

Candidates seeking admission to some special courses or under some special provisions have to fulfill the following additional eligibility criteria.

- **Admission to Mining Engineering course:**

Female candidates are not eligible for admission to Mining Engineering course.

2.10 Eligibility criteria of Candidates who have passed Diploma in Engineering/Technology and seeking admission to First Year of Engineering/Technology in Unaided Institutes:

Diploma holders should have passed the Diploma course in Engineering/Technology with minimum of 50% marks (45% marks in case of candidates of Backward class categories and Persons with Disability belonging only to Maharashtra State) and medium of instruction as English from the AICTE approved Diploma Institutes affiliated to State Boards of technical Education.

Note:

1. To resolve a tie i.e. more than one candidate securing equal aggregate marks in Final year of the Diploma examination, following order of preference shall be adopted: marks in Maths at SSC, Grand Total at SSC.
2. Eligible Diploma candidates (rule 2.10) shall be considered for Admission against the Institute level seats in **Unaided Private Institutes only**. The details of the admission process for filling seats are specified in Annexure-II.

2.11 Rounding off of percentage of marks for deciding eligibility for admission.

In case percentage, marks (converted out of 100) in the subjects **Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subjects** added together at HSC (std.XII), comes in fraction then percentage of marks shall be rounded off as explained in the example for the purpose of deciding the eligibility of the candidate.

Example: - If the percentage of marks comes out to be 44.50% to 44.99% then it shall be rounded to 45% and if the percentage of marks comes out to be 44.01% to 44.49% shall be rounded to 44%.

General Notes:

1. In case the maximum marks in individual subject is other than 100, convert the marks out of 100 for individual subject but do not *round off* these marks. If the sum of the converted marks of three individual subjects without rounding off works out to be a figure with fraction then fraction up to two decimal places shall only be considered and the percentage of marks shall be calculated considering maximum marks as 300 and, If the percentage comes in fraction, rounding off shall be done as given in rule No. 2.11 to decide the eligibility.

Example: If a candidate obtains 85 marks out of 200 in Physics, 76 marks out of 150 in Chemistry and 40 Marks out of 100 in Mathematics, then the sum of marks obtained works out to be 201 out of 450 marks. If it is converted out of 300, it works out to be 134. The % of marks comes out 44.6666 %.

However if the marks in individual subjects are converted out of 100, then the marks are as 42.5 in Physics, 50.6666 in Chemistry and 40 in Mathematics. It means the sum of converted marks of individual subject is 133.1666, which is 133.16 up to two fractions. The % of marks comes out 44.38 % after rounding off it is 44%. Hence the candidate is not eligible for admission.

2. If **letter grades** are assigned instead of marks at SSC, HSC or its equivalent examination the candidate must obtain the certificate of conversion of letter of grades into marks from the competent authority where from the candidate has passed the examination. The candidate should produce such certificate at the time of submission of application form. The Eligibility shall be decided based on the equivalent marks submitted by such candidates.

Institute Level Seat and Vacant Seat.

Candidate passing the HSC (Std. XII) or its equivalent examination with subjects English, Physics, Chemistry and Mathematics and should have secured minimum 50% marks in General Category and reserve Category 45% marks in Physics, Chemistry and Mathematics added together.

Candidates passing Diploma in Engg. / Technology course from Maharashtra State:

Diploma holders who have passed the diploma course in Engineering/Technology with minimum of 50% marks and reserve Category 45% marks from the Polytechnics affiliated to MSBTE or AICTE approved autonomous Polytechnics in Maharashtra State.

B) Minimum level of acceptance, if any.

Eligibility criteria for Maharashtra State Candidate and Outside Maharashtra State Candidate-

Candidate should be an Indian National and should have passed the HSC (Std. XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry / Biotechnology / Biology / Technical Vocational subject

And

Secured minimum 50% marks (minimum 45% marks, in case of Backward class categories and Persons with Disability candidates belonging to Maharashtra State only) in the subjects



Application Form
for
(FE / Direct SE / First Year ME/ MBA)
Shram Sadhana Bombay Trust's
College of Engineering & Technology,
P.B.No.94, BAMBHORI, JALGAON 425 001
(Maharashtra State)

Affix Recent
Passport size
Photograph
here

Website- www.sscoetjalgaon.ac.in
Email: sscoetjal@gmail.com

Phone No. (0257) 2258393
Fax No. (0257) 2258392

Note:- (a) To be filled in and signed by the candidate.

Application submitted without required certificates shall not be considered.

Score out which is not applicable

1) Details of student

| Particular | Surname | First Name | Middle Name |
|-----------------|---------|------------|-------------|
| Name of Student | | | |
| Father Name | | | |
| Mother Name | | | |

Date of birth:- _____

Address for correspondence :- _____

Address for permanent:- _____

Pin Code _____ State _____

Telephone No. _____ Mobile No.:- _____

Email Address:- _____ Admitted in College Hostel :- Yes/No

(a) State & District from which you have passed SSC (Std. X) :- _____

State & District from which you have passed HSC (Std. XII) :- _____

SEX :- (Male/Female) _____

Occupation of the Earning member(s) of the family :- _____

Annual income of the family:- _____

Indicate the category to which you belong (Tick appropriate box)

a) Category :- () Open () SC () ST () VJNT () NT1 () NT2
() NT3 () OBC () SBC

b) Minority :- () Yes () No Religion:- _____ Caste:- _____

c) Physically Handicapped :- () Yes () No

U.G. Programme: I hereby apply for admission to First / Second year of degree course in the branches given below in order of preference

- 1) _____ 2) _____ 3) _____
 4) _____ 5) _____ 6) _____
 7) _____ 8) _____

A) For F.E. & Direct S.E. students

| PCM Total out of 300 | | EXAM. | MERIT NO. | SCORE |
|---|--|----------------------|-----------|-------|
| Category | | MH-CET | | |
| Branch Allotted | | University Merit No. | | |
| Final Year Diploma Marks Obtained /Out of | | AIEEE | | |
| Percentage HSC | | State Merit No. | | |
| Percentage Diploma | | Main Group Merit | | |

B) Details of qualification (For F.E. & Direct S.E.):-

| Examination | Month & Year of passing | Name & Address of Institution | Name & Address of Board/ University | Passed from M.S. or O.M.S. |
|--------------------|-------------------------|-------------------------------|-------------------------------------|----------------------------|
| S.S.C. | | | | |
| H.S.C. | | | | |
| Diploma final year | | | | |

C) S.S.C. Marks

| Sr. No. | Subjects | Marks out of | Marks Obtained | Total percentage | Remark result |
|---------|-------------|--------------|----------------|------------------|---------------|
| 1 | Mathematics | | | | |

D) H.S.C. Marks

| Sr. No. | Subjects | Marks out of | Marks Obtained | Total PCM & percentage | Remark result |
|---------|-------------|--------------|----------------|------------------------|---------------|
| 1 | Physics | | | | |
| 2 | Chemistry | | | | |
| 3 | Mathematics | | | | |
| 4 | Biology | | | | |
| 5 | English | | | | |

P.G. Programme:- I hereby apply for admission to First year P.G. Programme in Engineering & Technology/ Management for M.E. Civil (Environmental Engg.) / Mechanical (Machine Design) / E.& TC. (Digital Electronics) / Computer Science & Engineering/ M.B.A.

Academic Programme

1) First Year M.E. Course

i) Detail Qualification

| Course & Examination | College Attended | Month & Year of Passing | No. of attempts | University/Boards | Total Marks Obtained | Max. Marks (Out of) | Percentage |
|----------------------------------|------------------|-------------------------|-----------------|-------------------|----------------------|---------------------|------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 st Year Engineering | | | | | | | |
| 2 nd Year Engineering | | | | | | | |
| 3 rd Year Engineering | | | | | | | |
| 4 th Year Engineering | | | | | | | |

ii) GATE Score:

Valid up to

iii) Sponsored: () Yes () No

2) First Year M.B.A.

i) Details of qualification:-

| Examination Passed | Name of Board/ University | Year | Subject Specialization | Marks | Percentage/ Score | Remark |
|--------------------|---------------------------|------|------------------------|-------|-------------------|--------|
| S.S.C. | | | | | | |
| H.S.C. | | | | | | |
| Graduation | | | | | | |
| Post graduation | | | | | | |
| Any other exam. | | | | | | |

For M.B.A. Course

| EXAM. | MERIT NO. | SCORE |
|-------------------------|-----------|-------|
| MH-CET | | |
| University Merit No. | | |
| Any other Entrance Test | | |

09) Work experience (attach extra sheet, if space is not enough)

| Name of the Organization/Industry | Period | Nature of Work |
|-----------------------------------|--------|----------------|
| | | |
| | | |
| | | |

10). Presently Employed or Unemployed? : Yes/No

If employed, give details

Name of Organization: _____

Date of appointment: _____

Regular/ Temporary : _____

11) Sponsorship certificate attached? Yes/No

(Note : Employed candidates will have to produce a certificate from the employer in the prescribed format attached with the form, without which the application may not be considered)

12) List of Certificates attached with application form:- Tick only available documents

- | | | |
|--|---|---------------------------------------|
| 1) CET Score Card | (2)CAP Allotment letter | (3) SSC (10 th) Marksheet |
| 4) HSC (12 th) / Diploma Marksheet | (5) Latest L.C./T.C. | (6) Migration Certificate |
| 7) Indian Nationality Certificate | (8) Character/ Bonafide Certificate | |
| 9) First Attempt Certificate | (10) Gap Affidavit (If applicable) | |
| 11)Caste Certificate (If applicable) | (12) Validity Certificate (If applicable) | |
| 13)Non-Creamy Layer (If applicable) except SC/ST students only | | |
| 14)Degree Marksheet | (15) Degree Certificate | |
| 16)Experience Certificate | (17) Sponsor Certificate | |
| 18)No Objection Certificate | (19) Domicile Certificate | |

Please do not attach any original or photo copy of certificate not asked for.

However you shall have to submit all original certificates at the time of admission.

**Declaration by the Candidates
(Undertaking)**

I _____ declare that:

I have read all the Rules of Admission for the current year, after understanding these rules I have filled up this application form for the current year.

The information given by me in my application is true to the best of my knowledge and belief.

I have not been debarred from appearing at any examination held by any Govt. body constituted or statutory examination authority in India.

I fully understand that the offer of a course or branch of Engineering/ Technology/ Management will be made to me depending on my merit inter-se and availability of seat at the time of scrutiny of my application when I will report to the Admission Authority according to the schedule of the admission.

I understand that no other document other than those attached to the application form will be entertained for the purpose of claims/ concession etc. in connection with my admission.

I hereby agree to confirm to all rules and laws enforced by the Govt. including ragging Act 1999 of Maharashtra, the College Management and North Maharashtra University, Jalgaon. I hereby undertake that as long as I am a student of the college, I will do nothing either inside or outside the College which may result in disciplinary action against me under the act and laws refer to under rules Nos. 13-0. I will abide by all the rules of the Hostel, if I am given admission in to the Hostel.

I fully understand that the Principal of the college will have the right to expel/ rusticate me from the college for any infringement of the rules of conduct and discipline refer to under Rules No.13-0 and the rules of conduct and discipline prescribed by the College/University and the undertaking given above.

The total numbers of certificates attached with the application form are: _____

Place:

Date:

Signature of the Candidate

**Declaration by the Parents/Guardians
(Undertaking)**

I _____ declare that the particulars furnished by my son/daughter/ward in this application form are correct to the best of my knowledge and belief.

I undertake & bind myself to pay on behalf my son/daughter/ward, such fees charges etc. which the College/Government of Maharashtra/University may levy from time to time by due date & in the event of failure on my part and/or on the part of my son/daughter/ward the Principal of the College may take such action against my son/daughter/ward as he may deem fit.

I will sign the requisite agreement bond as prescribed by the Government (In case or Minor only).

Place:

Date:

Signature of the Parent/Guardian

A G R E E M E N T

I Shri/Shrimati/Kumari_____

(Name of the Candidate)

do hereby affirm that I have taken admission in _____ at College of Engineering & Technology, Jalgaon on my own and I solemnly declare that I will abide by all Rules & Regulation laid down by the Management of the aforesaid College, University and Government of Maharashtra, from time to time and if I fail to do so I will be liable for any punishment including expulsion from the College.

I shall not ask for transfer from the aforesaid College, to any other College, under any circumstances, I shall be responsible for full payment of fees and all dues for the entire course and shall not be entitled for refund of any fees at any stage.

Signature of the Father/Guardian

Signature of the Student

Place:

Date

M E D I C A L C E R T I F I C A T E

I certify that I have carefully examined Shri/Kum._____

on_____ and hereby certify that him/her eye sight is good and that any minor defects in the same can be corrected by means of suitable glasses that he/she is fairly robust, his/her constitution is sound/is not likely to make him/her unfit for manual work in the workshop or active out-door service as an Engineer, (Score out whichever is not applicable)

Date:

Signature_____

Address:_____

Name:_____

Qualification_____

Registration No.:_____

UNDERTAKING-1

I, _____ taking admission in First Year/ Second Year_____ in the year 20 - 20 give an undertaking that as per the letter No.NMU/7/A/4718/2008, dated 27/09/2008, North Maharashtra University, Jalgaon I am not engaged in any job full time/part time. Similarly I have not taken admission in any other college within this University or any other University.

Date:-

Signature of candidate

PRINCIPAL

UNDERTAKING-2

I, _____ interested to take admission in First Year/ Second Year_____ in the year 20 - 20 . As per North Maharashtra University, Jalgaon vide letter No.NMU/2/106/2002, dated 26/06/2002, I undertake that if I fail to maintain my attendance in the classes as per the rule means 80% out of total 180 working days then I will not be eligible to appear in College/University examinations. It is in my knowledge and I will not do any type of complaint against the same.

Date:-

Signature of Candidate

Signature of Parents

PRINCIPAL

The cut-off levels of percentage & percentile scores of the candidates in the Admission test for the last three years.

| Sr. | Branch | 2022-23 | | 2023-24 | | 2024-25 | |
|-----|--------------------------------|------------------|---------------|------------------|---------------|------------------|---------------|
| | | CET (M.S. Seats) | JEE (AI Seat) | CET (M.S. Seats) | JEE (AI Seat) | CET (M.S. Seats) | JEE (AI Seat) |
| 1 | Civil Engineering | 49 | 03 | 40 | 20 | 52 | 05 |
| 2 | Chemical Engineering | 63 | 43 | 54 | 41 | 22 | 04 |
| 3 | Computer Engineering | 39 | 30 | 53 | 29 | 110 | 17 |
| 4 | Electrical Engineering | 55 | 54 | 47 | 04 | 23 | - |
| 5 | Electronics& Tele. Engineering | 43 | 16 | 57 | 54 | 23 | 04 |
| 6 | Mechanical Engineering | 47 | 20 | 38 | 07 | 46 | 06 |

D) Placement Facilities

- a) **Training & Placement Cell:** SSBT's C.O.E.T., Bambhori, Jalgaon has an independent T & P Cell devoted to cater to the needs of organizations in conducting campus interviews for placements. It is headed by Training & Placement Officer & Departmental coordinators lead a team of placement representatives from various courses of study assist the Cell.

The cell has the following facilities:

- i) Separate Internet connection, computers, laser printer and Scanner for office automation.
- ii) Separate lounge for industrialist and visitors.
- iii) Newspaper, magazines, etc.
- iv) All audio/video facilities for presentations, written test, group discussions and interviews.

b) T & P Activities:

- i) Campus Interviews
- ii) Industrial Training
- iii) Industrial Visits (Students & TPC members)
- iv) Expert Lectures
- v) Industrial Meet
- vi) Job-Oriented Courses
- vii) Deputation of faculty members to various training programs.
- viii) Mock competitive exams, Interviews, Group Discussions, etc.
- ix) Personality development programme.
- x) Alumni meet.
- xi) Entrepreneurship development programme.

c) Campus placement in last three years with minimum salary, maximum salary and average salary

| BRANCH/YEAR | Chemical | Biotech | Civil | Computer | Electrical | E&TC | IT | Mech | MBA | Other | Total |
|------------------------------------|----------|---------|-------|----------|------------|------|----|------|-----|-------|-------|
| 2020-21 | 07 | 01 | 07 | 11 | 12 | 13 | 23 | 18 | 18 | 04 | 114 |
| 2021-22 | 12 | 05 | 23 | 40 | 23 | 71 | 13 | 32 | 19 | 10 | 248 |
| 2022-23 | 09 | 01 | 30 | 22 | 26 | 81 | 6 | 57 | 29 | 7 | 268 |
| 2023-24 | 11 | 03 | 15 | 52 | 22 | 50 | 17 | 45 | 03 | 02 | 220 |
| 2024-25 (Till Date 04/01/25) | 00 | 00 | 06 | 14 | 00 | 05 | 02 | 09 | 00 | 00 | 36 |

3. MINIMUM SALARY: Rs. 1.2/- Lack per annum

4. MAXIMUM SALARY: Rs. 10/- Lack per annum

5. AVERAGE SALARY: Rs. 4.5/- Lack per annum

- ❖ Name and duration of programme (s) having affiliation/collaboration with Foreign University(s)/Institution(s) and being run in the same Campus along with status of their AICTE approval. If there is foreign collaboration, give the following details:
Details of the Foreign Institution/University:

NA

- ❖ For each Collaborative/affiliated Programme give the following:

NA

- ❖ Whether the Collaborative Programme is approved by AICTE? If not whether the Domestic/Foreign Institution has applied to AICTE for approval as required under notification no. 37-3/Legal/2005 dated 16th May, 2005.

NA

Faculty List 2024-25

As on 01/07/ 2024

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Academic Year 2024-25

| Sr. No. | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|---------|-------------------------|---------------|------------------|---|--------------------------|------------------------------------|----------------------|--------------------|-----------------|---|---|----------|
| 01 | Dr.Girish Kumar Patnaik | 09/10/1969 | Principal | B.E (C.S.&E.) M.E. (C.S.&E.) Ph.D (C.S.&E.) | I-Class I-Class -- | Aurangabad Alahabad Alahabad | 1990 2001 2012 | 37400-67000 | 17/06/2013 | NMU/18/548/2016, Dt. 13.06.2016.Wef- 21.03.2016 | Yes, as Professor | OPEN |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: Civil Engineering (Academic Year Academic Year 2024-25)

| Sr. No. | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|---------|------------------------|---------------|---|--|------------------------------|--------------------------------------|--------------------------|--------------------|-----------------|---|---|----------|
| 01 | Dr M. Husain | 05/12/1969 | Professor | B.E. Civil M.E. Civil (Environmental) Ph.D. | I-Class I-Class -- | Indore Ujjain NMU | 1991 1995 2004 | 37400-67000 | 15/07/1996 | NMU/18/J-4/ 2079/03, Dt. 10-6- 03 <u>Wef-15.02.2002</u> NMU/18/553/8 Dt. 21-05-08 <u>Wef-17.07.2006</u> NMU/18/1789/11 Dt. 13-12-2011 <u>Wef-14.02.2012.</u> | Yes, as Lecturer & Asst.Prof. & Professor | OPEN |
| 02 | Dr. S.B. Pawar | 05/10/1966 | Professor & Vice Principal | B.E. Civil ME Civil (Const Tech.& Managment) Ph.D. Civil E ngg. | I-Class I-Class -- | Pune Vidisha NMU | 1989 2006 2016 | 37400-67000 | 15/01/1991 | NMU/92/97/1122, Dt. 03-02-92 <u>Wef-03.02.92</u> NMU/18/1142, Dt. 03-12-08 <u>Wef-28.08.08</u> | Yes, as Lecturer & Asst.Prof. | OPEN |
| 03 | Dr. P.A. Shirule | 07/06/1973 | Associate Prof. & HOD | B.E. Civil Engg. M.E. Civil (Enviornmental) Ph.D. Civil Engg. | F.W.D. F.W.D. -- | N.M.U. N.M.U. N.M.U. | 1997 2008 2018 | 37400-67000 | 03/07/2000 | NMU/18/J- 4/6223/04, Dt. 24- 12-04 <u>Wef-9.2.04</u> | Yes, as Lecturer | OBC |
| 04 | Dr. F.I. Chavan | 13/05/1974 | Associate Prof. | B.E. Civil Engg. M.E. Civil Engg. (Enviornmental) Ph.D. Civil Engg | I-Class I-Class | Amarawati Amarawati N.M.U. | 1997 2009 2023 | 15600-39100 | 01/09/1998 | NMU/18/1137/09, Dt.26.10.09 <u>Wef-15.09.09</u> | Yes, as Lecturer | OPEN |

| Sr. No. | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|---------|-----------------------------|---------------|-----------------|--|-----------------------|------------------------------|----------------------|--------------|-----------------|---|---|----------|
| 05 | Dr. Sonali B. Patil | 28/11/1979 | Associate Prof. | B.E. Civil Engg. M.E. Civil (Environmental) Ph.D. Civil Engg | I-Class I-Class | N.M.U. N.M.U. N.M.U. | 2004 2010 2023 | 15600-39100 | 01/02/2008 | NMU/18/1139/09, Dt.26.10.09 <u>Wef-16.09.09</u> | Yes, as Lecturer | OPEN |
| 06 | Mr. J.N. Kale | 25/12/1965 | Asstt. Prof. | B.E. Civil Engg. M.E. Civil (Const Tech.&Managment) | I-Class I-Class | Bangalore N.M.U. | 1989 2012 | 15600-39100 | 01/01/2009 | NMU/18/1140/09, Dt.26.10.09 <u>Wef-16.09.09</u> | Yes, as Lecturer | OBC |
| 07 | Ms.Jyoti R.Mali | 23/04/1971 | Asstt. Prof. | BE Civil Engg. M.E. Civil (Environmental) | II-Class I- Class | Pune NMU | 2000 2009 | 15600-39100 | 01/07/2011 | NMU/18/544/2016, Dt. 13.06.2016 .Wef-17.03.2016 | Yes, as Asstt.Prof. | OPEN |
| 08 | Pankaj Ramdas Punase | 05/08/1991 | Asstt. Prof. | B.E. Civil Engg. M.E. Civil (Structures) | I-Class I-Class | N.M.U. Pune | 2015 2013 | 15600-39100 | 10/03/2016 | -- | No | OPEN |
| 09 | Ms. Dipika Purushottam Mali | 07/10/1995 | Asstt. Prof. | B.E. Civil Engg M.Tech. | F.W.D 8.23 CGPA | Pune Sandip University | 2017 2020 | 15600/- Con. | 15/07/2024 | -- | No | OBC |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: Computer Engineering Academic Year Academic Year 2024-25

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|-------------------------------|---------------|-----------------------------------|---|---------------------------|---|--------------------------|-------------|-----------------|---|---|----------|
| 01 | Dr.S.R. Suralkar | 28/10/1966 | Professor | B.E. Electronics M.E. Control & Inst Ph.D.(E&TC) | I-Class I- Class -- | Amaravati Alahabad N.M.U. | 1989 1998 2015 | 37400-67000 | 17/08/1991 | NMU/95/5/APP/4013, Dt.5.5.95 <u>Wef-05.05.1995.</u> NMU/18/J-4/580 /06, Dt. 06-03-06 <u>Wef-09.02.2004</u> NMU/18/619 /16, Dt. 29-06-2016 <u>Wef-21.03.2016</u> | Yes, as Lecturer & Assistant Prof. & Professor | OPEN |
| 02 | Dr .K.P. Adhiya | 07/12/1968 | Professor | B.E. Comp. Engg. M.E. (C.S.&E.) Ph.D. (C.S.& E.) | I-Class I-Class -- | Amaravati Alahabad NMU | 1990 1996 2016 | 37400-67000 | 26/08/1991 | NMU/18/j- 4/621/03,dt-18.02.03 <u>Wef-15.02.02</u> NMU/18/1119/8, Dt. 27-11-08 <u>Wef-28.08.08</u> | Yes, as Lecturer & Assistant Prof. | OPEN |
| 03 | Dr. Manoj E Patil | 06/10/1975 | Associate Prof.& HOD | B.E.Comp. Engg. M.Tech.(C.S.&E.) Ph.D. (C.S.& E.) | I-Class I-Class -- | N.M.U. R.G.P.V. BHOPAL J.N.U. Jodhpur | 2000 2008 2017 | 37400-67000 | 02/12/2002 | NMU/18/J-4/4298/04, Dt. 02-09-04 <u>Wef-7.2.04</u> NMU/18/1065/2009 Dt.30.9.09 <u>Wef 1.7.09</u> | Yes, as Lecturer & Assistant Prof. | OBC |
| 04 | Mr. Ashish T.Bhole | 12/09/1976 | Associate Prof. | B.E. Comp. Engg. M.Tech (C.S.&E.) | I-Class I-Class | N.M.U. R.G.P.V. BHOPAL | 1999 2008 | 37400-67000 | 27/11/2007 | NMU/18/1067/2009, dt. 30/09/2009 <u>Wef- 01.07.2009</u> | Yes, as Lecturer | OPEN |
| 05 | Dr. Akash D.Waghmare | 08/06/1982 | Associate Prof. | B.E.Computer Engg. M.E. (CS&E) Ph.D (CS&E) | I-Class I-Class | Amravati Amravati KBCNMU | 2005 2011 2023 | 15600-39100 | 16/12/2013 | NMU/18/555/2016, Dt. 13.06.2016Wef- 17.03.2016 | Yes, as Asst.Prof. | S.C. |
| 06 | Dr. Dnyaneshwar K. Kirange | 27/06/1979 | Associate Prof. | B.E.Comp. Engg. M.Tech.(C.S.&E)P h.D. (C.S.&E) | I-Class I-Class -- | N.M.U. Naded Uni. Aurangabad | 2000 2010 2017 | 37400-67000 | 13/05/2022 | -- | NO | OBC |

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|-----------------------------------|---------------|-----------------|--|---------------------------|-------------------------------------|----------------------|------------------|-----------------|--|---|----------|
| 07 | Dr.Pankaj H. Zope | 24/06/1975 | Associate Prof. | B.E. Ind Elec. M.E.(Digital Electronics) Ph.D | I-Class I- Class -- | Aurangabad Amaravati Jodhapur | 1999 2007 2012 | 15600-39100 | 01/07/2003 | NMU/18/557/2007,dt. 28/03/2007 Wef- 17.07.2006 | Yes, as Lecturer | OPEN |
| 08 | Dr, Surendra P. Ramteke | 31/03/1979 | Associate Prof. | B.E. E&TC M.E. (Digital Electronics) Ph.D Elect. Engg. | I-Class I- Class -- | Amaravati Amaravati KBCNMU | 2003 2010 2022 | 15600-39100 | 13/02/2004 | NMU/18/J-4/4307/04, Dt. 02-09-04 Wef 13.2.2004 | Yes, as Lecturer | SC |
| 09 | Ms. Shital A. Patil | 12/10/1982 | Asstt. Prof. | B.E. Comp. Engg. M.E. (C.S.&E.) | I-Class I-Class | N.M.U. N.M.U. | 2004 2012 | 15600-39100 | 02/01/2006 | NMU/18/554/07 Dt. 28/03/07 Wef-17.07.06 | Yes, as Lecturer | OPEN |
| 10 | Mr. Sarkarsinha. Harshinha Rajput | 26/10/1984 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | I-Class I-Class | N.M.U. N.M.U. | 2007 2012 | 15600-39100 | 20/02/2008 | NMU/18/347/10 Dt. 10.03.2010 Wef- 15.09.2009 | Yes,as Lecturer | OPEN |
| 11 | Mr. Mohan Pramod Patil | 09/12/1990 | Asstt.Prof. | B.E. Comp. M. Tech. | I-Class 7.52 CGPA | N.M.U. Uni Lonere | 2012 2014 | 15600-39100 | 18/07/2022 | -- | No | OBC |
| 12 | Mr. Ramkrishna Hari Patil | 14/02/1982 | Asst. Prof | B.E.Com. Engg. M.E.(CS&E) | I-Class I-Class | NMU NMU | 2008 2015 | 15600-39100 | 11/11/2022 | -- | NO | OBC |
| 13 | Mr. Pramodgiri B. Gosavi | 16/06/1975 | Asst. Prof | B.E.Com. Engg. M.T..(CS&E) | I-Class I-Class | NMU M.P. Bhopal | 1998 2008 | 15600-39100 | 21/02/2024 | - | NO | NT(C) |
| 14 | Msr. Priyanka Vinod Medhe | 06/04/1992 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | II-Class I-Class | N.M.U. N.M.U. | 2014 2020 | 15600-39100 | 15/07/2024 | -- | NO | SC |
| 15 | Mr. Krunal Chadrashekhhar Pawar | 01/10/1991 | Asstt. Prof. | B.E. Comp M.Tech . | I-Class I-Class | NMU | 2016 | 15600-39100 | 15/07/2024 | -- | NO | OBC |
| 16 | Ms. Pooja Mukundrao Khandar | 14/04/1993 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | 7.6 8.39 CGPA | Amravati Amravati | 2016 2018 | 15600/- Cons. | 01/01/2024 | -- | NO | OBC |
| 17 | Ms. Ashwini Arun Kakde | 12/09/1990 | Asst. Prof | B.Tech. M.Tech. (CS&E) | I-Class I-Class | NAGPUR HYDERABAD | 2012 2016 | 15600/- Cons. | 01/01/2024 | -- | NO | NT(C) |
| 18 | Ms. Mayuri Rajesh Chandratre | 22/04/1994 | Asst. Prof | B.E.Comp | 7.20 CGPA | NMU | 2020 | 12000/- Cons. | 11/01/2024 | -- | NO | OPEN |

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|--------------------------------|---------------|--------------|------------------------------|---------------------|---------------------------|-----------------|---------------|-----------------|--------------------------------|---|----------|
| 19 | Ms. Shama Sudhir Pawar | 10/05/1992 | Asst. Prof | B.E.Comp | I-Class | N.M.U. | 2016 | 12000/- Cons. | 16/01/2024 | -- | NO | OBC |
| 20 | Mr. Mohammed Shafique Shaikh | 26/06/1973 | Asst. Prof | B.E.Comp M.Tech | II-Class I-Class | Amravati Bhopal | 1997 2023 | 15600/- Cons. | 15/07/2024 | -- | NO | OPEN |
| 21 | Ms. Tejashri Anil Patil | 15/02/2021 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | I-Class I-Class | N.M.U. N.M.U. | 2014 2017 | 15600/- Cons | 15/07/2024 | -- | No | OBC |
| 22 | Ms. Prachi Pushkaraj Chaudhari | 03/06/1989 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | I-Class I-Class | N.M.U. N.M.U. | 2011 2013 | 15600/- Cons. | 15/07/2024 | -- | No | OPEN |
| 23 | Ms. Utkarsha Prmod Narkhede | 20/03/1991 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | I-Class I-Class | N.M.U. N.M.U. | 2012 2015 | 15600/- Cons. | 15/07/2024 | -- | No | OBC |
| 24 | Ms. Soniya Premraj Chaudhari | 17/08/1980 | Asstt. Prof. | B.E. Comp. M. Tech. CS&E) | I-Class F.W.D | N.M.U. RGPV. Bhopal | 2006 2013 | 15600/- Cons. | 15/07/2024 | -- | No | OBC |
| 25 | Ms. Dipali Daulatrao Phadat | 16/07/1991 | Asstt. Prof. | B.E. Comp. M. E. (CS&E) | I-Class I-Class | SGBA Amravat N.M.U. | 2013 2015 | 15600/- Cons. | 15/07/2024 | -- | No | OBC |

SHRAM SADHANA BOMBAY TRUST's COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: Electrical Engineering Academic Year 2024-25

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|--|---------------|--------------------------------------|---|------------------------|----------------------------|-----------------|--------------|-----------------|---|---|----------|
| 01 | Mr. V. S. Pawar | 08/04/1971 | Associate Prof. & I/C HOD | B.E. Electrical M.E. Electrical (EPS) | I-Class I-Class | Amaravati Amaravati | 1994 2001 | 37400-67000 | 16/08/1999 | NMU/18/J-4/621/03, Dt.18.02.03 <u>Wef-15.02.2002</u> NMU/18/1118/08 Dt. 27-11-08 <u>Wef-28.08.2008</u> | Yes, as Lecturer & Assistant Prof. | OPEN |
| 02 | Mr M.M. Aansari | 11/10/1973 | Associate Prof. & HOD | B.E. Electrical M.E. Electrical (EPS) | I-Class I-Class | Amaravati Amaravati | 1996 2009 | 15600-39100 | 05/07/2001 | NMU/18/J-4/581/06, Dt. 06/03/06 <u>Wef-09.02.2004</u> | Yes, as Lecturer | OPEN |
| 03 | Dr. Suhas M. Shembekar | 31/08/1976 | Associate Prof. | B.E.Electrical M.E. Electrical (EPS) | I-Class I-Class | Amravati Aurangabd | 1999 2011 | 15600-39100 | 01/01/2009 | NMU/18/363/10 Dt. 10.03.2010 <u>Wef- 15.09.2009</u> | Yes,as Lecturer | OPEN |
| 04 | Muqeem Khan Mansoor Khan | 17/10/1991 | Asstt. Prof. | B.E.Electrical M.E. Electrical (EPS) | F.W.D. I-Class | NMU NMU | 2013 2016 | 15600-39100 | 17/08/2023 | -- | No | NT-B |
| 05 | Tanveer Husain Shaikh Feroz Khatik | 03/08/1991 | Asstt. Prof. | B.E.Electrical M.E. Electrical (EPS) | F.W.D. I-Class. | NMU NMU | 2013 2016 | 15600-39100 | 18/08/2023 | -- | No | OBC |
| 06 | Mr. Vijay Abaji Shinde | 25/09/1989 | Asstt.Prof | B.Tech. Electrical M.Tech Electrical Power system | F.W.D. 6.52 CGPA | Dr.BAM Uni. Dr.BAM Uni. | 2014 2023 | 15600-39100 | 04/10/2023 | -- | No | OBC |
| 07 | Mr. Shaikh Uzma Kausar M. Sabir | 01/02/2000 | Asstt.Prof | B.E. Electrical | CGPA | Pune University | 2021 | 15600/- Cons | 15/07/2024 | -- | NO | OPEN |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: Electronics & Telecommunication Engg. Academic Year 2024-25

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|--------------------|---------------|-----------------|--|---------------------------|-------------------------------------|--------------------------|-------------|-----------------|---|--|----------|
| 01 | Dr. M.P. Deshmukh | 20/06/1966 | Professor & HOD | B.E. Electronics M.E.Control Inst. (Ph.D E&TC) | I-Class I- Class -- | Amaravati Alahabad N.M.U. | 1989 1997 2014 | 37400-67000 | 01/07/1996 | NMU/95/97/618, Dt.16.1.92 <u>Wef-16.1.92</u> NMU/18/1117/08 Dt. 27-11-08 <u>Wef 28.08.08</u> | Yes, as Lecturer & Assistant Prof. | OPEN |
| 02 | Dr. V.M. Deshmukh | 17/06/1965 | Associate Prof. | B.E. Electronics M.E. Control Inst. Ph.D. (Electronics Engg.) | I-Class I- Class -- | Amaravati Kolhapur N.M.U. | 1990 1996 2017 | 37400-67000 | 01/08/1998 | NMU/18/J-4/579/06, Dt. 06-03-06 <u>Wef -9.2.2004</u> NMU/18/1075/2009 Dt.30.9.09 <u>Wef 1.7.09</u> | Yes, as Lecturer & Assistant Prof. | OPEN |
| 03 | Dr. N.M. Kazi | 22/06/1972 | Associate Prof. | B.E. Electronics M.E. E&TC (Ph.D (Electronics Engg.) | I-Class I- Class -- | N.M.U. Aurangabad KBCNMU | 1995 2008 2022 | 15600-39100 | 01/08/2002 | NMU/18/J-4/4708/5 Dt. 07-06-05 <u>Wef 1.2.2004</u> | Yes, as Lecturer | OPEN |
| 04 | Dr. Atul H. Karode | 01/06/1976 | Associate Prof. | B.E. Electronics M.E.E&TC Ph.D (Electronics Engg.) | I-Class I- Class -- | N.M.U. Amaravati KBC NMU | 1999 2011 2024 | 15600-39100 | 02/07/2003 | NMU/18/556/2007,dt. 28/03/2007 <u>Wef-</u> <u>17.07.2006</u> | Yes, as Lecturer | OPEN |
| 05 | Sunil K.Khode | 01/01/1979 | Asstt. Prof. | B.E. E&TC M.E.(Digital Electronics) | I-Class I- Class | Amaravati Amaravati | 2003 2012 | 15600-39100 | 01/06/2007 | NMU/18/349/10 Dt. 10.03.2010 <u>Wef- 15.09.2009</u> | Yes,as Lecturer | SC |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: Mechanical Engg. Academic Year 2024-25

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|---------------------------|---------------|-----------------------|--|-------------------------------|-------------------------------|----------------------|-------------|-----------------|--|---|----------|
| 01 | Dr. P.G. Damle | 08/10/1973 | Associate Prof. & HOD | B.E. Mechanical M.E. M/c Design. Ph. D. | I-Class I-Class -- | Amaravati N.M.U. N.M.U. | 1996 2008 2017 | 37400-67000 | 15/02/2002 | NMU/18/J-4/621/03, Dt. 18.2.2002 <u>Wef -15.02.2002</u> NMU/18/1071/2009 Dt.30.9.09 <u>Wef -22.6.09</u> | Yes, as Lecturer & as AP | SC |
| 02 | Mr. N. K. Patil | 23/09/1969 | Associate Prof. | B.E. Production M.Tech. Energy Mangment M.E. M/c Design. | I-Class I-Class I-Class | Pune Indore NMU | 1991 1995 2008 | 37400-67000 | 08/01/1997 | NMU/18/1003/2006 Dt.25.05.06 <u>Wef 09.02.2004</u> NMU/18/321/2010 Dt.10.03.2010 <u>Wef 15.09.2009</u> | Yes as Lecturer & Assistant Prof. | OBC |
| 03 | Dr. K.Shrivastav | 07/11/1973 | Associate Prof. | B.E. Mechanical M.E. (Thermal Power) Ph. D. | I-Class I-Class -- | Amaravati N.M.U. NMU | 1997 2008 2023 | 37400-67000 | 08/01/1998 | NMU/18/J-4/4313/04, Dt. 01-09-04 <u>Wef -</u> <u>09.02.2004</u> | Yes, as Lecturer | OPEN |
| 04 | Dr. Devendra B. Sadaphale | 01/07/1976 | Associate Prof. | B.E. Mechanical M.E M/c Design Ph. D. | I-Class I-Class | Amaravati N.M.U. N.M.U. | 1998 2008 2023 | 15600-39100 | 20/02/2002 | NMU/18/J-4/621/03, Dt. 18-02-03 <u>Wef -20.02.2002</u> | Yes, as Lecturer | SBC |
| 05 | Dr. P. M. Solanki | 06/10/1981 | Associate Prof. | B.E. Production M.E. CAD/CAM Ph.D.(Mech.Engg) | I-Class I-Class -- | N.M.U. Amravati N.M.U. | 2004 2006 2022 | 15600-39100 | 08/08/2006 | NMU/18/1140/08, dated 03-12-08 <u>Wef -</u> <u>29.08.2008</u> | Yes, as a Lecturer | OPEN |
| 06 | Dr. Ajay R. Bhardwaj | 05/07/1968 | Associate Prof. | B. E. Production M.E. M/c Design Ph.D.Mech.Engg. | I-Class I-Class - | Pune N.M.U. N.M.U. | 1999 2012 2023 | 15600-39100 | 01/08/2007 | NMU/18/326/10 Dt. 10.03.2010 <u>Wef- 19.09.2009</u> | Yes,as Lecturer | OPEN |
| 07 | Dr. Dipak C. Talele | 19/06/1987 | Asstt. Prof. | B.Tech. Mechanical M.Tech. CAD//CAM | II- Class I- Class | Pune Vellore, Tamilnadu | 2009 2012 | 15600-39100 | 15/07/2013 | NMU/18/541/2016 Dt. 13.06.2016 <u>Wef-17.3.2016</u> | Yes, as Asstt. Prof. | OBC |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: Chemical Engineering Academic Year 2024-25

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|----------------------|---------------|---------------------------|--|------------------------------------|--------------------------------------|------------------------------|--------------|-----------------|--|---|----------|
| 01 | Dr. Vijay R. Diware | 10/10/1965 | Associate Prof. & I/C HOD | B.Tech. Chemical Ph.D.(Chem.Tech.) | I -Class -- | Amaravati N.M.U. | 1988 2008 | 37400-67000 | 23/08/1999 | NMU/18/ 555/07 Dt. 28/03/07 <u>Wef-17.07.2006</u> | Yes, as Lecturer | OPEN |
| 02 | Dr. S. A. Thakur | 17/09/1968 | Associate Prof. | B.Tech. Chemical M.B.A. M.Tech. (Chem.) Ph D. | I -Class I -Class 8.31 -- | Amaravati Nagpur Amaravati NMU | 1989 1992 2014 2013 | 15600-39100 | 03/08/1998 | NMU/18/ J-4/ 4290/04 Dt. 2.9.2004 <u>Wef- 11.2.2004</u> | Yes, as Lecturer | OPEN |
| 03 | Mr. V. P. Sangore | 29/12/1972 | Asstt. Prof. | B.Sc Chem M.Sc. Poly.Chem | I -Class Pass Class | N.M.U. N.M.U. | 1993 1996 | 15600-39100 | 16/08/1999 | NMU/18/871/10 Dt. 22.05.2010 <u>Wef- 15.09.2009</u> | Yes,as Lecturer | VJNT |
| 04 | Mrs. Sarika S. Pawar | 15/01/1982 | Asstt.Prof | B Tech. Chemical M.Tech Chemical | I-Class I-Class | N.M.U. N.M.U. | 2004 2009 | 15600-39100 | 01/07/2011 | NMU/18/535/2016 Dt.13.06.2016. <u>Wef-18.03.0216</u> | Yes,as Asst. Prof. | OPEN |
| 05 | Mrs.Ruchita S. Naik | 01/09/2024 | Asstt.Prof | B.E. Chemical M.Tech.Chemical | I-Class I-Class | N.M.U. N.M.U. | 2015 2017 | 15600/- Cons | 29/07/2024 | -- | No | OPEN |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of department: First Year Engineering

Academic Year 2024-25

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|--------------------------|---------------|-----------------------|--|---------------------------|--|----------------------|-------------|-----------------|---|---|----------|
| 01 | Dr. Sandip S. Patil | 20/01/1980 | Associate Prof. & HOD | B.E. Comp. Engg. M Tech. (C.S.& E.) Ph.D. (C.S.& E.) | I-Class I-Class -- | N.M.U. R.G.P.V. BHOPAL KBCN.M.U | 2001 2009 2023 | 37400-67000 | 12/02/2004 | NMU/18/J-4/4297/04, Dt. 02-09-04 <u>Wef-12.2.04</u> NMU/18/1066/2009 Dt.30.9.09 <u>Wef 18.7.09</u> | Yes, as Lecturer & Assistant Prof. | OPEN |
| 02 | Dr. K. S. Patil | 14/05/1974 | Associate Prof. | M. Sc. (Physics) Ph.D. | I-Class -- | N.M.U Jodhpur National University | 1996 2012 | 37400-67000 | 07/07/2000 | NMU/18/J-4/621/03, Dt. 18-02-03 <u>Wef-</u> <u>15.02.2002</u> | Yes, as Lecturer | OPEN |
| 03 | Dr. Sunita S. Patil | 12/05/1975 | Associate Prof. | M.Sc.Maths M. Phil (Maths) Ph.D. (Maths) | I-Class II-Class -- | N.M.U. Alagppa N.M.U. | 1998 2010 2016 | 15600-39100 | 14/09/2001 | NMU/18/J-4/621/03, Dt. 18-02-03 <u>Wef-</u> <u>15.02.2002</u> | Yes, as Lecturer | OPEN |
| 04 | Mr. Y. K. Chitte | 01/06/1969 | Asstt.Prof | M.A. (English) | Higher II- Class | Pune | 1997 | 15600-39100 | 06/07/2000 | -- | No | OPEN |
| 05 | Dr. Prashant N. Ulhe | 09/03/1974 | Asstt. Prof. | B.E. Production M.E. M/c Design. Ph.D.(Mech,Engg) | I-Class I-Class | Amaravati N.M.U. K.B.C.N.M.U | 1996 2008 2024 | 15600-39100 | 02/06/2003 | NMU/18/1073/2009, dt. 30/09/2009 <u>Wef- 25.06.2009</u> | Yes, as a Lecturer | OPEN |
| 06 | Mr. Amol Chandrakan Wani | 30/07/1976 | Asstt. Prof. | B.E. Electronics M.E. E&TC | I-Class I- Class | N.M.U. Aurangabad | 1999 2008 | 15600-39100 | 09/06/2003 | NMU/18/ 558/2007 Dt 28/03/07 <u>Wef 17.07.06</u> | Yes, as Lecturer | OPEN |
| 07 | Ms. Priti Ramesh Sharma | 18/06/1982 | Asstt. Prof. | B.E.Comp. Engg. M.E. (C.S.&E.) | I-Class I-Class | N.M.U. N.M.U. | 2007 2014 | 15600-39100 | 14/02/2008 | NMU/18/868/10 Dt. 22.05.2010 <u>Wef- 15.09.2009</u> | Yes,as Lecturer | OPEN |
| 08 | C.U. Nikam | 05/06/1973 | Asstt.Prof | M.Sc. (Physics) | I-Class | A'bad | 2001 | 15600-39100 | 25/08/2008 | NMU/18/1145/2008, dt. 03/12/08 <u>Wef-</u> <u>26.08.2008</u> | Yes as a Lecturer | SC |
| 09 | Mr. Pravin D. Patil | 30/04/1980 | Asstt. Prof. | B.E. Mechanical M.E. CAD/CAM | I-Class I-Class | NMU Amravati | 2004 2007 | 15600-39100 | 25/08/2008 | NMU/18/1141/2008 Dated 03-12-08 <u>Wef- 29.08.2008</u> | Yes as Lecturer | OPEN |
| 10 | Ms. Deepmala I. Desai | 10/10/1979 | Asstt.Prof | M.Sc.(Chemistry) M.Phil (Maths) | I-Class A-Grade | N.M.U. N.M.U. | 2004 2009 | 15600-39100 | 26/08/2008 | NMU/18/1144/2008, dt. 03/12/08 <u>Wef-</u> <u>26.08.2008</u> | Yes as a Lecturer | SC |

| Sr. No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|--------|---------------------------------|---------------|--------------|--|-------------------------|----------------------------|-----------------|---------------|-----------------|--|---|----------|
| 11 | Mr.Mahendra B. Patil | 01/06/1985 | Asstt.Prof | M.Sc. (Physics) | I-Class | N.M.U. | 2009 | 15600-39100 | 27/07/2010 | NMU/18/1563/2010, dt. 06/10/10_Wef-27.07.2010 | Yes, as Asst.Prof. | OPEN |
| 12 | Ms. Meera Prassan Kulkarni | 10/06/1975 | Asstt.Prof | M.Sc.Maths M.Phil (Maths) | I-Class II-Class | N.M.U. Alagppa | 1997 2008 | 15600-39100 | 01/07/2011 | NMU/18/362/10 Dt. 10.03.2010 Wef- 15.09.2009 | Yes,as Lecturer | OPEN |
| 13 | Ms.Dhanashree Shashikant Tayade | 19/10/1985 | Asstt. Prof. | B.E.Com. Engg. M.E. (CS&E) | I-Class I-Class | PUNE N.M.U. | 2010 2014 | 15600-39100 | 06/07/2015 | NMU/18/553/2016, Dt. 13.06.2016 Wef-17.03.2016 | Yes, as Asst.Prof. | SBC |
| 14 | Ujawalsing T. Patil | 10/07/1985 | Asstt. Prof. | M.Sc. (Org.Chemistry) | I-Class | N.M.U. | 2008 | 15600-39100 | 06/07/2015 | NMU/18/538/2016 Dt.13.06.2016 Wef-17.03.0216 | Yes,as Asst. Prof. | OPEN |
| 15 | Mrs. Nancy Sawhuey | 12/08/1984 | Asstt. Prof. | B.Tech. Instru..Engg. M.Tech. Inst. Cont. | I-Class 9.16 CGPA | Punjab Uni. Punjab Uni. | 2006 2010 | 15600-39100 | 17/08/2023 | -- | No | OPEN |
| 16 | Ms. Tanuja Y.Chouhan | 03/04/1985 | Asstt. Prof. | M.A. (English) | I-Class | Bhopal | 2012 | 15600-39100 | 15/07/2024 | -- | No | OPEN |
| 17 | Mrs. Anjali Darshan Patil | 16/07/1999 | Asstt. Prof | M.Sc.Maths | I-Class | N.M.U. | 2022 | 15600/- Cons. | 07/02/2023 | -- | No | Open |
| 18 | Ms.Jayshree R. Tayade | 17/02/1985 | Asstt. Prof. | M.Sc.Maths | I-Class | N.M.U. | 2007 | 15600/- Cons. | 15/07/2024 | -- | No | SBC |
| 19 | Mrs. Puja Mayur Malu | 21/03/1986 | Asstt.Prof. | M.Sc. (Org.Chemistry) | I-Class | N.M.U. | 2010 | 15600/- Cons. | 15/07/2024 | -- | No | Open |
| 20 | Mr. Dashrat U. Chaudhari | 01/07/1969 | Asstt. Prof | M.A. (English) | I-Class | Indore | 1996 | 15600/- Cons. | 29/01/2024 | -- | No | OBC |
| 21 | Mr. Sachin Topalu bhalerao | 14/09/1993 | Asstt. Prof | M.A. (English) | I-Class | NMU | 2023 | 15600/- Cons | 15/07/2024 | -- | NO | SC |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of the Department: M.B.A.
Academic Year 2024-25

| Sr No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No. & Date | Whether approved by University (Yes/No) | Category |
|-------|------------------------------|---------------|-----------------------|---|------------------------|------------------------|----------------------|------------------|-----------------|--|---|----------|
| 01 | Dr. Richa A. Modiyani | 30/04/1987 | Associate Prof. & HOD | M.B.A. Finance Ph.D.(Sindhi Community) | I-Class -- | NMU NMU | 2009 2016 | 15600-39100 | 01/07/2011 | NMU/18/547/2016 Dt.13.06.2016 Wef-17.03.0216 | Yes,as Asst. Prof. | Open |
| 02 | Dr. Mahesh V. Rawlani | 07/06/1970 | Associate Prof. | B.E. Production M.E. (A.P.S.) Ph.D | I-Class I-Class | Amravati Bhopal NMU | 1993 2005 2023 | 37400-67000 | 01/07/2006 | NMU/18/1139/08, dated 03-12-08 Wef -29.08.2008 | Yes, as a Lecturer | OPEN |
| 03 | Ms.Faroza A. kazi | 16/02/1975 | Asstt. Prof. | M.B.A. (H.R) M P M (H.R.) | I-Class I-Class | NMU NMU | 2012 2000 | 15600-39100 | 06/07/2015 | -- | No | Open |
| 04 | Mrs. Bharti P. Joshi | 27/02/1990 | Asstt. Prof. | M.B.A. Finance | 9.19 CGPA | NMU | 2021 | 15600/- Cons. | 01/03/2023 | -- | No | Open |
| 05 | Mrs. Sakina Mujahid Husain | 04/02/1975 | Asstt. Prof. | M.B.A. (H.R.) | 7.53 CGPA | NMU | 2014 | 18600/- Cons. | 15/07/2024 | -- | No | Open |
| 06 | Mr. Rohan Suresh Patil | 23/06/1987 | Asstt. Prof. | M.B.A. Finance | 5.43 CGPA | NMU | 2015 | 15600/- Cons | 15/07/2024 | -- | No | OBC |
| 07 | Ms. Vrushali Dinkar Sonawane | 16/09/1995 | Asst. Prof | B.E.Comp M.B.A | 6.82 CGPA 8.45 SGPA | N.M.U. MUMBAI | 2020 2023 | 15600/- Cons | 15/07/2024 | -- | NO | OBC |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of department: MCA
Academic Year 2024-25

| Sr No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No.&Datee | Whether approved by University (Yes/No) | Category |
|-------|-----------------------------|---------------|-----------------------|---|--------------------|------------------------------|----------------------|--------------|-----------------|---|---|----------|
| 01 | Dr. Puri Dinesh Dagadu | 15/04/1982 | Associate Prof. & HOD | B.E. Comp. Engg. M.Tech. Comp.. Ph.D (CS&E) | I-Class I-Class | Kolhapur Lonere KBCNMU | 2004 2010 2023 | 15600-39100 | 01/12/2012 | NMU/18/550/2016, Dt. 13.06.2016.Wef- 17.03.2016 | Yes, as Asst.Prof. | NT-2 |
| 02 | Ms. Sapana Ananrao Fegade | 04/06/1983 | Asst. Prof | M. E. (CSE) | I-Class | N.M.U | 2013 | 15600-39100 | 16/12/2022 | -- | NO | OBC |
| 03 | Mr. Aslan Shaikh | 10/11/1997 | Asst. Prof | M.C.A | I-Class | N.M.U | 2022 | 15600/- Cons | 08/07/2024 | -- | NO | OPEN |
| 04 | Ms. Dhanshee RajendraShinde | 14/02/1999 | Asst. Prof | MCA | I-Class | N.M.U | 2023 | 15600/- Cons | 08/07/2024 | -- | NO | OPEN |
| 05 | Ms. Chetana Mohan Kawale | 14/07/2001 | Asst. Prof | B.Sc MCA | I-Class I-Class | N.M.U N.M.U | 2022 2024 | 15600/- Cons | 11/09/2024 | -- | NO | OBC |
| 06 | Ms. Vishakha Yadorao Pande | 13/02/2000 | Asst. Prof | MCA | I-Class | N.M.U | 2024 | 15600/- Cons | 08/07/2024 | -- | NO | OBC |
| 07 | Ms.Bhagyashri Suresh Patil | 07/09/2000 | Asst. Prof | MCA | I-Class | N.M.U | 2023 | 15600/- Cons | 08/07/2024 | -- | NO | OBC |
| 08 | Ms. Reeta Vinod Patil | 22/03/2000 | Asst. Prof | MCA | I-Class | N.M.U | 2023 | 15600/- Cons | 08/07/2024 | -- | NO | OBC |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Name of department: Sports Academic Year 2024-25

| Sr No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No.&Datee | Whether approved by University (Yes/No) | Category |
|-------|---------------|---------------|--------------|----------------------|---------------------------------|-----------------------|----------------------|-------------------|-----------------|-------------------------------|---|----------|
| 01 | J.B. Sisodiya | 01/06/1963 | Phy.Director | B.A. BPed MPed | II-Class II-Class I-Class | Poona Poona NMU | 1989 1992 2000 | 50,000/- Cons. | 01/07/2023 | -- | Yes as a Phy.Dir. | OPEN |

Name of department: Library

| Sr No | Name of staff | Date of Birth | Designation | Qualification | Class | University | Year of Passing | Pay Scale | Date of Joining | University Approval No.&Datee | Whether approved by University (Yes/No) | Category |
|-------|--------------------|---------------|-------------|-----------------|---------------|------------|-----------------|---------------------|-----------------|--|---|----------|
| 01 | Dr. Sudhir.S.Patil | 01/06/1978 | Librarian | M.Lib. Ph.D. | I-Class -- | NMU NMU | 2003 2017 | 15600 - 39100 | 01/07/2003 | NMU/18/215/07, dated 08/02/07 Wef 17.07.2006 | Yes as a Librarian | OPEN |

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Statistical Information of Faculty, 2024-25

| Sr. No. | Department | Professor | Associate Prof. | Asst. Prof. | Total |
|--------------|------------------------|-----------|-----------------|-------------|-----------|
| 01 | Civil Engineering | 02 | 03 | 04 | 09 |
| 02 | Computer Engineering | 02 | 06 | 17 | 25 |
| 03 | Electrical Engineering | -- | 03 | 04 | 07 |
| 04 | E&TC | 01 | 03 | 01 | 05 |
| 05 | Mechanical Engineering | -- | 06 | 01 | 07 |
| 06 | Chemical Engineering | -- | 02 | 03 | 05 |
| 07 | First Year Engineering | -- | 03 | 18 | 21 |
| 08 | M.B.A. | -- | 02 | 05 | 07 |
| 09 | M.C.A. | -- | 01 | 07 | 08 |
| Total | | 05 | 29 | 60 | 94 |

Total Faculty: - 94±1(Principal) = 95

SHRAM SADHANA BOMBAY TRUST's COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Statistical Information of Faculty, 2024-2025

| Sr. No. | Department | Approved Faculty | Regular but not approved Faculty | Contractual Faculty | Total |
|---------|------------------------|------------------|----------------------------------|---------------------|-----------|
| 01 | Civil Engineering | 07 | 01 | 01 | 09 |
| 02 | Computer Engineering | 09 | 06 | 08 | 23 |
| 03 | Electrical Engineering | 03 | 03 | 01 | 07 |
| 04 | E&TC | 05 | -- | -- | 05 |
| 05 | Mechanical Engineering | 07 | -- | -- | 07 |
| 06 | Chemical Engineering | 04 | -- | 01 | 05 |
| 07 | First Year Engineering | 13 | 03 | 05 | 21 |
| 08 | M.B.A. | 02 | 01 | 04 | 07 |
| 09 | M.C.A. | 01 | 01 | 06 | 08 |
| | Total | 51 | 15 | 26 | 92 |

Total Faculty : - 92

(Principal) +01 :- 93

SHRAM SADHANA BOMBAY TRUST'S COLLEGE OF ENGG. & TECH., BAMBHORI, JALGAON.

Statistical Information of Faculty, 2024-2025

| Sr. No. | Department | Ph.D. | P.G. | U.G | Total |
|--------------|------------------------|-----------|-----------|-----------|-----------|
| 01 | Civil Engineering | 05 | 04 | -- | 09 |
| 02 | Computer Engineering | 07 | 11 | 05 | 23 |
| 03 | Electrical Engineering | -- | 06 | 01 | 07 |
| 04 | E&TC | 04 | 01 | -- | 05 |
| 05 | Mechanical Engineering | 05 | 02 | -- | 07 |
| 06 | Chemical Engineering | 02 | 03 | -- | 05 |
| 07 | First Year Engineering | 03 | 18 | -- | 21 |
| 08 | M.B.A. | 02 | 05 | -- | 07 |
| 09 | M.C.A. | 01 | 07 | -- | 08 |
| Total | | 29 | 57 | 06 | 92 |

Total Faculty : - 92

Principal - 01

Phy.Dir .- 01

Librarian - 01

= 95

FACULTY PROFILE

1. First Year Engineering Department

[SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

2. Chemical Engineering

[SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

3. Civil Engineering

[SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

4. Computer Engineering

[SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

5. Electrical Engineering

[SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

6. Electronics & Telecommunication Engineering

[SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

7. Mechanical Engineering

8. [SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

9. MASTER OF BUSINESS ADMINISTRATION

10. [SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

11. MASTER OF COMPUTER APPLICATION

12. [SSBTs College of Engineering, Jalgaon \(sscoetjalgaon.ac.in\)](http://sscoetjalgaon.ac.in)

BIO-DATA

1. **Name** :Dr. Girish Kumar Patnaik

2. **Designation** : Principal **Department:** Computer Engineering, Professor

3. **Date of Birth** :October 9th, 1969

4. **Father's Name** :Krishna Mohan Patnaik

5. **Mother Name** :Radha Rani Patnaik

6. **Address** :

Permanent Address: Plot No. 11, Navrang Colony, Deopur, Dhule - 424 005

Correspondence Address: Professor Quarter PQ 203, SSBT's College of Engineering & Technology, Bambhori, PO Box – 94, Jalgaon - 425001

7. **E-mail id** :girishpat2001@yahoo.com

8. **Mobile No.** :9422790559 / 7507044204

9. **Educational Qualification:**

| Sr | Exam Passed | Title of Degree | Board/Univ. | Year | Subject | % of Marks |
|----|------------------------|-----------------|---|-----------|--|------------|
| 1 | 10 th BOARD | SSC | Board of Secondary Education, Orissa | 1983 | Science | 67.5 |
| 2 | SECONDARY | HSC | Council of Higher Secondary Education, Orissa | 1985 | Science | 73.1 |
| 3 | BACHELOR | BE | Marathwada University, Aurangabad | 1990 | Computer Sc. & Engineering | 66.93 |
| 4 | MASTER | ME | Motilal Nehru Regional College of Engineering, Allahabad / Allahabad University | 2001 | Computer Sc. & Engineering | 80.8 |
| 5 | DOCTOR OF PHILOSOPHY | | Motilal Nehru National Institute of Technology Allahabad, Allahabad | Oct. 2012 | Trustworthy MANET for Secure Communication(Computer Sc. & Engineering) | |

10. Details of Job:

| Sr | Name of Employer | Designation | From | To | Scale |
|----|---|------------------------------------|-----------------------------------|-----------------------------------|--------------------------------|
| 1 | SSBT College of Engg. & Tech., Jalgaon, Maharashtra | Lecturer | July 31 st , 1990 | September 16 th , 1991 | Basic 700/- |
| 2 | SSVPS's B.S.Deore College of Engineering, Dhule | Lecturer | September 17 th , 1991 | February 28 th , 2001 | Basic 2200/- |
| 3 | SSVPS's B.S.Deore College of Engineering, Dhule | Sr. Lecturer | March 1 st , 2001 | January 13 th , 2003 | Basic 8000/- |
| 4 | SSVPS's B.S.Deore College of Engineering, Dhule | Asst. Professor / Assoc. Professor | January 14 th , 2003 | October 11 th , 2012 | Basic 12000/- Basic 37400/- |
| 5 | SSVPS's B.S.Deore College of Engineering, Dhule | Professor | October 12 th , 2012 | June 17 th , 2013 | Basic 43000/- + AGP 10000/- |
| 6. | SSBT's College of Engineering & Technology, Bambhori, Jalgaon | Professor | June 18 th , 2013 | Till date | Basic 56980/- + AGP 10000/- |
| 7 | SSBT's College of Engineering & Technology, Bambhori, Jalgaon | Principal | October 1 st , 2021 | Till date | Basic 56980/- + AGP 10000/- |

11. Details of Approval of Services in Teaching:

| Sr | Designation | From | To | University letter No. & Name of University |
|----|--|------------|----|--|
| 1 | Lecturer at SSVP's BSD COE, Dhule | 1994-95 | | NMU/96/5/Approval/742 dtd 24/01/1996 |
| 2 | Assistant Professor at SSVP's BSD COE, Dhule | 11/11/2003 | | NMU/18/D-9/1336/2006 dtd 18/8/2006 |
| 3 | PG Teacher | 13/05/2012 | | NMU/11/PGR/Com.Engg/1066/2012 dtd 14/05/2012 |
| 4 | Professor at SSBT's College of Engineering & Technology, Jalgaon | 21/03/2016 | | NMU/18/548/2016 dtd 13/06/2016 |

12. Position Held in College (Other than teaching e.g., In-charge of lab, Cell, Department, Hostel, Library, Games, Laboratory etc):

| Sr | Position Held | Duration | Responsibilities |
|----|--|--|------------------|
| 1 | Head, Computer Engineering, SSVPS's BSD College of Engg, Dhule | 21/07/2011 – 17/06/2013, 03/02/2005 – 30/03/2011, 18/07/2001 – June 2004 | Administration |

| | | | |
|---|--|-------------------------|----------------------------------|
| 2 | Head, Computer Engineering, SSBT's College of Engg. & Tech., Bambhori, Jalgaon | 22/06/2013 – till date | Administration |
| 3 | Director Technical Development, SSBT's College of Engg. & Tech., Bambhori, Jalgaon | 16/12/2015 – 08/09/2016 | Development of IT enabled campus |
| 4 | Director Academic Development, SSBT's College of Engg. & Tech., Bambhori, Jalgaon | 09/09/2016 – till date | Academic Activities |
| 5 | Principal SSBT's College of Engg. & Tech., Bambhori, Jalgaon | 01/10/2021 – till date | Administration |

13. Details of Short Term Training Programme / Refresher Course / Conferences Attended:

| Sr | Name of Institute / Organizer | From | To | Title |
|----|---|----------------------------------|----------------------------------|--|
| 1 | SSVPS's BSD College of Engg, Dhule | October 22 nd , 2001 | November 9 th , 2001 | ISTE-STTP Refresher course on "Recent Trends in Computer Visual Aids for effective teaching" |
| 2 | NUS, Singapore | January 8 th , 2002 | January 11 th , 2002 | 3 rd International Conference on Mobile Data Management, Singapore |
| 3 | SSVPS's BSD College of Engg, Dhule | February 10 th , 2002 | | ISTE Course on "Web based Collaborative Engineering and Advanced Techniques in CATIA V5 R7" |
| 4 | NUS, Singapore | January 8 th , 2002 | January 11 th , 2002 | International Conference on Mobile Data Management, Singapore |
| 5 | SSVPS's BSD College of Engg, Dhule | April 1 st , 2002 | April 12 th , 2002 | ISTE-STTP Refresher course on "Incubating Entrepreneur's Spirit" |
| 6 | Rational, Pune | December 9 th , 2002 | December 18 th , 2002 | Course on "Rational Rose" |
| 7 | Kalinga Institute of Technology, Bhubaneswar | December 21 st , 2004 | December 24 th , 2004 | International Conference on Distributed Computing and Internet Technology at Hotel Swasti plaza, Bhubaneswar |
| 8 | Tata Research Development and Design Center, Pune | January 4 th , 2005 | January 8 th , 2005 | TCS Excellence in Computer Science Week 2005 (TECSWEEK05) on Security Modeling |
| 9 | AIRCC | December 27 th , 2009 | December 29 th , 2009 | IEEE First International Conference on Networks & Communications, Chennai, India, |
| 10 | AINA | March 22 nd , 2011 | March 25 th , 2011 | IEEE Workshops of 25th International Conference on Advanced Information Networking and Applications, 2011, Biopolis, Singapore |
| 11 | GLA University, | March 3 rd , | March 4 th , | 7 th National Conference on |

| | | | | |
|----|--|-------------------------------|------------------|--|
| | Mathura | 2012 | 2012 | Advancement of Technologies – Information System & Computer Networks |
| 12 | University Institute of Chemical Technology, North Maharashtra University, Jalgaon | March 20 th , 2018 | | TEQIP – III Sponsored One Day Workshop on Syllabus Setting |
| 13 | North Maharashtra University, Jalgaon | March 28 th , 2018 | | Seminar on Technology Allied Capacity Building in Higher Education, 1 st CABGIN INFO DAY |
| 14 | North Maharashtra University, Jalgaon | July 24, 2020 | July 27, 2020 | Online Learning: Live Classroom Teaching Platforms in Train-the-Teacher Training Program Under e-Uttam Vidya |
| 15 | Bharati Vidyapeeth College of Engineering, Pune | November 30, 2020 | December 5, 2020 | AICTE sponsored one-week Online STTP on Cyber and Network Security Infrastructure Configuration |

14. Details of Conference/Training Programme Organized as coordinator /co-coordinator/Secretary:

| Sr | Title/Place/Sponsorer | Duration |
|----|--|---|
| 1 | First International Conference on Sunrise Technologies, Dhule, by SSVPS's B. S. Deore College of Engineering, Dhule | January 13 th – 15 th , 2011 |
| 2 | International Conference on Global Trends in Engineering, Technology and Management, Jalgaon by SSBT's College of Engineering and Technology, Bambhori, Jalgaon as Convener | January 9 th – 11 th , 2015 |
| 3 | International Conference on Global Trends in Engineering, Technology and Management, Jalgaon by SSBT's College of Engineering and Technology, Bambhori, Jalgaon as Publishing Chair | January 4 th – 6 th , 2016 |
| 4 | International Conference on Global Trends in Signal Processing, Information Computing and Communication by SSBT's College of Engineering and Technology, Bambhori, Jalgaon as Publishing Chair | December 22 nd – 24 th , 2016 |

15. Details of Paper Presented & Lectures Delivered:

15.1 "Paper In Conferences"

- 1 Girish Kumar Patnaik and M. M. Gore, "Design of Compiler for Mobile Environment and its Formalization using Evolving Algebra", Proceedings of 3rd IEEE International Conference on Mobile Data Management, Singapore, January 2002, PP 159-160.
<http://computer.org/proceedings/mdm/1500/15000159abs.htm>
- 2 Girish Kumar Patnaik and M. M. Gore, "Tree-Like Peer-to-Peer Symmetric Key Management in Mobile Ad Hoc Network", First International Conference on Networks & Communications, 2009, pp. 196-201,
<http://doi.ieeecomputersociety.org/10.1109/NetCoM.2009.46>
- 3 Girish Kumar Patnaik and M. M. Gore, "Trustworthy Path Discovery in MANET -- A Message Oriented Cross-Correlation Approach", Proceedings of IEEE Workshops of 25th International Conference on Advanced Information Networking and Applications, 2011, Biopolis, Singapore, 22-25 March 2011, pp 170-177.
http://www.computer.org/portal/web/csdl/doi/10.1109/WAINA.2011.69http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5763395

- 4 Ashutosh V. Girase, Girish Kumar Patnaik and Sandip S. Patil, “Developing knowledge driven ontology for decision making”, International Conference on Signal Processing, Communication, Power and Embedded System (SCOPEs), 2016,Paralakhemundi, India,3-5 Oct. 2016,pp99-105.<http://ieeexplore.ieee.org/document/7955610/>.
- 5 Bhagyashri B. Jawale, Girish Kumar Patnaik and Ashish T. Bhole, “Requirement Prioritization Using Adaptive Fuzzy Hierarchical Cumulative Voting”, IEEE 7th International Advance Computing Conference (IACC),2017,Hyderabad, India,5-7 Jan. 2017, pp 95-102. <http://ieeexplore.ieee.org/document/7976768/>.
- 6 Tejashree B. Patil, Girish Kumar Patnaik andAshish T. Bhole, “Big Data Privacy Using Fully Homomorphic Non-Deterministic Encryption” ,IEEE 7th International Advance Computing Conference (IACC),2017,Hyderabad, India,5-7 Jan. 2017,pp138 – 143<http://ieeexplore.ieee.org/document/7976775/>.
- 7 Shital P. Rajput, Krishnakant P. Adhiya and Girish K. Patnaik, “An Efficient Audio Steganography Technique to Hide Text in Audio”, IEEE 3rd International Conference on Computing, Communication, Control and Automation (ICCUBEA), 2017, Pune, India, 17-18 August 2017, pp 1 – 6.
- 8 Bhole, Ashish T., Dr. Manoj E. Patil and Dr. Girish Kumar Patnaik. "Performance Improvement of Channel in Wireless Cellular Networks" In 2019 International Conference on Global Trends in Science, Technology, Humanities, Commerce & Management (ICGTSTHCM19), Jalgaon, India, pp. 167-170, 28-30 Dec 2019. ISBN: 978-93-88544-95-5
- 9 Dinesh D. Puri and Dr. G. K. Patnaik, “DFA Space Minimization in Regular Expression matching For Network Security”, International Conference on Global Trends in Science, Technology, Humanities, Commerce & Management(ICGTSTHCM) December 28-30, 2019 Jalgaon, PP 184 – 186, ISBN No: 978-93-88544-95-5
- 10 A. D. Waghmare and Dr. G. K. Patnaik, “Systematic Literature Review of Blockchain Applications in Different Domains, Challenges and Opportunities”, International Conference on Global Trends in Science, Technology, Humanities, Commerce & Management (ICGTSTHCM), December 28-30, 2019 Jalgaon, PP-180-183, ISBN No: 978-93-88544-95-5

15.2 “Paper In Journals”

1. M. M. Gore and Girish Kumar Patnaik, “Information Technology – Security Challenges”, Technical Journal of LBSIMDS, ISSN: 0975-2374, Vol. I, No. – I, Jan-June 2009, PP 13-16
2. Vishal R Deshmukh, G K Patnaik and M E Patil , “Real-Time Traffic Sign Recognition System based on Colour Image Segmentation”, International Journal of Computer Applications, ISSN: 0975-8887, 83(3):30-35, December 2013
<http://www.ijcaonline.org/archives/volume83/number3/14430-2575>
3. Atul S. Chaudhari , Dr. Girish K. Patnaik , Sandip S. Patil, “Implementation of Minutiae Based Fingerprint Identification System using Crossing Number Concept", International Journal of Computer Trends and Technology (IJCTT), ISSN: 2231-2803, Volume 8(4):178-183, February 2014. <http://www.ijcttjournal.org/archives/ijctt-v8p133>
4. Prof. Dr. Girish Kumar Patnaik, Miss. Lokhande Bhagyashree, Mr. Mahajan Akshay G., "Green Computing Metrics, Methods and Models ", International Journal of Engineering Research & Technology (IJERT), ISSN: 2278-0181, Vol. 3 - Issue 3 (March - 2014), PP-1634-1637.<http://www.ijert.org/view.php?id=8796&title=green-computing-metrics-methods-and-models>

5. Harsha V Talele, Girish Kumar Patnaik, Sandip S Patil, "Improvement in Privacy and Confidentiality of Database using kACTUS", International Journal of Application or Innovation in Engineering & Management (IJAIEM), ISSN: 2319-4847, Volume 3, Issue 3, March 2014 , PP - 251 – 260. <http://www.ijaiem.org/volume3issue3/IJAIEM-2014-03-24-076.pdf>
6. Pooja Naval, Girish Kumar Patnaik, Sandeep S Patil, "Wrinkled Fingerprint Verification using BPNN and Minimum Distance Features between Singularities", International Journal of Advanced Engineering and Global Technology, ISSN: 2309-4893, Vol-2, Issue-4, April 2014, PP 627-633. <http://ijaegt.com/wp-content/uploads/2014/04/409148-IJAEGT-PP627-634-pooja.pdf>
7. Archana Mahajan, Girish Kumar Patnaik, Sandip S Patil, "Improvement in membership function for multiclass clustering with Fuzzy Rule Based Clustering Approach", International Journal of Advanced Engineering and Global Technology, ISSN: 2309-4893, Vol-2, Issue-4, April 2014, PP 654-659. <http://ijaegt.com/wp-content/uploads/2014/05/409154-IJAEGT-PP-ARCHANA-1.pdf>
8. LINA L. DHANDE, DR. GIRISH K. PATNAIK "Review of Sentiment Analysis using Naive Bayes and Neural Network Classifier", International Journal of Scientific Engineering and Technology Research (IJSETR), ISSN: 2277-1581, Vol.03, Issue.07, May - 2014, Pages:1110-1113. <http://ijsetr.com/issue.php?issue=ISSUE%207&volume=Volume3>
9. Archana I. Patil , Girish Kumar Patnaik and Ashish T. Bhole, “Network Intrusion Detection using Layered Approach and Hidden Markov Model”, International Journal of Computer Applications, ISSN: 0975-8887, Vol. 93, No. 13, May 2014, pp - 38-43. <http://www.ijcaonline.org/archives/volume93/number13/16278-6049>
10. Lina L. Dhande and Dr. Prof. Girish K. Patnaik, “Analyzing Sentiment of Movie Review Data using Naive Bayes Neural Classifier”, International Journal of Emerging Trends & Technology in Computer Science (IJETTCS), ISSN 2278-6856, Volume 3, Issue 4 July-August 2014, pages:313-320. <http://www.ijettcs.org/issue1.php?vol=Volume3Issue4>
11. Archana N. Mahajan, Prof. Dr. Girish Kumar Patanaik, Sandip S. Patil, “Improved Membership Function for Multiclass Clustering with Fuzzy Rule Based Clustering Approach”, International Journal of Emerging Trends & Technology in Computer Science (IJETTCS), ISSN 2278-6856, Volume 3, Issue 5, September-October 2014, pages:61 – 68. <http://www.ijettcs.org/issue1.php?vol=Volume3Issue5>
12. AMOL A.DHIWAR, DR. G.K.PATNAIK, "Light Weight Intrusion Detection System with Wrapper Approach and Optimized Feature Selection", International Journal of Innovative Research in Computer and Communication Engineering, ISSN 2320-9801,VOLUME 3, ISSUE 3, MARCH 2015, Pages:2260 - 2266,http://ijirccce.com/upload/2015/march/155_40_Light.pdf
13. Amol A. Dhiwar and Girish K. Patnaik, “Wrapper based Intrusion Detection System with Duration and Local Area Network Denial Features”, International Journal of Computer Applications, ISSN 0975 – 8887, Volume 123 – No.15, August 2015, PP 23 – 28. <http://www.ijcaonline.org/research/volume123/number15/dhiwar-2015-ijca-905746.pdf>
14. Ashutosh V. Girase, Girish Kumar Patnaik, Sandip S. Patil, “Ontology Driven Knowledge Base Information Retrieval”, International Journal of Engineering Trends and Technology, ISSN: 2231-5381, ICGTETM Number-4 January 2016, Pages: 467 – 472, http://www.ijettjournal.org/Special%20issue/ICGTETM-2016/ICGTETM_2016_paper_130.pdf

15. Pallavi M. Ingale, Girish Kumar Patnaik, "Advance Security Protocol for Identifying Users without Their Login Ids", International Journal of Engineering Trends and Technology, ISSN: 2231-5381, ICGTETM Number-2 January 2016, Pages: 197 – 200,
http://www.ijettjournal.org/Special%20issue/ICGTETM-2016/ICGTETM_2016_paper_59.pdf
16. Nilesh R. Patil, Girish Kumar Patnaik, "Automatic Text Summarization With Statistical, Linguistic and Cohesion Features", International Journal of Engineering Trends and Technology, ISSN: 2231-5381, ICGTETM Number-2, January 2016, Pages: 224 – 227,
http://www.ijettjournal.org/Special%20issue/ICGTETM-2016/ICGTETM_2016_paper_67.pdf
17. Ashutosh V Girase, Girish Kumar Patnaik and Sandip S Patil, "Ontology Driven Approach for Effective Decision Making", International Journal of Computer Applications, ISSN: 0975 – 8887, Volume 148 - No. 7, August 2016, Pages: 15-21,
<http://www.ijcaonline.org/archives/volume148/number7/girase-2016-ijca-911209.pdf>
18. Pallavi M. Ingale, Girish Kumar Patnaik, "Enhance Security Methods for Identifying Users without their Login Ids", International Journal of Computer Applications, ISSN: 0975 – 8887, Volume 150 – No.8, September 2016, Pages: 31 – 37,
<http://www.ijcaonline.org/archives/volume150/number8/26115-2016911611>
19. Yogesh Shankar Landge, Dr. K.P.Adhiya, Prof. Dr.Girish K. Patnaik, "A Survey on Compressing the Dependent Element of Multiset's Linear Form", International Journal of Innovative Research in Compute and Communication Engineering, ISSN: 2320-9801, Vol. 4, Issue 12, December 2016, Pages: 20750 – 20755,
https://www.ijirce.com/upload/2016/december/23_A%20Survey.pdf
20. Rahil Amin Bhurani, Dr. K.P.Adhiya, Prof. Dr.Girish K. Patnaik, "A Survey on Enhanced Security through Token's", International Journal of Innovative Research in Compute and Communication Engineering, ISSN: 2320-9801, Vol. 4, Issue 12, December 2016, Pages: 20783 – 20788, https://www.ijirce.com/upload/2016/december/28_A%20Survey.pdf
21. Rahil Amin Bhurani, Prof. Dr. Girish K. Patnaik, "Enhanced Security Through Token", International Research Journal of Engineering and Technology (IRJET),e-ISSN: 2395 - 0056, Volume: 04 Issue: 01, Jan -2017, Pages: 1675 – 1681,
<https://www.irjet.net/archives/V4/i1/IRJET-V4I1333.pdf>
22. Yogesh Shankar Landge, Prof. Dr.Girish K. Patnaik, "Compressing the Dependent Elements of Multiset", International Research Journal of Engineering and Technology (IRJET),e-ISSN: 2395 -0056, Volume: 04 Issue: 01, Jan -2017, Pages: 1630 – 1636,
<https://www.irjet.net/archives/V4/i1/IRJET-V4I1322.pdf>
23. Nilesh R. Patil, Girish Kumar Patnaik, "Automatic Text Summarization with Cohesion Features", International Journal of Computer Science and Information Technologies, ISSN: 0975-9646, Vol. 8 (2) , March – April 2017, Pages: 194-198,
<http://www.ijcsit.com/docs/Volume%208/vol8issue2/ijcsit2017080213.pdf>
24. Priyanka L. Patil , Prof. Dr. Girish K. Patnaik , "Continuous User Identity Verification Using Biometric", International Journal of Creative Research Thoughts (IJCRT), ISSN:2320-2882, Volume.5, Issue 12, Page No. 505-509, December - 2017,http://www.ijcrt.org/viewfull.php?&p_id=IJCRTICGT067
25. Manisha J. Bhole, Prof. Dr. Girish K. Patnaik, "Review on Honeyword Generation for User Authentication", International Journal of Creative Research Thoughts (IJCRT), ISSN: 2320-2882, Volume 6, Issue 2, Page No. 354-362, April 2018,
<http://www.ijcrt.org/papers/IJCRT1893055.pdf>

26. Dinesh D. Puri and Dr. G. K. Patnaik, "Review of using regular expression for efficient classification in various applications", International Journal of Management, Technology And Engineering, ISSN NO : 2249-7455, Volume IX, Issue I, Page No. 1536 - 1539, JANUARY/2019, <http://ijamtes.org/VOL-9-ISSUE-01-2019-1/>
27. Harshal Kotwal and Girish Kumar Patnaik, "A Review of Automatic Math Word Problem Solving Techniques", International Journal of Management, Technology And Engineering, ISSN NO : 2249-7455, Volume IX, Issue I, Page No. 1544 - 1548, JANUARY/2019, <http://ijamtes.org/VOL-9-ISSUE-01-2019-1/>
28. A. D. Waghmare and Dr. G. K. Patnaik, "A Survey on Detection of Disinformation", International Journal of Management, Technology And Engineering, ISSN NO : 2249-7455, Volume IX, Issue I, Page No. 1563 - 1567, JANUARY/2019, <http://ijamtes.org/VOL-9-ISSUE-01-2019-1/>
29. Dinesh Dagadu Puri, Dr. Girishkumar Patnaik, "Generation of Regular Expressions for Large Clinical Dataset using NLP and Machine Learning Techniques", INDIAN JOURNAL OF COMPUTER SCIENCE AND ENGINEERING, e-ISSN: 0976-5166, Vol. 12, No.4, Page No. 964-971, Jul-Aug 2021, <http://www.ijcse.com/abstract.html?file=21-12-04-150>, SCOPUS Indexed
30. Akash Dnyandeo Waghmare, Dr. Girishkumar Patnaik, "FAKE NEWS DETECTION OF SOCIAL MEDIA NEWS IN BLOCKCHAIN FRAMEWORK", INDIAN JOURNAL OF COMPUTER SCIENCE AND ENGINEERING, e-ISSN: 0976-5166, Vol. 12, No.4, Page No. 972-980, Jul-Aug 2021, <http://www.ijcse.com/abstract.html?file=21-12-04-151>, SCOPUS Indexed

15.3 "Special Lectures Delivered":

| Sr | Title of Lecture | Title of Programme & Place of Lecture & Date |
|----|---|---|
| 1 | "Challenges & Potential of Mobile Computing" | Celebration of 150Yrs of the Telecom, BSNL, Dhule on August 11 th , 2003 |
| 2 | "Mobile Computing" | Bhauasaheb Hiray S. S. Trust's Polytechnic, Malegaon on February, 2004 |
| 3 | "Design and Implementation of Campus Data Networking" | SNJB COE, Chandwad on March 15 th , 2008 |
| 4 | "LaTeX – A Document Preparation Software" | SSVPS's B. S. Deore College of Engineering, Dhule, November 11 th , 2011 |
| 5 | Workshop on LaTeX | SNJB COE, Chandwad, January 12 th – 13 th , 2012 |
| 6 | National Workshop on NS2 | GLA University, Mathura, March 2 nd , 2012 |
| 7 | Workshop on LaTeX | SSVPS's B. S. Deore Polytechnic, Dhule, August 25 th – 26 th , 2012 |
| 8 | Workshop on LaTeX | SRES College of Engineering, Kopargaon, September 1 st – 2 nd , 2012 |
| 9 | Workshop on LaTeX | ShriSant Gadge baba College of Engineering and Technology, Bhusawal, October 19 th – 21 st , 2012 |
| 10 | Workshop on LaTeX | Matoshri College of Engineering and Research, Nashik, December 28 th – 29 th , |

| | | |
|----|---|--|
| | | 2012 |
| 11 | Workshop on LaTeX | MIT Academy of Engineering, Alandi (D), Pune, January 11 th – 12 th , 2013 |
| 12 | Speaker, National Conference on Recent Trends in Engineering | D. N. Patel College of Engineering, Sahada, March 2 nd , 2013 |
| 13 | Workshop on LaTeX | SNJB COE, Chandwad, April 19 th , 2013 |
| 14 | Workshop on NS2 | Late G. N. Sapkal College of Engineering, Nashik, March 7 th , 2015 |
| 15 | TEQIP sponsored Two days' workshop on LaTeX and SPSS Clementine | Government College of Engineering, Chandrapur, October 17 th – 18 th , 2015 |
| 16 | Workshop on SuSe Linux Server Configuration | SNJB College of Engineering, Chandwad, February 6 th , 2016 |
| 17 | Mobile Ad Hoc Network: Challenges & Issues | 2 nd National Conference on Emerging Trends in Computer & Information Technology, Tapti Education Society's Bhusawal Arts, Science & P.O.Nahata Commerce College, Bhusawal, October 14 th , 2016 |
| 18 | Accreditation by NAAC – An Overview | North Maharashtra University, Library and Information Science Study Circle, Jalgaon, October 22 nd , 2016 |
| 19 | TEQIP sponsored Two days' workshop on LaTeX | Government College of Engineering, Aurangabad, November 14 th – 15 th , 2016 |
| 20 | State Level Workshop on LaTeX | NDMVPS's KBGT College of Engineering, Nashik, March 8 th – 9 th , 2017 |
| 21 | Moodle – E-Learning and E-Content Management | SSBT's College of Engineering and Technology, Bambhori, Jalgaon in collaboration with NMU LIS Study Circle (NMU), March 25 th , 2017 |
| 22 | Moodle Learning Management System | K. C. E. Society's Moolji Jaitha College, Jalgaon, August 22, 2017 |
| 23 | Two days State Level Workshop on LaTeX | MIT Arts, Commerce & Science College, Alandi, Pune, November 23 – 24, 2017 |
| 24 | Report Writing using LaTeX | Pre-Ph.D. Course Work Workshop on Research Methodology, Faculty of Science & Technology, North Maharashtra University, Jalgaon, July 17 th , 2018 |
| 25 | Thesis Writing | Three days National Workshop on Innovations, Inventions and Patents at PSGVPM's D. N. Patel College of Engineering, Shahada on September 14, 2018 |
| 26 | Moodle: Learning Management System | One day Workshop on "SWAYAM:MOOCs and e-Content Development" at KBC North Maharashtra University, Jalgaon on May 21 st , 2019 |
| 27 | Use of ICT & Moodle | KCES's S. S. Maniyar Law College, Jalgaon on June 29 th , 2019 |

| | | |
|----|---|--|
| 28 | Role of Computer Engineers in our Society | Sandip University, Sijoul, Madhubani, Bihar on April 24, 2020 (Online) |
| 29 | Role of Computer Engineers in our Society | Two weeks National Level Training Program on Project Guidance: From Selection to Implementation at JSPM's Rajarshi Shahu College of Engineering, Pune on June 2, 2020 (Online) |
| 30 | English for Academic Research Writing | SSBT's College of Engineering & Technology, Bambhori, Jalgaon on June 16, 2020 (Online) |
| 31 | English for Academic Research Writing | Two days National E-conference on COVID 19 – An opportunity to make Transformation in Pharmacy Field at SSBT's Institute of Pharmacy, Bambhori, Jalgaon on June 28, 2020 (Online) |
| 32 | Cisco Webex: A live Classroom Teaching Platform | Train-the Teacher Training Program Under e-Uttam Vidya @KBCNMU Flagship Project, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon on July 21 st , 25 th and 29 th , 2020. |
| 33 | English for Academic Research Writing | AICTE – ISTE sponsored One Week Refresher Course On “Research Methodology and Data Analysis” from 07 th Dec to 12 th Dec 2020 on 11 th Dec 2020 at 01.30 PM at JSPM's Rajarshi Shahu College of Engineering, Pune |
| 34 | Moodle - Learning Management System | AICTE-ISTE sponsored Online One Week Induction / Refresher Program on “Role of ICT in Teaching Learning Process” from 14 th December 2020 to 19 th December 2020 on 18 th December 2020 at 10 AM at Sanjivani College of Engineering, Kopergaon |
| 35 | English for Academic Research Writing | Pre Ph.D. course work February 2021 Workshop on Research Methodology and Research & Publication Ethics organized by Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon on 4 th February 2021 |

16. Details of Consultancy Work / Projects Completed:

| Sr | Title of Work / Project | Funding Agency | Year of Completion |
|----|---------------------------------------|---|--------------------|
| 1 | Design of Campus Wide Data Networking | SSBT COET, Bambhori , Jalgaon | 2006 |
| 2 | Design of Campus Wide Data Networking | Jawahar Shetkari Sahakari Soot Girni, Dhule | 2007 |

| | | | |
|---|---|--|------|
| 3 | Design and implementation of Campus Wide Wireless Networking | Chatrapati Shivaji Public School, Dhule | 2007 |
| 4 | Design of Campus Wide Data Networking (Wired & Wireless) Configuration of Blade Server as Web, Mail & Proxy | SNJB COE, Chandwad (Nashik) | 2008 |
| 5 | Design of Campus Wide Data Networking (Wired & Wireless) Configuration of Proxy Server | Zilla Parishad, Dhule | 2009 |
| 6 | Design and deployment of website for International Conference | Late Karmveer Dr. P. R. Ghogrey Science College, Dhule | 2010 |
| 7 | Design and deployment of website for School | Chatrapati Shivaji Public School, Dhule | 2011 |
| 8 | Design of Campus Wide Data Networking (Wired & Wireless) Configuration of Server as Web, Mail & Proxy | D. N. Patel College of Engineering, Shahada | 2011 |

17. Membership of Professional Bodies:

| Sr | Name of the Body / Head Quarter | Grade of Membership (Fellow / Member) | Membership Number |
|----|---------------------------------|--|-------------------|
| 1 | IEEE | Senior Member | 41557025 |
| 2 | ACM | Professional Member | 7901648 |
| 3 | ISTE | Life Member | LM36299 |
| 4 | CSI | Life Member | 01208611 |

18. Representation at University/Other Level:

- I. Recognized PhD Guide in Computer Engineering under the faculty of Science & Technology, North Maharashtra University, Jalgaon, from 10/01/2017
- II. Member of Faculty, Science & Technology, K. B. C. North Maharashtra University, Jalgaon
- III. Member of Board of Studies for Computer & IT Engineering, North Maharashtra University, Jalgaon – Year 2004 - 2005
- IV. Member of Board of Studies for Computer & IT Engineering, North Maharashtra University, Jalgaon – Year 2008 – 2010
- V. Member of Board of Studies for Computer & IT Engineering, K. B. C. North Maharashtra University, Jalgaon – Year 2018 – 2022
- VI. Member of Board of Information Technology, K. B. C. North Maharashtra University, Jalgaon from 12/10/2018 to 31/08/2022
- VII. Member of Board of Studies for Computer Engineering, Govt. College of Engineering, Jalgaon – Year 2013 – Till date
- VIII. Member of 48(3) (A) Committee K. B. C. North Maharashtra University, Jalgaon
- IX. Subject Expert for LIC / Approval / VCRMS etc. K. B. C. North Maharashtra University, Jalgaon
- X. Technical Committee Member for Information and Communication Technology at K. B. C. North Maharashtra University, Jalgaon
- XI. Administrative Officer for On Screen Evaluation Center in Oct/Nov/Dec 2015, May/June/July 2016, Nov/Dec 2016 examinations by K. B. C. North Maharashtra University, Jalgaon
- XII. PhD / ME Thesis / Dissertation Examiner for Pune University, Amaravati University and

Bharati Vidyapeeth Deemed University College of Engineering, Pune, SOA University, Bhubaneswar

- XIII. Advisory Board Member for National / International Conferences
- XIV. Reviewer at National / International Conferences
- XV. Assisted Vidyabharati College of Pharmacy, Amravati for preparation of NBA
- XVI. Member of Board of Studies for B.Tech. Course of School of Computer Science and Engineering, School of Engineering and Technology, Sandip University, Madhubani, Bihar
- XVII. Managing Committee Member from 1-4-2021 to 31-3-2022, Computer Society of India, Nashik Chapter

19. Number of Candidates perusing PhD: SIX

20. Technical Expertise:

Linux Server Configuration as Gateway, Web, Mail, Proxy, Firewall, User portal
Configuration of MOODLE as Learning Management System
Configuration of Digital Library, Course End Survey, Student Feedback
Campus Networking

I declare that the above furnished information is correct to the best of my knowledge and belief.

SIGNATURE

VIII. FEE

A) Details of fee, as approved by Shikshan Shulka Samiti, for the Academic Year 2024-25.

| Sr. No. | Branch | Tuition fee |
|-------------------|--|-------------|
| UG Courses | | |
| 1 | Chemical Engineering | RS.68723 |
| 2 | Civil Engineering | RS.68723 |
| 3 | Computer Engineering | RS.68723 |
| 4 | Mechanical Engineering | RS.68723 |
| 5 | Electrical Engineering | RS.68723 |
| 6 | Electronics and Tele-comm. Engineering | RS.68723 |
| PG Courses | | |
| 1 | M.C.A. | Rs.69916 |
| 2 | M.B.A. | Rs.52863 |

B) Time schedule for payment of fee the entire programme.

As per Admission rule Government of Maharashtra all fees for the entire programme. Should be remitted at the time of admission.

C) No. of Fee Waivers granted with amount and name of students.

NA

D) Number of scholarship offered by the institute, duration and amount

NA

E) Criteria for fee waivers/scholarship.

NA

F) Estimated cost of Boarding and Lodging / Hostels.

Rs.27000/- For lodging and boarding both yearly.

Ix. ADMISSION

A) Number of seats sanctioned with the year of approval.

| Sr. | Branch | Year | | | | |
|-----|----------------------------------|------------|------------|------------|------------|------------|
| | | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| 1 | Chemical Engineering | 30 | 30 | 30 | 30 | 30 |
| 2 | Civil Engineering | 60 | 60 | 60 | 60 | 60 |
| 3 | Computer Engineering | 120 | 180 | 180 | 180 | 180 |
| 4 | Mechanical Engineering | 60 | 60 | 30 | 30 | 30 |
| 5 | Electrical Engg. | 60 | 60 | 60 | 60 | 60 |
| 6 | Electronics and Tele-comm. Engg. | 60 | 60 | 30 | 30 | 30 |
| 7 | Information Technology | 60 | 00 | 00 | 00 | 00 |
| 8 | Bio-Technology | 30 | 00 | 00 | 00 | 00 |
| | Total | 480 | 450 | 390 | 390 | 390 |
| | PG Courses | | | | | |
| 1 | M.C.A | 00 | 60 | 60 | 60 | 60 |
| 2 | M.B.A. | 60 | 60 | 60 | 60 | 60 |
| | Total | 60 | 120 | 120 | 120 | 120 |

Number of students admitted under various categories each year in the last four years.

| Year | UG | | | | | | | | | |
|---------|------|----|----|-----|-----|-----|----|-----|-----|-------|
| | Open | SC | ST | NT1 | NT2 | NT3 | VJ | OBC | SBC | Total |
| 2021-22 | 66 | 24 | 02 | 10 | 07 | 07 | 12 | 160 | 12 | 292 |
| 2022-23 | 71 | 25 | 10 | 16 | 10 | 05 | 19 | 214 | 09 | 379 |
| 2023-24 | 70 | 23 | 05 | 02 | 03 | 03 | 40 | 208 | 10 | 364 |
| 2024-25 | 64 | 32 | 05 | 05 | 15 | 08 | 28 | 243 | 21 | 424 |

| PG | | | | | | | | | | |
|---------|------|----|----|-----|-----|-----|----|-----|-----|-------|
| MBA | | | | | | | | | | |
| Year | Open | SC | ST | NT1 | NT2 | NT3 | VJ | OBC | SBC | Total |
| 2023-24 | 23 | 02 | 00 | 01 | 01 | 01 | 04 | 33 | 03 | 68 |
| 2024-25 | 15 | 04 | 01 | 01 | 01 | 00 | 01 | 25 | 08 | 67 |

| MCA | | | | | | | | | | |
|---------|------|----|----|-----|-----|-----|----|-----|-----|-------|
| Year | Open | SC | ST | NT1 | NT2 | NT3 | VJ | OBC | SBC | Total |
| 2023-24 | 06 | 00 | 00 | 00 | 00 | 00 | 02 | 25 | 00 | 33 |
| 2024-25 | 13 | 03 | 01 | 00 | 00 | 00 | 00 | 49 | 02 | 68 |

C) Number of applications received during last two years for admission under Management Quota and number admitted.

| Sr. | Year | Application received | Admitted Number |
|-----|---------|----------------------|-----------------|
| 1 | 2023-24 | 15 | 05 |
| 2 | 2024-25 | 18 | 07 |

X. Admission Procedure (UG COURSES)

A) Mention the admission test being followed, name and address of the Test Agency and its URL (website).

| Sr. | Admission Test | Name and Address of Test Agency | URL (Website) |
|-----|----------------|---|---|
| 1 | MHT-CET | STATE CET CELL ducation, Maharashtra State, 3, Mahapalika Marg, Mumbai -1 | Home - State Common Entrance Test Cell (mahacet.org) |
| 2 | JEE | CBSE, New Delhi | Joint Entrance Examination (Main)-2025 India (nta.nic.in) |

Number of seats allotted to different Test Qualified candidates separately [JEE/CET (State conducted test/University tests)/Association conducted test]

2024-25

| Sr. | MH-CET/JEE State Conducted test | AI(CET/JEE) | Management Quota(CET / JEE) |
|-----|------------------------------------|----------------|--------------------------------|
| 1 | 65% (390 Seats) | 15% (90 Seats) | 20% (120 Seats) |

C) Calendar for admission against management/vacant seats 2024-25

| Sr. No. | Particular | Institute level Seats |
|---------|--|-----------------------|
| 1. | Sale of Information Broacher | 09/08/2024 |
| 2. | Last date for submission of application. | 10/08/2024 |
| 3. | Admission counseling & conformation of admission | 13/08/2024 |

Admission Procedure (PG COURSES)

RULES & REGULATIONS FOR M.E. COURSE

The postgraduate degree in Engineering consisting of 2 years (4 semesters) shall be designated as Master of Engineering in prescribed branches

A candidate may be permitted to register him/er self for the M.E. degree under the faculty of Engineering & Technology of North Maharashtra University, Jalgaon only if the candidate holds a Bachelor's Degree in Engineering/Technology of North Maharashtra University, Jalgaon or its equivalent by AICTE, and North Maharashtra University, Jalgaon.

Preference will be given to graduates of North Maharashtra University, Jalgaon.

The students shall be admitted to second term of first year if his/her first term is granted.

The students shall be admitted to second year if his/her second term of first year is granted. However he/she will not be allowed to submit his/her thesis/ dissertation unless he/she has cleared all the Theory papers and has completed all the presentations of first term of second year.

Every students will be required to produce a record of laboratory work in the form of journal, duly certified for satisfactory completion of the Term Work by the concerned teacher and head of the department.

A student whose term is not granted on account of unsatisfactory attendance/ term work is required to repeat the semester.

The policy of refund of the fee, in case of withdrawal, should be clearly notified.

The candidate who has been provisionally admitted may cancel admission by submitting as application in duplicate, in the prescribed pro forma – O and may request for refund of fees. The refund of fees as applicable shall be made in due course. It is made clear that such application for cancellation will be considered if and only if the admission is confirmed by paying the prescribed tuition fee and other fees in full and by submitting the original documents. Refund shall be made after deduction of the cancellation charges as shown below:

In the event of student/candidate withdrawing before the starting of the course, the waitlisted candidates should be given admissions against the vacant seat. The entire fee collected from the student, after a deduction of the processing fee of not more than Rs. 1000/- (Rupees one thousand only) shall be refunded and returned by the Institution/University to the student/candidate withdrawing from the programme.

Should a student leave after joining the course and if the seat consequently falling vacant has been filled by another candidate by the last date of admission, the Institution must return the fee collected with proportionate deductions of monthly fee and proportionate hostel rent, where applicable.

XI. CRITERIA AND WEIGHTAGES FOR ADMISSION

Each criteria with its respective weightages i.e. Gate examination marks & qualifying examination marks etc.

2 Eligibility Criteria:

2.1 Eligibility criteria for Maharashtra State Candidate and Outside Maharashtra State Candidate:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** (minimum **45 % marks**, in case of Backward class categories and Persons with Disability candidates belonging to Maharashtra State only) in **the subjects**

Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject added together.

AND

Obtained a **positive Composite score*** i.e., marks obtained after adding 50% of JEE (Main)2014 (Paper 1) marks and 50% of normalized Standard XII (Board or Equivalent Examination) marks in Physics, Chemistry and Mathematics.

**Note: -1) * - The details for calculating positive Composite score shall be notified separately.
2) Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.**

2.2 Eligibility Criteria for All India Candidates:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** (minimum **45 % marks**, in case of Backward class categories and Persons with Disability candidates belonging to Maharashtra State only) in **the subjects Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject added together.**

AND

Obtained All India Rank in JEE (Main) 2014 (Paper 1) given by CBSE

Note: 1) Maharashtra Candidates eligible as per rule 2.1 and 2.2 shall submit single Application and Option form for the CAP for both Maharashtra State Seats and All India Seats. Such candidates will be given best single allotment through CAP as per inter-se-merit.

2) Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable

2.3 Eligibility Criteria for Foreign National/PIO/Children of Indian workers in the Gulf countries/ Children of NRI

Candidate should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** in **the subjects Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject added together.**

Note :-

- The eligibility of the candidates passing the HSC (Std. XII) or equivalent examination from a school/college/Examination Board situated outside India shall be further decided by the University Authorities to which the candidate is admitted. Hence such candidates are advised to get their eligibility verified by the respective University Authorities before seeking admission to the Engineering courses in the State of Maharashtra.
- The candidate belonging to this type is not required to appear for the JEE Main 2014(Paper 1)
- Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.

2.4 Eligibility criteria for GoI Nominees:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent

examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** (minimum **45 % marks**, in case of Backward class categories and Persons with Disability candidates of respective States) in the subjects **Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject** added together.

AND

Obtained All India Rank in JEE (Main) 2014 (Paper 1) given by CBSE

Note: -

Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.
The candidate belonging to this type is required to appear for the JEE (Main) 2014 (Paper 1).

2.5 Eligibility criteria for J & K Migrant candidates:

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry/Biotechnology /Biology/ Technical Vocational subject

AND

Secured minimum **50 % marks** in the subjects **Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subject** added together.

AND

Obtained All India Rank in JEE (Main) 2014 (Paper 1) given by CBSE

Note: -

Refer Rule No 2.11 regarding Rounding off of percentage of marks for deciding the eligibility, if applicable.
The candidate belonging to this type is required to appear for the JEE (Main) 2014 (Paper 1).

2.6 Eligibility criteria for MKB candidates:

In addition to the basic eligibility criterion mentioned in rule no. 2.1, candidates belonging to the Maharashtra Karnataka Disputed Border Area are required to fulfill following additional eligibility criterions.

- Candidates should be from such villages/towns, from the Maharashtra Karnataka disputed border areas, on which Maharashtra puts its claim.
- The candidate should produce the certificate that his/her father/mother/candidate himself/herself is a domicile of Karnataka in the disputed border area as specified in the Proforma G1/G2 OR The candidate should produce the domicile certificate of his/her father/mother/candidate himself/herself stating that he/she is a resident of a village.
- The candidate should have passed SSC (or equivalent) and/or HSC (or equivalent) from an Institution situate in the disputed border area. The candidate must produce a certificate from the Principal/Head Master of the College/School stating that the candidate has passed SSC/HSC (or equivalent) Examination from that Institution.
- Mother tongue of the candidate must be Marathi. The candidate must produce a certificate from the Principal/Head Master of the School from which he/she has passed the SSC (or

equivalent) Examination, stating that the candidate's Mother tongue is Marathi as per the original School record.

- Candidate should have passed SSC or HSC (or equivalent) Examination with Marathi as one of the subject.
- **Composite Score of MKB Candidates shall be calculated in the manner similar as applied to Maharashtra state board students considering he /she has passed HSC from Maharashtra board.**
- **Composite Score of MKB Candidates shall be calculated by mapping his or her HSC performance with Maharashtra state board.**

2.7 Eligibility criteria for Candidates who are sons/daughters of Defence Service personnel:

In addition to the basic eligibility criterion mentioned in rule no.2.1, candidates who satisfying any one of the following criteria as are eligible to seek admission against seats for sons/daughters of defence service personnel.

- Candidate is a son/daughter of ex-service personnel who is domiciled in Maharashtra State (Def-1).
- Candidate is a son/daughter of active service personnel who is domiciled in Maharashtra State (Def-2).
- Candidate is a son/daughter of active service personnel (Def -3)
 - Who is transferred to Maharashtra State but is not domiciled in Maharashtra State
 - Who is not domiciled in Maharashtra State but his/her family is stationed in Maharashtra State under the provision of retention of family accommodation at the last duty station on the grounds of children's' education, provided further that, such candidate should have appeared and passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination from a school/college situated in the State of Maharashtra.

Note: This provision is NOT available to the children of CIVILIAN STAFF who is working/ who has worked with the Indian Defence Services.

2.8 Eligibility criteria for Candidates who are Persons with Disability:

In addition to the basic qualification mentioned in rule no. 2.1, candidate who is suffering from any one of the following permanent disability is eligible to seek admission against seats for Persons with Disability candidates

- Candidate who is visually impaired (blind) candidate (type P1)
- Candidate who is speech & hearing impaired (deaf & dumb) candidate (type P2)
- Candidate who is with orthopedic disorders, learning disabilities, Dyslexia, Dyscalculia, Dysgraphica, Spastic (type P3)

Note: The certificate (Proforma F/F-1) should clearly state that the extent of disability is more than 40% and the disability is permanent in nature.

2.9 Other eligibility criteria for specialized branches of Engineering/Technology:

Candidates seeking admission to some special courses or under some special provisions have to fulfill the following additional eligibility criteria.

- **Admission to Mining Engineering course:**

Female candidates are not eligible for admission to Mining Engineering course.

2.10 Eligibility criteria of Candidates who have passed Diploma in Engineering/Technology and seeking admission to First Year of Engineering/Technology in Unaided Institutes:

Diploma holders should have passed the Diploma course in Engineering/Technology with minimum of 50% marks (45% marks in case of candidates of Backward class categories and Persons with Disability belonging only to Maharashtra State) and medium of instruction as English from the AICTE approved Diploma Institutes affiliated to State Boards of technical Education.

Note:

1. To resolve a tie i.e. more than one candidate securing equal aggregate marks in Final year of the Diploma examination, following order of preference shall be adopted: marks in Maths at SSC, Grand Total at SSC.
2. Eligible Diploma candidates (rule 2.10) shall be considered for Admission against the Institute level seats in **Unaided Private Institutes only**. The details of the admission process for filling seats are specified in Annexure-II.

2.11 Rounding off of percentage of marks for deciding eligibility for admission.

In case percentage, marks (converted out of 100) in the subjects **Physics, Mathematics and Chemistry/Biotechnology/Biology/ Technical Vocational subjects** added together at HSC (std.XII), comes in fraction then percentage of marks shall be rounded off as explained in the example for the purpose of deciding the eligibility of the candidate.

Example: - If the percentage of marks comes out to be 44.50% to 44.99% then it shall be rounded to 45% and if the percentage of marks comes out to be 44.01% to 44.49% shall be rounded to 44%.

General Notes:

1. In case the maximum marks in individual subject is other than 100, convert the marks out of 100 for individual subject but do not *round off* these marks. If the sum of the converted marks of three individual subjects without rounding off works out to be a figure with fraction then fraction up to two decimal places shall only be considered and the percentage of marks shall be calculated considering maximum marks as 300 and, If the percentage comes in fraction, rounding off shall be done as given in rule No. 2.11 to decide the eligibility.

Example: If a candidate obtains 85 marks out of 200 in Physics, 76 marks out of 150 in Chemistry and 40 Marks out of 100 in Mathematics, then the sum of marks obtained works out to be 201 out of 450 marks. If it is converted out of 300, it works out to be 134. The % of marks comes out 44.6666 %.

However if the marks in individual subjects are converted out of 100, then the marks are as 42.5 in Physics, 50.6666 in Chemistry and 40 in Mathematics. It means the sum of converted marks of individual subject is 133.1666, which is 133.16 up to two fractions. The % of marks comes out 44.38 % after rounding off it is 44%. Hence the candidate is not eligible for admission.

2. If **letter grades** are assigned instead of marks at SSC, HSC or its equivalent examination the candidate must obtain the certificate of conversion of letter of grades into marks from the competent authority where from the candidate has passed the examination. The candidate should produce such certificate at the time of submission of application form. The Eligibility shall be decided based on the equivalent marks submitted by such candidates.

Institute Level Seat and Vacant Seat.

Candidate passing the HSC (Std. XII) or its equivalent examination with subjects English, Physics, Chemistry and Mathematics and should have secured minimum 50% marks in General Category and reserve Category 45% marks in Physics, Chemistry and Mathematics added together.

Candidates passing Diploma in Engg. / Technology course from Maharashtra State:

Diploma holders who have passed the diploma course in Engineering/Technology with minimum of 50% marks and reserve Category 45% marks from the Polytechnics affiliated to MSBTE or AICTE approved autonomous Polytechnics in Maharashtra State.

B) Minimum level of acceptance, if any.

Eligibility criteria for Maharashtra State Candidate and Outside Maharashtra State Candidate-

Candidate should be an Indian National and should have passed the HSC (Std. XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Mathematics and Chemistry / Biotechnology / Biology / Technical Vocational subject

And

Secured minimum 45% marks (minimum 40% marks, in case of Backward class categories and Persons with Disability candidates belonging to Maharashtra State only) in the subjects



Application Form
for
(FE / Direct SE / First Year ME/ MBA)
Shram Sadhana Bombay Trust's
College of Engineering & Technology,
P.B.No.94, BAMBHORI, JALGAON 425 001
(Maharashtra State)

Affix Recent
Passport size
Photograph
here

Website- www.sscoetjalgaon.ac.in
Email: sscoetjal@gmail.com

Phone No. (0257) 2258393
Fax No. (0257) 2258392

Note:- (a) To be filled in and signed by the candidate.

Application submitted without required certificates shall not be considered.
Score out which is not applicable

1) Details of student

| Particular | Surname | First Name | Middle Name |
|-----------------|---------|------------|-------------|
| Name of Student | | | |
| Father Name | | | |
| Mother Name | | | |

Date of birth:- _____

Address for correspondence :- _____

Address for permanent:- _____

Pin Code _____ State _____

Telephone No. _____ Mobile No.:- _____

Email Address:- _____ Admitted in College Hostel :- Yes/No

(a) State & District from which you have passed SSC (Std. X) :- _____

State & District from which you have passed HSC (Std. XII) :- _____

SEX :- (Male/Female) _____

Occupation of the Earning member(s) of the family :- _____

Annual income of the family:- _____

Indicate the category to which you belong (Tick appropriate box)

a) Category :- () Open () SC () ST () VJNT () NT1 () NT2
() NT3 () OBC () SBC

b) Minority :- () Yes () No Religion:- _____ Caste:- _____

c) Physically Handicapped :- () Yes () No

U.G. Programme: I hereby apply for admission to First / Second year of degree course in the branches given below in order of preference

- 1) _____ 2) _____ 3) _____
 4) _____ 5) _____ 6) _____
 7) _____ 8) _____

A) For F.E. & Direct S.E. students

| PCM Total out of 300 | | EXAM. | MERIT NO. | SCORE |
|---|--|----------------------|-----------|-------|
| Category | | MH-CET | | |
| Branch Allotted | | University Merit No. | | |
| Final Year Diploma Marks Obtained /Out of | | AIEEE | | |
| Percentage HSC | | State Merit No. | | |
| Percentage Diploma | | Main Group Merit | | |

B) Details of qualification (For F.E. & Direct S.E.):-

| Examination | Month & Year of passing | Name & Address of Institution | Name & Address of Board/ University | Passed from M.S. or O.M.S. |
|--------------------|-------------------------|-------------------------------|-------------------------------------|----------------------------|
| S.S.C. | | | | |
| H.S.C. | | | | |
| Diploma final year | | | | |

C) S.S.C. Marks

| Sr. No. | Subjects | Marks out of | Marks Obtained | Total percentage | Remark result |
|---------|-------------|--------------|----------------|------------------|---------------|
| 1 | Mathematics | | | | |

D) H.S.C. Marks

| Sr. No. | Subjects | Marks out of | Marks Obtained | Total PCM & percentage | Remark result |
|---------|-------------|--------------|----------------|------------------------|---------------|
| 1 | Physics | | | | |
| 2 | Chemistry | | | | |
| 3 | Mathematics | | | | |
| 4 | Biology | | | | |
| 5 | English | | | | |

P.G. Programme:- I hereby apply for admission to First year P.G. Programme in Engineering & Technology/ Management for M.E. Civil (Environmental Engg.) / Mechanical (Machine Design) / E.& TC. (Digital Electronics) / Computer Science & Engineering/ M.B.A.

Academic Programme

1) First Year M.E. Course

i) Detail Qualification

| Course & Examination | College Attended | Month & Year of Passing | No. of attempts | University/Boards | Total Marks Obtained | Max. Marks (Out of) | Percentage |
|----------------------------------|------------------|-------------------------|-----------------|-------------------|----------------------|---------------------|------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 st Year Engineering | | | | | | | |
| 2 nd Year Engineering | | | | | | | |
| 3 rd Year Engineering | | | | | | | |
| 4 th Year Engineering | | | | | | | |

ii) GATE Score:

Valid up to

iii) Sponsored: () Yes () No

2) First Year M.B.A.

i) Details of qualification:-

| Examination Passed | Name of Board/ University | Year | Subject Specialization | Marks | Percentage/ Score | Remark |
|--------------------|---------------------------|------|------------------------|-------|-------------------|--------|
| S.S.C. | | | | | | |
| H.S.C. | | | | | | |
| Graduation | | | | | | |
| Post graduation | | | | | | |
| Any other exam. | | | | | | |

| For M.B.A. Course | | |
|-------------------------|-----------|-------|
| EXAM. | MERIT NO. | SCORE |
| MH-CET | | |
| University Merit No. | | |
| Any other Entrance Test | | |

09) Work experience (attach extra sheet, if space is not enough)

| Name of the Organization/Industry | Period | Nature of Work |
|-----------------------------------|--------|----------------|
| | | |
| | | |
| | | |

10). Presently Employed or Unemployed? : Yes/No

If employed, give details

Name of Organization: _____

Date of appointment: _____

Regular/ Temporary : _____

11) Sponsorship certificate attached? Yes/No

(Note : Employed candidates will have to produce a certificate from the employer in the prescribed format attached with the form, without which the application may not be considered)

12) List of Certificates attached with application form:- Tick only available documents

- | | | |
|--|---|---------------------------------------|
| 1) CET Score Card | (2)CAP Allotment letter | (3) SSC (10 th) Marksheet |
| 4) HSC (12 th) / Diploma Marksheet | (5) Latest L.C./T.C. | (6) Migration Certificate |
| 7) Indian Nationality Certificate | (8) Character/ Bonafide Certificate | |
| 9) First Attempt Certificate | (10) Gap Affidavit (If applicable) | |
| 11)Caste Certificate (If applicable) | (12) Validity Certificate (If applicable) | |
| 13)Non-Creamy Layer (If applicable) except SC/ST students only | | |
| 14)Degree Marksheet | (15) Degree Certificate | |
| 16)Experience Certificate | (17) Sponsor Certificate | |
| 18)No Objection Certificate | (19) Domicile Certificate | |

Please do not attach any original or photo copy of certificate not asked for.

However you shall have to submit all original certificates at the time of admission.

**Declaration by the Candidates
(Undertaking)**

I _____ declare that:

I have read all the Rules of Admission for the current year, after understanding these rules I have filled up this application form for the current year.

The information given by me in my application is true to the best of my knowledge and belief.

I have not been debarred from appearing at any examination held by any Govt. body constituted or statutory examination authority in India.

I fully understand that the offer of a course or branch of Engineering/ Technology/ Management will be made to me depending on my merit inter-se and availability of seat at the time of scrutiny of my application when I will report to the Admission Authority according to the schedule of the admission.

I understand that no other document other than those attached to the application form will be entertained for the purpose of claims/ concession etc. in connection with my admission.

I hereby agree to confirm to all rules and laws enforced by the Govt. including ragging Act 1999 of Maharashtra, the College Management and North Maharashtra University, Jalgaon. I hereby undertake that as long as I am a student of the college, I will do nothing either inside or outside the College which may result in disciplinary action against me under the act and laws refer to under rules Nos. 13-0. I will abide by all the rules of the Hostel, if I am given admission in to the Hostel.

I fully understand that the Principal of the college will have the right to expel/ rusticate me from the college for any infringement of the rules of conduct and discipline refer to under Rules No.13-0 and the rules of conduct and discipline prescribed by the College/University and the undertaking given above.

The total numbers of certificates attached with the application form are: _____

Place:

Date:

Signature of the Candidate

**Declaration by the Parents/Guardians
(Undertaking)**

I _____ declare that the particulars furnished by my son/daughter/ward in this application form are correct to the best of my knowledge and belief.

I undertake & bind myself to pay on behalf my son/daughter/ward, such fees charges etc. which the College/Government of Maharashtra/University may levy from time to time by due date & in the event of failure on my part and/or on the part of my son/daughter/ward the Principal of the College may take such action against my son/daughter/ward as he may deem fit.

I will sign the requisite agreement bond as prescribed by the Government (In case or Minor only).

Place:

Date:

Signature of the Parent/Guardian

A G R E E M E N T

I Shri/Shrimati/Kumari_____

(Name of the Candidate)

do hereby affirm that I have taken admission in _____ at
College of Engineering & Technology, Jalgaon on my own and I solemnly declare that I
will abide by all Rules & Regulation laid down by the Management of the aforesaid
College, University and Government of Maharashtra, from time to time and if I fail to do
so I will be liable for any punishment including expulsion from the College.

I shall not ask for transfer from the aforesaid College, to any other College, under any
circumstances, I shall be responsible for full payment of fees and all dues for the entire
course and shall not be entitled for refund of any fees at any stage.

Signature of the Father/Guardian

Signature of the Student

Place:

Date

M E D I C A L C E R T I F I C A T E

I certify that I have carefully examined Shri/Kum._____

on_____ and hereby certify that him/her eye sight is good and that
any minor defects in the same can be corrected by means of suitable glasses that he/she is
fairly robust, his/her constitution is sound/is not likely to make him/her unfit for manual
work in the workshop or active out-door service as an Engineer, (Score out whichever is
not applicable)

Date:

Signature_____

Address:_____

Name:_____

Qualification_____

Registration No.:_____

UNDERTAKING-1

I, _____ taking admission in First Year/ Second Year_____ in the year 20 - 20 give an undertaking that as per the letter No.NMU/7/A/4718/2008, dated 27/09/2008, North Maharashtra University, Jalgaon I am not engaged in any job full time/part time. Similarly I have not taken admission in any other college within this University or any other University.

Date:-

Signature of candidate

PRINCIPAL

UNDERTAKING-2

I, _____ interested to take admission in First Year/ Second Year_____ in the year 20 - 20 . As per North Maharashtra University, Jalgaon vide letter No.NMU/2/106/2002, dated 26/06/2002, I undertake that if I fail to maintain my attendance in the classes as per the rule means 80% out of total 180 working days then I will not be eligible to appear in College/University examinations. It is in my knowledge and I will not do any type of complaint against the same.

Date:-

Signature of Candidate

Signature of Parents

PRINCIPAL



Fees Regulating Authority, Maharashtra State

Fees Approval System For Academic Year 2024-25

[HOME](#) | [NEWS](#) | [DOWNLOADS](#) | [CONTACT](#) | [LOG IN](#)

Main Menu

Menu

All Institutions/Colleges to take note that the fees as notified by the Fees Regulating Authority as 'No Upward Revision of fees' as well as 'Upward Revision of fees' for the academic year 2023-2024 must be displayed course-wise on the Notice Board as well as the Website of the Institutions/Colleges in Marathi and English and in case of linguistic minority institution the fees shall also be displayed in the language of minority belongs as provided under section 14(4) of the Maharashtra Unaided Private Professional Educational Institutions (Regulation of Admissions and Fees) Act, 2015 which reads as under:

"(4) Every unaided institution shall display on its notice board, the course-wise fees as approved by the Fees Regulating Authority and on its website in Marathi and English, provided that, in case of linguistic minority institutions, the display shall also be in the language of the minority to which such, institution belongs and shall be binding on the students and the institution."

The non-compliance above quoted statutory provision by any Institution/College is liable for penal consequences as provided u/s 20 of the Act of 2015.

[Fees Search for Institute](#)

| | |
|-----------------------|--|
| Select Institute Type | Higher & Technical |
| Select Course | Bachelor of Engineering/Bachelor of Technology |
| Select District | Jalgaon |

| Sr. No. | Inst ID | Inst Name | District | Stream | Status | Date of Meeting | Tuition Fee | Development Fee | Total Fee |
|---------|---------|---|----------|--------|----------|-----------------|-------------|-----------------|-----------|
| 1 | EN5104 | SHRAMSADHANA BOMBAY TRUST, COLLEGE OF ENGINEERING & TECHNOLOGY, JALGAON | Jalgaon | Engg | Approved | 22-05-2024 | 68723 | 9277 | 78000 |

| | |
|-----------------------|-----------------------------------|
| Select Institute Type | Higher & Technical |
| Select Course | Master of Business Administration |
| Select District | Jalgaon |

| Sr. No. | Inst ID | Inst Name | District | Stream | Status | Date of Meeting | Tuition Fee | Development Fee | Total Fee |
|---------|---------|---|----------|--------|----------|-----------------|-------------|-----------------|-----------|
| 1 | EN5104 | SHRAMSADHANA BOMBAY TRUST, COLLEGE OF ENGINEERING & TECHNOLOGY, JALGAON | Jalgaon | MBA | Approved | 22-05-2024 | 52863 | 7137 | 60000 |

| | |
|------------------------------|---------------------------------------|
| Select Institute Type | Higher & Technical |
| Select Course | Master of Computer Application |
| Select District | Jalgaon |

| Sr. No. | Inst ID | Inst Name | District | Stream | Status | Date of Meeting | Tuition Fee | Development Fee | Total Fee |
|----------------|----------------|---|-----------------|---------------|---------------|------------------------|--------------------|------------------------|------------------|
| 1 | EN5104 | SHRAMSADHANA BOMBAY TRUST, COLLEGE OF ENGINEERING & TECHNOLOGY, JALGAON | Jalgaon | MCA | Approved | 22-05-2024 | 69916 | 9440 | 79356 |

**XV. INFORMATION ON INFRASTRUCTURE AND OTHER RESOURCES
AVAILABLE LIBRARY**

Number of Library books /Titles/ Journals available (Programme-wise 2024-25)

| Sr.No. | Department | No of Titles of the books | No. of Volumes | National Journals | International Journals |
|--------|--------------|---------------------------|----------------|-------------------|------------------------|
| 1 | Civil | 1932 | 9408 | 12 | 02 |
| 2 | Chemical | 1119 | 4301 | 06 | 02 |
| 3 | Computer | 2057 | 10904 | 12 | 02 |
| 4 | E&TC | 1478 | 8340 | 06 | 02 |
| 5 | Electrical | 1002 | 4797 | 06 | 02 |
| 6 | Mechanical | 1624 | 9823 | 12 | 02 |
| 7 | App.sci | 816 | 5128 | 06 | 02 |
| 8 | M.B.A. | 1015 | 2835 | 06 | 06 |
| 9 | M.C.A | 1015 | 2835 | 06 | 06 |
| 10 | General | 762 | 1074 | | |
| | Total | 12820 | 59445 | 72 | 26 |

A) E-Library facilities –Our College Library is Subscribed E-Journals i.e. 1) J-Gate (Engineering & Technology) 2) J-Gate (Management Science) for the year 2024-25.

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON

Ref. No. COET/SCST/918-3110/24.

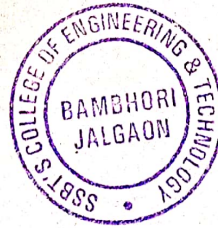
Date: 28/10/2024

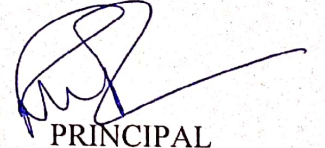
Committee for S.C. and S.T. (Prevention of Atrocities Act. 1989):

The Committee for S.C. and S.T. (Prevention of Atrocities Act. 1989) is Constituted as follows:

| Sr. No. | Name | Dept. | Role |
|---------|---------------------------|--|----------|
| 01 | Dr. K.P. Adhiya | Prof, Computer Engg. Dept. | Chairman |
| 02 | Dr. P.G. Damle | Associate Prof. Mechanical Engg. Dept. | Member |
| 03 | Mrs. Dhanashree S. Tayade | Asst. Prof, Computer Engg. Dept. | Member |
| 04 | Mrs. Deepmala Desai | Asst. Prof, First Year Engg. Dept. | Member |
| 05 | Shri. Y.K. Chitte | Registrar | Member |
| 06 | Dr. Sudhir S. Patil | Librarian | Member |
| 07 | Shri. Sunil L. Patil | Sr. Clerk | Member |

The Committee should go through the Scheduled Caste and Scheduled Tribes (Prevention of Atrocities) act, 1989, No.33 of dated 11/09/1989 and work accordingly.




PRINCIPAL

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SSBT's College of Engg. & Technology
Bambhori, Jalgaon-425001

- Copy to :-
1. All Above concern
 2. All HoDs
 3. Notice Board
 4. Registrar / AR / OS
 5. Principal's Office

Anti – Ragging Committee:

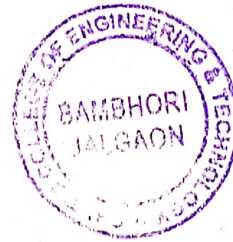
Following are the members of the committee.

| SN | Committee Designation | Name | Affiliation/Designation | Role |
|----|---|--|---|--------------------|
| 01 | Head of the institute | Dr. G.K. Patnaik | Principal | Chairman |
| 02 | Representative of Police Administration | PSI Paldhi | PSI, Paldhi | Member |
| 03 | Representative of Civil Administration | Adv. R.D. Barde | Advocate | Member |
| 04 | Representative of Faculty Member | Dr. M. Hussain Dr. Sunita Patil | Professor, Civil Engg. Asth. Pro. First year Engg. | Convener Member |
| 05 | Representative of Parents | Mr. Dhanraj R. Bingale | Parents | Member |
| 06 | Representative of Student | Vaishnavi Bapu Mali Harshada K. Wagh Prashant V. Shejawal Roshan D. Bingale Ashwini S. Rajput Vaishnavi R. Mahajan Mohit Mahajan Yashraj M. Patil | FE Computer FE Mechanical FE Electrical FE Electrical BE E & TC BE E & TC BE Computer BE Civil | Member |
| 07 | Representative of Non-Teaching Staff | Mr. Jaydev Raul Mr. Bhagwat Patil | Jr. Clerk (Office) Vehicle in charge | Member Member |

Anti Ragging Squad:

| SN | Name | Designation & Department |
|----|-----------------------|---------------------------------------|
| 01 | Dr. M. Hussain | Professor, Civil Engg. |
| 02 | Dr. D. D. Puri | Assoc. Prof., Business Administration |
| 03 | Dr. Ajay R. Bharadwaj | Asst. Prof., Mechanical Engg. |
| 04 | Mr. P. D. Patil | Asst. Prof., First Year Engg. |
| 05 | Ms. Faroza Kazi | Asst. Prof., Business Administration |
| 06 | Dr. Sunita Patil | Asst. Prof. First year Engg. |
| 07 | Ms. Shakina Husain | Asst. Prof., Business Administration |
| 08 | Dr. S. L. Patil | Rector, Boys Hostel |
| 09 | Shri B. C. Kachhava | Hostel Superintendent, Boys' Hostel |
| 10 | Ms. Asha Patil | Warden, Girls Hostel |

- Copy to:- 1) All Concerned
 2) Registrar, KBC NMU, Jalgaon
 3) Vice Principal
 4) All HoD's
 5) Hostel Rector's (Boys & Girls)
 6) Notice Board
 7) Registrar/ AR / OS
 8) Principal office



Principal
PRINCIPAL
 SSBT's College of Engineering & Technology
 Bambhori, Jalgaon-425001(M.S.)

Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY

Principal: Dr. G. K. Patnaik
M.E.(CSE), Ph.D. (CSE)

Ref. No COET/Estt/335/02/23 Date: 13 APR 2023




Grievance Redressal Committee (GRC) for Faculty/Staff Members

As per Notification of AICTE, New Delhi (F.No. 1-103/AICTE/PGRC/Regulation/2021) dated 22 March, 2021, the Grievance Redressal Committee (GRC) for Redressal of Grievance of Faculty/Staff member is constituted w.e.f. 13th Apr., 2023 as follows:

1. Principal of Institution as Chairperson - Prof. (Dr.) G.K. Patnaik, Principal
2. One Senior Professor of the Affiliating University as a member - Prof (Dr.) S. T. Bendre,
Head, Dept. of Physics,
School of Physical Sciences,
KBC NMU, Jalgaon
3. One official from University or State DTE (to be nominated) as a member - Awaited
4. One Senior faculty as a member - Dr. S.B. Pawar, Professor, Civil Engg.




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SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001 (M.S.)

Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY

Principal: Dr. G. K. Patnaik
M.E.(CSE), Ph.D. (CSE)



Ref. No COET/ESH/336/4/23 Date: 13 APR 2023

To,
The Joint Director,
Technical Education, Regional Office,
Samangaon Road, Nashik.

Sir,

With reference to AICTE's notification dated 22 March, 2021 it is mandatory for all technical institution to address the grievance of faculty/staff members at the institution level. The AICTE's notification is attached herewith for ready reference. You are requested to nominate one official from DTE as a member of Grievance Redressal Committee of our institute

Thanking you

Yours faithfully,



PRINCIPAL
PRINCIPAL

SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)



Shrama Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY
BAMBHORI, POST BOX NO. 94, JALGAON – 425001 (M.S.)
Included under section 2 (f) & 12 (B) of the UGC Act, 1956
Grade B++ (2.91) NAAC Accredited

Website- www.ssoetjalgaon.ac.in

Email: ssoetjal@gmail.com

Principal: Dr. K.S.Wani

M. Tech., DBM, Ph.D.

Phone No. (0257) 2258393

Fax No. (0257) 2258392

Ref.No.COET/Estt./ *578* /06/21

Date: - 21/06/2021

Grievance Redressal Committee (GRC) for Faculty/Staff Members

As per Notification of AICTE, New Delhi (F.No. 1-103/AICTE/PGRC/Regulation/2021) dated 22nd March, 2021, the Grievance Redressal Committee (GRC) for Redressal of Grievance of Faculty/Staff member is constituted w.e.f. 21st June, 2021 as follows:

1. Principal of Institution as Chairperson - Prof. (Dr.) K.S. Wani, Principal
2. One Senior Professor of the Affiliating University as a member - Prof. (Dr.) S. T. Bendre,
Head, Dept. of Physics,
School of Physical Sciences,
KBCNMU, Jalgaon
3. One official from University or State DTE (to be nominated) as a member - Awaited
4. One senior faculty as a member - Dr. S.P. Shekhawat, Professor, Mechanical Engg.



K
21-06-2021
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SST's College of Engineering & Technology
Bambhori, Jalgaon-425001 (M.S.)



Shrama Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY
BAMBHORI, POST BOX NO. 94, JALGAON - 425001 (M.S.)
Included under section 2 (f) & 12 (B) of the UGC Act, 1956
Grade B++ (2.91) NAAC Accredited

Website- www.ssoetjalgaon.ac.in

Email: ssoetjal@gmail.com

Principal: Dr. K.S.Wani

M. Tech., DBM, Ph.D.

Phone No. (0257) 2258393

Fax No. (0257) 2258392

Ref.No.COET/Estt./ 577/06/21

Date: - 21/06/2021

To,

The Joint Director,

Technical Education, Regional Office,

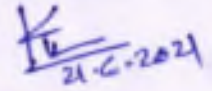
Samangaon Road, Nashik.

Sir,

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Thanking you..

Yours faithfully,


21-6-2021

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SST's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)



SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON

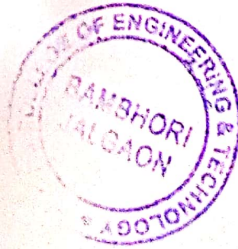
Date: 28/10/2024

Ref. No. COET/IC/913-2/10/24

Internal Committee:

(Gender Sensitization, Prevention and Prohibition of Sexual Harassment of Women Employees and Students and Redressal of Grievances)

| Sr. No. | Name | Designation & Dept. | Role |
|---------|------------------------|--|-------------------|
| 01 | Smt. Meera P. Kulakrni | Asst. Prof. First Year Engg. | Presiding officer |
| 02 | Dr. S. R. Suralkar | Professor, Computer Engg. | Member |
| 03 | Ms. Faroza A. Kazi | Asst. Professor, Business Administration | Member |
| 04 | Shri. Y. K. Chitte | Registrar | Member |
| 05 | Shri. S. R. Girase | Assistant Registrar | Member |
| 06 | Student Representative | Female | Member |
| 07 | Student Representative | Female | Member |
| 08 | Student Representative | Male | Member |




Principal

SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)


- Copy to:- 1) All above concerned
2) Vice Principal
3) All HoD's
4) Hostel Rector's (Boys & Girls)
5) Notice Board
6) Registrar/ AR / OS
7) Principal office

Committee for S.C. and S.T. (Prevention of Atrocities Act. 1989)

The Committee for S.C. and S.T. (Prevention of Atrocities Act. 1989) is Constituted as follows:

| Sr. No. | Name | Dept. | Designation |
|---------|---------------------------|-----------------------------------|-------------|
| 01 | Dr. K.P. Adhiya | Prof, Computer Engg. Dept. | Chairman |
| 02 | Dr. P.G. Damle | Associate Prof. Mechanica, Engg. | Member |
| 03 | Mrs. Dhanashree S. Tayade | Asst. Prof, Computer, Engg. Dept. | Member |
| 04 | Mrs. Deepmala Desai | Asst. Prof, Applied Science Dept. | Member |
| 05 | Mr. Y.K. Chitte | Registrar | Member |
| 06 | Dr. Sudhir S. Patil | Librarian | Member |
| 07 | Mr. Sunil L. Patil | Sr. Clerk | Member |

The Committee should go through the Scheduled Caste and Scheduled Tribes (Prevention of Atrocities) act, 1989, No.33 of dated 11/09/1989 and work accordingly.


PRINCIPAL
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SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)
11/04/2023

- Copy to :-
1. All Above concern
 2. DOV/DOAD
 3. All HoDs
 4. Student's Notice Board
 5. D.R.
 6. O.S.
 7. Principal's Office

SSBT'S COLLEGE OF ENGINEERING AND TECHNOLOGY, BAMBHORI, JALGAON

INTERNAL QUALITY ASSURANCE CELL (IQAC)

OFFICE ORDER

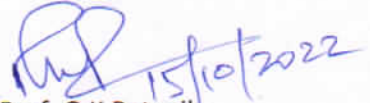
Ref. No.: COET/IQAC/589/10/22

Date: 15.10.2022

The Internal Quality Assurance Cell for AY 2022-2023 to 2023-2024 is constituted as follows

| Sr. No. | Name | Category | IQAC |
|---------|----------------------------|---------------------|-------------|
| 1 | Prof. G.K.Patnaik | Head of Institution | Chairman |
| 2 | Prof. M. P. Deshmukh | Teacher | Member |
| 3 | Dr.V.S.Rana | Teacher | Member |
| 4 | Mr. N. K. Patil | Teacher | Member |
| 5 | Mr. M. M. Ansari | Teacher | Member |
| 6 | Prof. S.B.Pawar | Management | Member |
| 7 | Mr. Y.K. Chitte | Administration | Member |
| 8 | Mr. S. R. Girase | Administration | Member |
| 9 | Mr. J.R.Chaudhari | Society | Member |
| 10 | Mr.B.J.Lathi | Society | Member |
| 11 | Ms. Nikita Suresh Bhangale | Student | Member |
| 12 | Mr. Mohit Manoj Patil | Student | Member |
| 13 | Mr. Kalyan Dani | Alumni | Member |
| 14 | Mr. S.N.Dhake | Industrialist | Member |
| 15 | Mr.Vasudev Dusane | Parent | Member |
| 16 | Mr. Abhijit Patil | Employer | Member |
| 17 | Dr.S.A.Thakur | Teacher | Coordinator |




15/10/2022

Prof. G.K.Patnaik

Principal

PRINCIPAL

SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001 (M.S.)

Copy to:

1. Vice Principal
2. Dr.S.A.Thakur IQAC Coordinator
3. Registrar/A.R.
4. Principal Office
5. All HODs

Constitution of Institute Innovation Cell

The Institute Innovation Cell (IIC) is constituted w.e.f. 10th April, 2023.

The composition of the cell is as under.

| Sr. No. | Name of Member | Key Role / Position assigned in HC |
|---------|------------------------------|---------------------------------------|
| 1. | Dr. G.K. Patnaik | President |
| 2. | Dr. Sudhakar B. Pawar | Vice – President |
| 3. | Dr. Manoj E. Patil | Convener |
| 4. | Dr. Vijay R. Diware | ARIIA Coordinator |
| 5. | Dr. Pravin A. Shirule | Start-up Activity Coordinator |
| 6. | Dr. Dnyaneshwar K. Kirange | IPR Activity Coordinator |
| 7. | Dr. Pnakaj H. Zope | NIRF Coordinator, Innovation Activity |
| 8. | Faroza A. Kazi | Social Media |
| 9. | Mr. Mahendrasingh G. Chauhan | Member |
| 10. | Dr. Sandip S. Patil | Member |
| 11. | Dr. P.G. Damle | Member |
| 12. | Dr. K. Shrivastava | Member |


10/04/2023
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 2. Vice-Principal
 3. All HoDs
 4. Principal Office

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON

Academics & Examination Committee :

| Sr. No. | Name of Member | Department | Designation |
|----------------|-----------------------|---------------------------|--------------------|
| 01 | Dr. G.K. Patnaik | Principal | Chairman |
| 02 | Dr. S.B. Pawar | Vice Principal | Member |
| 03 | Dr. Sandip S. Patil | HOD, First Year Engg. | Member |
| 04 | Dr. V.R. Diware | HOD, Chemical | Member |
| 05 | Dr. M. Husain | HOD, Civil Engg . | Member |
| 06 | Dr. M,E. Patil | HOD, Computer Engg. | Member |
| 07 | Prof. V.S. Pawar | HOD, Electrical Engg. | Member |
| 08 | Dr. M.P. Deshmukh | HOD, E&Tc Engg. | Member |
| 09 | Dr. P.G. Damle | HOD, Mechanical Engg. | Member |
| 10 | Dr. D.D. Puri | HOD,M,C.A | Member |
| 11 | Dr. Richa A. Modiyani | HOD,M.B.A | Member |
| 12 | Dr. S.A Thakur | IQAC Coordinator | Member |
| 13 | Dr. A.D. Wagmare | Controller of Examination | Member |

PRINCIPAL

Copy to :- 1. All HoD's
2. Students Welfare officer
3. R/AR/OS
4. Principal's Office

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON

Extra-Curricular Activities Committee

| Sr. No | Name | Department | Designation |
|---------------|------------------------------------|-------------------|--------------------|
| 1. | Dr. M.V. Ravlani, Asso.Prof. | M.B.A | Coordinator |
| 2. | Shri.M.B.Patil, Asst.Prof. | First Year Engg | Member |
| 3. | Shri.J.N.Kale, Asst.Prof. | Civil Engg. | Member |
| 4. | Ms. Sarika Pawar, Asst. Prof. | Biotech Engg. | Member |
| 5. | Dr.N.M.Kazi, Asst.Prof. | E&Tc Engg. | Member |
| 6. | Shri. Shubham P.Mahale, Asst.Prof. | M.C.A | Member |
| 7. | Ms.Pooja M. Khandar, Asst.Prof. | Comp. Engg. | Member |

Sports Activity

| | | | |
|----|----------------------------------|--------------------|-------------|
| 1. | Shri C.U.Nikam, Asst.Prof. | First Year Engg. | Coordinator |
| 2. | Shri.J.B.Sisodiya, Director | Physical Education | Member |
| 3. | Shri.Mukund P.Shirsath, Director | Physical Education | Member |
| 4. | Shri.P.D.Patil, Asst.Prof. | First Year Engg. | Member |
| 5. | Dr. N.Y.Ghare, Asst Prof. | Chemical Engg. | Member |
| 6. | Ms.Faroza A.Kazi, Asst.Prof. | M.B.A | Member |
| 7. | Shri Krunal C. Pawar, Asst.Prof. | Computer Engg. | Member |

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Copy to:- 1) All above Concerned
2) All HoD's
3) Principal office

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON.

Ref.No.COET/Esst./ / 02/ 24

Date:- / /2024

Admission Committee

| Sr. No | Name | Department | Designation |
|--------|-----------------------|------------------|-------------|
| 1. | Dr. G. K. Patnaik | Principal | Chairman |
| 2. | All H.O.D.s | All Dept. | Member |
| 3. | Mr. M.M. Ansari | Electrical Engg. | Member |
| 4. | Dr. P. A. Shirule | Civil Engg. | Member |
| 5. | Dr. P. H. Zope | Comp. Engg. | Member |
| 6. | Mr. U. T. Patil | First Year Engg. | Member |
| 7. | Mr. S. R. Girase | Office | Member |
| 8. | Mr. Y. K. Chitte | Office | Member |
| 9. | Mr. R. R. Patil | Office | Member |
| 10. | Mr. P. U. Patil | Adm. Office | Member |
| 11. | Mr. Suresh S. Patil | Adm. Office | Member |
| 12. | Mr. Jitendra P. Patil | Adm. Office | Member |

Principal

Copy to:- 1) All above Concerned
2) All HoD's
3) Principal

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON.

Ref.No.COET/Esst./ / 02/ 24

Date:- / /2024

Finance Committee

| Sr. No | Name | Department | Designation |
|--------|-------------------|----------------|-------------|
| 1. | Dr. G. K. Patnaik | Principal | Chairman |
| 2. | Dr.S.B.Pawar | Vice Principal | Member |
| 3. | Mr. S. R. Girase | Office | Member |
| 4. | Mr. Y. K. Chitte | Office | Member |

Principal

Copy to:- 1) All above Concerned
2) All HoD's
3) Principal

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON.

Student welfare Committee

| Sr. No. | NAME | DEPARTMENT | DESIGNATION |
|----------------|---------------------|--|--------------------|
| 1 | Dr.S.B.Pawar | Vice-Principal's Nominee | Chairman |
| 2 | Dr. F.I. Chavan | Student Development officer | Member |
| 3 | Dr.N.M.Kazi | Student Development Officer (Minority) | Member |
| 4 | Mr.M.B.Patil | Additional Student Development Officer | Member |
| 5 | Mrs. Jyoti Mali | Student Development Officer (Girls) | Member |
| 6 | Mr.Jaydeep Patil | Social Activist | Member |
| 7 | Dr.Digambar K.Patil | Student Counselor | Member |

Principal

Copy to:- 1) All above Concerned
2) All HoD's
3) Principal

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON.

Ref.No.COET/Esst./ / / 24

Date:- / /2024

Constitution of Grievance Redressal Cell

Constitution of Grievance Redressal cell for Staff & Students as per AICTE's Regulation, 2016 is
Constituted as given below,

| Sr. No | Name | Department | Designation |
|---------------|-------------------------|-------------------------------------|--------------------|
| 1. | Dr. G. K. Patnaik | Principal | Chairman |
| 2. | Dr. S. R. Suralkar | Professor | Member |
| 3. | Dr. . K. P. Adhiya, | Professor | Member |
| 4. | Smt. Meera P. Kulakrni, | Asst. Professor First Year Engg | Member |
| 5. | Dr. P. G. Damle | Asso. Professor Mechanical Dept. | Member |
| 6. | Ms. Asha S. Patil | Warden Girl's Hostel | Member |
| 7. | Student Representative | Female | Member |
| 8. | Student Representative | Female | Member |
| 9. | Student Representative | Male | Member |
| 10. | Mr. Jitendra P. Patil, | Admission | Member |
| 11. | Adv. R. D. Barde | Advocate | Member |

Principal

Copy to:- 1) All above Concerned
2) All HoD's
3) Principal office

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON

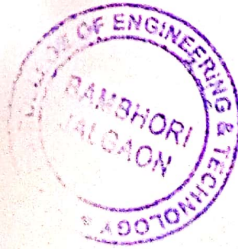
Date: 28/10/2024

Ref. No. COET/IC/913-2/10/24

Internal Committee:

(Gender Sensitization, Prevention and Prohibition of Sexual Harassment of Women Employees and Students and Redressal of Grievances)

| Sr. No. | Name | Designation & Dept. | Role |
|---------|------------------------|--|-------------------|
| 01 | Smt. Meera P. Kulakrni | Asst. Prof. First Year Engg. | Presiding officer |
| 02 | Dr. S. R. Suralkar | Professor, Computer Engg. | Member |
| 03 | Ms. Faroza A. Kazi | Asst. Professor, Business Administration | Member |
| 04 | Shri. Y. K. Chitte | Registrar | Member |
| 05 | Shri. S. R. Girase | Assistant Registrar | Member |
| 06 | Student Representative | Female | Member |
| 07 | Student Representative | Female | Member |
| 08 | Student Representative | Male | Member |




Principal

SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)

- Copy to:- 1) All above concerned
2) Vice Principal
3) All HoD's
4) Hostel Rector's (Boys & Girls)
5) Notice Board
6) Registrar/ AR / OS
7) Principal office

Anti – Ragging Committee:

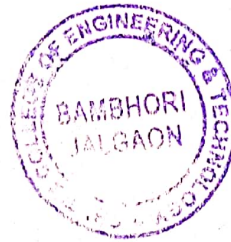
Following are the members of the committee.

| SN | Committee Designation | Name | Affiliation/Designation | Role |
|----|---|--|---|--------------------|
| 01 | Head of the institute | Dr. G.K. Patnaik | Principal | Chairman |
| 02 | Representative of Police Administration | PSI Paldhi | PSI, Paldhi | Member |
| 03 | Representative of Civil Administration | Adv. R.D. Barde | Advocate | Member |
| 04 | Representative of Faculty Member | Dr. M. Hussain Dr. Sunita Patil | Professor, Civil Engg. Asth. Pro. First year Engg. | Convener Member |
| 05 | Representative of Parents | Mr. Dhanraj R. Bingale | Parents | Member |
| 06 | Representative of Student | Vaishnavi Bapu Mali Harshada K. Wagh Prashant V. Shejawal Roshan D. Bingale Ashwini S. Rajput Vaishnavi R. Mahajan Mohit Mahajan Yashraj M. Patil | FE Computer FE Mechanical FE Electrical FE Electrical BE E & TC BE E & TC BE Computer BE Civil | Member |
| 07 | Representative of Non-Teaching Staff | Mr. Jaydev Raul Mr. Bhagwat Patil | Jr. Clerk (Office) Vehicle in charge | Member Member |

Anti Ragging Squad:

| SN | Name | Designation & Department |
|----|-----------------------|---------------------------------------|
| 01 | Dr. M. Hussain | Professor, Civil Engg. |
| 02 | Dr. D. D. Puri | Assoc. Prof., Business Administration |
| 03 | Dr. Ajay R. Bharadwaj | Asst. Prof., Mechanical Engg. |
| 04 | Mr. P. D. Patil | Asst. Prof., First Year Engg. |
| 05 | Ms. Faroza Kazi | Asst. Prof., Business Administration |
| 06 | Dr. Sunita Patil | Asst. Prof. First year Engg. |
| 07 | Ms. Shakina Husain | Asst. Prof., Business Administration |
| 08 | Dr. S. L. Patil | Rector, Boys Hostel |
| 09 | Shri B. C. Kachhava | Hostel Superintendent, Boys' Hostel |
| 10 | Ms. Asha Patil | Warden, Girls Hostel |

- Copy to:- 1) All Concerned
 2) Registrar, KBC NMU, Jalgaon
 3) Vice Principal
 4) All HoD's
 5) Hostel Rector's (Boys & Girls)
 6) Notice Board
 7) Registrar/ AR / OS
 8) Principal office



Principal
PRINCIPAL
 SSBT's College of Engineering & Technology
 Bambhori, Jalgaon-425001(M.S.)

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON

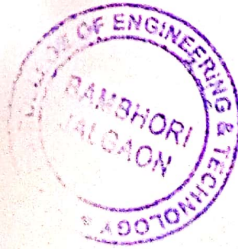
Date: 28/10/2024

Ref. No. COET/IC/913-2/10/24

Internal Committee:

(Gender Sensitization, Prevention and Prohibition of Sexual Harassment of Women Employees and Students and Redressal of Grievances)

| Sr. No. | Name | Designation & Dept. | Role |
|---------|------------------------|--|-------------------|
| 01 | Smt. Meera P. Kulakrni | Asst. Prof. First Year Engg. | Presiding officer |
| 02 | Dr. S. R. Suralkar | Professor, Computer Engg. | Member |
| 03 | Ms. Faroza A. Kazi | Asst. Professor, Business Administration | Member |
| 04 | Shri. Y. K. Chitte | Registrar | Member |
| 05 | Shri. S. R. Girase | Assistant Registrar | Member |
| 06 | Student Representative | Female | Member |
| 07 | Student Representative | Female | Member |
| 08 | Student Representative | Male | Member |




Principal

SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)

- Copy to:- 1) All above concerned
2) Vice Principal
3) All HoD's
4) Hostel Rector's (Boys & Girls)
5) Notice Board
6) Registrar/ AR / OS
7) Principal office

NAME OF THE DEPARTMENT :- APPLIED SCIENCE

| S.No. | Name of the Laboratory /Workshop Details | Total area of Lab./w.s. in m ² | Major Equipment above 50,000/- |
|-------|--|---|--------------------------------|
| 01 | Physics Laboratory | 153 | Nil |
| 02 | Chemistry Laboratory | 135 | Nil |
| 03 | Language Laboratory | 135 | Nil |
| 04 | Environmental / Maths Laboratory | 108 | Nil |

Item No.26

A) Facilities for conducting Practical in the Laboratories

Name of Course: -Chemistry Lab Class: - **F E** Subject: **Chemistry** Name of the Department / Section: - Applied Science Dept./ Chemistry Section. Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical (**Note: Minimum 10 Experiments from the following**)

Subject: Chemistry

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be Conducted |
|--------|---|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | To measure total hardness of given water sample. | a. Burette (25ml) | 10 | 24 | Yes |
| | | b. Pipette | 10 | 24 | |
| | | c. Measuring cylinder | 10 | 12 | |
| | | d. Titration Flask (250ml) | 10 | 30 | |
| | | e. Burette stand | 10 | 15 | |
| | | f. Beakers (500 ml) | 10 | 12 | |
| 2 | Determination of chloride content in the given sample of water by Mohr's method | a. Burette (25 ml) | 10 | 24 | Yes |
| | | b. Pipette | 10 | 24 | |
| | | d. Titration Flask. (250 ml) | 10 | 30 | |
| | | d. Beakers(250 ml) | 10 | 12 | |
| | | e. Burette stand | 10 | 15 | |
| 3 | Preparation of phenol formaldehyde resin | Glass rod, | 10 | 20 | Yes |
| | | Beaker(500 ml) | 10 | 12 | |
| | | glass funnel | 10 | 12 | |

| | | | | | |
|---|--|---|--|--|-----|
| 4 | Preparation of polystyrene by Bulk polymerization | Round bottom flask, Condenser, Over head motor Thermostat | 03 03 03 01 | 00 00 01 00 | NO |
| 5 | Determination of acid value of vegetable oils | a. Burette (10ml) b. Pipette c. Measuring cylinder d. Titration Flask e. Burette stand f. Digital balance | 10 10 10 10 10 02 | 12 24 12 36 24 02 | Yes |
| 6 | Determination of Saponification Value of an Oil. | Water Condenser, Water bath. Round bottom flask | 03 03 01 | 00 00 00 | No |
| 7 | Determine of partition coefficient of iodine bet ⁿ . water and carbon tetra-chloride. | a. Burette (25 ml) b. Pipette c. Measuring cylinder d. Titration Flask e. Burette stand f. Beakers g. Stoppered Bottles h. Separating flasks | 10 10 10 10 10 10 03 | 24 24 12 36 24 24 03 | Yes |
| 8 | To determine the coefficient of viscosity of a given liquid using Ostwald viscometer. | a. Ostwald viscometer. b. Burette (25ml) c. Beakers d. Burette stand | 10 10 10 10 | 15 24 24 24 | Yes |

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|--|---|----------------------|----------------------|--------------------------------|
| | | | Required | Available | |
| 9 | To determine the Surface tension of a given liquid Using stalagmometer | a. stalagmometer. b. Burette (25ml) c. Beakers d. Burette stand | 10 10 10 10 | 00 24 24 24 | No |
| 10 | Find out the R_f value of the given amino acids by thin layer chromatography (TLC) | Gas jar Glass Plate | 05 05 | 00 05 | No |
| 11 | To determine the adsorption isotherm of acetic acid by activated charcoal | Stoppered bottle Burettes Pipette measuring cylinder funnel | 06 10 10 05 | 00 24 24 05 | No |
| 12 | To study the different crystal structure | Models of simple, body and face centered cubic crystals | 05 | 01 | Yes |
| 13 | Determination of cell and dissociation constant of acetic acid by conductometric method. | Conductometer Pipette Beaker | 03 03 03 | 01 03 03 | Yes |
| | | | | | |

Item No.26

A) Facilities for conducting Practical in the Laboratories

Name of Course: - **Engineering** Class: - **FE Common** Subject: - **Physics**Name of the Department / Section: -Applied Science Dept./ **Physics Section.**Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical (**Note: Minimum Ten Experiments from the following**)Subject: **Physics**

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Semiconductor Diode characteristics | Diode characteristics kit | 02 | 07 | Yes |
| 2 | Forbidden gap in semiconductor | Forbidden gap kit | 02 | 03 | Yes |
| 3 | Four Probe Method | Four Probe Kit | 02 | 05 | Yes |
| 4 | Wavelength of He-Ne laser | He-Ne laser Diffraction grating | 02 | 03 | Yes |
| 5 | Fibre Optics Communication | Fibre Optics trainer kit | 02 | 03 | Yes |
| 6 | Hall Effect | Gauss meter, Electromagnets | 02 | 05 | Yes |
| 7 | Characteristics Of Solar Cell & Calculation Of Fill Factor | Solar Cell kit | 02 | 7 | Yes |
| 8 | Wavelength by Diffraction grating | Diffraction grating Spectrometer | 02 | 4 | Yes |
| 9 | Determination Of Wavelength Of Sodium Light By Michelson Interferometer | Michelson Interferometer Sodium Lamp | 02 02 | 2 1 | Yes |
| 10 | Brewster Law | Sodium source, Spectrometer | 02 | 02 | Yes |
| 11 | Law of Malus | Polarizer, Light source | 02 | 02 | Yes |
| 12 | Crystal Structure | Crystal Structure | 02 | 05 | Yes |

| | | | | | |
|----|---|--|--------------|------------------|-----|
| 13 | Use Of Sound Level Meter | Sound Level Meter | 02 | 3 | Yes |
| 14 | Ultrasonic Interferrometer | Frequency Generator Measuring cell | 02 | 2 2 | No |
| 15 | Use Of Ultrasonic Detector | Frequency Generator | 02 | 3 | Yes |
| 16 | Determination Of Specific Charge Of An Electron By Thomson Method | C.R.T. Power supply Magnetometer Stop Watch | 02 02 | 5 5 5 5 | Yes |
| 17 | B-H Curve | B-H Curve kit | 02 | 05 | Yes |
| 18 | Magnetic susceptibility measurement | Magnetic power supply Strong magnets | 02 | 03 | Yes |
| 19 | Uses of CRO | CRO Function generator | 02 | 02 | Yes |
| 20 | Synthesis and Characterization of Nano Composites. | TEM, XRD | 01 | 01 | Yes |
| 21 | LC circuit and LCR circuit; | LC circuit and LCR circuit; | NIL | NIL | No |
| 22 | Resonance phenomena in LCR circuits; | Resonance phenomena in LCR circuits; | NIL | NIL | No |
| 23 | Magnetic field from Helmholtz coil; | Magnetic field from Helmholtz coil; | NIL | NIL | No |
| 24 | Measurement of Lorentz force in a vacuum tube. | Measurement of Lorentz force in a vacuum tube | NIL | NIL | No |

| | | | | | |
|----|--|--|-----|-----|-----|
| 25 | Resonance phenomena in mechanical oscillators. | Resonance phenomena in mechanical oscillators. | NIL | NIL | No |
| 26 | Frank-Hertz experiment; | Frank-Hertz experiment; | NIL | NIL | No |
| 27 | Photoelectric effect experiment; | Photoelectric effect experiment; | NIL | NIL | No |
| 28 | Synthesis of Graphene by Hummer's method | Synthesis of Graphene by Hummer's method | Yes | Yes | Yes |
| 29 | Characterization of Graphene by Hummer's method | Characterization of Graphene by Hummer's method | Yes | Yes | Yes |
| 30 | Synthesis of nanostructures such as nanoparticles, nanofibers, nanorods by Chemical Method; Physical Method or Hybrid Method; | Synthesis of nanostructures such as nanoparticles, nanofibers, nanorods by Chemical Method; Physical Method or Hybrid Method; | Yes | Yes | Yes |
| 31 | Characterization of nanostructures such as nanoparticles, nanofibers, nanorods by Chemical Method; Physical Method or Hybrid Method; | Characterization of nanostructures such as nanoparticles, nanofibers, nanorods by Chemical Method; Physical Method or Hybrid Method; | Yes | Yes | Yes |
| 32 | Use of Nanostructure for solar cell fabrication. | Use of Nanostructure for solar cell fabrication. | Yes | Yes | Yes |
| 33 | Conducting polymers for nanotechnology applications | Conducting polymers for nanotechnology applications | Yes | Yes | Yes |

Item No.26

A) Facilities for conducting Practical in the Laboratories

Name of Course: - **Engineering** Class: - **FE Common** Subject: - **Soft Skills**

Name of the Department / Section: -Applied Science Dept./ **English Section.**

Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical

Subject: **SS -I**

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be Conducted |
|--------|---|---|---------------|---------------|--------------------------------|
| | | | Required | Available | |
| 1 | Listening Comprehension | Computers Software Headphones | 48 1 48 | 48 1 48 | Yes |
| 2 | Pronunciation, Intonation, Stress and Rhythm | Computers Software Headphones | 48 1 48 | 48 1 48 | Yes |
| 3 | Common Everyday Situations: Conversations and Dialogues | Computers Software Headphones | 48 1 48 | 48 1 48 | Yes |
| 4 | Communication at Workplace | Computers Software Headphones | 48 1 48 | 48 1 48 | Yes |
| 5 | Interviews | Computers Software Headphones | 48 1 48 | 48 1 48 | Yes |
| 6 | Introducing Oneself & Introducing Others | Computers Software Headphones | 48 1 48 | 48 1 48 | Yes |

Subject: **SS –II**

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can Be conducted |
|--------|---|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Listening Comprehension | Computers | 48 | 48 | Yes |
| | | Software Headphones | 1 48 | 1 48 | |
| 2 | Pronunciation, Intonation, Stress and Rhythm | Computers | 48 | 48 | No |
| | | Software Headphones | 1 48 | 1 48 | |
| 3 | Common Everyday Situations: Conversations and Dialogues | Computers | 48 | 48 | Yes |
| | | Software Headphones | 1 48 | 1 48 | |
| 4 | Communication at Workplace | Computers | 48 | 48 | Yes |
| | | Software Headphones | 1 48 | 1 48 | |
| 5 | Interviews | Computers | 48 | 48 | Yes |
| | | Software Headphones | 1 48 | 1 48 | |
| 6 | Introducing oneself & Introducing Others | Computers | 48 | 48 | Yes |
| | | Software Headphones | 1 48 | 1 48 | |

NAME OF THE DEPARTMENT: - CHEMICAL ENGINEERING

Details of Laboratories and Workshop

List of Major Equipment (Above Rs.50000/-)

| S.No. | Name of the Laboratory /Workshop Details | Major equipment* Above 50000/- |
|--------------|---|---|
| 01 | LAB-1: Mass Transfer- I | Absorption in Packed Column Cooling Tower |
| 02 | LAB-2: Mass Transfer- II | Bubble Cap Distillation Ion Exchange Single Effect Evaporator Vapor liquid Equilibrium set up apparatus |
| 03 | LAB-3: Fluid Flow Operation | - |
| 04 | LAB-4: Mechanical Operation | Rotary Vacuum Filter Vertical Pressure Leaf Filter |
| 05 | LAB-5: Instrumentation | - |
| 06 | LAB-6: Process Control | Dynamic Response of Control Valve Rotameter Flow Control Trainer Pressure Control Trainer |
| 07 | LAB-7: Project | Evaporator Set up , Film Wise Drop Wise Condensation |
| 08 | LAB-8: Computer | Software Packages: ASPEN HYSIS U.P.S. With Batteries |
| 09 | LAB-9: Chemical Reaction Engineering | Rotating Basket Reactor Continuous Stirred Tank Reactor Plug Flow Reactor (Coil Type) Cascaded Continuous Stirred Tank Reactor |
| 10 | LAB-10: Chemical Technology | Viscometric Bath |
| 11 | LAB-11: Research | FTIR Spectrophotometer Liquid Ultrasonic Processor Reflectance Meter Digital Electronic Balance |

Details of Laboratories

Name of the Department:- **COMPUTER ENGINEERING**

| Sr. No. | Name of the Laboratory | Total Area of Lab in m ² | Major Equipment above 50,000/- |
|---------|------------------------------------|-------------------------------------|---|
| 1 | Lab 1 /Data Structure Lab | 90 | - |
| 2 | Lab 2/Embedded System Lab | 68 | - |
| 3 | Lab 3 / ME (CSE) Computer Lab | 66 | - |
| 4 | Lab 4/Digital & Microprocessor Lab | 81 | - |
| 5 | Lab 5/Software Engineering Lab | 68 | - |
| 6 | Lab 6/Programming Lab-I | 67 | - |
| 7 | Lab 7/Database Lab | 67 | - |
| 8 | Lab 8/System Programming Lab | 67 | - |
| 9 | Lab 9/Project Lab | 81 | - |
| 10 | Lab-10/Linux Lab | 144 | Interactive White Board Veron make Model No. IB 78 (4*6 feet) |
| 11 | Lab-11/Programming Lab-II | 71 | - |
| 12 | Lab-12/ME (CSE) Research Lab | 71 | - |
| 13 | Server Room | 56 | IBM Server@ 1.26GHz UPS Online 5KVA with Batteries |
| 14 | HOD Cabin (Computer) | 40 | UPS 1 battery 12V-65H-12Nos battery with Maintainance free battery IBM System X3100 M4 Server Desktop, 8 GB RAM, Hard disk 1 TB, Lenovo 18.5 W LED Monitor Lenovo Monitor |

Item No.26

A) Facilities for conducting Practicals in the Laboratories

Name of Course:- E&TC Class:- F.E. Subject:- Basic Electrical & Electronics Engineering Lab.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|---|---|----------------|----------------|-------------------------------|
| | | | Required | Available | |
| 1 | Diode Characteristics | a. Multimeter b. Power Supply | 01 01 | 01 01 | Yes |
| 2 | LED Characteristics | a. Power Supply b. Multimeter | 01 01 | 01 01 | Yes |
| 3 | BJT Q-point | a. Power Supply b. Multimeter | 01 01 | 01 01 | Yes |
| 4 | Inverting & Non Inverting amplifier using OPAMP | c. Power Supply a. Function Generator b. CRO | 01 01 01 | 01 01 01 | Yes |
| 5 | Basic Logic Gates | a. Multimeter b. Power Supply | 01 | 01 | Yes |
| 6 | Introduction to PCB Design | a. Etching Solution bottle b. Drilling machine | 01 01 | 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course: E&TC Class:- S.E. Subject:- Digital System Design.

Name of the Department / Section :- Electronics and Telecommunication

Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical

| Sr. No. | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|---------|--|---|----------------|----------------|-------------------------------|
| | | | Required each | Available each | |
| 1 | Realization of Basic Gates Using Discrete components | a. IC 7400,7402,7406,7432 b. Power supply c. Bread board | 01 01 01 | 01 01 01 | Yes |
| 2 | Binary- Gray code convertor. | d. IC 7486 e. Power supply f. Bread board | 01 01 01 | 01 01 01 | Yes |
| 2 | Four bit binary adder using IC 7483 | a. IC 7483 b. Power supply c. Bread board | 01 01 01 | 01 01 01 | Yes |

| | | | | | |
|---|---|--|----------------|----------------|-----|
| 3 | Four bit Magnitude Comparator using IC 7485 | d. IC 7485 e. Power supply f. Bread board | 01 01 01 | 01 01 01 | Yes |
| 5 | Verification of Multiplexer & Demultiplexer | a. IC 74151 & 74154 b. Power supply c. Bread board | 01 01 01 | 01 01 01 | Yes |
| 6 | J K, D and T Type Flip flop using IC7476 | a. IC 7476 b. Power supply c. Bread board | 01 01 01 | 01 01 01 | Yes |
| 7 | Decade Counter using IC 7490 | a. IC 7490 b. Power supply c. Bread board | 01 01 01 | 01 01 01 | Yes |
| 8 | Four Bit UP/Down Counter using IC 74191 | a. IC 74191 b. Power supply c. Bread board | 01 01 01 | 01 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E&TC Class:- S.E.

Subject:- Electronic Devices and Circuits Lab

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical's

| S R N o | Name of Experiment | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|------------------|--|--|------------------|-------------------|-------------------------------------|
| | | | Required each | Available each | |
| 1 | Q- point and Stability factor of BJT | a. Power supply b. Multimeter | 01 02 | 01 02 | Yes |
| 2 | Q- point of FET | a. Multimeter b. Power supply | 02 01 | 02 01 | Yes |
| 3 | Input and output characteristics of transistor in CE Configuration | a. Multimeter b. Power supply | 04 02 | 04 02 | Yes |
| 4 | Drain and Transfer characteristics of FET in CS Configuration | c. Multimeter d. Power supply | 03 02 | 03 02 | Yes |
| 5 | Frequency response of the Common Emitter BJT Amplifier | a. Power Supply b. Function generator c. CRO | 01 01 01 | 01 01 01 | Yes |
| 6 | Frequency response of the Common Source FET Amplifier | a. Power Supply b. Function generator c. CRO | 01 01 01 | 01 01 01 | Yes |
| 7 | Frequency response of the CE-CE BJT Amplifier | a. Power supply b. CRO c. Function generator | 01 01 01 | 01 01 01 | Yes |
| 8 | Frequency response of the CE-CB BJT Amplifier | a. Power supply b. Function generator c. CRO | 01 01 01 | 01 01 01 | Yes |

Note :- For all above practical consumable component like capacitor, Inductor , Resistor, BJT,IC etc are required which is available as per requirement & the practicals are performed on Bread board

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E.& TC Class:- S.E.

Subject:- Analog Circuits Lab

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|----------------|---|---|----------------------|----------------------|-------------------------------|
| | | | Required each | Available each | |
| GROUP A | | | | | |
| 1 | Cross over distribution & its elimination. | a) CRO, b) Function Generator, c) Dual Power Supply, d) Digital multimeter | 01 01 01 01 | 01 01 01 01 | Yes |
| 2 | Effect of feedback for current series configuration. | a. Power Supply b. Function Generator c. CRO | 01 01 01 | 01 01 01 | Yes |
| 3 | Effect of partial feedback for voltage shunt configuration. | a. CRO b. Function Generator c. Power Supply | 01 01 01 | 01 01 01 | Yes |
| 4 | Output and Frequency of RC Phase Shift Oscillator. | a. CRO, b. Power supply | 01 01 01 01 | 01 01 01 01 | Yes |
| 5 | OP-AMP as an Integrator & Differentiator. | a. Dual Power Supply b. Function Generator c. CRO | 01 01 01 | 01 01 01 | Yes |
| 6 | OP-AMP as an Schmitt trigger. | a. Dual Power Supply b. Function Generator c. CRO | 01 01 01 | 01 01 01 | Yes |
| 7 | OP-AMP Low Pass Filter. | a. Dual Power Supply b. Function Generator c. CRO | 01 01 | 01 01 | Yes |
| 8 | OP-AMP High Pass Filter. | a. Dual Power Supply b. Function Generator c. CRO | 01 01 01 01 | 01 01 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course:- E&TC Class:- S.E. Subject:- Programming Language Lab

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|---|---|----------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Program to demonstrate use of simple class and object. | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 2 | Program to demonstrate use of Parameterized Constructors | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 3 | Program to demonstrate use of Function Overloading | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 4 | Program to demonstrate use of Unary Operator Overloading | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 5 | Program to demonstrate use of Single Inheritance and multiple Inheritance | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 6 | Program to demonstrate use of Copy Constructor | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 7 | Program to demonstrate use of Multilevel Inheritance and Hybrid Inheritance | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |
| 8 | Program to demonstrate use of Function Template | a. PC b. Ubuntu 10.04 | 01 01 | 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E&TC **Class:-** S.E. **Subject:-** Electronics Network Lab

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|---|---|----------------------|----------------------|-------------------------------|
| | | | Required each | Available each | |
| 1 | Determine transfer / driving point Impedance function of given two port reactive network. | Multimeters DRB Experimental kit/Bread Board Power Supply | 01 01 01 01 | 01 01 01 01 | Yes |

| | | | | | |
|---|---|--|----------------------------|----------------------------|-----|
| 2 | Study of Series and parallel resonance, find BW and Q- factor. | a. CRO b. Multimeters c. Function Genetator d. Exprimental kit/Bread Board | 01 01 01 01 | 01 01 01 01 | Yes |
| 3 | Determine Z parameter of networks connected in series. | e) Power supply f) Exprimental kit/Bread Board g) Multimeters | 01 01 01 | 01 01 01 | Yes |
| 4 | Determine Y parameter of networks connected in parallel. | a. Multimeter b. Power supply c. Exprimental kit/Bread Board | 01 01 01 | 01 01 01 | Yes |
| 5 | Determine transmission parameter of networks connected in cascaded form.. | a. Multimeter b. Power supply c. Exprimental kit/Bread Board | 01 01 01 | 01 01 01 | Yes |
| 6 | Frequency response of constant k- low pass filters and find out cut of frequency. | a. Function generator b. Exprimental kit/Bread Board c. CRO | 01 01 01 | 01 01 01 | Yes |
| 7 | Design and Test m-derived low pass filter. | a. CRO b. Function generator c. Exprimental kit/Bread Board | 01 01 01 | 01 01 01 | Yes |
| 8 | Design and test symmetrical T- type attenuator | a. CRO b. Power supply c. Exprimental kit/Bread Board d. Multimeters e. Function generator | 01 01 01 01 01 | 01 01 01 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E&TC Class:- S.E. Subject:- Analog & Digital Communication

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|------------------|---|----------------------|----------------------|-------------------------------|
| | | | Required each | Available each | |
| 1 | AM Modulator | a. Exp. Kit, b. CRO, c. Function Generator, d. Power Supply (Optional) | 01 01 02 01 | 01 01 02 01 | Yes |
| 2 | AM Demodulator | e. Exp. Kit, f. CRO, g. Function Generator, h. Power Supply (Optional) | 01 01 02 01 | 01 01 02 01 | Yes |

| | | | | | |
|---|-------------------------------|---|----------------------|----------------------|-----|
| 3 | FM Transmitter | a. Exp. Kit, b. CRO, c. Function Generator, d. Power Supply (Optional) | 01 01 01 01 | 01 01 01 01 | Yes |
| 4 | FM Demodulator | a. Exp. Kit, b. CRO, c. Power Supply (Optional) | 01 01 01 | 01 01 01 | Yes |
| 5 | Adaptive Delta Modulation | a. Kit b. CRO | 1 1 | 1 1 | Yes |
| 6 | Line Coding & decoding | a. Kit b. CRO | 1 1 | 1 1 | Yes |
| 7 | Frequency Shift keying | a. Kit b. Functional Generator c. CRO | 1 1 1 | 1 1 1 | Yes |
| 8 | Binary Phase Shift Keying | a. Kit b. CRO | 1 1 | 1 1 | Yes |
| 9 | Quadrature Phase Shift Keying | a. Kit b. CRO | 1 1 | 1 1 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of the Course : E & TC Class:- T.E. Subject:- Microcontroller Lab.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|--|---|----------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Write and Execute program to flash LED. | a. 8085 microcontroller kit | 1 | 1 | Yes |
| | | b. Peripheral kits | 1 | 1 | |
| | | c. Power Supply | 1 | 1 | |
| 2 | Write and Execute program to display 0 to 9 continuously on 7-Segment display | a. 8085 microcontroller kit | 1 | 1 | Yes |
| | | b. Peripheral kits | 1 | 1 | |
| | | c. Power Supply | 1 | 1 | |
| 3 | Write and Execute program to demonstrate interfacing of 4 X 4 matrix Key-Board. | a. 8085 microcontroller kit | 1 | 1 | Yes |
| | | b. Peripheral kits | 1 | 1 | |
| | | c. Power Supply | 1 | 1 | |
| 4 | Write and Execute program to demonstrate interfacing of multiplexed 7-Segment display. | a. 8085 microcontroller kit | 1 | 1 | Yes |
| | | b. Peripheral kits | 1 | 1 | |
| | | c. Power Supply | 1 | 1 | |

| | | | | | |
|----|---|--|-------------|-------------|-----|
| 5 | Write and Execute program to demonstrate interfacing of Liquid Crystal display. | a. 8085 microcontroller kit b. Peripheral kits c. Power Supply | 1 1 1 | 1 1 1 | Yes |
| 6 | Write and Execute program to demonstrate interfacing of DAC. | a. 8085 microcontroller kit b. Peripheral kits c. Power Supply | 1 1 1 | 1 1 1 | Yes |
| 7 | Write and Execute program to demonstrate interfacing of ADC. | a. 8085 microcontroller kit b. Peripheral kits c. Power Supply | 1 1 1 | 1 1 1 | Yes |
| 8 | Write and Execute program to demonstrate interfacing of Stepper Motor. | a. 8085 microcontroller kit b. Peripheral kits c. Power Supply | 1 1 1 | 1 1 1 | Yes |
| 9 | Write and Execute program to demonstrate Serial data Transmission. | a. 8085 microcontroller kit b. Peripheral kits c. Power Supply | 1 1 1 | 1 1 1 | Yes |
| 10 | Write and Execute program to demonstrate Serial data Reception. | a. 8085 microcontroller kit b. Peripheral kits c. Power Supply | 1 1 1 | 1 1 1 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of the Course : E & TC **Class:-** T.E. **Subject:-** Signals and System Lab.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|--|---|----------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Introduction to MATLAB | PC, MATLAB Software. | 01 | 01 | Yes |
| 2 | Write a program for different waveform generation (Sin, cos, Impulse, Unit step, ramp, exponential). | PC, MATLAB Software. | 01 | 01 | Yes |
| 3 | Write a program for user defined functions for signal operation. | PC, MATLAB Software. | 01 | 01 | Yes |
| 4 | To compute convolution of two signals and verify its | PC, MATLAB Software. | 01 | 01 | Yes |
| 5 | To compute linear constant coefficient difference equations | PC, MATLAB Software. | 01 | 01 | Yes |
| 6 | To synthesize the periodic signal using Fourier series. | PC, MATLAB Software. | 01 | 01 | Yes |

| | | | | | |
|---|---|----------------------|----|----|-----|
| 7 | To compute auto-correlation and cross-correlation of two signals and verify its properties. | PC, MATLAB Software. | 01 | 01 | Yes |
| 8 | To find Laplace Transform | PC, MATLAB Software. | 01 | 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E.& TC Class:- T.E. Subject:- Electronics Measurement Lab.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|----------------------------------|---|----------------|----------------|-------------------------------|
| | | | Required | Available | |
| 1 | LCR Q-Meter | a. LCR Q meter Kit. b. Components. | 01 | 01 | Yes |
| 2 | Study of Digital Multimeter | a. DMM Kit. b. Power Supply. c. Function Generator & Components | 01 01 01 | 01 01 01 | Yes |
| 3 | Frequency Counter | c. CRO. d. Digital Freq Counter. c. Function Generator. | 01 01 01 | 01 01 01 | Yes |
| 4 | Study of Digital Tachometer | a. Digital Tachometer. b. AC/DC Motor. | 01 | 01 | Yes |
| 5 | Harmonic Distortion factor meter | a. Distortion factor meter. b. CRO. c. Function Generator | 01 01 01 | 01 01 01 | Yes |
| 6 | Study of Spectrum Analyzer | a. Spectrum Analyzer. b. Function Generator. | 01 01 | 01 01 | Yes Yes |
| 7 | To study CRO | a. CRO. b. Function Generator. c. Components. | 01 01 | 01 01 | Yes |
| 8 | Digital storage oscilloscope | a. DSO. b. Function Generator. | 01 01 | 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of the Course : E & TC Class:- T.E. Subject:- Electronics Design Lab.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|---|---|---|---|-------------------------------|
| | | | Required | Available | |
| 1 | Design & implementation of Regulated Power Supply | a. Designed Components b. Multimeter c. CRO | - 1 1 | - 1 1 | Yes |
| 2 | Design & Implementation of single stage amplifier using BJT / FET | a. Designed Components b. Function gen c. Single P/S d. Multimeter e. CRO | 1 1 1 1 | 1 1 1 1 | Yes |
| 3 | Design & Implementation of Single Tuned amplifier using BJT / FET | a. Designed Component b. Single P/S c. Multimeter d. Function Generator e. CRO | - 1 1 1 1 | - 1 1 1 1 | Yes |
| 4 | Design & Implementation of Astable Multivibrator | a. Designed Components b. Single P/S c. CRO d. Multimeter | 1 1 1 | 1 1 1 | Yes |
| 5 | Design & implementation of Second order LPF/ HPF | a. Designed Component b. Dual P/S c. Multimeter d. Function Generator e. CRO | - 1 1 1 1 | - 1 1 1 1 | Yes |
| 6 | Implementation & Testing of Designed Circuit on PCB | a. Designed Component b. Dual P/S c. Multimeters d. Function Generator e. CRO f. Etching Machine g. Drilling Machine h. UV Coating Machine | - 1 2 1 1 1 1 1 1 | - 1 2 1 1 1 1 1 1 | Yes |

Note :- For all above practical consumable component like capacitor, Inductor , Resistor, BJT, IC etc are required which is available as per requirement & the practicals are performed on Bread board

A) Facilities for conducting Practical in the Laboratories

Name of the Course : E&TC

Class: - T.E.

Subject:- Power Devices and

Circuits Lab

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. | Quantity | Whether expt can be |
|-------|------------------|--|----------|---------------------|
|-------|------------------|--|----------|---------------------|

| | | Required to Conduct Experiment | Required | Available | conducted |
|----|---|--|------------------|------------------|-----------|
| 1 | Triggering circuits for SCR using R, RC, firing ckt | a. Kit b. Multimeter c. Powerscope, load(100w) | 1 1 1 | 1 1 1 | Yes |
| 2 | To study UJT triggering ckt | a. Kit b. Multimeter c. Powerscope, load(100w) | 1 1 1 | 1 1 1 | Yes |
| 3 | Study of 1- ϕ full controlled bridge converter with R & R-L load | a. Kit b. Multimeter c. Powerscope | 1 1 1 | 1 1 1 | Yes |
| 4 | Study of 1- ϕ Half controlled Bridge with R & R-L Load | a. Kit b. Multimeter c. Powerscope | 1 1 1 | 1 1 1 | Yes |
| 5 | Study of step-up dc-dc converter | a. Kit b. CRO | 1 1 | 1 1 | Yes |
| 6 | Study of step-down dc -dc converter | a. Kit b. CRO | 1 1 | 1 1 | Yes |
| 7 | Study of Series inverter | a. Kit b. CRO | 1 1 | 1 1 | Yes |
| 8 | Study of parallel inverter | a. Kit b. Multimeter c. CRO d. load(25W) | 1 1 1 1 | 1 1 1 1 | Yes |
| 9 | DIAC Characteristics | a. Kit b. DMM | 1 1 | 1 1 | Yes |
| 10 | Study of 1- ϕ AC controller | a. kit b. CRO c. Load(200 W) | 1 1 1 | 1 1 1 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of the Course : E&TC Class:- T.E. Subject:- Control system Lab.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt can be conducted |
|-------|---|---|----------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Study of synchros to observe angular displacement | a. Experimental Kit b. Multimeter | 01 01 | 01 01 | Yes |
| 2 | Study of flow control using PID controller. | a. Experimental Kit b. Multimeter | 01 01 | 01 01 | Yes |

| | | | | | |
|---|---|--|----------------|----------------|-----|
| 3 | Transient response of RLC electrical network | a. Experimental Kit b. Multimeter c. CRO | 01 01 01 | 01 01 01 | Yes |
| 4 | Study of stepper motor | Experimental Kit | - | - | Yes |
| 5 | Find zeta, ω_n & M_p of the response to unit step for given system | Matlab Software | - | - | Yes |
| 6 | Unit step response of second order syst. | Matlab Software | - | - | Yes |
| 7 | Sketch the Bode plot for given system | Matlab Software | - | - | Yes |
| 8 | Sketch the Nyquist plot for given system | Matlab Software | - | - | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course: E&TC

Class:- B.E.

Subject:- VLSI Design.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr. no. | NAME OF PRACTICALS | Name of equipments | Quantity | | Whether conducted |
|---------|--|-----------------------|----------|-----------|-------------------|
| | | | Required | available | |
| 1 | Simulation and Implementation Write VHDL code to realize all the logic gates. | a. Computer b. kit | 01 | 01 | Yes |
| 2 | Simulation and Implementation Write a VHDL program for the following combinational designs a. 2- bit comparator b. 3 to 8 decoder c. 4 to 1 multiplexer d. 4 bit binary to gray converter | a. Computer b. kit | 01 | 01 | Yes |
| 3 | Simulation and Implementation Write a VHDL code to describe the functions of a Full Adder Using all modeling styles. | a. Computer b. kit | 01 | 01 | Yes |
| 4 | Simulation and Implementation Develop the VHDL codes for the following flip-flops, SR, D, JK, T. | a. Computer b. kit | 01 | 01 | Yes |
| 5 | Simulation and Implementation Design 4 bit binary, BCD counters | a. Computer b. kit | 01 | 01 | Yes |
| 6 | Simulation and Implementation 8 – Bit Left / Right Shift Register. | a. Computer b. kit | 01 | 01 | Yes |
| 7 | Simulation and Implementation Write a model for 4 bit ALU using the schematic | a. Computer b. kit | 01 | 01 | Yes |
| 8 | Interfacing : Write VHDL code to control speed, direction of DC and Stepper motor | a. Computer b. kit | 01 | 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course: E&TC Class:- B.E. Subject:- Digital Signal Processing.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity each | | Whether expt can be conducted |
|-------|---|---|---------------|----------------|-------------------------------|
| | | | Required Each | Available Each | |
| 1 | To determine the response of the given system for step input signal. | a. Computer b. Code Composer Studio Software | 01 | 01 | Yes |
| 2 | To determine the response of the given system for Ramp input signal. | c. Computer d. Code Composer Studio Software | 01 | 01 | Yes |
| 3 | To determine the response of the given system for Impulse input signal. | e. Computer f. Code Composer Studio Software | 01 | 01 | Yes |
| 4 | To determine the response of given system for linear convolution between two sequences. | g. Computer h. Code Composer Studio Software | 01 | 01 | Yes |

| | | | | | |
|---|---|---|----|----|-----|
| 5 | To determine the response of given system for Circular convolution between two sequences. | i. Computer j. Code Composer Studio Software | 01 | 01 | Yes |
| 6 | To determine the response of given system for discrete fourier transform | k. Computer l. Code Composer Studio Software | 01 | 01 | Yes |
| 7 | To determine the response of given system for Inverse discrete fourier transform | m. Computer n. Code Composer Studio Software | 01 | 01 | Yes |
| 8 | To determine the response of given system for Z-transform | o. Computer p. Code Composer Studio Software | 01 | 01 | Yes |
| 9 | To study the DSP processor & generate the sinusoidal signal by using DSP Processor | a. Computer b. DSP Kit | 01 | 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course: E&TC Class:- B.E. Subject:- Radiation & Microwave Technique.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity each | | Whether expt can be conducted |
|-------|---|--|---------------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Active device (Gunn diode) characteristics measurement | a. Gunn diode set up b. VSWR meter | 01 | 02 | Yes |
| 2 | Active device (Reflex klystron) characteristics measurement | a. Reflex klystron set up b. CRO c. VSWR meter | 01 | 02 | Yes |
| 3 | Study of fixed and variable Attenuator | a. Reflex klystron set up b. Fixed & variable attenuator c. VSWR meter | 01 | 02 | Yes |
| 4 | Study of circulator and isolator | a. Reflex klystron set up b. Circulator c. Isolator d. VSWR meter | 01 | 02 | Yes |
| 5 | Study of Microwave junction | a. Reflex klystron set up b. Magic Tee c. VSWR meter | 01 | 02 | Yes |
| 6 | Study of directional coupler | e. Reflex klystron set up f. Directional coupler g. VSWR meter | 01 | 02 | Yes |
| 7 | Radiation pattern & Beamwidth of Horn Antenna | a. Horn antenna set up b. VSWR meter | 01 | 02 | Yes |

| | | | | | |
|---|---|--|----|----|-----|
| 8 | Frequency & wavelength measurement of rectangular waveguide | a. Reflex klystron set up b. VSWR meter c. CRO | 01 | 02 | Yes |
| 9 | VSWR Measurement using Double Minima Method | a. Reflex klystron set up b. VSWR meter c. CRO | 01 | 02 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E&TC Class:- B.E. Subject:- Fiber Optic Communication.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity each | | Whether expt can be conducted |
|-------|--|---|---------------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Electrical Characteristics of LED | d. Power supply e. OFC Kit f. CRO g. Ammeter h. voltmeter | 01 | 01 | Yes |
| 2 | To Study Laser diode | a. Power supply b. OFC Kit c. CRO d. Ammeter e. voltmeter | 01 | 01 | Yes |
| 3 | Analog Transmission using LED source | a. Power supply b. OFC Kit c. CRO | 01 | 01 | Yes |
| 4 | Digital Transmission using LED source | a. Power supply b. OFC Kit c. CRO | 01 | 01 | Yes |
| 5 | Measurement of Numerical Aperture of optical fiber cable | a. Power supply b. OFC Kit c. CRO d. NA jig | 01 | 01 | Yes |
| 6 | Study of Losses in optical fibre. | a. Power supply b. OFC Kit / plastic fiber c. CRO d. Bender for Bending loss | 01 | 01 | Yes |
| 7 | Study of optic time domain reflectometer. | a. Power supply b. OFC Kit c. CRO | 01 | 01 | Yes |
| 8 | Study of various optical connectors | a. OFC Kit b. CRO c. SC,MT RJ, FDDI connector | 01 | 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E&TC

Class:- B.E.

Subject:- Telematics.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity each | | Whether expt can be conducted |
|-------|---|---|---------------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | Study of Telephone Exchange | Visit to BSNL | -- | -- | Yes |
| 2 | Study of Mobile Hand Set Demonstrator Model. | Block diagram study | -- | -- | Yes |
| 3 | Study of Teleprinter Demonstrator Model. | Visit to BSNL | -- | -- | Yes |
| 4 | Study of FAX Machine Demonstrator Model. | Fax machine | 01 | 01 | Yes |
| 5 | Study of EPABX system | EPBX system | 01 | 01 | Yes |
| 6 | Study of subscriber Instrument set. | Subscriber Instrument set CRO | 01 | 01 | Yes |
| 7 | Study of cordless Telephone set Demonstrator Model. | Block diagram | -- | -- | Yes |
| 8 | Modem Demonstrator Model. | FSK Modeus kit CRO | 01 | 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of Course : E&TC

Class:- B.E.

Subject:- Embedded Systems.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr.No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity each | | Whether expt can be conducted |
|-------|--|---|---------------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | C-programs for interrupts | a. Computer b. ARM 7 Kit | 01 01 | 01 01 | Yes |
| 2 | Program to demonstrate I2C Protocol. | a. Computer b. ARM 7 Kit | 01 01 | 01 01 | Yes |
| 3 | Program to interface LCD | a. Computer b. ARM 7 Kit | 01 01 | 01 01 | Yes |
| 4 | Program to demonstrate RF communication OR Program to implement AT | a. Computer b. ARM 9 Kit | 01 01 | 01 01 | Yes |

| | | | | | |
|---|--|-----------------------------|----------|----------|------------|
| | commands and interface of GSM modem | | | | |
| 5 | Writing a scheduler / working with using RTOS for 4 tasks with priority. The tasks may be keyboard, LCD, LED etc. and porting it on microcontroller/ microprocessor. | a. Computer b. ARM 7 Kit | 01 01 | 01 01 | Yes |
| 6 | Create two tasks, which will print some characters on the serial port, Start the scheduler and observe the behavior. | a. Computer b. ARM 7 Kit | 01 01 | 01 01 | Yes Yes |
| 7 | Program for exploration of (Process creation, Thread creation) using Embedded Real Time Linux | a. Computer b. ARM 7 Kit | 01 01 | 01 01 | Yes |
| 8 | Program for exploring Message Queues using Embedded Real Time Linux. | a. Computer b. ARM 9 Kit | 01 01 | 01 01 | Yes |

Item No.

A) Facilities for conducting Practicals in the Laboratories

Name of Course:- E&TC Class:- B.E Subject:- Satellite & Mobile Communication.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr. No | Name of Experiment | Name of Equipment | Quantity | | Whether expt can be conducted |
|--------|---|-------------------|----------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | To Setup Active Satellite Link | a.DTH | 01 | 01 | YES |
| 2 | To Understand the Shape of Earth. Measurement of Latitude & Longitude | Demostration kit | 01 | 01 | YES |
| 3 | Study of Satellite Transponder | Demostration kit | 01 | 01 | YES |
| 4 | To Understand the Principle of PRN Code in GPS | Demostration kit | 01 | 01 | YES |
| 5 | Study of GSM Architechture | Demostration kit | 01 | 01 | YES |

| | | | | | |
|---|--|--------------------------------------|----|----|-----|
| 6 | Study of GSM AT Commands | a.GSM Kit | 01 | 01 | YES |
| 7 | Study of Mobile Transmitter & Receiver | a.Demostration kit of Mobile TX & RX | 01 | 01 | YES |
| 8 | Study of Cordless Telephone | a.Cordless Telephone | 01 | 01 | YES |

Item No.

A) Facilities for conducting Practicals in the Laboratories

Name of Course:- E&TC Class:- B.E Subject:- Satellite & Mobile Communication.

Name of the Department / Section :- Electronics and Telecommunication

Subjectwise & laboratorywise Lists of material, machinery, equipment & Instrument required to perform prescribed Practicals

| Sr. No | Name of Experiment | Name of Equipment | Quantity | | Whether expt can be conducted |
|--------|---|--------------------------------------|----------|-----------|-------------------------------|
| | | | Required | Available | |
| 1 | To Setup Active Satellite Link | a.DTH | 01 | 01 | YES |
| 2 | To Understand the Shape of Earth. Measurement of Latitude & Longitude | Demostration kit | 01 | 01 | YES |
| 3 | Study of Satellite Transponder | Demostration kit | 01 | 01 | YES |
| 4 | To Understand the Principle of PRN Code in GPS | Demostration kit | 01 | 01 | YES |
| 5 | Study of GSM Architechture | Demostration kit | 01 | 01 | YES |
| 6 | Study of GSM AT Commands | a.GSM Kit | 01 | 01 | YES |
| 7 | Study of Mobile Transmitter & Receiver | a.Demostration kit of Mobile TX & RX | 01 | 01 | YES |
| 8 | Study of Cordless Telephone | a.Cordless Telephone | 01 | 01 | YES |

APPENDIX-15

ELECTRICAL ENGINEERING DEPARTMENT

A) Facilities for conducting Practicals in the Laboratories

Name of the Department / Section: - Electrical

Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical

Name of Course: Electrical Engineering

Class- FE

Sem-I

Subject:- Basic Electrical and Electronics Engg.

| S.N. | Experiment Title | Name of Equipment, Machinery, Instrument required to Conduct Experiment | Quantity | | Whether Experiment can be conducted |
|------|--|--|----------------------------------|----------------------------|-------------------------------------|
| | | | Required | Available | |
| 1 | Study and representation of electrical and electronics components/equipments | Electrical Equipments Electronic Equipments Multimeter | 01 01 | 01 01 | Yes |
| 2 | Verification of Thevenin's theorems. | Thevenin's kit Connecting wires Multimeter Voltmeter Ammeter resistor Power supply | 01 01 01 01 01 01 | 01 01 01 01 01 | Yes |
| 3 | Verification of Superposition theorems. | Superposition kit Connecting wires Voltmeter Ammeter resistor Multimeter Power supply | 01 01 01 01 01 01 | 01 01 01 01 01 | Yes |
| 4 | Verification of Maximum power transfer theorems. | Maximum power transfer kit Connecting wires Multimeter Voltmeter Ammeter resistor Power supply | 01 01 01 01 01 01 | 01 01 01 01 01 | Yes |
| 5 | To plot VI characteristics of PN Junction Diode | DMM Kit Bread Board Power supply Resistor P-N Junction Diode Connecting wires | 01 01 01 01 01 01 | 01 01 01 01 01 | Yes |
| 6 | To determine operating point of BJT | DMM Kit Bread Board Power supply Resistor BJT Connecting wires | 01 01 01 01 01 01 | 01 01 01 01 01 | Yes |

| | | | | | |
|---|--|--|--|--|-----|
| 7 | To plot characteristics of LED | DMM Kit Bread Board Power supply Resistor LED Connecting wires | 01 01 01 01 01 01 01 | 01 01 01 01 01 01 01 | Yes |
| 8 | To implement any Boolean Expression in logic gates | Kit Bread Board Power supply Resistor IC Connecting wires | 01 01 01 01 01 01 | 01 01 01 01 01 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of the Department / Section :-Electrical

Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required to perform prescribed Practical

Name of Course: Electrical Engineering**Class- SE****Sem-III****Subject:- Electrical Circuit Analysis**

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|--|------------------|------------------|--------------------------------|
| | | | Required | Available | |
| 1 | Verifications of Thevenin's Theorem for two port network. | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes | 2 1 2 | 2 1 2 | Yes |
| 2 | Verification of Norton's Theorem for two port network. | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 1 | 2 1 2 1 | Yes |
| 3 | Verification of Superposition Theorem for two port network. | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 2 | 2 1 2 2 | Yes |
| 4 | Measurement of Z-parameter of two port network | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 1 | 2 1 2 1 | Yes |
| 5 | Measurement of Y-parameter of two port network | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 1 | 2 1 2 1 | Yes |
| 6 | Measurement of ABCD-parameter of two port network | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 1 | 2 1 2 1 | Yes |

| | | | | | |
|---|---|--|------------------|------------------|-----|
| 7 | To plot frequency response of series RLC circuit. | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 1 | 2 1 2 1 | Yes |
| 8 | To plot frequency response of parallel RLC circuit. | A 470 ohm resistor B 680 ohm resistor C multimeter D connecting probes E dual power supply | 2 1 2 1 | 2 1 2 1 | Yes |

Name of Course: Electrical Engineering

Class- SE

Sem-III

Subject- Electrical Machines-I

| S.N. | Experiment Title | Name of Equipment, Machinery, Instrument required to Conduct Experiment | Quantity | | Whether Experiment can be conducted |
|------|--|--|----------------------------------|----------------------------------|-------------------------------------|
| | | | Required | Available | |
| 1 | Determination of magnetization, external , internal characteristics and critical field resistance of d. c. shunt generator | DC Shunt Generator DC Shunt Motor Set DC Ammeter DC Voltmeter Rheostats Speedometer Load Bank | 01 02 01 02 01 01 | 01 02 01 02 01 01 | Yes |
| 2 | Determination of external characteristics of d.c. compound generator as i) differential compound, ii) cumulative compound generator. | DC Compound Generator DC Shunt Motor Set DC Ammeter DC Voltmeter Rheostats Speedometer Load Bank | 01 02 01 02 01 01 | 01 02 01 02 01 01 | Yes |
| 3 | Speed control of D.C shunt motor by armature and field control. | DC Shunt Motor DC Ammeter DC Voltmeter Rheostats Speedometer | 01 02 01 02 01 | 01 02 01 02 01 | Yes |
| 4 | i) Study of 3 and 4 point starters. ii) Reversal of motor rotation of D. C. motor. | 3 and 4 point Starters Rheostats Speedometer | 02 02 01 | 02 02 01 | Yes |
| 5 | Determination of performance characteristic of DC series motor by direct load. | DC Series Generator Generator Set DC Ammeter DC Voltmeter Rheostats | 01 02 01 02 | 01 02 01 02 | Yes |

| | | | | | |
|----|---|--|----------------------------|----------------------------|-----|
| | | Speedometer Load Bank | 01 01 | 01 01 | |
| 6 | Swinburne's test on DC shunt Motor: Determination of losses & efficiency. | DC Shunt Motor DC Ammeter DC Voltmeter Rheostats Speedometer | 01 02 01 02 01 | 01 02 01 02 01 | Yes |
| 7 | Polarity and Ratio test on single phase transformer/three phase transformer. | 1 Ph Transformer 3 Ph transformer AC Ammeter AC Voltmeter 1 Phase auto transformer | 01 01 02 02 01 | 01 01 02 02 01 | Yes |
| 8 | Determination of performance of single phase transformer by direct load test. | 1 Ph Transformer Load bank AC Ammeter AC Voltmeter Wattmeter | 01 01 02 02 01 | 01 01 02 02 01 | Yes |
| 9 | Determination of performance of single phase transformer by conducting Open circuit and short circuit test. | 1 Ph Transformer AC Ammeter AC Voltmeter Wattmeter 1 Phase auto transformer | 01 02 02 01 01 | 01 02 02 01 01 | Yes |
| 10 | Parallel operation of two single phase transformer. | 1 Ph Transformer AC Ammeter AC Voltmeter Wattmeter 1 Phase auto transformer | 02 02 02 01 01 | 02 02 02 01 01 | Yes |
| 11 | Study of phaser and vector group of three phase transformer. | 3 Phase transformer | 01 | 01 | Yes |
| 12 | Scott connection of two single phase transformer on no load and at balanced load. | 1 Ph Transformer AC Ammeter AC Voltmeter Wattmeter 1 Phase auto transformer | 02 02 02 01 01 | 02 02 02 01 01 | Yes |

Name of Course: Electrical Engineering

Class- SE

Sem-III

Subject- Electrical Workshop

| S.N. | Experiment Title | Name of Equipment, Machinery, Instrument required to Conduct Experiment | Quantity | | Whether Experiment can be conducted |
|------|--|---|----------|-----------|-------------------------------------|
| | | | Required | Available | |
| 1 | Study and use of: a. DC/AC voltmeter and ammeter. b. Analog multi-meter and Digital multi-meter for the measurement of electrical quantities. c. Megger, Clip-on meter. d. Power factor meter. | Dc voltmeter | 01 | 01 | Yes |
| | | Ac voltmeter | 01 | 01 | |
| | | analog multimeter | 01 | 01 | Yes |
| | | digital multimeter | 01 | 01 | |
| | | Megger | 01 | 01 | Yes |
| | | Power Factor Meter | 01 | 01 | Yes |
| 2 | Study of different Cables | Different types of Cables as a study Practical | -- | -- | Yes |
| 3 | Details and Layout of DC Armature Windings | Open case DC Machine | 01 | 01 | Yes |
| 4 | Details and Layout of AC Armature Windings | Open case AC Machine | 01 | 01 | Yes |
| 5 | Study of substation equipment a. Classification and use of Lightning arrester b. Different type of isolators. c. Substation earthing | Model of Lightning Arrester, | 01 | 01 | Yes |
| | | Isolator, | 01 | 01 | |
| | | Earthing Rod etc | 01 | 01 | |
| | | | 01 | 01 | |
| 6 | Study of transformers a. Standard rating, vector group of power transformer. b. Standard rating of instrument transformer c. Class of accuracy for instrument transformer. | Distribution Transformer | 01 | 01 | Yes |
| | | | | | |
| | | | | | |
| | | | | | |
| 7 | Study of Starters a. Three phase induction motor starter. b. Study of three phase induction motor reverse forward starter. | Model of Three phase induction motor starter. | 01 | 01 | Yes |
| | | Model of three phase induction motor reverse forward starter | 01 | 01 | |
| | | | | | |
| | | | | | |
| 8 | Study of different contactor, relay and timer with switching demonstration | Contactor, Relay | 01 | 01 | Yes |

Name of Course: Electrical Engineering

Class- SE

Sem-IV

Subject- Electrical Engineering Materials

| S.N. | Experiment Title | Name of Equipment, Machinery, Instrument required to Conduct Experiment | Quantity | | Whether Experiment can be conducted |
|------|---|---|----------------------------------|----------------------------------|--|
| | | | Required | Available | |
| 1 | Testing of Insulating Oil as per IS | Oil testing Set | 01 | 01 | Yes |
| 2 | Testing of Solid Insulating Material as per IS | Solid Insulating Kit Material | 01 01 | 01 01 | Yes |
| 3 | Testing of Power Capacitor as per IS | 3 Phase Induction Motor Power Capacitor Wattmeter AC Ammeter AC Voltmeter Belt and Balance set | 01 01 02 01 01 01 | 01 01 02 01 01 01 | Yes |
| 4 | Measurement of resistivity of conducting Materials | Conducting wire AC Ammeter Multimeter Load Bank | 01 01 01 01 | 01 01 01 01 | Yes |
| 5 | Measurement of resistivity of resistive Material | Resistive wire AC Ammeter Multimeter Load Bank | 01 01 01 01 | 01 01 01 01 | Yes |
| 6 | To Study Seeback and Peltier effects | Seeback & Peltier Kit | 01 | 00 | No |
| 7 | Study of Hysterias Loop of Ferromagnetic material s | DC Shunt motor Generator set DC Ammeter DC Voltmeter Speedometer | 01 01 01 01 | 01 01 01 01 | Yes |
| 8 | Study of various insulating materials | Various Insulating Material | 03 | 03 | Yes |

Name of Course: Electrical Engineering

Class- SE

Sem-IV

Subject- Analog and Digital Electronics

| S.N. | Experiment Title | Name of Equipment, Machinery, Instrument required to Conduct Experiment | Quantity | | Whether Experiment can be conducted |
|------|--|--|----------------|----------------|--|
| | | | Required | Available | |
| 1 | Observe the input and output voltages of full wave bridge rectifier circuit with and without filter. | 1. CRO 2. Power Supply 3. kit | 01 01 01 | 01 01 01 | Yes |
| 2 | Study of Op-Amp As Square Wave Generator Using IC | 1. CRO 2. Function Generator | 01 01 | 01 01 | Yes |

| | | | | | |
|----|---|--|----------------------|----------------------|-----------------------------------|
| | 741 | 3. Dual Power Supply 4.Multimeter | 01 01 | 01 01 | |
| 3 | Study of Schmitt Trigger Using Op-Amp IC 741 | 1. CRO 2.Function Generator 3. Dual Power Supply 4.Multimeter | 01 01 01 01 | 01 01 01 01 | Yes (performed on bread board) |
| 4 | Study of Astable, Monostable Multivibrator Using IC 555 | 1. CRO 2.Function Generator 3.Power Supply 4.Multimeter | 01 01 01 01 | 01 01 01 01 | Yes (performed on bread board) |
| 5 | Study of IC 723 As Low Voltage Regulator | 1. CRO 2.Function Generator 3.Power Supply 4.Multimeter | 01 01 01 01 | 01 01 01 01 | Yes (performed on bread board) |
| 6 | Study of IC 723 As High Voltage Regulator | 1.Power Supply 2.Multimeter | 01 01 | 01 01 | Yes (performed on bread board) |
| 7 | Study of Positive Voltage Regulator Using IC 78xx | 1.Power Supply 2.Multimeter | 01 01 | 01 01 | Yes (performed on bread board) |
| 8 | Study of Negative Voltage Regulator Using IC 79xx | 1.Power Supply 2.Multimeter | 01 01 | 01 01 | Yes (performed on bread board) |
| 9 | Study of J-K Flip-Flop Using IC 7476 | 1.Power Supply 2.Multimeter | 01 01 | 01 01 | Yes (performed on bread board) |
| 10 | Verification of Binary Counter Using IC-7493. | 1.Power Supply 2.Multimeter | 01 01 | 01 01 | Yes (performed on bread board) |

Name of Course: Electrical Engineering

Class- SE

Sem-IV

Subject:- Electrical Machine -II

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|---|---------------------------------|---------------------------------|--------------------------------|
| | | | Required | Available | |
| 1 | Determination of voltage regulation and efficiency of three phase alternator by direct load test. | D.C. Shunt Motor as P.M. Ammeter (0-10A) Voltmeter (0-600V) Lamp bank as Resistive Load Tachometer D.C. Ammeter (0-1A) Rheostats (800,1.2A) | 1 1 1 1 1 1 2 | 1 1 1 1 1 1 2 | Yes |

| | | | | | |
|---|--|---|--------------------------------------|---------------------------------|--------------------------------|
| 2 | Open and short circuit test on three phase alternator: determination of its regulation by e.m.f. method and m.m.f. method. | D.C. Shunt Motor as P.M./3Ph. Synchronous. Motor as P.M. Ammeter (0-10A) Voltmeter (0-600V) Lamp bank as Resistive Load Tachometer D.C. Ammeter (0-1A) Rheostats (800,1.2A) | 1 1 1 1 1 1 1 2 | 1 1 1 1 1 1 2 | Yes |
| 3 | Zero power factor test on three phase alternator: determination of regulation by Potier triangle method. | D.C. Shunt Motor as P.M. Ammeter (0-10A) Voltmeter (0-600V) 3Ph inductive load Tachometer D.C. Ammeter (0-1A) Rheostat (800,1.2A) | 1 1 1 1 1 1 2 | 1 1 1 1 1 1 2 | Yes |
| 4 | Determination of direct axis and quadrature axis reactance by slip test on synchronous machine. Determination of voltage regulation by two reactance theory. | Dc shunt motor as PM 3Ph Auto Transformer (10A,600V) Voltmeter (0-600V) Ammeter (0-5A) Tachometer | 1 1 1 1 1 | 1 1 1 1 1 | Yes |
| 5 | Synchronizing alternators: lamp methods and use of synchroscope. | Practical set of Synchronous machine on infinite bus including synchroscope | 1 | 1 | Yes |
| 6 | Synchronous alternator on infinite bus: behavior of machine under change in mechanical power and excitation | Practical set of Synchronous machine on infinite bus including synchroscope | 1 | 1 | Yes |
| 7 | Characteristic of synchronous motor at constant load and variable excitation. | 3Ph alternator as load on synchronous motor ammeter(0-10A) Voltmeter(0-600V) DC ammeter (0-2A) Rheostats (400,1.2A) 2 Wattmeter(600V/10A) Synchronous motor with direct loading arrangement and Synchronising panel | 1 1 1 1 2 1 | 2 1 1 1 1 1 | Yes Yes |

| | | | | | |
|----|--|---|----------------------------------|----------------------------------|----------------------------|
| 8 | Characteristic of synchronous motor at constant excitation and variable load. | Voltmeter (0-300V) Ammeter (0-10A) 1ph Auto transformer (10A/270V) Alt as a load Synchronous motor with direct loading arrangement and Synchronising pannel | 1 1 1 1 1 | 1 1 1 1 1 | Yes Yes |
| 9 | Determination of performance of three phase induction motor by direct load test. | 3 Ph Auto transformer Voltmeter Ammeter Wattmeter Tachometer Brake Load | 01 01 01 02 01 01 | 01 01 01 02 01 01 | Yes |
| 10 | Determination of performance of three phase induction motor by no load, blocked rotor test and construction of circle diagram. | 3 Ph Auto transformer Voltmeter Ammeter Wattmeter Tachometer | 01 01 01 02 01 | 01 01 01 02 01 | Yes |
| 11 | No load and blocked rotor tests on capacitor start single phase induction motor and determination of parameters of equivalent circuit. | Voltmeter(0-300V) Ammeter(0-10A) 1 ph Auto transformer Wattmeter(300V/10A) | 1 1 1 1 | 1 1 1 1 | Yes |
| 12 | Load test on single phase induction motor. | Voltmeter(0-300V) Ammeter(0-10A) Auto transformer Wattmeter(300V/10A) | 1 1 1 1 | 1 1 1 1 | Yes |

Name of Course: Electrical Engineering

Class- SE

Sem –IV

Subject- Measurement and Instrumentation

| S.N. | Experiment Title | Name of Equipment, Machinery, Instrument required to Conduct Experiment | Quantity | | Whether Experiment can be conducted |
|------|---|---|----------------------------|----------------------------|-------------------------------------|
| | | | Required | Available | |
| 1 | Measurement of active power and reactive power in three phase circuit by two wattmeter method and one wattmeter method. | 3 Ph power supply ammeter, voltmeter, Wattmeter, Load | 01 01 01 02 01 | 02 01 01 02 01 | Yes |
| 2 | Calibration of single phase Energy meter at different. Power factor | 1 Phase Energy meter, ammeter, voltmeter, | 01 01 01 | 01 01 01 | Yes |

| | | | | | |
|----|--|--|----------------------------|----------------------------|-----|
| | | Wattmeter Load | 01 01 | 01 01 | |
| 3 | Calibration of three phase two element energy meter at different P.F.'s. | 3 Phase Energy meter, ammeter, voltmeter, Wattmeter, Load | 01 01 01 01 01 | 01 01 01 01 01 | Yes |
| 4 | Kelvin's double bridge: Measurement of low resistance. | Kelvin Bridge Kit, Multimeter | 01 01 | 01 01 | Yes |
| 5 | Strain Measurement using strain gauge. | strain Gauge measurement kit & Weights | 01 | 01 | Yes |
| 6 | Measurement of temperature by RTD/Thermocouple. | Heater RTD Thermocouple Multimeter | 01 01 01 01 | 01 01 01 01 | Yes |
| 7 | Measurement of pressure by using pressure transducer. | pressure transducer kit Foot Pump | 01 01 | 01 01 | Yes |
| 8 | Measurement of displacement by using LVDT | LVDT Transducer unit with controller CRO Probes | 01 01 03 | 01 01 03 | Yes |
| 9 | Measurement of inductance and capacitance by Andersons Bridge and Schering Bridge. | Schering Bridge Kit Capacitance Anderson Bridge Inductance wires | 01 01 01 01 | 01 01 01 01 | Yes |
| 10 | Measurement of Earth Resistance | Earth Testing Kit | 01 | 01 | Yes |

A) Facilities for conducting Practicals in the Laboratories

Name of the Department / Section: - Electrical

Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required performing prescribed Practical

Name of Course: Electrical Engineering

Class- TE

Sem-V

Subject:-Power Electronics

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Triggering Circuit of SCR | Triggering circuit of SCR | 01 | 01 | YES |
| 2 | Commutation circuit class C, class D | Commutation circuit class C & class D | 01 | 01 | YES |
| 3 | Single phase full wave controlled rectifiers R, R-L characters tics | Single phase full wave controlled rectifiers R, R-L, LOAD CHAR | 01 | 01 | YES |
| 4 | Single phase semi-converter | Single phase semi converter | 01 | 01 | YES |
| 5 | Three phase full wave controlled rectifiers | Three phase full wave controlled rectifiers | 01 | 01 | YES |
| 6 | Step up chopper | Step up chopper | 01 | 01 | YES |
| 7 | Step down chopper | Step down chopper | 01 | 01 | YES |
| 8 | Series and parallel inverter | Series inverter & Parallel inverter | 01 | 01 | YES |
| 9 | Three phase inverter | Three phase inverter. MOSFET | 01 | 01 | YES |

Name of Course: Electrical Engineering

Class- TE

Sem-V

Subject:-Power System II

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Measurement of ABCD parameters of a medium transmission line. | Medium Transmission Line Kit | 1 | 1 | Yes |

| | | | | | |
|----|--|---|----------------------------|----------------------------|-----|
| 2 | Measurement of ABCD parameters of a long transmission line. | 400Km Transmission line study unit | 1 | 1 | Yes |
| 3 | Plotting of receiving end circle diagram to evaluate performance of medium transmission line. | Medium Transmission Line Kit | 1 | 1 | Yes |
| 4 | Study of the effect of VAR compensation on the profile of receiving end voltage using capacitor bank. | DC shunt motor or synchronous. Motor as PM Voltmeter (0-600V) Ammeter(0-10A) Capacitor bank | 1 2 2 1 | 1 2 2 1 | Yes |
| 5 | Static measurement of sub-transient reactance of a salient-pole alternator. | Synchronous Generator coupled with motor Ammeter(0-10A) 1ph Auto transformer | 1 1 1 | 1 1 1 | Yes |
| 6 | Measurement of sequence reactance of a synchronous machine | 3 ph synchronous motor 3 ph synchronous generator wattmeter voltmeter ammeter 1 ph transformer | 1 1 2 1 1 1 | 1 1 2 1 1 1 | Yes |
| 7 | Determination of steady state power limit of a transmission line. | 400Km Transmission line study unit | 1 | 1 | Yes |
| 8 | Unsymmetrical fault analysis for LL,LG, LLG FAULT ON A.C / D.C network analyzer | 400Km Transmission line study unit | 1 | 1 | Yes |
| 9 | Formulation and calculation of Y- bus matrix of a system using software. | Computer 400Km Transmission line study unit | 1 1 | 1 1 | Yes |
| 10 | Solution of a load flow problem using Gauss-Seidal method using a software. | Computer Matlab software | 1 1 | 1 1 | Yes |
| 11 | Solution of a load flow problem using Newton-Raphson method using software. | Computer Matlab software | 1 1 | 1 1 | Yes |
| 12 | Unsymmetrical fault analysis of a 3-bus system using a software. | Computer Matlab software | 1 1 | 1 1 | Yes |
| 13 | Calculation of inductance and capacitance for symmetrical and unsymmetrical configuration of transmission line using software. | Computer Matlab software | 1 1 | 1 1 | Yes |

Name of Course: Electrical Engineering

Class- TE

Sem-V

Subject:- Electronic Design Lab

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|--|---|--|--|--------------------------------|
| | | | Required | Available | |
| 1 | Design of D.C. Power Supply using full wave rectifier with filter. | 1.CRO 2.Resistor 3.Capacitor 4.Multimeter 5. Dual Power Supply 6. breadboard 7. connecting wires | 01 04 01 01 01 01 | 01 04 01 01 01 01 | Yes |
| 2 | Design of Low Voltage and High Voltage regulator circuits using IC 723. | 1.CRO 2.Resistor 3.Capacitor 4.IC 723 3. Dual Power Supply 4.Multimeter 5. breadboard 6. connecting wires | 01 04 02 01 01 01 01 | 01 04 02 01 01 01 01 | Yes |
| 3 | Implementation of waveform generator and oscillator using op-amp IC741. | 1.CRO 2.Resistor 3.Rheostat 4.Capacitor 5.IC 741 6. Dual Power Supply 7.Multimeter 8. breadboard 9. connecting wires | 01 02 02 02 01 01 01 01 | 01 02 02 02 01 01 01 01 | Yes |
| 4 | Design of Astable and Monostable multivibrators using IC 555 and applications. | 1.CRO 2.Resistor 3..Capacitor 4.IC 555 5.Function Generator 6. Dual Power Supply 7.Multimeter 8. breadboard 9. connecting wires | 01 02 02 01 01 01 01 01 | 01 02 02 01 01 01 01 01 | Yes |
| 5 | Design of digital multiplexers and demultiplexers. | 1.Computer 2.VHDL software | 01 | 01 | Yes |

Subject:-Control System I

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|---|-------------|-------------|--------------------------------|
| | | | Required | Available | |
| 1 | To determine Speed Torque characteristic of an AC Servomotor. | Ac servo motor kit, Multimeter | 1 1 | 1 1 | Yes |
| 2 | To study potentiometer as an error detector. | Potentiometer kit, Multimeter | 1 1 | 1 1 | Yes |
| 3 | To determine time response of second order control system | Second order system kit, Multimeter, CRO | 1 1 1 | 1 1 1 | Yes |
| 4 | To determine speed-torque characteristics of dc servomotor. | dc servo motor kit tachometer multimeter | 1 1 1 | 1 1 1 | Yes |
| 5 | Study of PID controller | PID controller CRO | 1 1 | 1 1 | Yes |
| 6 | To study synchro-transmitter and receiver and obtain output V/S input Characteristics. | Kit of Synchros, Multimeter | 1 1 | 1 1 | Yes |
| 7 | To Study Stepper Motor. | stepper motor Tachometer Multimeter | 1 1 1 | 1 1 1 | Yes |
| 8 | To determine time domain response of a second order system for step input obtains performance parameters by using software. | Matlab Software | 1 | 1 | Yes |
| 9 | To plot root locus diagram of an open loop transfer function and determine range of gain 'k' for stability by using software. | Matlab Software | 1 | 1 | Yes |
| 10 | To plot a Bode diagram of an open loop transfer function by using software. | Matlab Software | 1 | 1 | Yes |

Name of Course: Electrical Engineering

Class- TE

Sem-VI

Subject:-Microprocessor and Microcontroller

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|--|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Study of architecture and instructions of 8085 along with opcodes. | 8085 micro-controller kit | - | - | YES |
| 2 | Study of architecture & instructions of 8051 | 8051 micro-controller kit | - | - | YES |
| 3 | Microprocessor 8085 assembly language programs based on data transfer instruction | 8085 Microprocessor Kit with 7 segment LED display | 05 | 06 | YES |
| 4 | Microprocessor 8085 assembly language programs based on arithmetic instruction | 8085 Microprocessor Kit with 7 segment LED display | 05 | 06 | YES |
| 5 | Microprocessor 8085 assembly language programs based on logical instruction | 8085 Microprocessor Kit with 7 segment LED display | 05 | 06 | YES |
| 6 | Applications of micro processor 8085 in Electrical drives and speed control for stepper motor. | Stepper Motor Kit | 02 | 02 | YES |
| 7 | Microcontroller 8051 assembly language programs based on data transfer instruction. | 8051 Simulator | PC | PC | Yes |
| 8 | Microcontroller 8051 assembly language programs based on arithmetic and logical instructions. | 8051 Simulator | PC | PC | Yes |

Name of Course: : Electrical Engineering

Class- TE

Sem-VI

Subject:-Power System-II

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|------------------|---|----------|-----------|--------------------------------|
| | | | Required | Available | |

| | | | | | |
|----|---|---|------------------|------------------|-----|
| 1 | Strain Measurement using strain gauge | strain Gauge measurement kit & Weights | 1 | 1 | Yes |
| 2 | Study of CRO & its different types and applications | CRO Function generator Probes | 1 1 2 | 1 1 2 | Yes |
| 3 | Measurement of temperature by RTD/Thermocouple. | Heater RTD Thermocouple Multimeter | 1 1 1 1 | 1 1 1 1 | Yes |
| 4 | Study of pressure transducer | pressure transducer kit compressor | 1 1 | 1 1 | Yes |
| 5 | Study of recorder | Strip chart recorder | 1 | 1 | Yes |
| 6 | Study of LVDT | LVDT Transducer unit with controller CRO Probes | 1 1 3 | 1 1 3 | Yes |
| 7 | Measurement of inductance by Andersons Bridge. | a. KIT Anderson b. Headphone | 1 1 | 1 1 | Yes |
| 8 | Measurement of capacitance and loss angle of capacitor by Schering bridge | Schering Kit multimeter | 1 1 | 1 1 | Yes |
| 9 | Step response of meter | | | | No |
| 10 | Measurement of systematic errors of wattmeter. | | | | No |

A) Facilities for conducting Practicals in the Laboratories

Name of the Department / Section: - Electrical

Subject wise & laboratory wise Lists of material, machinery, equipment & Instrument required performing prescribed Practical

Name of Course: Electrical Engineering

Class- BE

Sem-VII

Subject: Industrial Drives and Control

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Determination of Speed Torque characteristic of d.c motor controlled using single phase half controlled rectifier. | ½ HP D.C Shunt Motor With Loading arrangement | 1 | 1 | Yes |
| 2 | Determination of Speed Torque characteristic of d.c motor controlled using single phase fully controlled rectifier. | ½ HP D.C Shunt Motor With Loading arrangement | 1 | 1 | Yes |
| 3 | Performance analysis of one quadrant chopper control of d.c motor. | ½ HP D.C Shunt Motor With Loading arrangement | 1 | 1 | Yes |
| 4 | Performance analysis of two quadrant chopper control of d.c motor. | ½ HP D.C Shunt Motor With Loading arrangement | 1 | 1 | Yes |
| 5 | Speed control of single phase induction motor using ac voltage regulator. | 1 HP Single Phase Induction motor. | 1 | 1 | Yes |
| 6 | Study of stepper motor drive circuit | Stepper Motor 2 phase , 3.5 Kg-cm, 12 volt | 1 | 1 | Yes |
| 7 | Speed control Universal motor | FHP AC/DC Universal Motor | 1 | 1 | Yes |
| 8 | Study of closed loop control of DC motor. | ½ HP D.C Shunt Motor | 1 | 1 | Yes |
| 9 | Study of Vector control method for induction motor | 3 HP/2.2 KW, 415 volt , 4 Pole , 50 Hz, 1440 RPM Induction Motor | 1 | 1 | Yes |

Name of Course: : Electrical Engineering

Class- BE

Sem-VII

Subject:- High Voltage Engineering.

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|--|-----------------------|-----------------------|--------------------------------|
| | | | Required | Available | |
| 1 | Measurement of insulation resistance of 11KV/110 V.P.T by Megger. | Megger | 1 | 1 | Yes |
| 2 | Power frequency withstand test on 11KV, 10/5 amp CT. | -- | -- | -- | No |
| 3 | Study of Corona Discharge | 50 KVA C/70 KV DC HV testing kit corona cage 2-0-50 KV HV Transformer 3-0-70 KV Rectifier 4-0-70 KV Filter 5-Bedding Resistor (0-90 KV) | 1 1 1 1 1 | 1 1 1 1 1 | Yes |
| 4 | Determination of insulation break-down strength of solid, Liquid and gaseous dielectric media | Insulation Tester Set & Oil Tester | 1 | 1 | Yes |
| 5 | Power frequency high voltage withstand test on cable | -- | -- | -- | No |
| 6 | Study of Impulse Generator | As Study Experiment | - | - | Yes |
| 7 | Dry & wet power freq. With stand test on insulator | HV testing kit 0-50 KV AC Transformer Insulator Artificial raining sys. | 1 1 1 1 | 1 1 1 1 | Yes |
| 8 | Flashover test on insulator | As a study experiment | 1 | 1 | Yes |
| 9 | Double voltage Double freq. With stand test on transformer. | Double voltage, double freq. Kit Transformer | 1 1 | 1 1 | Yes |
| 10 | Calibration of sphere gap | HV testing kit 0-50 KVAC HV transformer Sphere gap assembly | 1 1 1 | 1 1 1 | Yes |
| 11 | Study of 100KV high voltage testing set. | high voltage testing Kit | 1 | 1 | Yes |

Name of Course: Electrical Engineering

Class- BE

Sem-VII

Subject:-Industrial Electrical Engineering.

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|--|---|---------------------------------|---------------------------------|--------------------------------|
| | | | Required | Available | |
| 1 | Performance characteristics of DC Series motor by load test. | DC shunt generator as load on DC motor Voltmeter (0-300V) Ammeter (0-10A) tachometer | 1 1 1 1 1 | 1 1 1 1 1 | Yes |
| 2 | Performance characteristics of DC Series motor by Field Test. | Ammeter ((0-10A) Voltmeter (0-300V) Tachometer, Loading arrangement DC Series motor coupled with DC generator | 1 1 1 1 | 1 1 1 1 | Yes |
| 3 | Performance characteristics of DC Shunt motor by direct load test. | Voltmeter (0-300V) Ammeter (0-10A) tachometer DC Shunt motor | 1 1 1 1 | 1 1 1 1 | Yes |
| 4 | Performance characteristics of single phase induction motor by direct load test. | Voltmeter (0-300V) Ammeter (0-10A) 1ph auto Transformer(270V,10A) Tachometer Load Balance single phase induction motor with loading arrangement | 1 1 1 1 1 1 1 | 1 1 1 1 1 1 1 | Yes |
| 5 | Performance characteristics of three phase induction motor by direct load test. | Voltmeter (0-600V) Ammeter (0-10A) Wattmeter(600v/10A) Tachometer Loading arrangement 3 ph auto transformer. Three phase induction motor | 1 1 2 1 1 1 1 | 1 1 2 1 1 1 1 | Yes |
| 6 | Speed control of DC Series Motor | Voltmeter (0-300V) Ammeter (0-10A) Tachometer Rheostats (100,5A) DC Series Motor | 1 1 1 2 1 | 1 1 1 2 1 | Yes |

| | | | | | |
|----|---|--|----------------------------|----------------------------|-----|
| 7 | Speed control of three phase slip ring Induction Motor by rotor resistance method | Voltmeter (0-600V) Ammeter (0-10A) Tachometer three phase slip ring Induction Motor rotor resistance | 1 1 1 1 1 | 1 1 1 1 1 | Yes |
| 8 | Rheostatic breaking of DC Shunt Motor | Voltmeter (0-300V) Ammeter (0-5A) Rheostat (200,5A) Change over switch Stop watch DC Shunt Motor | 1 1 1 1 1 1 | 1 1 1 1 1 1 | Yes |
| 9 | Study of Air conditioning system. | By case study | | | Yes |
| 10 | Study of induction heating & Welding. | By case study | | | Yes |
| 11 | Study of Different type of Enclosures | Machine lab Enclosures | | | Yes |

Name of Course: Electrical Engineering

Class- BE

Sem-VIII

Subject:-Power system stability

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|---|--|-----------------------|-----------------------|--------------------------------|
| | | | Required | Available | |
| 1 | Determination of Parameters and time constants of synchronous machines. | DC shunt motor coupled with synchronous alternator Voltmeter Ammeter Wattmeter | 1 1 1 1 | 1 1 1 1 | Yes |
| 2 | Synchronous machine of infinite bus: Effect of Excitation | DC shunt motor coupled with synchronous alternator Synchronizing panel Voltmeter Ammeter Wattmeter | 1 1 1 1 1 | 1 1 1 1 1 | Yes |
| 3 | Effect of saturation and & determination of equivalent reactance of synchronous machines. | DC shunt motor coupled with synchronous alternator Voltmeter Ammeter Wattmeter | 1 1 1 1 | 1 1 1 1 | Yes |

| | | | | | |
|----|---|-----------------------------|-------|------|-----|
| 4 | Retardation test on synchronous machines to find moment of inertia of rotating part and angular momentum. | As a study experiment. | | | Yes |
| 5 | To obtain power angle characteristics of lossy & lossless lines. | Transmission line kit | 01 | 01 | Yes |
| 6 | To study transient stability by point by point method. | Kit | 01 | 01 | Yes |
| 7 | To determine the steady state stability limit of short transmission line. | Short Transmission line kit | 01 | 01 | Yes |
| 8 | To determine SSSL of long transmission line. | Long Transmission line kit | 01 | 01 | Yes |
| 9 | Study of Clerk diagram | As study experiment. | ---- | ---- | Yes |
| 10 | Study of different types of automatic voltage regulator | As study experiment. | ----- | ---- | Yes |

Name of Course: Electrical Engineering

Class- BE

Sem-VIII

Subject:-Switchgear and Protection

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|--|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | To conduct and study of Arc extinction phenomenon: Application in air circuit breaker. | As a study experiment & Horn Gap Extinguisher kit | 1 | 1 | Yes |
| 2 | Study of relaying component and control circuit development | Switch gear testing kit MCB ,fuse wire | 1 | 1 | Yes |
| 3 | To conduct and plot the characteristic of rewirable fuses and MCB | Relay testing kit | 1 | 1 | Yes |
| 4 | To conduct and plot operating characteristics of Inverse time over current relay. | Microprocessor based over current relay | 1 | 1 | Yes |
| 5 | To conduct Over current & earth fault protection scheme for alternator. | Protection of three phase alternator kit | 1 | 1 | Yes |
| 6 | To conduct Protection of 3 phase transformer using differential relay (Merz-Price protection scheme) | Three phase transformer protection kit | 1 | 1 | Yes |

| | | | | | |
|---|---|-----------------------|---|---|-----|
| 7 | Study of MHO distance relay to plot. a) R- X diagram b) Relay voltage Vs Admittance characteristic. | As a study experiment | 1 | 1 | Yes |
| 8 | Study of Static relay. | As a study Experiment | 1 | 1 | Yes |
| 9 | Demonstration of microprocessor base protection. | As a study experiment | 1 | 1 | Yes |

Name of Course: Electrical Engineering

Class- BE

Sem-VIII

Subject:- Power System Design & Practice

| Sr. No | Experiment Title | Name of Equipment, Machinery Instrument etc. Required to Conduct Experiment | Quantity | | Whether expt. can be conducted |
|--------|--|---|----------|-----------|--------------------------------|
| | | | Required | Available | |
| 1 | Draw the substation layout for 400KV.and design the three phase transmission line with electrical consideration. | Study & Drawing Sheets | -- | -- | Yes |
| 2 | Sag-Tension calculation | Study & Problem solving | -- | -- | Yes |
| 3 | Different busbar arrangement and isolating switches. | Study & Drawing Sheets | -- | -- | Yes |
| 4 | Different types of circuit breaker.. | Study & Drawing Sheets | -- | -- | Yes |
| 5 | Different types of Lightning Arresters | Study & Drawing Sheets | -- | -- | Yes |
| 6 | Design of Earthing system for 132/400KV substation | Study & Drawing Sheets | -- | -- | Yes |

DEPARTMENT OF BUSINESS ADMINISTRATION

Details of Major Equipments of Laboratory

NAME OF THE DEPARTMENT: - M.B.A.

| Sr.No | Name of the laboratory/Workshop Detail | Major Equipment above 50,000/- |
|--------------|---|---|
| 01 | Computer Lab-01 | -NIL- . |

Lab In charge

H.O.D. (MBA)

Shram Sadhana Bombay Trust
College of Engineering & Technology, Bambhori
Equipment & Software Cost Information

Name of Department:- Mechanical Engineering

| Sr. No | Name of Laboratory | Name of Equipment | Cost of Equipment (UG) | Cost of Software (UG) | Total Cost (UG) | Name of Equipment | Cost of Equipment (PG) | Cost of Software (PG) | Total Cost (PG) | Total Cost of Equip. (UG&PG) | Total Cost of Equip. & Software (UG&PG) |
|--------|--------------------|--|------------------------|-----------------------|-----------------|-----------------------------|------------------------|-----------------------|-----------------|------------------------------|---|
| 01 | Computer Lab | | | | | Ansys Software (PG) | | 183750.00 | 183750.00 | 401700.00 | 1083651.00 |
| | | | | | | Mat Lab Software (PG) | | 316201.00 | 316201.00 | | |
| | | Auto cad Software (UG) | | 182000.00 | 182000.00 | | | | 182000.00 | | |
| | | | | | | Lenova Computer (PG) | 195000.00 | | 195000.00 | | |
| | | | | | | H.C.L. Computer (PG) | 206700.00 | | 206700.00 | | |
| 02 | Tribology Lab | | | | | Tilting Pad Thrust Bearing | 56133.00 | | 56133.00 | 210133.00 | 210133.00 |
| | | | | | | Friction & Wear Test Ring | 100100.00 | | 100100.00 | | |
| | | | | | | Friction in journal Bearing | 53900.00 | | 53900.00 | | |
| 03 | Heat Power Lab | Four cylinder Four Stroke Disel Engine | 312503.00 | | 312503.00 | | | | | 838503.00 | 838503.00 |
| | | Twin Cylinder Disel Engine | 526000.00 | | 526000.00 | | | | | | |
| 04 | MQC. Lab | Auto Colimeter | 70000.00 | | 70000.00 | | | | | 1439589.00 | 1439589.00 |
| | | Angle Dekkor | 90000.00 | | 90000.00 | | | | | | |

| | | | | | | | | | | | |
|----|-----------------------------|--|------------|-----------|------------|--|--|--|--|------------------|------------------|
| | | Tool Maker Microscope | 68000.00 | | 68000.00 | | | | | | |
| | | Gear Test Bench | 134000.00 | | 134000.00 | | | | | | |
| | | Profile Projector Model PPT-200 | 66465.00 | | 66465.00 | | | | | | |
| | | 3D Co ordinance meas. Mc/ Arm Max | 1011240.00 | | 1011240.00 | | | | | | |
| 05 | TOM DOM Lab | Slip & Creep measureme nt In Belt Drive | 54647.00 | | 54647.00 | | | | | 54647.00 | 54647.00 |
| 06 | Material Sci. Metallurgy | Metzer Binocular Universal Microscope | 50000.00 | | 50000.00 | | | | | 158000.00 | 158000.00 |
| | | Microscope CCTV MS-8 | 108000.00 | | 108000.00 | | | | | | |
| 07 | CAD/CAM Lab | Ideas | | 280000.00 | | | | | | | |
| | | AutoCAD200 5 | | 290000.00 | | | | | | | |
| | | Intel Core Computer | 126164.00 | | 126164.00 | | | | | 332114.00 | 902114.00 |
| | | HCL Computer | 127200.00 | | 127200.00 | | | | | | |
| | | Lenovo Computer | 78750.00 | | 78750.00 | | | | | | |
| 08 | RAC Lab | Vapour Absorption system | 139116.00 | | 139116.00 | | | | | | |
| | | Air Conditioning Cycle Test | 365000.00 | | 365000.00 | | | | | 644116.00 | 644116.00 |
| | | ICE | 140000.00 | | 140000.00 | | | | | | |

| | | | | | | | | | | | |
|----|------------------|---|-----------|--|-----------|--|--|--|--|------------------|------------------|
| | | Plant Tutor | | | | | | | | | |
| 09 | IEDC Project | Solar Water Heating System | 68000.00 | | 68000.00 | | | | | | |
| | | Development of Efficient Air Cooler | 63178.00 | | 63178.00 | | | | | | |
| | | Sports Racing car | 156533.00 | | 156533.00 | | | | | | |
| | | Investigation of factors affecting on performance of a thermoelectric generator | 101000.00 | | 101000.00 | | | | | | |
| 10 | Auto Mobile Lab | Spare Part | 51192.00 | | 51192.00 | | | | | | |
| | | Tyres AVT Tayres | 51770.00 | | 51770.00 | | | | | | |
| 11 | Mechatronics Lab | Trainers | 51018.00 | | 51018.00 | | | | | | |
| | | Pneumatic Actuator | 54384.00 | | 54384.00 | | | | | | |
| | | | | | | | | | | 388711.00 | 388711.00 |
| | | | | | | | | | | 102962.00 | 102962.00 |
| | | | | | | | | | | 105402.00 | 105402.00 |

H. O. D.
Mech. Engg. Dept.

DEPARTMENT OF MECHANICAL ENGG.

ABOVE RS. 50,000/- MAJOR EQUIPMENT LIST

| SR. NO. | NAME OF THE EQUIPMENT | QUANTITY. | AMOUNT |
|---------|---|-----------|------------|
| 01 | Tilting Pad Thrust Bearing | 01 | 56133.00 |
| 02 | Friction & Wear Test Ring | 01 | 100100.00 |
| 03 | Friction in journal Bearing | 01 | 53900.00 |
| 04 | Four cylinder Four Stroke Diesel Engine | 01 | 312503.00 |
| 05 | Twin Cylinder Diesel Engine | 01 | 526000.00 |
| 06 | Auto Colimeter | 01 | 70000.00 |
| 07 | Angle Dekkor | 01 | 90000.00 |
| 08 | Tool Maker Microscope | 01 | 68000.00 |
| 09 | Gear Test Bench | 01 | 134000.00 |
| 10 | Profile Projector Model PPT-200 | 01 | 66465.00 |
| 11 | 3D Co ordinance mear. Mc/ Arm Max | 01 | 1011240.00 |
| 12 | Slip & Creep measurement Belt Drive | 01 | 54647.00 |
| 13 | Metzer Binocular Universal Microscope | 01 | 50000.00 |
| 14 | Microscope CCTV MS-8 | 01 | 108000.00 |
| 15 | Ideas Software | 07 | 280000.00 |
| 16 | AutoCAD2005 Software | 10 | 290000.00 |
| 17 | Vapour Absorption system | 01 | 139116.00 |
| 18 | Air Conditioning Cycle Test | 01 | 365000.00 |
| 19 | ICE Plant Tutor | 01 | 140000.00 |
| 20 | Solar Water Heating System | 01 | 68000.00 |
| 21 | Model Air Cooler | 01 | 63178.00 |
| 22 | Sports Racing car | 01 | 156533.00 |
| 23 | Thermoelectric generator | 01 | 101000.00 |
| 24 | Spare Part | 01 | 51192.00 |
| 25 | Tyres AVT Tayres | 01 | 51770.00 |
| 26 | Trainers | 01 | 51018.00 |
| 27 | Pneuinatic Actuator | 01 | 54384.00 |

Dr. S. P. Shekhawat
H.O.D.
Mech. Engg. Dept.

DEPARTMENT OF MECHANICAL ENGG.

INVESTMENT IN LABORATORIES

| No. | Name of the Laboratory | Investment in Rs. |
|-----|------------------------------------|-------------------|
| 01 | Model Lab | 48606 |
| 02 | Heat Power Lab | 1064731 |
| 03 | RAC Lab. | 752816 |
| 04 | CAD/CAM Lab. | 332115 |
| 05 | Tribology Lab. | 244937 |
| 06 | Material Science & Metallurgy Lab. | 434886 |
| 07 | Heat Transfer Lab. | 192952 |
| 08 | Metrology Lab. | 2112438 |
| 09 | Theory of Machines Lab. | 213469 |
| 10 | Computer Lab. | 613550 |
| 11 | Mechatronics Lab. | 105400 |
| 12 | Automobile Engineering Lab. | 227376 |
| | Central Workshop | 4535948 |
| | Total :- | 10879224 |

Dr. S. P. Shekhawat
H.O.D.
Mech. Engg. Dept.



COLLEGE OF ENGINEERING AND TECHNOLOGY, BAMBHORI POST BOX NO. 94, JALGAON – 425001. (M.S.)

(With NBA Accredited Programmes)

Website : www.ssoetjalgaon.ac.in

Email : ssoetjal@gmail.com

Mandatory Disclosure

Part-II

January 2024 - 2025





Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY
BAMBHORI, POST BOX NO. 94, JALGAON – 425001 (M.S.)
Included under section 2 (f) & 12 (B) of the UGC Act, 1956
Grade B ++ (2.91) NAAC Accredited

Website- www.sscoetjalgaon.ac.in

Email: sscoetjal@gmail.com

Principal: Dr. K.S.Wani

M. Tech., DBM, Ph.D.

Phone No. (0257) 2258393

Fax No. (0257) 2258392

Ref. No. COET/Exam./

/ 25

Date:

C E R T I F I C A T E

Certified that all enclosures contained in PART-I , PART-II & PART-III bearing page no. to page no. are pertaining to our institution which are being submitted in two separate above mentioned bound booklets/box file of Mandatory Disclosure. All xerox copies may be treated as original.

PRINCIPAL

Computing Facilities Existing for the existing Programs

| Sr. No. | Particulars | Availability |
|----------------|--|--|
| 01. | No of Computer Terminals | 920 |
| 02. | Hardware Specification | P-IV and Higher Specifications = 920 |
| 03. | No of Terminals on LAN/WAN | 1011 |
| 04. | Relevant Legal Software | <ul style="list-style-type: none">• 67 System software packages• 29 Application software packages |
| 05. | Peripherals / Printers | <ul style="list-style-type: none">• Printers= 85• Scanners = 9 |
| 06. | Internet Accessibility (in kbps & hrs) | <ul style="list-style-type: none">• Leased Line = 68 MBPS |

College is having Wireless and OFC Connectivity throughout the Campus

SSBT's College of Engineering and Technology, Bambhori, Jalgaon
CULTURAL COMMITTEE (2019-20)
Activities during Academic Year 2019-20 Sem-1

| Year 2019-20 (Term 1) Cultural Activities | | | | |
|---|-----------------------|------------------------------------|--------------------------|------------------------|
| Sr.No | Date | Events | Venue | Participants |
| 1 | 3/08/19 - 22/08/19 | Induction Programe | Pharmacy building | First year |
| 2 | 15/08/2018 | Independence Day | Lawn | 800 students,200 staff |
| 3 | 24/08/2019 | Dahi Handi | GROUND | 500 STUDENTS |
| 4 | 28/08/2019 | Safety Awareness | A/C SEMINAR HALL | 200 students |
| 5 | 28/08/2019 | Seminar by Sakal and Gilet company | A/C SEMINAR HALL | 200 STUDENTS |
| 6 | 02/09/2018 | Ganesh Utsav | Near shree ganesh mandir | Staff and students |
| 7 | 07/09/2019 | My Campus star by 94.3 MY FM | Non a/c SEMINAR HALL | 80 students |
| 8 | 15/09/2019 | Engineer day | Ac seminar hall | 200 students |

Soft Skill Development Facilities

The soft skill development facilities are provided at the college level through training and placement cell which is headed by Training and Placement Officer. Faculty members of each department are the member of the cell. They are provided with computer tools such as scanner, Internet etc.

The College has signed MOU with AON Consulting Private Limited, New Delhi, online assessment platform for verbal, technical and aptitude test for success in professional & personal life also the college is inducing Soft Skills, Technical Skills, Interpersonal Skills by arranging Short Term Training programs regularly for students.

The college is the member of the federation of the engineering colleges under Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and the soft skills facilities are also provided at the federation level. The Training and Placement Cell caters to soft skill development in the following areas:

- a) Work ethic
- b) Courtesy
- c) Teamwork
- d) Self-discipline and self confidence
- e) Conformity to prevailing norms pertaining to dress, body language, tone of voice and vocabulary according to the particular culture of the given work place
- f) Language Proficiency and environmental awareness

Teaching Learning Process

Methodology

For effective teaching learning process good and adequate infrastructure facilities are available. The class rooms and labs / workshop are well lighted with natural light during day time with circulation of fresh air. Conventional methods is adopted where in black board, chalk and faculty are involved in teaching the students in conjunction with modern methods like charts, cut models, OHPS, LCD's , electronics media like e-books , educational CD's, VCD. TV's are adopted by the faculty . Course files for all the subject are available in each department. Each department is having a departmental library and computer lab connected with internet. The central library is computerized with Del Net facilities and has AC reference room in addition to a reading room and staff rooms.

A computer center having 40 terminals is independently available for the use of faculty and students. The computer center is provided with internet facility and is available both during working hours and in additional time also.

Effectiveness

To asses the effectiveness of learning process by the students, two class tests at each month end and an assignment week is conducted where in the students are given an assignment sheets in a period sometime during 5th and 6th week of the term as per notified schedule and the students who gets the maximum marks is given a book on subject as reward with intention of motivating him for better performance in forthcoming university examination. The answer papers are checked in time and are shown to students and are collected back for record duly signed by student concerned.

Internal continuous evaluation system is followed for evaluation of term work as per guidelines issued by the University.

Motivations and rewards

Gold medals are awarded by the Management who are University first position rank holder in branch of Chemical Engg., Production Engg., Computer Engg. and Electronics Engg. in the University convocation. The University toppers are also felicitated at the college level in the afternoon of University convocation day.

Shram Sadhana Bombay Trust's COLLEGE OF ENGINEERING & TECHNOLOGY, BAMBHORI, JALGAON
TENTATIVE ACADEMIC CALENDAR 2024 – 25 (TERM-II) for F.E. to B.E., MCA - I & II and MBA - I & II

Ref. No. COET/AC/137A/12/24

| Sr. No. | Activity | F.E., S.E. | T.E. & B.E. | MBA - I | MBA - II | MCA - I | MCA - II |
|---------|---|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| 1 | Registration of Students | 05 February 2025 | 20 January 2025 | 20 January 2025 | 16 December 2024 | 20 January 2025 | 16 December 2024 |
| 2 | Commencement of Classes | 05 February 2025 | 20 January 2025 | 20 January 2025 | 16 December 2024 | 20 January 2025 | 16 December 2024 |
| 3 | Paper presentation and Technical event for student (Milestone 2K24) | 22 February 2025 | 22 February 2025 | 22 February 2025 | 22 February 2025 | 22 February 2025 | 22 February 2025 |
| 4 | Annual Sports | 24, 25 & 26 February 2025 | 24, 25 & 26 February 2025 | 24, 25 & 26 February 2025 | 24, 25 & 26 February 2025 | 24, 25 & 26 February 2025 | 24, 25 & 26 February 2025 |
| 5 | Annual Gathering | 27 & 28 February 2025 | 27 & 28 February 2025 | 27 & 28 February 2025 | 27 & 28 February 2025 | 27 & 28 February 2025 | 27 & 28 February 2025 |
| 6 | Science Exhibition | 28 February 2024 | 28 February 2024 | 28 February 2024 | 28 February 2024 | 28 February 2024 | 28 February 2024 |
| 7 | Parents Meet | 01 March 2025 | 01 March 2025 | 01 March 2025 | 01 March 2025 | 01 March 2025 | 01 March 2025 |
| 8 | Announcement of Attendance | 03 March 2025 | 03 March 2025 | 06 March 2025 | 30 January 2025 | 03 March 2025 | |
| 9 | ISE-I | 07, 08 & 10 March 2025 | 07, 08 & 10 March 2025 | 07, 08, 10 & 11 March 2025 | 31 Jan, 1, 3, 4 Feb 2025 | 07, 08 & 10 March 2025 | |
| 10 | Internal PR / OR Examination | 04, 05 & 06 March 2025 | 04, 05 & 06 March 2025 | | | 04, 05 & 06 March 2025 | |
| 11 | Open Day and Display of ISE – I Results | 15 March 2025 | 15 March 2025 | 15 March 2025 | 08 February 2025 | 15 March 2025 | |
| 12 | Quiz and Assignment | 20, 21 & 22 March 2025 | 20, 21 & 22 March 2025 | 20, 21 & 22 March 2025 | 08 February 2025 | 20, 21 & 22 March 2025 | |
| 13 | Feedback from Students | 20, 21 & 22 March 2025 | 20, 21 & 22 March 2025 | 20, 21 & 22 March 2025 | 08 February 2025 | 20, 21 & 22 March 2025 | |
| 14 | Add-on Course | 24 to 29 March 2025 | 24 to 29 March 2025 | 20 - 25 January 2025 | 20 - 25 January 2025 | | |
| 15 | Academic Review Meeting | 29 March 2025 | 29 March 2025 | 29 March 2025 | 29 March 2025 | 29 March 2025 | 29 March 2025 |
| 16 | Announcement of Attendance | 09 April 2025 | 09 April 2025 | 09 April 2025 | 06 March 2025 | 09 April 2025 | |
| 17 | ISE-II | 11, 12 & 15 April 2025 | 11, 12 & 15 April 2025 | 11, 12, 15 & 16 April 2025 | 7, 8, 10, 11 Mar 2025 | 11, 12 & 15 April 2025 | |
| 18 | Internal PR / OR Examination | 16, 17 & 19 April 2025 | 16, 17 & 19 April 2025 | | | 16, 17 & 19 April 2025 | |
| 19 | Open Day and Display of ISE – II Results | 21 April 2025 | 21 April 2025 | 19 April 2025 | 15 March 2025 | 21 April 2025 | |
| 20 | Project Presentation (Date of Completion) | | 22 April 2024 | 14 & 15 Feb 2025 | 14 & 15 Feb 2025 | | |
| 21 | Quiz and Assignment | 22 April 2024 | 22 April 2024 | 22 April 2024 | 15 March 2025 | | |
| 22 | ISE - III | 25, 26 & 28 April 2025 | 25, 26 & 28 April 2025 | 25, 26 & 28 April 2025 | | | |
| 23 | Open Day and Display of ISE III results | 30 April 2025 | 30 April 2025 | 30 April 2025 | | | |
| 24 | ICA Submission | 02 & 03 May 2025 | 02 & 03 May 2025 | 02 May 2025 | 17 & 18 March 2025 | 24 & 25 April 2025 | |
| 25 | Course End Survey | 02 & 03 May 2025 | 02 & 03 May 2025 | 02 May 2025 | 17 & 18 March 2025 | 24 & 25 April 2025 | |
| 26 | PR/OR Examination | 05 to 15 May 2025 | 05 to 15 May 2025 | | | 28 April to 02 May 2025 | |
| 27 | End of Term | 16 May 2025 | 16 May 2025 | 03 May 2025 | 22 March 2025 | 03 May 2025 | 22 March 2025 |
| 28 | University Theory Examination (Tentative) | 19 May 2025 | 19 May 2025 | 05 May 2025 | 24 March 2025 | 05 May 2025 | 24 March 2025 |
| 29 | Internship for SE, TE and MBA - I students | 20 June to 12 July 2025 | 20 June to 12 July 2025 | 19 May to 12 July 2025 | | | |
| 30 | Academic Audit | 27, 28 June 2025 | 27, 28 June 2025 | 27, 28 June 2025 | 27, 28 June 2025 | 27, 28 June 2025 | 27, 28 June 2025 |
| 31 | Commencement of Next Academic Year | 15 July 2025 | 15 July 2025 | 15 July 2025 | | 15 July 2025 | |

Date: 16 December 2024

Copy to:

1) Chairman, G.B. & C.D.C. 2) Vice Principal 3) All H.O.Ds, 4) IQAC Coordinator, 5) TPO, 6) Registrar 7) A.R. 8) O.S., 9) Exam. Office, 10) Chairman, Alumni Meet, 11) Store, 12) Library, 13) Chairman, Cultural Activities 14) Physical Director 15) Admission Office, 16) rdnator-Parents Meet, 17) Student Welfare Officer, 18) Rector (Boys Hostel), 19) Rector (Girls Hostel), 20) Vehicle In-charge, 21) Principal office


PRINCIPAL
 CSBT's College of Engineering & Technology
 Bambhori, Jalgaon-425001(M.S.)



Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)

First Year Engineering
(Common for all)
(As per NEP 2020 Guidelines)

Faculty of Science and Technology



SYLLABUS STRUCTURE
For Affiliated Colleges
Semester – I & II
W.E.F. 2024 – 25

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
- CC: Co-curricular Courses
- CEP: Community engagement project
- ELC: Experiential Learning Courses
- FP: Field projects
- HSSM: Humanities, Social Science, and Management
- IKS: Indian Knowledge System
- LL: Liberal Learning Courses
- MPCC: Minor Program Core Courses
- OE: Generic/ Open Electives
- OJT: On Job Training: Internship/ Apprenticeship
- RM: Research Methodology
- RP: Research Project
- SEC: Skill Enhancement Courses
- VEC: Value Education Courses
- VSC: Vocational Skill Courses
- VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course (VEC) | | | | 02 | 02 | | | | | 04 |

SYLLABUS FOR FIRST YEAR BACHELOR OF ENGINEERING (COMMON FOR ALL)
As per NEP 2020 Guidelines, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

PROGRAM / BRANCH CODE (XX):

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELCTRONICS & TELECOMMUNICATION ENGINEERING

EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIDS: ARTIFICIAL INTELLIGENCE & DATA SCIENCE

SYLLABUS FOR FIRST YEAR BACHELOR OF ENGINEERING (COMMON FOR ALL)

As per NEP 2020 Guidelines, W.E.F. 2024 – 25

**Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Computer, Electrical, AIDS) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)**

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-101 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-102 | Engineering Physics-Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CS -103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CS -104 | Basic Electrical and Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -105 | Basic Electrical and Electronics Engineering - Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -106 | Programming for Problem Solving | ESC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| CS -107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -108 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -109 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CS -110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SYLLABUS FOR FIRST YEAR BACHELOR OF ENGINEERING (COMMON FOR ALL)

As per NEP 2020 Guidelines, W.E.F. 2024 – 25

**Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (E & TC, Mechanical, Civil, Chemical) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)**

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -101 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -102 | Engineering Chemistry Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CH -103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CH -104 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -105 | Engineering Graphics Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CH -106 | Programming for Problem Solving | ESC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| CH -107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CH -108 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CH -109 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CH -110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SYLLABUS FOR FIRST YEAR BACHELOR OF ENGINEERING (COMMON FOR ALL)

As per NEP 2020 Guidelines, W.E.F. 2024 – 25

**Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Computer, Electrical, AIDS) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)**

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -201 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -202 | Engineering Chemistry-Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CS -203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CS -204 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -205 | Engineering Graphics-Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -206 | Introduction to Artificial Intelligence and Machine Learning | PCC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| CS -207 | Introduction to Artificial Intelligence and Machine Learning-Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -208 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -209 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CS -210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

**ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment**

EXIT COURSE FOR U. G. CERTIFICATE in relevant Discipline /Subject (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| XX-208 | Internship / Apprenticeship* | OJT | | | | | | | 125 | | | 4 |
| XX-209 | Mini Project* | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

* Branch specific

SYLLABUS FOR FIRST YEAR BACHELOR OF ENGINEERING (COMMON FOR ALL)
As per NEP 2020 Guidelines, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (E & TC, Mechanical, Civil, Chemical) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH-201 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH-202 | Engineering Physics Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CH -203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CH -204 | Basic Electrical and Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -205 | Basic Electrical and Electronics Engineering Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CH -206 | Introduction to Artificial Intelligence and Machine Learning | PCC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| CH -207 | Introduction to Artificial Intelligence and Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CH -208 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CH -209 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CH -210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

EXIT COURSE FOR U. G. CERTIFICATE in relevant Discipline /Subject (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| XX-208 | Internship / Apprenticeship* | OJT | | | | | | | 125 | | | 4 |
| XX-209 | Mini Project* | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

* Branch specific

Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA
UNIVERSITY, JALGAON (M.S.)

First Year Engineering
(Common for all)
(As per NEP 2020 Guidelines)

Faculty of Science and Technology



COURSE OUTLINE
For Affiliated Colleges
Semester – I & II
W.E.F. 2024 – 25

| ENGINEERING PHYSICS | | | | |
|---|----------------------------|--|--------------------|-------------------------|
| COURSE OUTLINE | | | | |
| Course Title: | ENGINEERING PHYSICS | Short Title: | PHY | Course Code: |
| Course description: Explore laws, forces, and matter properties while studying the motion of charges in electric and magnetic fields. Hands-on demonstrations reinforce theoretical concepts, enhancing problem-solving skills and preparing students for diverse industry opportunities. Gain practical insights and unlock a world of career possibilities in this dynamic physics course. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 03 | 14 | 42 | 04 |
| Practical | 02 | 14 | 28 | |
| Prerequisite course(s): Mathematics course with vector calculus | | | | |
| Course objectives: The objective of this course is to: 1. Cultivate practical problem-solving abilities in real-world physics scenario. 2. Foster critical thinking for analytical evaluation of complex phenomena. 3. Promote interdisciplinary thinking by integrating varied physics concepts. | | | | |
| Course outcomes: After successful completion of this course the student will be able to: 1. Demonstrate deep comprehension of diverse physics principles and applications. 2. Exhibit advanced proficiency in solving diverse physics problems. 3. Critical analysis of experimental data, literature, and theoretical models. 4. Apply integrated physics knowledge to solve real-world challenges effectively. 5. Communicate scientific ideas persuasively through clear reports and presentations. | | | | |
| COURSE CONTENT | | | | |
| ENGINEERING PHYSICS | | Semester: | | I or II |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 3 hours/week | End Semester Exam (ESE) UA: | | 60 marks |
| | | Duration of ESE: | | 03 hours |
| | | Internal Sessional Exam (ISE) CA: | | 40 marks |
| Unit-I: | | No. of Lectures: 08 Hours | Marks: 12 | |
| Optics, X-ray and Laser Interference, Diffraction and Polarization (comparative study) Principle of optical fiber, acceptance angle, acceptance cone, numerical aperture, Numerical. Continuous & Characteristics Spectrum of X-ray, Bragg's law, X-ray diffraction, Properties & Applications of X-Rays, Numerical. Principle of laser, Properties of laser beams: Types of laser – He-Ne laser | | | | |
| Unit-II: | | No. of Lectures: 08 Hours | Marks: 12 | |
| Introduction to Mechanics & Acoustics Scalars and vectors properties, Newton's laws and its completeness in describing particle motion, Conservative and non-conservative forces, Central forces, Keplers law without derivation, Ultrasonic waves, Production of Ultrasonic wave by Magnetostriction & Piezoelectric Method, Properties & Applications of Ultrasonic wave. | | | | |
| Unit-III: | | No. of Lectures: 08 Hours | Marks: 12 | |
| Quantum Mechanics & Nanoscience | | | | |

| | | |
|--|----------------------------------|------------------|
| Matter waves, Properties of Matter wave, De-Broglie hypothesis, Heisenberg's Uncertainty principle, Schrödinger Time dependent and Time independent wave equation. Nano particle, Top down & Bottom-up approach, Properties of Nano particles, Synthesis of Nanoparticles (Physical, Chemical & Hybrid) | | |
| Unit-IV: | No. of Lectures: 09 Hours | Marks: 12 |
| Magnetic Materials, Semiconductors and Superconductors | | |
| Magnetic Materials (Comparative study), B-H Curve, Types of Semiconductors, Conductivity in semiconductor, Hall effect, Numerical, Superconductivity, Properties of Superconductor, Meissner effect, Types of superconductors, applications. | | |
| Unit-V: | No. of Lectures: 09 Hours | Marks: 12 |
| Electromagnetic Theory | | |
| Divergence, Curl and Gradient, Electric flux, Gauss Law, Calculation of electric field, Poisson's & Laplace equation and Calculation of electrostatic potential for a charge distribution, Biot-Savarts Law, Amperes Law, Faradays Law, Lenz Law for Electromagnetic equations, Applications of Classical Mechanics, Quantum Mechanics & Electrodynamics with Python. | | |
| Text Books: | | |
| <ol style="list-style-type: none"> 1. "A Textbook of Engineering Physics" by M N Avadhanulu and P G Kshirsagar, S.Chand Publishing 2. "Engineering Physics" by Rajendran V, MGH Publishing 3. "Engineering Physics" by Dattuprasad Joshi, Tata McGraw Hill Education Publishing | | |
| Reference Books: | | |
| <ol style="list-style-type: none"> 1. A Textbook of Optics - Brij Lal, M.N. Avadhanulu, and N.Subrahmanyam, S Chand Publishing 2. Introduction to Mechanics — MK Verma, CRC Press 3. Solid State Physics – S. O. Pillai, M. A. Wahab, A.J. Dekker, Charles Kittel, Narosa Publishing 4. Introduction to Electromagnetic Theory - David Griffiths, Pearson Education Publishing 5. Quantum mechanics - Richard Robinett, Oxford University Press. 6. Concept of Modern Physics – Arthur Beizer, McGraw Hill Publishing 7. Optics – Ajoy Ghatak, McGraw Hill Publishing | | |
| NPTEL Links: | | |
| <ol style="list-style-type: none"> 1. Semiconductors by Prof. S.K. Gupta, https://www.nptelvideos.com/lecture.php?id=1314. 2. Stationary waves and Diffraction by Prof. Rajdeep Chatterjee, Prof. B. K. Patra, Prof. M. K. Srivastava, Prof. G.D. Verma, https://www.nptelvideos.com/lecture.php?id=1113 3. Quantum Physics and Heisenberg principle by Prof. V. Balakrishnan, https://www.nptelvideos.com/lecture.php?id=1523 4. Difference between Classical and Quantum by Prof. V. Balakrishnan, https://www.nptelvideos.com/lecture.php?id=1528 5. Newtonians Mechanics by Prof. V. Balakrishnan, https://www.nptelvideos.com/lecture.php?id=989 6. Superconductors by Prof. S.K. Gupta, https://www.nptelvideos.com/lecture.php?id=1312 | | |

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|--------------------------------|------------------|----------------|
| ENGINEERING PHYSICS LAB | | |
| LAB COURSE CONTENT | | |
| ENGINEERING PHYSICS LAB | Semester: | I or II |

| Teaching Scheme: | | Examination scheme | |
|--|---------------------|---|-----------------|
| Practical: | 2 hours/week | Internal Continuous Assessment (ICA) CA: | 25 marks |
| <p>Concerned faculty member should suitably frame EIGHT laboratory assignments from the following list.</p> <ol style="list-style-type: none"> 1. Analyze the Determination of wavelength of He-Ne laser light and its implications in precision measurements. 2. Evaluate the experimental verification of Law of Malus and its significance in optics research. 3. Analyze the data from the Determination of 'e/m' of electron experiment to understand subatomic particle properties. 4. Evaluate the Study of Crystal Plane using models and assess their application in material science. 5. Analyze the Determination of Hall Coefficient data to understand the behavior of charge carriers in a magnetic field. 6. Analyze the results from Determination of resistivity of semiconductor and draw conclusions about conductivity and material properties. 7. Evaluate the Measurement of Band gap energy of Semiconductors and its implications for electronic devices. 8. Evaluate the Study of I-V characteristics of Solar cell and assess its efficiency in harnessing solar energy. 9. Analyze Semiconductor diode characteristics to understand their application in electronic circuits. 10. Evaluate the effectiveness of Fiber optics communication in high-speed data transfer applications. 11. Analyze the data from Ultrasonic Detectors to understand their applications. 12. Analyze the results from the study of B-H Curve to understand magnetic material behavior. 13. Evaluate the Measurement of Susceptibility data and its significance in magnetic material characterization. 14. Analyze the data from Experiments on electromagnetic induction and electromagnetic breaking to understand electromagnetic phenomena. 15. Evaluate the Magnetic field generated from Helmholtz coil and its applications in experimental setups. 16. Design and conduct an Experiment Related to Nanoscience and Nanotechnology, integrating multiple concepts to explore innovative applications. 17. Develop Python solutions for Physics Problems in Classical Mechanics, Quantum Mechanics & Electrodynamics, applying programming skills to solve complex physics problems. | | | |
| Text Books: | | | |
| <ol style="list-style-type: none"> 1. "A Textbook of Engineering Physics" by M N Avadhanulu and P G Kshirsagar 2. "Engineering Physics" by Rajendran V 3. "Engineering Physics" by Dattuprasad Joshi | | | |
| NPTEL Links: | | | |
| <ol style="list-style-type: none"> 1. Thomson experiment to determine the specific charge of an electron (e/m) by Prof. Amal Kumar Das 2. Frank-Hertz experiment by Prof. Amal Kumar Das <p>https://nptel.ac.in/courses/115105120</p> | | | |
| Guide lines for ICA: | | | |
| <p>Students must submit ICA in the form of journal. Faculty in charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment.</p> | | | |

| ENGINEERING CHEMISTRY | | | | |
|---|----------------------------------|---------------------------------------|---------------------|-------------------------|
| COURSE OUT LINE | | | | |
| Course Title: | ENGINEERING CHEMISTRY | Short Title: CHY | Course Code: | |
| Course description: | | | | |
| This course is aimed at introducing the fundamentals of basic sciences (Chemistry) to under graduate students. The background expected includes a prior knowledge of chemistry from HSC (science) and familiarity with basic fundamental theories. The goals of the course are to understand the basic Principles of Chemistry and their applications in different branches of engineering. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 03 | 14 | 42 | 04 |
| Practical | 02 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| 11 th & 12 th Chemistry | | | | |
| Course objectives: | | | | |
| <ol style="list-style-type: none"> 1. To learn the significance of water treatment and different methods of softening hard water 2. The participants acquire knowledge about the applications of electrochemistry in the fields of fuel cells, batteries, electrolytic processes and electrochemical corrosion & spectroscopy. 3. To impart the awareness of various fuels 4. This course aims to provide a good platform to engineering students to understand, model and appreciate concept of thermodynamics. 5. To enhance the overall awareness of the synthesis, properties & applications of various polymers | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Apply the different methodologies for analysis of water and techniques involved in softening of water as commodity. 2. Acquire the knowledge of electrodes in electrochemical cells, migration of ions, liquid junction potential and conductometric titrations 3. Acquire the knowledge of conventional and alternative fuels with respect to their properties and applications. 4. Identify and formulate fundamentals laws of thermodynamics. 5. Understand structure, properties and applications of polymers and nano material. | | | | |
| COURSE CONTENT | | | | |
| ENGINEERING CHEMISTRY | | Semester: | I or II | |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 3 hours/week | End semester exam (ESE): | 60 marks | |
| | | Duration of ESE: | 03 hours | |
| | | Internal Sessional Exam (ISE): | 40 marks | |
| Unit-I: | No. of Lectures: 08 Hours | Marks: 12 | | |
| Water Technology | | | | |
| Impurities in water, hardness of water, its types, Units and numerical on hardness determination. Determination of hardness by EDTA, alkalinity, effects of hard water in boiler - priming and foaming, boiler corrosion, caustic embrittlement, scale and sludge. Water treatment: i) Zeolite method ii) Demineralization method. | | | | |
| Unit-II: | No. of Lectures: 08 Hours | Marks: 12 | | |
| Electrochemistry | | | | |

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|---|----------------------------------|------------------|
| Introduction: Electric conduction, types of conductors, Metallic conduction: Electrolytic or ionic conduction, Electrolytes & their classification, Electrical conductance of solution, Conductivity Cell & Cell constant, Types of electrochemical cells, Salt bridge & its function, Cell potential, Introduction of spectroscopy and its applications, introduction UV, IR & NMR, fluorescence & its applications, applications of MRI. | | |
| Unit-III: | No. of Lectures: 09 Hours | Marks: 12 |
| Fuels | | |
| Introduction (definition, classification of fuel. characteristics of an ideal fuels. Calorific value (CV): Higher calorific value (HCV) and Lower calorific value (LCV), Determination of Calorific value by Bomb calorimeter and Boy's gas calorimeter and numerical, Solid fuel: Coal: Analysis of Coal-Proximate and Ultimate analysis. Liquid fuel: Petroleum: Refining of petroleum /crude oil and composition, boiling range Gaseous fuel: Composition, properties and applications of CNG. Alternative fuels: Power alcohol and biodiesel. | | |
| Unit-IV: | No. of Lectures: 09 Hours | Marks: 12 |
| Thermodynamics | | |
| Introduction: Terms used in thermodynamics, System and surrounding, Extensive property & Intensive property, Process and its types, Expression for pressure-volume (PV) work, Expression for the maximum work: first law of thermodynamics & its limitations, spontaneous and non-spontaneous process with examples, Statements of second law of thermodynamics, Definition of Entropy, Statement of third law of thermodynamics, its applications. | | |
| Unit-V: | No. of Lectures: 08 Hours | Marks: 12 |
| Polymers | | |
| Introduction, Classification of polymers, Mechanism of addition polymerization by free radical method. Preparation, properties & applications of – Polyethylene, Polystyrene, PVC, Nylon 66, Teflon. Synthetic Rubber – preparation, properties & applications of Styrene butadiene rubber (SBR), Nitrile rubber, Butyl rubber. | | |
| Text Books: | | |
| <ol style="list-style-type: none"> 1. Textbook of Engineering Chemistry by Dr. S. S. Dara, Dr. S. S. Umare, (S. Chand & Company Ltd.) 2. Textbook of Engineering Chemistry by Dr. Sunita Rattan, (S. K. Kataria & Sons Publisher) 3. A Textbook of Engineering Chemistry by Shashi Chawla (Dhanpat Rai & Co.) 4. A Textbook of Engineering Chemistry by S Chand (S. Chand & Company Ltd.) | | |
| Reference Books: | | |
| <ol style="list-style-type: none"> 1. B.H. Mahan University chemistry, (Publisher: Pearson) 2. M.J.Sienko and R.A.Plane, Chemistry: Principles and Applications, (Publisher: McGraw Hill Higher Education.) 3. C. N. Banwell, Fundamentals of Molecular Spectroscopy, (Publisher: McGraw Higher Ed.) 4. P. W. Atkins, Physical Chemistry, (Publisher: Oxford University Press) 5. J.D. Lee Concise Inorganic Chemistry, (Publisher: Oxford University Press) 6. Puri, Sharma, Kalia, Principles of Inorganic Chemistry (Publisher: Vishal Publishing & Co.) 7. Polymer Science, V. R. Gowarikar, N. V. Viswanathan, Jayadev Sreedhar, Wiley Eastern Limited (Publisher: New Age International Private Limited) 8. Engineering Chemistry by O .G. Palanna, (Publisher: Tata Magraw Hill Education Pvt. Ltd. Engineering Chemistry, Wiley India Pvt. Ltd.) | | |
| NPTEL Links: | | |
| <ol style="list-style-type: none"> 1. Electrochemistry by Prof. Angshuman Roy Choudhury, https://archive.nptel.ac.in/courses/104/106/104106137/# | | |

2. Basic concepts of thermodynamics by Prof. Dipankar N. Basu
<https://nptel.ac.in/courses/112103275>
3. Polymerisation by Abhijit Deshpande,
<https://archive.nptel.ac.in/courses/103/105/103105219/>

| ENGINEERING CHEMISTRY LAB | | | |
|--|---------------------|---|-----------------|
| LAB COURSE CONTENT | | | |
| ENGINEERING CHEMISTRY LAB | | Semester: | I or II |
| Teaching Scheme: | | Examination scheme | |
| Practical: | 2 hours/week | Internal Continuous Assessment (ICA) CA: | 25 marks |
| <p>Concerned faculty member should suitably frame EIGHT laboratory assignments from the following list.</p> <ol style="list-style-type: none"> 1. To determine hardness of water by EDTA method. 2. To determine alkalinity of water. 3. To determine strength of strong acid using pH meter. 4. To perform titration of a mixture of weak acid and strong acid with strong base using conductometer 5. Preparation of polystyrene/phenol-formaldehyde/urea-formaldehyde resin 6. To conduct Proximate analysis of coal. 7. Determination of cell constant and conductance of solutions. 8. Determination of acid value of an oil. 9. To conduct chemical analysis of a salt. 10. Determination of chloride content of water. 11. To determine coefficient of viscosity using Ostwald viscometer. 12. Determination of surface tension of liquids. | | | |
| Text Books | | | |
| <ol style="list-style-type: none"> 1. Tembe, Kamaluddin and Krishnan, Engineering Chemistry (NPTEL Web-book) 2. Dara, S.S.; A text book on Experiments and Calculations in Engineering Chemistry (ninth edition); (Publisher S. Chand) | | | |
| Reference Books: | | | |
| <ol style="list-style-type: none"> 1. B.D. Khosla, A. Gulati and V.Garg, Senior Practical Physical Chemistry, (R. Chand & Co., Delhi) 2. K. K. Sharma and D.S. Sharma, An Introduction to Practical Chemistry, (Publisher: Vikas publishing, New Delhi) 3. Laboratory Manual on Engineering Chemistry, Sudharani (Dhanpat Rai Publishing Company). 4. Engineering chemistry practical book by Malviya A Jaspal D (Publisher: Narosa Publishing House Pvt. Ltd. - New Delhi) | | | |
| Guidelines for ICA: | | | |
| <p>Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in Charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment.</p> | | | |

| ENGINEERING MATHEMATICS-I | | | | | |
|---|----------------------------|----------------------------------|---|------------------|-----------------|
| COURSE OUTLINE | | | | | |
| Course Title: | Engineering Mathematics –I | Short Title: | M-I | Course Code: | |
| Course description: This course is aimed at introducing the fundamentals of basic Mathematics to undergraduate students. The background expected includes a prior knowledge of Mathematics from 12 th science and familiarity with various laws, principles and theories. The goals of the course are to understand the basic principle of Mathematics and its application in different area. | | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits | |
| Theory | 3 | 14 | 42 | 4 | |
| Tutorial | 1 | 14 | 14 | | |
| Prerequisite course(s): 11 th & 12 th mathematics | | | | | |
| Course objectives: | | | | | |
| The objective of this course is to familiarize the prospective engineers with techniques in calculus, linear algebra and statistics and probability. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their discipline | | | | | |
| Course outcomes: | | | | | |
| After successful completion of this course the student will be able to: | | | | | |
| <ol style="list-style-type: none"> 1. Deal with functions of several variables that are essential in most branches of Engineering. The essential tool of matrices and linear algebra in a comprehensive manner. 2. Apply differential and integral calculus. Apart from some other applications they will have a basic understanding of Beta and Gamma functions. 3. Understand basic concept of statistics, probability distribution. Apply statistical methods for analyzing experimental data. 4. To learn approach for modeling the relationship in two variables. 5. To understand the basic concept of partial differentiation and apply it to solve in engineering problems | | | | | |
| COURSE CONTENT | | | | | |
| Engineering Mathematics -I | | | Semester: | | I |
| Teaching Scheme: | | | Examination scheme: | | |
| Lectures: | 3 hours/week | | End semester exam (ESE) UA: | | 60 marks |
| Tutorial: | 1 hour/week | | Duration of ESE: | | 03 hours |
| | | | Internal Sessional Exams (ISE) CA: | | 40 marks |
| Unit–I: | | No. of Lectures: 09 Hours | | Marks: 12 | |
| Matrices: Introduction to rank of a matrix, System of linear equations, Symmetric and orthogonal matrices, Eigen values and Eigen vectors, Application of matrices (Rotation) | | | | | |
| Unit–II: | | No. of Lectures: 09 Hours | | Marks: 12 | |
| Differential and Integral Calculus: Taylor’s and Maclaurin’s theorem, Gamma function, Beta function, Application of Taylor’s Theorem | | | | | |
| Unit–III: | | No. of Lectures: 08 Hours | | Marks: 12 | |
| Basics Statistics and Probability: Measure of Central Tendency, Standard Deviation, Coefficient of Variation, Basic probability, Binomial, Poisson and Normal distributions. | | | | | |
| Unit–IV: | | No. of Lectures: 08 Hours | | Marks: 12 | |

| | | |
|---|----------------------------------|------------------|
| Correlation and Regression: Lines of Regression, Coefficient of Regression, Correlation and Coefficient of Correlation. | | |
| Unit–V: | No. of Lectures: 08 Hours | Marks: 12 |
| Partial Differentiation: Partial derivatives, Euler’s theorem, Composite functions, Jacobians (only Definition and $JJ'=1$), Errors and approximations. | | |
| Text Books: | | |
| 1. H. K. DASS “Advance Engineering Mathematics” S. Chand publications. | | |
| Reference Books: | | |
| 1. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2010,2016. | | |
| 2. Debashis Datta “Textbook of Engineering Mathematics” New Age International Publication. Revised second edition. | | |
| 3. “Engineering Mathematics A Tutorial Approach”. Ravish R..Singh, Mukul Bhatt.Tata McGraw Hill Education Private Limited .New Delhi. | | |
| 4. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010 | | |
| NPTEL Links: | | |
| 1. Probability and Probability Distributions, By Dr. P. Nagesh, https://onlinecourses.swayam2.ac.in/cec24_ma04/preview | | |
| 2. Engineering Mathematics – I by Prof. Jitendra Kumar, https://onlinecourses.nptel.ac.in/noc23_ma88/preview | | |
| 3. Probability and Statistics by Prof. Somesh Kumar https://onlinecourses.nptel.ac.in/noc23_ma83/preview | | |
| 4. 'System of Linear Equations, Eigenvalues and Eigenvectors' - Mathematics (IIT Kharagpur) Video Lectures by Dr. P. Panigrahi, Prof. J. Kumar, Prof. P.D. Srivastava, Prof. Somesh Kumar (nptelvideos.com) | | |
| 5. 'Probability Distributions' - Mathematics (IIT Kharagpur) Video Lectures by Prof. Somesh Kumar (nptelvideos.com) | | |
| 6. 'Probability and Statistics' Video Lectures from IIT Kharagpur by Prof. Somesh Kumar - Mathematics NPTEL Video Lectures (nptelvideos.com) | | |

| BASIC ELECTRICAL AND ELECTRONICS ENGINEERING | | | | |
|--|---|--|--------------------|-------------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Basic Electrical and Electronics Engineering | Short Title: | BEEE | Course Code: |
| Course description: | | | | |
| This course provides an introduction to electrical and electronics engineering which includes response of electrical circuits to DC as well as AC, semiconductor devices such as diodes, transistors, logic gates and Number Systems. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 03 | 14 | 42 | 04 |
| Practical | 02 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| 11 th & 12 th Physics | | | | |
| Course objectives: | | | | |
| <ol style="list-style-type: none"> 1. To explain basic laws and theorems of electrical networks 2. To explain fundamentals of alternating current circuits. 3. To explain students the essential basics of Magnetic Circuits and PN Junction Diode. 4. To explain the concepts and terminology of transistors. 5. To explain logic gates & Number conversion Systems. | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Demonstrate & develop basics of DC analysis of electrical circuits using circuit simplification techniques. 2. Demonstrate & develop basics of AC analysis of electrical circuits using series combination of R, L & C. 3. Develop basic principles of magnetic circuits & Semiconductor Diodes. 4. Demonstrate & develop basic configurations of Transistors. 5. Demonstrate different Logic gates and Conversion between the Number Systems | | | | |
| COURSE CONTENT | | | | |
| Basic Electrical and Electronics Engineering | | Semester: | | I or II |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 3 hours/week | End semester exam (ESE): | | 60 marks |
| | | Duration of ESE: | | 03 hours |
| | | Internal Sessional Exams (ISE): | | 40 marks |
| Unit-I: | | No. of Lectures: 09 Hours | | Marks: 12 |
| DC Circuit: | | | | |
| Ohms Law, Kirchhoff's laws, Node voltage and Mesh current analysis, Series and Parallel circuit, Current and Voltage division rule, Delta -Star and Star-Delta conversion, Thevenin's Theorem, Superposition Theorem, Maximum Power Transfer Theorem. (Numerical Expected on above topics) | | | | |
| Unit-II: | | No. of Lectures: 09 Hours | | Marks: 12 |
| AC Circuit: | | | | |

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|---|----------------------------------|------------------|
| Single phase AC Circuits: Concept of single-phase supply, Terms related with A.C. quantities, complex and phasor representation of AC quantities, Analysis of single-phase ac circuits consisting of R, L, C, RL, RC series combinations (Numerical expected). Three phase AC Circuit: Concept of Three phase supply, Relation of voltage and current in three phase circuit. | | |
| Unit–III: | No. of Lectures: 08 Hours | Marks: 12 |
| Magnetic Circuit & PN Junction Diode: | | |
| Electromagnetic Induction: Faraday's laws, Lenz's Law, statically and dynamically induced EMF (Numerical should not be asked) Self and Mutual inductance, Terms related with magnetic circuits (Numerical should not be asked) Composite Magnetic Circuit, | | |
| PN Junction Diode: V-I Characteristics, Junction break down, Diode current equation, & diode resistances, Temperature dependency of PN Junction Diode, LED working, Photo diode working. | | |
| Unit–IV: | No. of Lectures: 08 Hours | Marks: 12 |
| Transistors: | | |
| Bipolar Junction Transistors: Bipolar Junction Transistor (BJT): CB, CE and CC Configurations, DC current gains and their relations (Numerical may be asked) different regions of operations, CE & CB Characteristics, Need of biasing, Voltage Divider Biasing, BJT as an Amplifier. | | |
| Field Effect Transistor: Classification, working and V-I Characteristics of JFET, Parameters of FET and Difference between BJT & JFET. | | |
| Unit–V: | No. of Lectures: 08 Hours | Marks: 12 |
| Logic Gates & Number System: | | |
| Number System (Decimal, Binary, Octal, Hexadecimal) & their Conversions, Basic and Universal Logic gates, Boolean Algebra, De-Morgans theorem, Simplification and Implementation of logic equations. | | |
| Text Books: | | |
| <ol style="list-style-type: none"> 1. B. L. Theraja and A. K. Theraja, "A Text book of Electrical Technology - Vol-I and Vol-II", S. Chand, 1st Edition, 2001. 2. K. A. Krishnamurthy, M. R. Raghuvver, "Electrical and Electronics Engineering for Scientists and Engineers," Willey Eastern Limited. 3. J. B. Gupta, "A Course in Electrical Power", S. K. Kataria and Sons, 12th Edition, 2002. 4. R. S. Sedha, "Applied Electronics", S. Chand Publication 5. V.K. Mehta, "Principles of Electronics", S. Chand Publications | | |
| Reference Books: | | |
| <ol style="list-style-type: none"> 1. D. C. Kulshreshtha, "Basic Electrical Engineering" , 1st Edition (Tata McGraw hill),2009 2. B. L. Theraja and A. K. Theraja S. Chand & Co. Pvt. Ltd. New Delhi, "A textbook of Electrical Technology Vol II",2020P. 3. R. L. Boylestad, L. Nashelsky, "Electronic Devices and Circuits Theory", 11th Edition, Prentice Hall of India, 2017 4. R. P. Jain, "Modern Digital Electronics" McGraw Hill Education (India) Private Limited, Fourth Edition, 2017. 5. A.P. Malvino, "Electronics Principles" TMH Publications | | |
| NPTEL Links: | | |
| <ol style="list-style-type: none"> 1. Basic Electrical Technology by Prof. L. Umanand, https://nptel.ac.in/courses/108108076 2. Introduction to Basic Electronics by Prof. T.S. Natarajan, https://nptel.ac.in/courses/122106025 3. Fundamentals of Electrical Engineering by Prof. L. Umanand, https://nptel.ac.in/courses/108108076 | | |

| BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB | | | |
|---|---------------------|--|-----------------|
| LAB COURSE CONTENT | | | |
| Basic Electrical and Electronics Engineering Lab | | Semester: | I or II |
| Teaching Scheme: | | Examination scheme | |
| Practical: | 2 hours/week | End semester exam (ESE): OR | 25 marks |
| | | Internal Continuous Assessment (ICA): | 25 marks |
| End Semester Exam (ESE) Pattern: | | Oral (OR) | |
| <p>Concerned faculty member should suitably frame FOUR laboratory assignments from each group in the following list.</p> <p>Group A</p> <ol style="list-style-type: none"> 1. To demonstrate different electrical and electronics components & equipment. 2. To demonstrate Thevenin's theorem. 3. To demonstrate Superposition theorem. 4. To demonstrate Maximum power transfer theorem. 5. To demonstrate behavior of R-L series circuits. <p>Group B</p> <ol style="list-style-type: none"> 6. To demonstrate V-I characteristics of P-N Junction diode. 7. To demonstrate the V-I characteristics of Light Emitting Diode (LED). 8. To demonstrate the Q-point of BJT. 9. To demonstrate the truth tables of Basic Logic Gates. 10. To demonstrate implementation of Logical equation. | | | |
| Guide lines for ICA: | | | |
| Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment. | | | |
| Guidelines for ESE: | | | |
| ESE will be based on practical assignment submitted by the student in the form of journal. Evaluation will be based on oral, paper work and performance in the ESE. | | | |
| NPTEL Links: | | | |
| Introduction to Basic Electronics by Prof. T.S. Natarajan, https://nptel.ac.in/courses/122106025 | | | |

| ENGINEERING GRAPHICS | | | | |
|---|----------------------|---|--------------------|-------------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Engineering Graphics | Short Title: | EG | Course Code: |
| Course description: | | | | |
| Engineering Graphics is the language of engineers. This course provides a strong foundation in the creation, interpretation, and communication of engineering drawings and diagrams. This preliminary course aims at building a foundation for the further course in drawing and other allied subjects. This subject is useful in developing drafting and sketching skills of students. Through a combination of theoretical learning and hands-on exercises, students will develop the skills necessary to visually represent complex engineering concepts and designs accurately. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 03 | 14 | 42 | 04 |
| Practical | 02 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| Basic reasoning skill, Concept of geometry and Basic drafting skills | | | | |
| Course objectives: | | | | |
| The objective of this course is to: | | | | |
| <ol style="list-style-type: none"> 1. To understand techniques of drawings in various fields of engineering. 2. Learn basic engineering drawing formats. 3. To improve imagination skills. 4. Ability to convey complex technical information through drawings and annotations effectively. | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Apply the concept of industry-standard drawing practices, including line types, symbols, and conventions used in engineering drawings. 2. Correlate the concept of projection of points, straight lines and planes. 3. Acquire visualization skills, which involve creating multiple views of an object to represent it accurately in two dimensions. 4. Illustrate the concept of isometric and 3D drawings to represent objects in a more realistic and visually informative manner. 5. Demonstrate and analyze the understanding of the development of surfaces of different types. | | | | |
| COURSE CONTENT | | | | |
| Engineering Graphics | | Semester: | | I or II |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 3 hours/week | End semester exam (ESE) UA: | | 60 marks |
| | | Duration of ESE: | | 03 hours |
| | | Internal Sessional Exams (ISE) CA: | | 40 marks |
| Unit–I: | | No. of Lectures: 08 Hours | Marks: 12 | |
| Introduction: | | | | |
| A) Principles of Engineering Graphics and their significance, usage of Drawing Instruments and Supporting Material, Letters and Numbers as per BIS: SP46-2003. | | | | |
| B) Scale (Plane, Diagonal & Vernier scale). | | | | |
| C) Curves and Conic Section draw Ellipse by arc of circle method. Draw Parabola by rectangle method. Draw Hyperbola by directrix focus method. | | | | |
| Unit–II: | | No. of Lectures: 08 Hours | Marks: 12 | |

| | | |
|---|----------------------------------|------------------|
| Projection of Lines and Planes: | | |
| A) Projections of straight lines: - Principle of Orthographic Projections, Projections of Points, Projection of Line and Lines inclined to both the Planes. | | |
| B) Projections of planes: - Projection of different simple shapes e.g. Circle, Triangle, Rectangle, Pentagon and Hexagon on principle plane (Inclined to one plane). | | |
| Unit–III: | No. of Lectures: 09 Hours | Marks: 12 |
| Orthographic Projections: | | |
| Method of obtaining Orthographic Projections in First angle and Third angle projections, Principles of orthographic projections. | | |
| Unit–IV: | No. of Lectures: 9 Hours | Marks: 12 |
| Isometric Projections: | | |
| Principles of Isometric Projections, Isometric Scale, Terminology, Isometric view of step, inclined, oblique, cylindrical blocks, Isometric Dimensioning. | | |
| Unit–V: | No. of Lectures: 08 Hours | Marks: 12 |
| Development of Surfaces: | | |
| Methods of development, Parallel line development of cylinder and prism, Radial line development of cone and pyramid. | | |
| Text Books: | | |
| 1. Venugopal K and Prabhu Raja V (2015), “Engineering Graphics”, New AGE International Publishers. | | |
| 2. Narayana, K. L& P Kannaiah (2008), Text book on “Engineering Drawing. SciTech Publication. | | |
| Reference Books: | | |
| 1. N.D. Bhat and V.M. Panchal, Engineering Graphics, Charotar Publishers 2013 | | |
| 2. Agrawal B & Agrawal B.C (2008) Engineering Graphics, TMH Publication. | | |
| NPTEL Links: | | |
| 1. Engineering Graphics and Design by IIT Delhi, https://archive.nptel.ac.in/courses/112/102/112102304/ | | |
| 2. Engineering Drawing by Prof. P.S. Robi, https://nptel.ac.in/courses/112103019 | | |
| 3. Engineering Graphics by Prof. Naresh Varma Datla, Prof. S. R. Kale, https://onlinecourses.nptel.ac.in/noc21_me128/preview | | |

| ENGINEERING GRAPHICS LAB | | | |
|--|---------------------|---|-----------------|
| LAB COURSE CONTENT | | | |
| Engineering Graphics Lab | | Semester: | I or II |
| Teaching Scheme: | | Examination scheme | |
| Practical: | 2 hours/week | End semester exam (ESE) UA: OR | 25 marks |
| | | Internal Continuous Assessment (ICA) CA: | 25 marks |
| End Semester Exam (ESE) Pattern: | | Oral (OR) | |
| Concerned faculty member should suitably frame Six laboratory assignments (Drawing Sheets) from the following list. | | | |
| Sheet No. 01 Construct types of Lines, Dimensioning and Scales (Any two problems of Scale) | | | |
| Sheet No. 02 Analyze and Construct engineering curves (Any three different curves). | | | |
| Sheet No.03 Construct the Projections of Lines and Planes (Any two problems on projection of lines and any two problems on projection of plane) | | | |
| Sheet No.04 Illustration of simple orthographic projection using both First Angle and Third Angle Method (One each). | | | |

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|--|
| Sheet No.05 Illustration of Isometric projection with natural scale and isometric scale (One each) |
| Sheet No.06 Construct and predict the Development of Surfaces (Any two Problems) |
| Text Books: |
| 1. Venugopal K and Prabhu Raja V (2015), “Engineering Graphics”, New AGE International Publishers. 2. Narayana, K. L& P Kannaiah (2008), Text book on “Engineering Drawing. SciTech Publication. |
| Reference Books: |
| 1. N.D. Bhat and V.M. Panchal, Engineering Graphics, Charotar Publishers 2013 2. Agrawal B & Agrawal B.C (2008) Engineering Graphics, TMH Publication. |
| NPTEL Links: |
| 1. Engineering Graphics and Design by IIT Delhi, https://archive.nptel.ac.in/courses/112/102/112102304/ 2. Engineering Drawing by Prof. P.S. Robi, https://nptel.ac.in/courses/112103019 3. Engineering Graphics by Prof. Naresh Varma Datla, Prof. S. R. Kale, https://onlinecourses.nptel.ac.in/noc21_me128/preview |
| Guide lines for ICA: |
| Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in-charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment. |
| Guidelines for ESE: |
| ESE will be based on practical assignment submitted by the student in the form of journal. Evaluation will be based on oral, paper work and performance in the ESE. |

| PROGRAMMING FOR PROBLEM SOLVING | | | | |
|--|--|---|------------------|---------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Programming for Problem Solving | Short Title: | PPS | Course Code: |
| Course description: | | | | |
| This course provides students with a comprehensive study of the C programming language. This course focuses on introduction to program design and problem solving using the C programming language. Programming topics include control structures, functions, arrays, pointers, and file I/O. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 03 | 14 | 42 | 04 |
| Practical | 02 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| Basic Mathematical Concepts, Fundamental Logical Thinking, Basic Quantitative and Logical Aptitude | | | | |
| Course objectives: | | | | |
| The objective of this course is to impart knowledge so that the student will: | | | | |
| <ol style="list-style-type: none"> 1. Learn the fundamentals, structure and syntax of C Language. 2. Apply the concepts of C language to solve logical problems. 3. Apply code reusability with functions and pointers. 4. Demonstrate the sequence of the program and give logical outputs. 5. Construct the program using loops and operators to solve problems. | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. To develop effective algorithms to solve arithmetic and logical problems 2. To design the code using decision making statements and loop to solve the problem. 3. To analyze the given problem and construct small modules from it. 4. To design program based on concept of array and string 5. To construct the structure for application having data of different data types | | | | |
| COURSE CONTENT | | | | |
| Programming for Problem Solving | | Semester: | | I |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 3 hours/week | End semester exam (ESE) UA: | | 60 marks |
| | | Duration of ESE: | | 03 hours |
| | | Internal Sessional Exams (ISE) CA: | | 40 marks |
| Unit–I: | No. of Lectures: 09 Hours | | Marks: 12 | |
| Introduction to C: Constants, Variables and Keywords, C Instructions, Data Types in C, Operators in C Language: Arithmetic Operators, Logical Operators, The Conditional Operators, Assignment Operators, Increment and Decrement operator. Decision Control Instruction: If statement, Multiple Statements within if, The if-else statement, Nested if-else, If-else ladder, Switch Case. | | | | |
| Unit–II: | No. of Lectures: 09 Hours | | Marks: 12 | |
| Loop Control Instruction: loops, the while loop, do while loop, for loop, Multiple Initializations in for Loop, break Statement, continue Statement, Function: Why use Functions? Passing Values between Functions, Call by Value, Recursion. | | | | |
| Unit–III: | No. of Lectures: 08 Hours | | Marks: 12 | |

| | | |
|--|---------------------------------|------------------|
| Arrays: What are Arrays? A Simple Program using Array, Array Initialization, Array Elements in Memory, Passing Array Elements to a Function, Multidimensional Array: Two Dimensional Arrays, initializing a Two-Dimensional Array, Memory Map of a Two-Dimensional Array, Passing 2 D Array to a Function. | | |
| Unit-IV: | No. of Lectures: 8 Hours | Marks: 12 |
| Strings: What are Strings? String declaration, String Initialization, Standard Library String Functions, String operations without string library functions. Structures: Why use Structures? Declaring a Structure, Accessing Structure Elements, How Structure Elements are Stored? Array of Structure. | | |
| Unit-V: | No. of Lectures: 8 Hours | Marks: 12 |
| An Introduction to Pointers, Pointer Notation, Function and pointer, Pointer to an Array, Pointers and Two-Dimensional Arrays, Array of Pointers, Pointers and Strings. | | |
| Text Books: | | |
| 1. Yashavant Kanetkar, Let Us C, BPB Publication, 14 th Edition | | |
| Reference Books: | | |
| 1. E Balagurusamy, Programming in ANSIC C by, Tata McGraw Hill, 4 th Edition 2. K. R. Venugopal and S. R. Prasad, Mastering C, Tata McGraw Hill, 2011, 2 nd Edition 3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, PHI, 2 nd Edition 4. Paul Deitel and Harvey Deitel, C How to Program, Pearson, 8 th Edition 5. R.S. Salaria, Computer concepts and Programming in C, Khanna Publication | | |
| NPTEL Video Links: | | |
| 1. Introduction to Programming in C by IIT Kanpur, https://archive.nptel.ac.in/courses/106/104/106104128/ https://nptel.ac.in/courses/106104128 | | |
| 2. Problem Solving through Programming in C by IIT Kanpur, https://archive.nptel.ac.in/courses/106/105/106105171/ | | |

| PROGRAMMING FOR PROBLEM SOLVING LAB | | | |
|---|---------------------|---|-----------------|
| LAB COURSE CONTENT | | | |
| Programming for Problem Solving Lab | | Semester: | I |
| Teaching Scheme: | | Examination scheme | |
| Practical: | 2 hours/week | End semester exam (ESE) UA: PR | 25 marks |
| | | Internal Continuous Assessment (ICA) CA: | 25 marks |
| End Semester Exam (ESE) Pattern: | | Practical (PR) | |
| Concerned faculty member should suitably frame EIGHT laboratory assignments in C Language from the following list. | | | |
| <ol style="list-style-type: none"> 1. Construct the program to accept an integer from user and identify whether the given number is Prime number/Armstrong Number/Palindrome number. 2. Identify the number of days in a month using switch case. 3. Develop the code for conversion of Binary number to Decimal number 4. Determine whether a given year is a leap year or a century year. | | | |

5. Compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.
6. Illustrate the concept of loops to compute sum of series.
7. Create a code to read n positive integer and Construct right angled triangle of asterisk (*) of n layers.
8. Apply the call by reference method of function to swap the values of two numbers.
9. Compose program for accepting string and reverse it without using library functions. Display the original and reversed string.
10. Construct functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.
11. Calculate the sum of all even numbers and all odd numbers in the array and print the larger sum.
12. Develop matrix multiplication program and validate the rules of multiplication.
13. Create a structure to store employee number, Name, Department and Basic salary. Create an array of structure to accept and display the value of 10 employees.

Text Books:

1. Yashavant Kanetkar, Test Your C Skills, BPB Publication ,5th Edition
2. Yashavant Kanetkar, Let Us C, BPB Publication, 14th Edition

Reference Books:

1. E Balagurusamy, Programming in ANSIC C by, Tata McGraw Hill, 4th Edition
2. K. R. Venugopal and S. R. Prasad, Mastering C, Tata McGraw Hill P, 2011, 2nd Edition
3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, PHI, 2nd Edition
4. Paul Deitel and Harvey Deitel, C How to Program, Pearson, 8th Edition
5. R.S. Salaria, Computer concepts and Programming in C, Khanna Publication

Guide lines for ICA:

Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment.

Guidelines for ESE:

ESE will be based on the laboratory assignments submitted by the students in the form of journal. In ESE the student may be asked to perform any one practical. Evaluation will be based on paper work and performance in the practical.

| WORKSHOP PRACTICES LAB | | | | |
|---|------------------------|---|--------------------|-------------------------|
| LAB COURSE OUTLINE | | | | |
| Course Title: | Workshop Practices Lab | Short Title: | WPL | Course Code: |
| Course description: | | | | |
| <p>Workshop practice is the backbone of the real industrial environment which helps to develop and enhance relevant technical hand skills required by the technician working in the various engineering industries and workshops. This course intends to impart basic know-how of various hand tools and their use in different sections of manufacturing.</p> <p>Irrespective of branch, the use of workshop practices in day to day industrial as well domestic life helps to dissolve the problems.</p> | | | | |
| Practical | Hours/week | No. of weeks | Total hours | Semester credits |
| | 02 | 14 | 28 | 01 |
| End Semester Exam (ESE) Pattern: | | Oral (OR) | | |
| Prerequisite course(s): | | | | |
| 11th Physics, 12th Physics | | | | |
| Course objectives: | | | | |
| <p>The objective of this course is to:</p> <ol style="list-style-type: none"> 1. To provide exposure to the students with hands on experience on various basic engineering practices in Automobile & Mechanical Engineering 2. To provide exposure to the students with hands on experience on various basic engineering practices in Civil Engineering. 3. To provide exposure to the students with hands on experience on various basic engineering practices in Computer Engineering. 4. To provide exposure to the students with hands on experience on various basic engineering practices in Electrical & Electronics Engineering. 5. To develop skills through hands on experience. | | | | |
| Course outcomes: | | | | |
| Upon successful completion of lab Course, student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Interpret the traffic signs and symbols and perform emergency maintenance of 2/4 wheeler. 2. Examine and troubleshoot various electrical and electronics components. 3. Prepare components using workshop trades including fitting, carpentry, black smithy, metal joining and lathe shop. 4. Organize the various construction activities at site. 5. Appraise the safety practices on the shop floor. | | | | |
| LAB COURSE CONTENT | | | | |
| Workshop Practices Lab | | Semester: | | I or II |
| Teaching Scheme: | | Examination scheme | | |
| Practical: | 2 hours/week | End semester exam (ESE) UA: OR | | 25 marks |
| | | Internal Continuous Assessment (ICA) CA: | | 25 marks |
| <p>Concerned faculty member should suitably frame EIGHT laboratory assignments from the list given below as per the following.</p> <ol style="list-style-type: none"> I. Any four groups out of following six groups. II. Any two experiments form each chosen groups. | | | | |

GROUP - A

1. Analyze a given set of traffic signs and signals and road markings to determine their implications for safe driving.
2. Create a step-by-step guide or manual for wheel removal and replacement, including illustrations or diagrams.
3. Develop a maintenance schedule for gear oil checks and replacements based on the vehicle's usage and manufacturer recommendations and check the level of gear oil in engine of Car.
4. Inspect Carburetor/Fuel injector/Spark plug of motorcycle / scooter.
5. Safety at work place.

GROUP - B

1. Assemble a pipe line as per given drawing using pipes of one inch diameter, pipes of half inch diameter, nipple, reducer, union, valves T, elbow and then disassemble this pipe line.
2. Measure the level difference between any two points.
3. Appraise the area of a built-up space using measuring tape.
4. Analyze the readings and measurements obtained from the water pipe technique to verify that they meet the required specifications.
5. Safety at work place.

GROUP - C

1. Create a detailed maintenance checklist or guide for identifying, cleaning, and assembling computer components, including step-by-step instructions and safety precautions and perform the assembly of components in computer / laptop.
2. Manage a hard disk by performing actions such as partitioning, formatting, and file management.
3. Examine and Install Operating System and essential software.
4. Set up connection of nearby devices & internet in computer / laptop / mobile.
5. Safety at work place.

GROUP - D

1. Create a safety guide or checklist for identifying and connecting phase, neutral, and earth wires in domestic electrical installations, emphasizing best practices and safety measures and perform connection to three pin plugs.
2. Design and making of extension board
3. Create a comprehensive earthing design plan and Practice on installation of earthing system and testing of earthing system.
4. Assess the quality of maintenance work performed and the responsiveness to equipment issues, providing recommendations for improvements or replacements when necessary. (tube light, fans, inverter, battery, etc.)
5. Safety at work place.

GROUP - E

1. Design a simple electronic circuit.

2. Apply knowledge of de-soldering techniques to remove and replace components on an electronics circuit.
3. Demonstrate the correct procedure for testing electronic components using appropriate testing equipment
4. Apply knowledge of sensor functionality to design and configure sensor systems for diverse purposes.
5. Safety at work place.

GROUP - F

1. Develop a male female fitting job with drilling and tapping in Fitting Shop & Practice Cross Half lap joint, Half lap Dovetail joint and Mortise Tenon Joint in carpentry shop.
2. Create an S-hook from a given round rod, by hand forging operation.
3. Prepare a single V butt joint and lap joint of mild steel using arc welding.
4. Develop a component using facing, plane turning, step turning, taper turning, knurling and parting on lathe machine.
5. Safety at work place.

Text Books:

1. AICTE's Prescribed Textbook: Workshop / Manufacturing Practices (with Lab Manual) by Veerana D.K., Khanna Publishing, New Delhi ISBN: 978-93-91505-332
2. Engineering Workshop Practices Laboratory Manual (Mechanical) by Sathish. D, Notion Press, ISBN: 9781645461708, 164546170X
3. A Manual of Laboratory Experiments and Workshop Practice, by B. Somanathan Nair, S.R. Deepa, C. Unni, Dreamtech Press,
4. Computer Hardware & Network Maintenance, Joginder Singh Saini, Jagdeep Singh Saini, Royal Book Depot-Jalandhar
5. Vehicle Maintenance and Garage Practice, Doshi J.A, Prentice Hall India Learning Private Limited
6. Trouble Shooting & Maintenance of Electronic Equipments, K. Sudeep Singh, S.K. Kataria & Sons.
7. Installation Maintenance and Repair of Electrical Machines and Equipments, Madhvi Gupta, S.K. Kataria & Sons.
8. Maintenance Repair of Civil structures, Gupta B L, Standard Publications-Delhi.

Reference Books:

1. Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., "Elements of Workshop Technology", Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai.
2. Kalpakjian S. And Steven S. Schmid, "Manufacturing Engineering and Technology", 4th edition, Pearson Education India Edition, 2002.
3. Gowri P. Hariharan and A. Suresh Babu," Manufacturing Technology – I" Pearson Education, 2008.
4. Roy A. Lindberg, "Processes and Materials of Manufacture", 4th edition, Prentice Hall India, 1998.

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| 5. Rao P.N., “Manufacturing Technology”, Vol. I and Vol. II, Tata McGraw Hill House, 2017. |
| NPTEL Links: |
| 1. Manufacturing Processes I, by Dr. D. K. Dwivedi, Dr. Inderdeep Singh, Dr. D. B. Karunakar, http://nptel.ac.in/courses/112107145/ |
| Guide lines for ICA: |
| Students must submit ICA in the form of journal. Each practical should be well documented. Faculty in charge will assess the jobs continuously and grade or mark each job on completion date declared for each practical. |
| Guidelines for ESE: |
| ESE will be based on the laboratory assignments submitted by the students in the form of journal. Evaluation will be based on oral, paper work and performance in the ESE. |

| SOFT SKILLS LAB | | | | |
|--|------------------------|---------------------------------------|--|-------------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Soft Skills Lab | Short Title: | SSL | Course Code: |
| Course description: | | | | |
| This course provides students with skills that enable them to fit in at a workplace. It helps to enhance your personality, body language, emotional intelligence, attitude, flexibility, motivation, and manners. This course enables students to understand various issues in personal and professional communication and learn to overcome them. | | | | |
| Practical | Hours/week | No. of weeks | Total hours | Semester credits |
| | 02 | 14 | 28 | 01 |
| End Semester Exam (ESE) Pattern: | | Oral (OR) | | |
| Prerequisite course(s): | | | | |
| 11 th , 12 th English | | | | |
| Course Objectives: | | | | |
| The objective of this course is: | | | | |
| <ol style="list-style-type: none"> 1. To encourage the all-round development of students by focusing on communication skills and personality development. 2. To expose students to the right attitudinal and behavioral aspects & to build the same through activities. 3. To expose the students to develop time management ability, leadership skills. 4. To enhance critical and reflective thinking through activities. 5. To improve awareness of emotional intelligence and stress management techniques. | | | | |
| Course Outcomes: | | | | |
| After successful completion of this course, the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Comprehend thoughts through body language and use it as a tool to understand non-verbal signals for better communication 2. Address the audience effectively and deliver speeches without inhibition 3. Perform commendably in interviews, and in all work environment activities with rationality. 4. Integrate with professional ethics and general & corporate etiquette. 5. Prepare and Present Presentations effectively. | | | | |
| COURSE CONTENT | | | | |
| Soft Skills Lab | | Semester: | | I or II |
| Teaching Scheme: | | Examination scheme | | |
| Practical | 2 hours/week | End semester exam (ESE) UA: OR | | 25 Marks |
| | | | Internal Sessional Exams (ICA): | 25 marks |
| Concerned faculty member should suitably frame FIVE assignments in the form of interactive Practice Sessions based on the following modules. | | | | |
| Module 1: Communication Skills and Interpersonal Skills | | | | |
| <ol style="list-style-type: none"> 1.1. Effective verbal communication 1.2. Active listening 1.3. Non-verbal communication (body language, gestures) 1.4. Written communication (emails, reports, and business letters) 1.5. Public speaking | | | | |
| Module 2: Discussions and Debates (Activities based) | | | | |
| <ol style="list-style-type: none"> 2.1. Basics of a Group Discussion 2.2. Group Discussion Models | | | | |

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|---|
| 2.3. Debates – Value and Process |
| Module 3: Successful Interviews 3.1. Pre-Interview Strategies 3.2. Strategies During the Interview 3.3. Strategies After the Interview 3.4. Mock Interviews |
| Module 4: Professionalism 4.1. Business etiquette and professional behavior 4.2. Resume writing and interview skills 4.3. Negotiation techniques and strategies |
| Module 5: Effective Presentations 4.1. Formulas and Advanced Techniques of Presentations 4.2. How to overcome the fear factor. 4.3. E-Presentations |
| Text Books: |
| 1. Stephen Robbins & Judge Timothy: Organization Behavior, Pearson Education |
| Reference Books: |
| 1. Allan and Barbara Pease, “A Definitive Book on Body Language”, Publication Bantam Books. 2. K. Aswathappa – Organizational Behavior: Text, cases & games, Himalaya Publishing House. 3. Indrajit Bhattacharya, —An Approach to Communication Skills, Delhi, Dhanpat Rai, 2008. 4. Krishnaswami, N. and Sriraman, T, —Creative English for Communication, Macmillan. 5. Sanjay Kumar and Pushpa Lata, —Communication Skills, Oxford University Press, ISBN 10:9780199457069. 6. Frank Paolo, “How to Make a Great Presentation in 2 Hours”, Pustak Mahal. 7. Simon Sweeney, —English for Business Communication, Cambridge University Press, ISBN 13:978-0521754507. 8. Goleman, Daniel. Emotional Intelligence. Random House Publishing Group, 2006. 9. Patterson, Kerry, et al. Crucial Conversations Tools for Talking When Stakes Are High, Second Edition. McGraw-Hill Education, 2012. 10. Zander, Rosamund Stone, and Benjamin Zander. The Art of Possibility: Transforming Professional and Personal Life. Penguin Publishing Group, 2002. |
| NPTEL Links: |
| 1. Soft Skills by Prof. Binod Mishra, IIT Roorkee, https://nptel.ac.in/courses/109107121 2. Soft Skill Development by Prof. P. Patnaik, Prof. V.N. Giri, Prof. D. Suar, IIT Kharagpur, https://nptel.ac.in/courses/109105110 |
| Guide lines for ICA: |
| Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each assignment on the completion date declared for each assignment. |
| Guidelines for ESE: |
| ESE will be based on the practice assignments submitted by the students in the form of journal. Evaluation will be based on oral, paper work and performance in the ESE. |

| ENGLISH | | | | |
|--|---------------------------|---------------------------------|-------------|------------------|
| COURSE OUTLINE | | | | |
| Course Title: | English | Short Title: | ENG | Course Code: |
| Course description: | | | | |
| This course has been designed to pay special attention to contemporary industrial needs and current and society demands for Communicative Language skills. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 01 | 14 | 14 | 2 |
| Practical | 02 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| 11 th & 12 th English | | | | |
| Course Objectives: | | | | |
| <ol style="list-style-type: none"> 1. To make the student industry ready in terms of his/her ability to communicate effectively 2. To enhance the ability of written communication by giving a primer on English 3. To provide hands-on experience through case studies, mini-projects, group and individual presentations. 4. To effectively integrate English language learning with employability skills and training. 5. To augment the ability of the student to create, compose, render presentations with or without the help of media instructions and materials. | | | | |
| Course Outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Express their ideas in society and the workplace with proper words. 2. Analyze and synthesize research articles and technical reports with different critical perspectives. 3. Demonstrate proficiency in interpersonal communication, small group interactions and public speaking, comprehension, writing and speaking skills. 4. Perform as an accomplished professional communicator. 5. Plan and prepare effective presentations present and deliver speeches in public. | | | | |
| COURSE CONTENT | | | | |
| English | Semester: | I or II | | |
| Teaching Scheme: | Examination scheme | | | |
| Lectures: | 01 hour/week | End semester exam (ESE): | -- | |
| | | Duration of ESE: | -- | |
| | | Internal Sessional Exams (ISE): | -- | |
| Unit-I: | No. of Lectures: 03 Hours | | | |
| Vocabulary Building | | | | |
| <ol style="list-style-type: none"> 1.1 The concept of Word Formation 1.2 Acquaintance with prefixes and suffixes in word formation. 1.3 Synonyms and antonyms. | | | | |
| Unit-II: | No. of Lectures: 03 Hours | | | |
| 2. Basic Writing Skills | | | | |
| <ol style="list-style-type: none"> 2.1 Job Application 2.2 Preparing CV/Résumé 2.3 Business correspondence: Layout of Business letter, (complaint & adjustment, Invitation, order, inquiry, reply letters) 2.4 Academic writing: Research article 2.5 Report writing | | | | |

| | | | | | |
|--|--|----------------------------------|--|--|--|
| 2.6 Book/Film reviews | | | | | |
| UNIT-III: | | No. of Lectures: 03 Hours | | | |
| 3. Oral Communication | | | | | |
| 3.1 Introducing oneself | | | | | |
| 3.2 Asking questions and giving polite replies | | | | | |
| 3.3 Complaining and apologizing | | | | | |
| 3.4 Persuading people to do something | | | | | |
| 3.5 Seeking permission | | | | | |
| 3.6 Inviting friends and colleagues | | | | | |
| 3.7 Praising and complimenting people | | | | | |
| 3.8 Expressing sympathy | | | | | |
| 3.9 Using the telephone | | | | | |
| Unit-IV: | | No. of Lectures: 03 Hours | | | |
| 4. Professional Communication | | | | | |
| 4.1 Interview Skills (campus recruitment): Interview Questions | | | | | |
| 4.2 Types of Interviews, how to Answer the Questions, Reasons for selecting & rejecting a candidate. | | | | | |
| 4.3 How to present well in the Interview? | | | | | |
| 4.4 Group Discussion | | | | | |
| 4.5 Difference between Group Discussion & Debate | | | | | |
| Unit-V: | | No. of Lectures: 02 Hours | | | |
| 5. Public Speaking and Presentation Skills | | | | | |
| 5.1 Effective Presentation Strategies | | | | | |
| 5.2 Preparation, structuring the Presentation, Visual Aids, Positive and Negative traits | | | | | |
| 5.3 Public speaking | | | | | |
| Text Book | | | | | |
| 1. Raymond Murphy, Essential English Grammar, Cambridge University Press, 2nd edition | | | | | |
| 2. Rajinder Pal & Prem Lata, English Grammar & Composition, Sultan Chand Publication | | | | | |
| Reference Books: | | | | | |
| 1. Michael Swan, Practical English Usage. Oxford University Press. 1995. | | | | | |
| 2. English Vocabulary in Use- McCarthy, Michael., Cambridge University Press. | | | | | |
| 3. An introduction to Professional English and Soft Skills by B. K. Das et al., Cambridge University Press (Facilitated by BPUT) | | | | | |
| 4. Business Correspondence and Report Writing- 5 th Ed., R C Sharma Krishna Mohan, McGraw Hill Education private Limited, New Delhi- 2017. | | | | | |
| 5. Sanjay Kumar and Pushp Lata, Communication Skills, Oxford University Press. 2011. | | | | | |
| 6. The Functional Aspects of Communication Skills- Prasad, P. S.K. Kataria & Sons Publication, Delhi. | | | | | |
| NPTEL Links: | | | | | |
| 1. Business English Communication by Prof. Aysha Iqbal, IIT MADRAS, https://nptel.ac.in/courses/109106129 | | | | | |
| 2. Communication Skills by Prof. Dr. T. Ravichandran, IIT KANPUR, https://nptel.ac.in/courses/109104031 | | | | | |

| | | | | | |
|--------------------------------|-------------|---------------------|-----------|---------------------|--|
| ENGLISH LAB | | | | | |
| LAB COURSE OUTLINE | | | | | |
| Course Title: | English Lab | Short Title: | ENG (Lab) | Course Code: | |
| Prerequisite course(s): | | | | | |

| | | | |
|--|---------------------|---|-----------------|
| 11 th & 12 th English | | | |
| LAB COURSE CONTENT | | | |
| English Lab | | Semester: | I or II |
| Teaching Scheme: | | Examination scheme | |
| Practical: | 2 hours/week | End semester exam (ESE): | -- |
| | | Internal Continuous Assessment(ICA): | 25 marks |
| <p>Concerned faculty member should suitably frame SIX laboratory assignments in the form of interactive Practice Sessions in Language Lab from the following list. Students should be given practice in listening to the sounds of the language, to be able to recognize them and find the distinction between different sounds and to be able to mark stress, and recognize and use the right intonation in sentences.</p> <ol style="list-style-type: none"> 1. Listening Comprehension: <ul style="list-style-type: none"> • Activity 1: Listening to words and sentences with different accents • Practice 1: Articulate the words and sentences • Practice 2: Reconstruct the sentences with simple questions and answers. 2. Pronunciation, Intonation, Stress and Rhythm: <ul style="list-style-type: none"> • Activity 2: Ask the students to read any classics loudly with special emphasis on stress and rhythm. • Practice 1: Synthesize the read piece and narrate the story. • Practice 2: Perform any classic plays with special emphasis on dialogue delivery. 3. Common Everyday Situations: Conversations and Dialogues: <ul style="list-style-type: none"> • Activity 3: Compose Verbal – Non-verbal Communication scripts. • Practice 1: Dramatize Situational Dialogues – Role-Play- Expressions in Various Situations –Making Requests and Seeking Permissions 4. Introducing oneself and Introducing others: <ul style="list-style-type: none"> • Activity 4: Understand the Different styles of self-introduction • Practice: Introducing oneself and Introducing others 5. Communication at Workplace: <ul style="list-style-type: none"> • Activity 5: Understand the Workplace communication • Practice: Communication at the Workplace 6. Interviews: <ul style="list-style-type: none"> • Activity 6: Understand the Interview Skills and Etiquette. • Practice: Mock Interviews, Group Discussion | | | |
| Text Books: | | | |
| <ol style="list-style-type: none"> 1. Raymond Murphy, Essential English Grammar, Cambridge University Press, 2nd edition 2. Rajinder Pal & Prem Lata, English Grammar & Composition, Sultan Chand Publication | | | |
| Reference Books: | | | |
| <ol style="list-style-type: none"> 1. Michael Swan, Practical English Usage. Oxford University Press, 1995. 2. F.T. Wood. Remedial English Grammar. MacMillan Publication, 2007 3. Hamp-Lyons and Ben Heasley, Study Writing. Liz Cambridge University Press. 2006. 4. Sanjay Kumar and Pushp Lata, Communication Skills, Oxford University Press. 2011. 5. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press | | | |
| NPTEL Links: | | | |

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|--|
| 1. Business English Communication by Prof. Aysha Iqbal, IIT MADRAS, https://nptel.ac.in/courses/109106129 |
| 2. Technical English for Engineers, by Prof. Aysha Iqbal, IIT MADRAS, https://nptel.ac.in/courses/109106094 |

Guide lines for ICA:

Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each assignment on the completion date declared for each assignment.

| INDIAN KNOWLEDGE SYSTEM | | | | |
|---|--------------------------------|---|-------------|---------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Indian Knowledge System | Short Title: | IKS | Course Code: |
| Course description: | | | | |
| <p>India is a nation with a long civilizational history. It has discovered enormous knowledge cutting across various dimensions of human life and existence. Today, though India is known for its achievement in Yoga and other spiritual studies, it has made enormous progress in the material life as well. From metallurgy to civil engineering, pre-modern Indians can boast of tremendous achievements. The fact that many of their engineering marvels have survived the test of time is a testament to their knowledge and skill. Such achievements also assume significant advances in certain basic sciences like Mathematics.</p> <p>A technical student must have an introductory background of this knowledge.</p> | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 1 | 14 | 14 | 2 |
| Practical | 2 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| Course objectives: | | | | |
| <ol style="list-style-type: none"> 1. A student of engineering must be aware of the knowledge system prevailed in ancient time to develop a self – pride. 2. The students should know the relevance of traditional knowledge in modern times. 3. Students studying IKS can develop analytical skills and learn to approach problems from diverse perspectives, fostering creativity and scholarly agility. 4. Studying IKS as part of modern education can foster interdisciplinary research resulting in a harmonious blend of various knowledge systems 5. The main objective of drawing from our past and integrating the Indian Knowledge Systems is to ensure that our ancient systems of knowledge represented by unbroken tradition of knowledge transmission and providing a unique perspective (Bhāratīya Drishti) is used to solve the current and emerging challenges of India and world. | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able: | | | | |
| <ol style="list-style-type: none"> 1. To be able to appraise the basic idea about IKS and ancient scripture, 2. To demonstrate an ability in ancient mathematical approaches and astronomy. 3. To be able to recognize and describe the ancient Indian industrial engineering. 4. To have an ability to experiment with ancient Indian architecture and its relevance today. 5. To be able to relate the evolution and development of languages in India in today’s context. | | | | |
| COURSE CONTENT | | | | |
| Indian Knowledge System | | Semester: | | I or II |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 1 hours /week | End semester exam (ESE): | | ---- |
| Practical: | 2 hours / week | Duration of ESE: | | ---- |
| | | Internal Sessional Exams (ISE) CA: | | 25 Marks |

| Unit-I: | No. of Lectures: 02 Hours |
|--|---------------------------|
| <p>Indian Knowledge System – An Introduction: Concept of IKS, Need of IKS, Organization of IKS, Historicity of IKS, some Salient Aspects of IKS.</p> <p>The Vedic Corpus: Introduction to Vedas, A synopsis of the four Vedas, Sub-classification of Vedas, Messages in Vedas, Vedic Life: A Distinctive Features, its modern-day relevance.</p> <p>Reference: Indian Knowledge System (IKS): Concepts and Applications in Science by Prof. B. Mahadevan, Dr. Vinayak Rajat Bhat, Dr. R Venkata Raghavan, https://onlinecourses.swayam2.ac.in/imb23_mg54/preview</p> | |
| Unit – II: | No. of Lectures: 03 Hours |
| <p>Number Systems and Units of Measurement: Number systems in India - Historical evidence, Salient aspects of Indian Mathematics, Bhūta-Saṃkhyā system, Kaṭapayādi system, Measurements for time, distance, and weight, Piṅgala and the Binary system</p> <p>Mathematics: Introduction to Indian Mathematics, Unique aspects of Indian Mathematics, Indian Mathematicians and their Contributions, Algebra, Geometry, Trigonometry, problems in Chandaḥ Śāstra.</p> <p>Reference: Indian Knowledge System (IKS): Concepts and Applications in Science by Prof. B. Mahadevan, Dr. Vinayak Rajat Bhat, Dr. R Venkata Raghavan, https://onlinecourses.swayam2.ac.in/imb23_mg54/preview</p> | |
| Unit – III: | No. of Lectures: 03 Hours |
| <p>Astronomy: Introduction to Indian astronomy, Indian contributions in astronomy, The celestial coordinate system, Elements of the Indian calendar, Notion of years and months, Pañcāṅga – The Indian calendar system, Jantar Mantar of Rājā Jai Singh Sawai.</p> <p>Engineering and Technology: Metals and Metal working: The rise and fall of a great Indian technology, Mining and ore extraction, Metals and metalworking technology, Iron and steel in India, Lost wax casting of idols and artifacts,</p> <p>Reference: Indian Knowledge System (IKS): Concepts and Applications in Science by Prof. B. Mahadevan, Dr. Vinayak Rajat Bhat, Dr. R Venkata Raghavan, https://onlinecourses.swayam2.ac.in/imb23_mg54/preview</p> | |
| Unit – IV: | No. of Lectures: 03 Hours |
| <p>Engineering, Technology and Other applications: Irrigation systems and practices in India, Literary sources for science and technology, Physical structures in India, water management, Dyes and painting technology, The art of making perfumes, Surgical techniques, Shipbuilding, Sixty-four art forms (64 Kalās),</p> <p>Town Planning and Architecture: Perspective of Arthaśāstra on town planning, Vāstu-śāstra – The science of architecture, Eight limbs of Vāstu, Town planning, Marvelous Temple architecture in India.</p> <p>References:</p> | |

| | |
|--|----------------------------------|
| 1. Indian Knowledge System (IKS): Concepts and Applications in Science by Prof. B. Mahadevan, Dr. Vinayak Rajat Bhat, Dr. R Venkata Raghavan, https://onlinecourses.swayam2.ac.in/imb23_mg54/preview | |
| 2. Introduction to urban planning by Prof. Harshit Sosan Lakra, https://archive.nptel.ac.in/courses/124/107/124107158/ | |
| Unit –V: | No. of Lectures: 03 Hours |
| Knowledge Framework and classifications: Indian scheme of knowledge, The knowledge triangle, Prameya – A vaiśeṣikan approach to physical reality, Dravyas – the constituents of the physical reality, Attributes – the properties of substances and Action – the driver of conjunction and disjunction, Saṃśaya – ambiguities in existing knowledge, Framework for establishing valid knowledge. | |
| Reference: Introduction to knowledge management by Prof Kailas B L Shrivastava, https://archive.nptel.ac.in/courses/110/105/110105076/ | |
| Linguistics Introduction to Linguistics, Aṣṭādhyāyī, Phonetics, Word generation, Computational aspects, Sentence formation, Verbs and prefixes Role of Sanskrit in natural language processing | |
| Reference: Introduction To Language and Linguistics by Prof. Dripta Piplai (Mondal), Prof. Bornini Lahiri, https://onlinecourses.nptel.ac.in/noc23_hs87/preview | |
| Text Books: 1. Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), “Introduction to Indian Knowledge System: Concepts and Applications”, PHI Learning Private Ltd. Delhi. | |
| Additional reading: 1. Pride of India: A Glimpse into India’s Scientific Heritage, Samskrita Bharati, New Delhi. 2. Sampad and Vijay (2011). “The Wonder that is Sanskrit”, Sri Aurobindo Society, Puducherry. 3. Bag, A.K. (1979). Mathematics in Ancient and Medieval India, Chaukhamba Orientalia, New Delhi. 4. Datta, B. and Singh, A.N. (1962). History of Hindu Mathematics: Parts I and II, Asia Publishing House, Mumbai. 5. Kak, S.C. (1987). “On Astronomy in Ancient India”, Indian Journal of History of Science, 22(3), pp. 205–221. 6. Subbarayappa, B.V. and Sarma, K.V. (1985). Indian Astronomy: A Source Book, Nehru Centre, Mumbai. 7. Bag, A.K. (1997). History of Technology in India, Vol. I, Indian National Science Academy, New Delhi. 8. Acarya, P.K. (1996). Indian Architecture, Munshiram Manoharlal Publishers, New Delhi. 9. Banerjea, P. (1916). Public Administration in Ancient India, Macmillan, London. | |

10. Kapoor Kapil, Singh Avadhesh (2021). “Indian Knowledge Systems Vol – I & II”, Indian Institute of Advanced Study, Shimla, H.P.

Guide lines for ICA:

Concerned faculty member should suitably frame SIX assignments based on the above syllabus. Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment.

| CO-CURRICULAR COURSE | | | | |
|---|-----------------------------|---|-------------|---------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Co-Curricular Course | Short Title: | CC | Course Code: |
| Course description: | | | | |
| The course aims at study, activity or program that takes place outside of the traditional classroom but in some manner complements academic learning from classroom curriculum. | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 1 | 14 | 14 | 2 |
| Practical | 2 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| Course objectives: | | | | |
| The objectives of the course are to: | | | | |
| <ol style="list-style-type: none"> 1. Develop competencies so as to provide sense of identity. 2. Develop an optimal state of physical, emotional, intellectual, social, spiritual and environmental wellbeing. | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. 2. Communicate effectively on activities with the community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. 3. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. | | | | |
| COURSE CONTENT | | | | |
| Co-Curricular Course | | Semester: | | I |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 1 hours /week | End semester exam (ESE): | | ---- |
| Practical: | 2 hours / week | Duration of ESE: | | ---- |
| | | Internal Sessional Exams (ISE) CA: | | 50 Marks |
| <p>Students should choose any TWO modules from the following and should be clustered based on chosen module. Institute should provide faculty mentor for every cluster to facilitate students to learn / upskill / sharpen / practice on chosen module. Students may also take help of experts, faculty members and others to enhance their skills. Faculty mentors should conduct weekly meeting of their students to monitor their progress.</p> <p>Module – 1: Yoga and Positive Psychology for Managing Career and Life (10 hrs.) Yoga is known to enhance flexibility, strength and coordination. Apart from enhancing muscle flexibility and strength, yoga can also help with weight loss and improve body posture. Regular Yoga practice has also been associated with optimizing body functions like respiration, heart rate, lowering of blood pressure, keeping cardiovascular health problems at bay and more.</p> | | | | |

Today obesity has become a potent problem on account of the increase in consumption of junk food and a sedentary lifestyle. Yoga helps student counter these adverse effects and lead a healthy and energetic. The need and importance of yoga in education also follows from the fact that it helps in improving concentration and attention span. With yoga helping to improve memory function, its direct impact can also be seen in the student's academic performance.

Topics:

Importance of yoga, yogic perspective of Health and Wellbeing, Diseases in yogic perspective, Managing mind, self-realization – the ultimate joy, How yoga helps in equanimity of mind, seven stages of wisdom, yoga for balancing Emotions and cognitions, Pranayama, What is our real nature, How mind works, Journey of positive psychology, Difference in good life and life satisfaction, Why yoga with positive psychology, Fundamental questions in positive psychology, What positive psychology is not, positive negative dialects of well-being, obstacles in wellbeing, positive psychology: second wave, Present context of professional work, Link between self-management and career management.

Reference: Yoga & Positive Psychology for Managing Career and Life by IIT Bombay, <https://archive.nptel.ac.in/courses/110/101/110101165/>

Module – 2: Food, Nutrition and Hygiene (10 hrs.)

Food and Nutrition deals with the processing and preservation food as well as consumption of balanced diet by individual. Nutritional Science has its roots in life sciences; it encompasses both biological and social sciences. Nutrition plays a major role in enhancing the quality of life through improved physical growth, immune-competence and enhancing productivity with improved health. Social, economic and cultural factors influence food consumption pattern and thus nutrition status of the individual. Further, Changes in nutrient composition during food processing and storage also needed to be studied.

Topics:

Introduction to nutrition and health, Relation between food, nutrition and health, Digestion and absorption of nutrients, recommended diet, carbohydrate Nutrients and their role, Fiber, Protein, fat and fat soluble vitamins, Water soluble vitamins, Meal planning, Nutritional Disorder, balance diet and food groups, Practical aspects of food selection, Sanitization and therapeutic nutrition, Food sanitation and hygiene, Water purification, Principles of therapeutic diet, Diet during fever, Diet during various diseases.

Reference:

Nutrition, Therapeutics and Health (NM) by IIT Kanpur, <https://nptel.ac.in/courses/126104004>

Module – 3: Stress Management (10 hrs.)

The goal of stress management is to control an individual's level of stress, particularly chronic stress, usually with the intention of enhancing daily functioning. It encompasses a broad range of approaches and psychotherapies. Many mental and physical signs of stress arise, and they differ depending on the circumstances surrounding each person. A deterioration in physical health, such as depression and headaches, chest pain, exhaustion, and sleep issues, can be among them. One of the secrets to a successful and happy existence in contemporary culture is stress management. Stress management offers several strategies to control anxiety and preserve

general wellbeing, yet life frequently presents a plethora of expectations that can be challenging to meet.

Topics:

What is stress, Sources of stress, Types of stress, Personality factors and stress, Stress and college students, Stress and nervous system, Hypothalamic Pituitary Adrenal (HPA) Axis, Effect of stress on immune system, Health risks associated with chronic stress, Stress and major Psychiatric disorder, Understanding your stress level, Role of personality pattern, Self-esteem, Locus of control, Role of thought beliefs and emotions, Situation Intrapersonal, Developing Cognitive coping skill, Autogenic training, Imaginary and progressive relaxation, Other relaxation techniques, Exercise and health

Reference:

Stress Management by Prof. Rajlakshmi Guha,
<https://archive.nptel.ac.in/courses/121/105/121105009/>

Module – 4: Group Dynamics (10 hr)

Groups are important for organizational life. Managers spend substantial time in managing groups and teams so that groups contribute to organizational and group goals. How effectively a manager plans, organizes, staffs, leads and controls depends upon how effectively he manages the groups. Group dynamics studies the nature, formation and reasons for forming the groups. It studies how groups affect the behavior and attitude of members and the organization. It is a process by which people interact with each other. If groups are effectively managed, they contribute a lot to organizational goals.

Topics:

Introduction of groups, Groups Dynamics: Definition, Meaning, Concept and Importance of Group Dynamics Group processes, Interpersonal attraction and Cohesion in Group Dynamics, Social relationship, Group Communication, Role of Communication in Group Dynamics, Interactive behaviour, Group leadership, Organizational justice, ethics and corporate social responsibility.

Reference:

Group Dynamics by Prof. Pooja Garg, <https://archive.nptel.ac.in/courses/109/107/109107199/>

Module – 5: Body Language and Behavior (10 hr)

Body language is the use of physical behavior, expressions, and mannerisms to communicate nonverbally, often done instinctively rather than consciously. When we interact with others, we are continuously giving and receiving wordless signals. Micro expressions (brief displays of emotion on the face), hand gestures, posture, smile, hand movement, finger movement, and movement of feet and legs all register in the human brain almost immediately, even when a person is not consciously aware they have perceived anything.

Topics:

Defining Body language, Scope and relevance, Defining proxemics, Four Zones, Behavioural connotations, Oculistics: Use of eye communication, Haptic: Language of touch, Kinesics: Body

Motion and Gesture, Facial expression, Macro and Micro Facial Expressions, Mouth and smiles, Cultural differences in smile, hand and feet movement, finger movement, Paralanguage, Chromatics, Digital Body language, Gustorics and silence.

Reference:

Body Language: A Key to Professional Success by Prof. Rashmi Gaur,

<https://archive.nptel.ac.in/courses/109/107/109107154/>

Module – 6: Sports and Fitness

Any out door or indoor sports, rules pertaining to the sport, fitness and exercises pertaining to the sport, psychological factors pertaining to the sport, injury management pertaining to the sport. Focus on improvement of various components of physique and skills related to fitness like strength, speed, coordination, endurance and flexibility; acquisition of sports skills, basic movement skills relevant to the sport; improvement of tactical ability; and improvement of mental abilities.

Module – 7: Cultural Activities

Practicing and participating any music, art, handicraft and cultural activities

Module – 8: Hobby Skilling

Building and upskilling any Social Hobbies, Physical & Health Hobbies, Creating & Creative hobbies etc.

Module – 9: NSS/NCC

Enrolling and Participating in NSS / NCC activities

Module – 10: Publication and Presentation

Publication of articles in newspapers, magazines etc. OR Submission / Publication of innovation ideas in conferences / workshops / journals / recognized forum etc.

Module 11: Environmental Sustainability

Environmental issues are one of the primary causes of disease, health issues and long-term livelihood impact. Major environmental issues that India and this region face today are Air pollution, poor management of waste, growing water scarcity, falling groundwater tables, water pollution, preservation and quality of forests, biodiversity loss, and land/soil, environmental degradation, public health, loss of resilience in ecosystems, livelihood security etc. The major sources of pollution that mandates action plan for Air Quality Management Waste Management and Water Quality Management.

More precisely plastic waste has been a major concern. The plastic waste is responsible for greenhouse gas emissions, end up in water bodies and make up debris in sea and river, species have been impacted by plastic debris, soil contamination and leaching of toxic chemicals into the ground, causing air pollution, and ultimately into food chain and public health.

Any participation / activity towards Environmental Sustainability as an individual or team with or without support of any agencies / NGOs / voluntary bodies may be carried out. The activities include survey and analysis, management and action plan, methodology and technical solution, standard operating procedure, detailed project report (DPR), public awareness campaign, sampling and segregation, collection and disposal etc.

Guide lines for ICA:

Students must submit ICA in the form of journal. Each should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each on completion date declared for each.

The assessment for the same should be based on the following.

1. Pre and Post assessment for each module to judge the level of understanding / improvement. (55%)
2. Contribution as an individual, or as a member or leader in diverse teams. (15%)
3. Communication skill through presentation / report / publications etc. (15%)
4. Participation in events / activities / awareness program or development of model / poster / video / e-content / blog etc. (15%)

A three-member panel of faculty members including faculty mentor will assess and grade or mark at mid of semester and end of semester.

| ENGINEERING MATHEMATICS-II | | | | | |
|---|------------------------------------|----------------------------------|--|-------------------------|-----------------|
| COURSE OUTLINE | | | | | |
| Course Title: | Engineering Mathematics -II | Short Title: | M-II | Course Code: | |
| Course description: This course is aimed at introducing the fundamentals of basic Mathematics to undergraduate students. The background expected includes a prior knowledge of Mathematics from 12 th science and familiarity with various laws, principles and theories. The goals of the course are to understand the basic principle of Mathematics and its application in different area. | | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits | |
| Theory | 03 | 14 | 42 | 4 | |
| Tutorial | 01 | 14 | 14 | | |
| Prerequisite course(s): 11 th & 12 th mathematics | | | | | |
| Course objectives: | | | | | |
| The objective of this course is to familiarize the prospective engineers with techniques in numerical methods, sampling, ordinary differential equation and complex variables. It aims to equip the students to deal with advanced level of mathematics and applications that would be essential for their disciplines | | | | | |
| Course outcomes: | | | | | |
| After successful completion of this course the student will be able to: | | | | | |
| <ol style="list-style-type: none"> 1. Apply effective mathematical tools for the solutions of differential equations that model physical processes. 2. Introduce the solution methodologies for Laplace transform with applications in engineering. 3. Understand basic concept of test of significance and apply it to find solutions in engineering field. 4. Find numerical values of differentiations and integrations using various numerical methods. 5. Understand concept of Complex number and apply it to find solutions in engineering field. | | | | | |
| COURSE CONTENT | | | | | |
| Engineering Mathematics -II | | | Semester: | | II |
| Teaching Scheme: | | | Examination scheme | | |
| Lectures: | 3 hours/week | | End semester exam (ESE): | | 60 marks |
| Tutorial | 1 hour/week | | Duration of ESE: | | 03 hours |
| | | | Internal Sessional Exams (ISE): | | 40 marks |
| Unit-I: | | No. of Lectures: 09 Hours | | Marks: 12 | |
| First Order Ordinary Differential equations: Exact Differential equations, Integrating Factor, Equations reducible to exact, Linear Differential equations, Application related to Electrical Circuits | | | | | |
| Unit-II: | | No. of Lectures: 09 Hours | | Marks: 12 | |
| Laplace Transform: Properties of Laplace Transform, Laplace transform of standard functions, Inverse Laplace transform, Convolution theorem, Ordinary differential equations by Laplace transform | | | | | |
| Unit-III: | | No. of Lectures: 08 Hours | | Marks: 12 | |
| Test of Significance: Testing of Hypothesis, Null Hypothesis and Alternative Hypothesis, Level of Significance, Test of Significance of large sample, Testing for difference between means and proportion of samples. | | | | | |

| Unit–IV: | No. of Lectures: 08 Hours | Marks: 12 |
|--|---------------------------|-----------|
| <p>Numerical Methods: Solution of Ordinary differential equations: by Taylor’s series and Picard’s Method. Runge-Kutta method of fourth order for solving first order differential equations. Curve Fitting: Method of least square, fitting of straight lines, second degree parabola.</p> | | |
| Unit–V: | No. of Lectures: 08 Hours | Marks: 12 |
| <p>Complex Number: Circular functions, Hyperbolic and Inverse Hyperbolic functions, Logarithms of complex number, Resolving real and imaginary parts of a complex number.</p> | | |
| Text Books: | | |
| 1. H. K. DASS “Advance Engineering Mathematics”, S. Chand publications. | | |
| Reference Books: | | |
| 1. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008. | | |
| 2. Ravish R. Singh, Mukul Bhatt “Engineering Mathematics A Tutorial Approach. Tata Mc GrawHill Education Private Limited. New Delhi | | |
| 3. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010 | | |
| NPTEL Links: | | |
| 1. ‘Laplace Transform and its Existence’ - Mathematics (IIT Kharagpur) Video Lectures by Dr. P. Panigrahi, Prof. J. Kumar, Prof. P.D. Srivastava, Prof. Somesh Kumar (nptelvideos.com) | | |
| 2. Mathematical Methods and Its Applications by Prof. P. N. Agarwal, Prof. S. K. Gupta, https://onlinecourses.nptel.ac.in/noc23_ma89/preview | | |
| 3. Differential Equations by Mr. Mohamed Nishad Maniparamabth, https://onlinecourses.swayam2.ac.in/cec24_ma09/preview | | |
| 4. Descriptive Statistics by Dr Vidya Raju, https://onlinecourses.swayam2.ac.in/cec24_ma03/preview | | |
| 5. ‘Advanced Engineering Mathematics’ Video Lectures from IIT Kharagpur by Dr. P. Panigrahi, Prof. J. Kumar, Prof. P.D. Srivastava, Prof. Somesh Kumar - Mathematics NPTEL Video Lectures (nptelvideos.com) | | |
| 6. ‘Complex Analysis’ Video Lectures from IIT Guwahati by Prof. P. A. S. Sree Krishna - Mathematics NPTEL Video Lectures (nptelvideos.com) | | |
| 7. ‘Ordinary Differential Equations and Applications’ Video Lectures from IISc Bangalore by A. K. Nandakumaran Raju, K. George, P. S. Datti - Mathematics NPTEL Video Lectures (nptelvideos.com) | | |

| INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING | | | | | |
|--|---|----------------------------------|---|-------------------------|-----------------|
| COURSE OUTLINE | | | | | |
| Course Title: | Introduction to Artificial Intelligence and Machine Learning | Short Title: | AIML | Course Code: | |
| Course description: | | | | | |
| This course provides students with a fundamental and comprehensive study of artificial intelligence and machine learning using Python programming language. This course focuses on introduction to program design and AI problem solving using the Python programming language. Programming topics include importing and using various libraries in Python for AI and ML. | | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits | |
| Theory | 03 | 14 | 42 | 04 | |
| Practical | 02 | 14 | 28 | | |
| Prerequisite course(s): | | | | | |
| Basic Mathematical Concepts, Fundamental Logical Thinking, Programming for Problem Solving, Basic Quantitative and Logical Reasoning | | | | | |
| Course objectives: | | | | | |
| The objective of this course is to impart knowledge so that the student will: | | | | | |
| <ol style="list-style-type: none"> 1. Recognize fundamental uses of AI and ML 2. Design an application for solving basic AI and ML problems 3. Apply the basics and features of Python programming 4. Analyze various libraries in Python 5. Analyze various modules in Python | | | | | |
| Course outcomes: | | | | | |
| After successful completion of this course the student will be able to: | | | | | |
| <ol style="list-style-type: none"> 1. Determine societal issues where AI may help solve. 2. Use and apply various ML approaches in solving the basic problems 3. Use and apply various deep learning approaches in solving the basic problems 4. Apply an appropriate programming feature to solve basic problems 5. Demonstrate significant skills with the Python libraries and modules | | | | | |
| COURSE CONTENT | | | | | |
| Introduction to Artificial Intelligence and Machine Learning | | | Semester: | | II |
| Teaching Scheme: | | | Examination scheme | | |
| Lectures: | 3 hours/week | | End semester exam (ESE) UA: | | 60 marks |
| | | | Duration of ESE: | | 03 hours |
| | | | Internal Sessional Exams (ISE) CA: | | 40 marks |
| Unit-I: | | No. of Lectures: 09 Hours | | Marks: 12 | |
| Introduction to Artificial Intelligence (AI) | | | | | |
| Introduction to AI, Alan Turing and the Turing Test, Forms of AI: Strong AI and Weak AI, Golden Age of AI, AI Winter, The Rise and Fall of Expert System, Neural Network and Deep Learning, Technological Drivers of Modern AI, Structure of AI, Data the Fuel for AI: Types of Data, Big Data, Characteristics of Big Data, Database, Data Process. | | | | | |
| Unit-II: | | No. of Lectures: 09 Hours | | Marks: 12 | |
| Introduction to Machine Learning (ML) | | | | | |
| What is Machine Learning? What Can You Do with Machine Learning? The Machine Learning Process, Types of Machine Learning: Supervised Learning, Unsupervised Learning, | | | | | |

| | | |
|--|----------------------------------|------------------|
| Reinforcement Learning, Semi-supervised Learning, Introduction to Common Types of Machine Learning Algorithms: Naïve Bayes Classifier, K-Nearest Neighbor, Linear Regression, Decision Tree, Ensemble Modeling and K-Means Clustering. | | |
| Unit–III: | No. of Lectures: 08 Hours | Marks: 12 |
| Introduction to Deep Learning (DL) | | |
| What is Deep Learning? Difference Between Deep Learning and Machine Learning, The Brain and Deep Learning, Artificial Neural Networks: Backpropagation, Recurrent Neural Network, Convolutional Neural Network, Generative Adversarial Networks, Deep Learning Applications, Deep Learning Hardware, When to Use Deep Learning? Drawbacks with Deep Learning. | | |
| Unit–IV: | No. of Lectures: 08 Hours | Marks: 12 |
| Basics of Python Programming | | |
| Features of Python, History and Future of Python, Writing and Executing Python Program, Literal Constants, Variables and Identifiers, Data Types, Input Operation, Comments, Reserved Words, Indentation, Operators and Expressions, Expressions in Python, Operations on Strings in Python and Type Conversion in Python. | | |
| Unit–V: | No. of Lectures: 08 Hours | Marks: 12 |
| Functions and Modules in Python | | |
| Need for Functions and Modules: Definition, Call, Variable Scope and Lifetime, The Return Statement in Python, Defining and using Functions, Introduction to Modules in Python, Introduction to Packages in Python, Introduction to Standard Library Modules, Import Statement and Packages in Python, Built-in String Methods in Python, Standard Library Modules in Python. | | |
| Text Books: | | |
| <ol style="list-style-type: none"> 1. Tom Taulli, Artificial Intelligence Basics: A Non-Technical Introduction, Apress, 2019 2. Reema Thareja, Python Programming Using Problem Solving Approach, Oxford University Press, ISBN 13: 978-0-19-948017-6 | | |
| Reference Books: | | |
| <ol style="list-style-type: none"> 1. Andeas C. Muller and Sarah Guido, Introduction to Machine Learning with Python: A Guide for Data Scientist, O'REILLY 2. John H.Guttag, Introduction to Computation and Programming using Python with Application to Computational Modeling and Understanding Data, 3rd Edition, MIT Press, 2021 3. Mark Lutz, Programming Python, O'REILLY, 4th Edition 4. David Amos, Dan Bader, Joanna Jablonski, Fletcher Heisler, Python Basics: A Practical Introduction to Python 3, 4th Edition | | |
| NPTEL Links: | | |
| <ol style="list-style-type: none"> 1. Fundamentals of Artificial Intelligence by Prof. Shyamanta M Hazarika: https://onlinecourses.nptel.ac.in/noc19_me71/preview 2. Introduction to Machine Learning by Prof. Sudeshna Sarkar: https://onlinecourses.nptel.ac.in/noc21_cs85/preview | | |

| | | | |
|---|---------------------|---------------------------------------|-----------------|
| INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING LAB | | | |
| LAB COURSE CONTENT | | | |
| Introduction to Artificial Intelligence and Machine Learning Lab | | Semester: | II |
| Teaching Scheme: | | Examination scheme | |
| Practical: | 2 hours/week | End semester exam (ESE) UA: PR | 25 marks |

| | | |
|--|---|-----------------|
| | Internal Continuous Assessment (ICA) CA: | 25 marks |
| End Semester Exam (ESE) Pattern: | Practical (PR) | |
| <p>Concerned faculty member should suitably frame FIVE laboratory assignments from the following list:</p> <ol style="list-style-type: none"> 1. Create a python program, which receives full date and display the calendar of the current, previous and next year 2. Create a python program to find L.C.M. (least common multiple) of two numbers 3. Create a python program to reverse words in a given string 4. Create a python program for finding yesterday's, today's and tomorrow's date 5. Apply python libraries and demonstrate various matrix operations 6. Apply python libraries and demonstrate various math's operations 7. Apply python libraries and demonstrate various string operations | | |
| Text Books: | | |
| <ol style="list-style-type: none"> 1. Anand Chitipothu, Python Practice Book, 2017 2. Brian Heinold, A Practical Introduction to Python Programming, 2012 3. David Amos, Dan Bader, Joanna Jablonski, Fletcher Heisler, Python Basics: A Practical Introduction to Python 3, 4th Edition | | |
| Reference Books: | | |
| <ol style="list-style-type: none"> 1. Andeas C. Muller and Sarah Guido, Introduction to Machine Learning with Python: A Guide for Data Scientist, O'REILLY 2. John H.Guttag, Introduction to Computation and Programming using Python with Application to Computational Modeling and Understanding Data, 3rd Edition, MIT Press, 2021 3. Mark Lutz, Programming Python, O'REILLY, 4th Edition | | |
| NPTEL Links: | | |
| <p>The Joy of Computing using Python Prof. Sudarshan Iyengar, https://nptel.ac.in/courses/106106182</p> | | |
| Guide lines for ICA: | | |
| <p>Students must submit ICA in the form of journal. Each assignment should be well documented. Faculty in charge will assess the assignments continuously and grade or mark each assignment on completion date declared for each assignment.</p> | | |
| Guidelines for ESE: | | |
| <p>ESE will be based on the laboratory assignments submitted by the students in the form of journal. In ESE the student may be asked to perform any one practical. Evaluation will be based on paper work and performance in the practical.</p> | | |

| LIBERAL LEARNING COURSE | | | | |
|---|--------------------------------|---|-------------|---------------------|
| COURSE OUTLINE | | | | |
| Course Title: | Liberal Learning Course | Short Title: | LLC | Course Code: |
| Course description: | | | | |
| <p>Liberal learning is “self-learning in self-chosen liberal areas with self-defined scope”. The Liberal learning provides the higher levels of learning, as per learning pyramid, similar to learning through teaching others. Liberal learning broadens students’ perspectives and helps them develop as individuals and members of an inclusive society in which their technical skills and services are used. This course mainly helps students on building diverse knowledge base and scaling new real life professional challenges. The course includes activities that enable students think independently and develop broad academic and intellectual abilities.</p> | | | | |
| | Hours/week | No. of weeks | Total hours | Semester credits |
| Theory | 1 | 14 | 14 | 2 |
| Practical | 2 | 14 | 28 | |
| Prerequisite course(s): | | | | |
| Course objectives: | | | | |
| <p>The primary objective of the course is to inculcate a lifelong learning process that allows students to extend their knowledge horizons beyond engineering and make them better learners. The course objectives also include functioning in multidisciplinary teams, understanding the impact of engineering solutions in global and societal contexts.</p> | | | | |
| Course outcomes: | | | | |
| After successful completion of this course the student will be able to: | | | | |
| <ol style="list-style-type: none"> 1. Create opportunities to experiment different learning styles and bring in the required balance. 2. Explore insights from many different perspectives of professional challenges. | | | | |
| COURSE CONTENT | | | | |
| Liberal Learning Course | | Semester: | | II |
| Teaching Scheme: | | Examination scheme | | |
| Lectures: | 1 hours /week | End semester exam (ESE): | | ---- |
| Practical: | 2 hours / week | Duration of ESE: | | ---- |
| | | Internal Sessional Exams (ISE) CA: | | 50 Marks |
| <p>Unlike a standard course, this course does not have a defined syllabus, identified text or reference books, classroom lectures, and standard examinations. Students define their own syllabus, search for learning resources, study them to develop their own viewpoints and find appropriate ways to share learning with peers.</p> <p>Students should identify a self-chosen area / sub-area in engineering, non-engineering or societal issues and should be clustered based on chosen area / sub-area. Institute should provide faculty mentor for every cluster to facilitate students to outline their title of study, purpose of study and corresponding focus questions. Students may also take help of experts,</p> | | | | |

faculty members and others to enhance their focus questions. Students should carry out their study focusing on the questions and develop their own viewpoint. Faculty mentors should conduct weekly meeting of their students to monitor their progress.

Preferably, the outcome of the study should be in the form of prototype, model, poster, project or Do It Yourself (DIY) promoting ideation and innovation in the chosen area / sub-area.

Students may also join week end Internship outside the campus to study and develop their viewpoints on the focused questions.

Guide lines for ICA:

Students must submit ICA in the form of report. The report format may be according to the chosen area / sub-area.

The assessment for the same should be based on the following.

- a) Novelty, Relevance, Reasoning, Process of choice of topic: 5%
- b) Comprehensiveness and diversity of the gathered information for the study: 25%
- c) Originality of the viewpoints, Value of the viewpoints: 30%
- d) Methods of sharing, effectiveness of the sharing through presentation or any other mode: 30%
- e) Development plan and result of the plan as a learner: 10%

A three-member panel of faculty members including faculty mentor will assess and grade or mark at mid of semester and end of semester.

EXIT COURSE

Internship / Apprenticeship:

Internship / Apprenticeship / OJT shall be corresponding to the programme (Major) subject. Internship / Apprenticeship / OJT shall be monitored jointly by faculty and Industry / organization mentor.

The role of a Mentor, nominated by institute, shall be to provide professional/research guidance to the student during the internship. They shall also facilitate networking with other subject matter experts/professionals, which will enhance the internship experience and learning of the students.

Internship / Apprenticeship / OJT corresponding to the programme (Major) subject in Exit course with an external organization / entity is desirable. External organization may be industries, research institutions, University research centers or CSIR laboratories. Internship / Apprenticeship / OJT shall be preferably in offline mode, however online mode may also be permitted.

Preferably the Mini Project in Exit course shall be based on Internship / Apprenticeship / OJT.

Activities under Internship / Apprenticeship / OJT include Project work, Seminar, Industrial Training (excluding credits for Advanced Courses). This can be Industrial /

Govt. / NGO/MSME/ Rural Internship/ Innovation / Entrepreneurship / academic / industry research project.

After completion of Internship, students shall prepare a comprehensive report highlighting their learnings and takeaways during the internship period. The students are mandated to give a seminar based on the internship undertaken before an expert committee constituted by the concerned department and the assessment of internship shall be based on the following criteria:

- 1) Quality and effectiveness of presentation
- 2) Depth of knowledge and demonstrated skills
- 3) Variety and relevance of learning experience
- 4) Practical applications and relationships with concepts taught in the course
- 5) Internship Report
- 6) Attendance record, student diary (log), supervisor evaluation

Attendance record shall include daily attendance with IN and OUT time. It shall be signed by Industry supervisor.

Student Diary (log) shall include daily activities carried out by the student during Internship with Task assigned, Activities performed, key learnings etc. It shall be signed by Industry supervisor.

Supervisor evaluation form shall include the following with ratings in FIVE-point scale.

- 1) Behaviours
- 2) Performs in a dependable manner
- 3) Cooperates with co-workers and supervisors
- 4) Shows interest in work
- 5) Learns quickly
- 6) Shows initiative
- 7) Produces high quality work
- 8) Accepts responsibility
- 9) Accepts criticism
- 10) Demonstrates organizational skills
- 11) Uses technical knowledge and expertise
- 12) Shows good judgment
- 13) Demonstrates creativity/originality
- 14) Analyzes problems effectively
- 15) Is self-reliant
- 16) Communicates well
- 17) Writes effectively
- 18) Has a professional attitude
- 19) Gives a professional appearance
- 20) Is punctual
- 21) Uses time effectively

Supervisor evaluation form shall be signed by Industry supervisor.

Mini project:

The student shall carry out a Mini project based on the knowledge acquired during the degree course and/or Internship. The project may be either fully theoretical/practical or involving both theoretical and practical work to be assigned by the guide / mentor / department. The work may also be Study/Survey/Design or R&D work. The work may also be on specified task or project assigned to the students during Internship. The project may also be a sponsored project. The project shall be corresponding to the programme (Major) subject.

Upon completion of the Mini project, the student shall submit project report in the form of hard bound. Assessment for the Mini project shall also include presentation by the student. Assessment of Mini project shall be based on the following criteria:

- 1) Problem Identification / Project Objectives
- 2) Methodology / Design
- 3) Implementation
- 4) Results and Discussion
- 5) Conclusion
- 6) Report
- 7) Depth of Understanding
- 8) Presentation
- 9) Demonstration of the project

Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)

Bachelor of Engineering
in
Civil

(As per NEP 2020 Guidelines)

Faculty of Science and Technology



SEMESTER – WISE SYLLABUS STRUCTURE
For Affiliated Colleges
Semester – I to VIII
W.E.F. 2024 – 25

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
- CC: Co-curricular Courses
- CEP: Community engagement project
- ELC: Experiential Learning Courses
- FP: Field projects
- HSSM: Humanities, Social Science, and Management
- IKS: Indian Knowledge System
- LL: Liberal Learning Courses
- MPCC: Minor Program Core Courses
- OE: Generic/ Open Electives
- OJT: On Job Training: Internship/ Apprenticeship
- RM: Research Methodology
- RP: Research Project
- SEC: Skill Enhancement Courses
- VEC: Value Education Courses
- VSC: Vocational Skill Courses
- VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course | | | | 02 | 02 | | | | | 04 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| (VEC) | | | | | | | | | | |
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Semester wise Credit distribution structure for Four Year UG Engineering Program with Specialization Minor (Additional 20 credits):

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---------------------------|---|----|-----|----|---|----|-----|------|---------------|
| Program Core Course (PCC) | | | 4 | 4 | 4 | 4 | | 4 | 20 |

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

PROGRAM / BRANCH CODE:

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELCTRONICS & TELECOMMUNICATION ENGINEERING

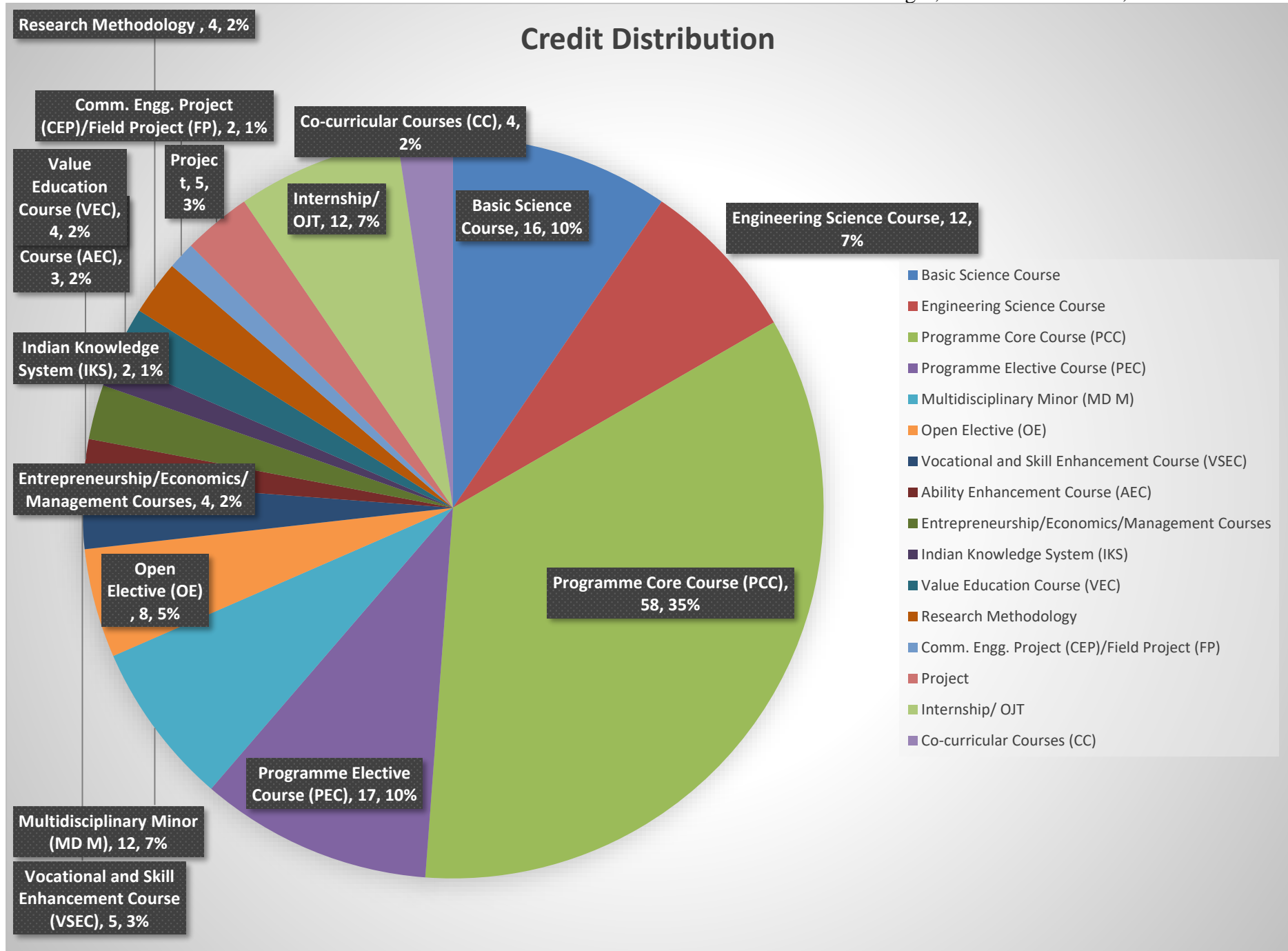
EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
 For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25



SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Civil) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-101 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-102 | Engineering Chemistry Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CE-103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CE-104 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-105 | Engineering Graphics Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-106 | Programming for Problem Solving | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-108 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-109 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CE-110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Civil) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-201 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-202 | Engineering Physics Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CE-203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CE-204 | Basic Electrical and Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-205 | Basic Electrical and Electronics Engineering Lab | ESC | | | 2 | 2 | | 25 | 25 (OR) | 50 | 1 | |
| CE-206 | Introduction to Artificial Intelligence and Machine Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-207 | Introduction to Artificial Intelligence and Machine Learning Lab | PCC | | | 2 | 2 | | 25 | 25 (OR) | 50 | 1 | |
| CE-208 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-209 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CE-210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
EXIT COURSE FOR U. G. CERTIFICATE in Civil (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-211 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| CE-212 | Mini Project | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for Second Year Engineering (Semester – III, Level – 5.0) (Civil) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-301 | Introduction to Fluid Mechanics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-302 | Introduction to Fluid Mechanics Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-303 | Surveying and Goematics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-304 | Surveying and Goematics Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-305 | Materials, Testing and Evaluation Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (OR) | 50 | 2 |
| CE-306 | Engineering Mechanics | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-307 | Open Elective – I | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-308 | Project Management | HSSM | 2 | | | 2 | | | | | | 2 |
| CE-309 | Universal Human Values | HSSM | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CE-310 | Community Engagement Project / Field Project | ELC | | | 4 | 4 | | | 50 | | 50 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for Second Year Engineering (Semester – IV, Level – 5.0) (Civil) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-401 | Hydraulic Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-402 | Hydraulic Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-403 | Introduction to Solid Mechanics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-404 | Introduction to Solid Mechanics Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-405 | Town Planning and Architecture Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| CE-406 | Biology for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-407 | Open Elective – II | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-408 | Building Design and Drawing Lab | VSEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CE-409 | Ability Enhancement Course | AEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CE-410 | Economics for Engineers | HSSM | 2 | | | 2 | | | | | | 2 |
| CE-411 | Environmental Science | HSSM | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
EXIT COURSE FOR U. G. DIPLOMA in Civil (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-412 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| CE-413 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for Third Year Engineering (Semester – V, Level – 5.5) (CIVIL) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-501 | Structural Design – I | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-502 | Structural Design – I Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-503 | Mechanics of Structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-504 | Mechanics of Structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-505 | Transportation Engineering Lab | PCC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| CE-506 | Program Elective Course – I | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-507 | Program Elective Course – I Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CE-508 | Water Treatment Processes | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-509 | Open Elective – III | OE | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – I | | |
|------------------------------------|-------------------------------------|---------------------------------|
| Course Code | Name of the Subject / Course | |
| CE-506 | A | Advanced Surveying |
| CE-506 | B | Railway and Airport Engineering |
| CE-506 | C | Building Construction Practices |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for Third Year Engineering (Semester – VI, Level – 5.5) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-601 | Geotechnical Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-602 | Geotechnical Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CE-603 | Structural Design II | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-604 | Structural Design II Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-605 | Program Elective Course – II Lab | PEC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| CE-606 | Program Elective Course – III | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-607 | Program Elective Course – III Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CE-608 | Biotechnology for Wastewater Treatment | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| CE-609 | Material Testing and Concrete Mix Design Lab | VSEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination

ESE: End Semester Examination

ICA: Internal Continuous

Assessment CA: College Assessment

UA: University Assessment

| Program Elective Course – II Lab | | | Program Elective Course – III | | |
|----------------------------------|------------------------------|-------------------------------------|-------------------------------|----------------------------|-------------------------------------|
| Course Code | Name of the Subject / Course | | Course code | Name of the subject/course | |
| CE – 605 | A | Advanced Surveying Lab | CE – 606 | A | Sustainable Construction |
| CE – 605 | B | Railway and Airport Engineering Lab | CE – 606 | B | Advanced of Concrete Structures |
| CE – 605 | C | Building Construction Practices Lab | CE – 606 | C | Advanced Water Treatment Technology |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. B. VOCATIONAL in Civil (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-610 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| CE-611` | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VII, Level – 6.0) (Civil) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|------------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-701 | Project Planning and Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-702 | Project Planning and Control Lab | PCC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| CE-703 | Program Elective Course – IV | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| CE-704 | Program Elective Course – IV Lab | PEC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| CE-705 | GPS Surveying | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| CE-706 | Internship / OJT | ELC | | | 24 | 24 | | | 125 | 50 (OR) | 175 | 12 |
| | | | 7 | | 28 | 35 | 120 | 180 | 200 | 150 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – IV | | |
|------------------------------|---|---|
| Course Code | | Name of the Subject / Course |
| CE-703 | A | Design of Special Structures |
| CE-703 | B | Estimating and Costing |
| CE-703 | C | Soil Mechanics and Foundation Engineering |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VIII, Level – 6.0) (Civil) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE -801 | Hydrology and Water Resources Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE -802 | Hydrology and Water Resources Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-803 | Program Elective Course – V | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| CE-804 | Program Elective Course – V Lab | PEC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CE-805 | Program Elective Course – VI | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| CE-806 | Program Elective Course – VI Lab | PEC | | | 2 | 4 | | | 25 | | 25 | 1 |
| CE-807 | Engineering Geology | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| CE-808 | Research Methodology | ELC | 3 | | 2 | 5 | | | 25 | | 25 | 4 |
| CE-809 | Project | ELC | | | 10 | 10 | | | 50 | 25 (OR) | 75 | 5 |
| | | | 12 | | 18 | 30 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – V | | | Program Elective Course – VI | | |
|-----------------------------|---|-----------------------------------|------------------------------|---|---------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| CE – 803 | A | Rural water supply and sanitation | CE – 805 | A | Advanced Wastewater Engineering |
| CE – 803 | B | Air Pollution Control Technology | CE – 805 | B | Repair and Rehabilitation |
| CE – 803 | C | Structural Analysis I | CE - 805 | C | Design of Special Structures |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Open Elective

A Student can opt for any one subject out of available institute wide subjects defined in the following list as Open Elective provided, he/she has not taken that particular subject in his/her Programme core, Programme elective, Multidisciplinary Minor, other Open elective and Vocational and Skill Enhancement courses etc. throughout his / her four years of UG Engineering Programme. The student must opt a subject that is compulsorily from faculty other than that of the Major discipline.

| Course Code | Name of the Subject / Course | Faculty Offered by | Department Offered by |
|--|--|--------------------|-----------------------|
| Open Elective - I (w.e.f. 2025 - 26 at Semester - III, Second Year Engineering) | | | |
| OE – 307 A | Quantitative Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 307 B | Management Science | Comm. & Mgmt. | Management |
| OE – 307 C | Business Ethics & Professional Values | Comm. & Mgmt. | Management |
| OE – 307 D | Plant Nursery and Management | Sci. & Tech. | Botany |
| OE – 307 E | General Clinical Pathology | Sci. & Tech. | Biochemistry |
| OE – 307 F | Herbal Home Remedies | Sci. & Tech. | Botany |
| OE – 307 G | Psychology of Well-being | Humanities | Psychology |
| OE – 307 H | Fundamentals of Banking | Humanities | Economics |
| Open Elective - II (w.e.f. 2025 - 26 at Semester - IV, Second Year Engineering) | | | |
| OE – 407 A | Human Resource Management | Comm. & Mgmt. | Management |
| OE – 407 B | Logical Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 407 C | Retail Management | Comm. & Mgmt. | Commerce |
| OE – 407 D | Public Health and Hygiene | Sci. & Tech. | Zoology |
| OE – 407 E | Agricultural Pest Management | Sci. & Tech. | Zoology |
| OE – 407 F | Basics of Stock Markets | Comm. & Mgmt. | Commerce |
| OE – 407 G | Problems of Philosophy | Humanities | Philosophy |
| OE – 407 H | Social and Preventive Pharmacy | Sci. & Tech. | Pharmacy |
| OE – 407 I | Tree Plantation and Management | Sci. & Tech. | Botany |
| Open Elective - III (w.e.f. 2026 - 27 at Semester - V, Third Year Engineering) | | | |
| OE – 509 A | Legal Aspects of Business | Comm. & Mgmt. | Management |
| OE – 509 B | Modern Office Management | Comm. & Mgmt. | Commerce |
| OE – 509 C | Food Adulteration and Safety | Sci. & Tech. | Environment |
| OE – 509 D | Insurance Management | Comm. & Mgmt. | Commerce |
| OE – 509 E | Indian Social Problems | Humanities | Sociology |
| OE – 509 F | Disaster Management | Sci. & Tech. | Environment |
| OE – 509 G | Pharma Marketing Management | Sci. & Tech. | Pharmacy |
| OE – 509 H | Introduction to Earth System Science | Sci. & Tech. | Geology |
| OE – 509 I | Circular Economy | Humanities | Economics |

Honors offered by Civil for students of the same Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Honors in the same Engg. / Tech. discipline / branch / Emerging Areas.

A student is required to study additional 20 credits in the same Engg. / Tech. discipline/ branch / Emerging Areas for Honors distributed over semesters III to VIII.

The total number of credits required for completion of the Honors in the same Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Honors from the same Engg. / Tech. discipline / branch.

Honors Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Honors offered by Civil are as follows.

- A. Infra Structural Engineering
- B. Sustainability Engineering
- C. Construction Technology

The detail syllabus structure for the same is as follows.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Infra Structural Engineering

Syllabus Structure for Honors in Infra Structural Engineering: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311A | Theory of Elasticity and Plasticity | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312A | Theory of Elasticity and Plasticity Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Infra Structural Engineering: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414A | Public Health Structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415A | Public Health Structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in infra Structural Engineering: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510A | Highway Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511A | Highway Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Infra Structural Engineering: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612A | Prestressed Concrete Structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613A | Prestressed Concrete Structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Infra Structural Engineering: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810A | Advanced of Steel Structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811A | Advanced of Steel Structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Sustainability Engineering

Syllabus Structure for Honors in Sustainability Engineering: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311B | Environmental legislation in India | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312B | Environmental legislation in India Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Sustainability Engineering: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414B | Sustainable Construction Materials | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415B | Sustainable Construction Materials Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Sustainability Engineering: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510B | Smart Cities and Smart Villages | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511B | Smart Cities and Smart Villages Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Sustainability Engineering: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612B | Watershed Development Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613B | Watershed Development Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Sustainability Engineering: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810B | Green Buildings | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811B | Green Buildings Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Construction Technology

Syllabus Structure for Honors in Construction Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311C | Project Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312C | Project Management Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Construction Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414C | Cost and Quality Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415C | Cost and Quality Management Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Construction Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510C | Construction safety | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511C | Construction safety Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Construction Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612C | Operations Research | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613C | Operations Research Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Construction Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810C | Advanced construction design of water retaining structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811C | Advanced construction design of water retaining structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor offered by Civil for students of other Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Specialization Minor in another Engg. / Tech. discipline / branch / Emerging Areas, not in Major Engg. / Tech. discipline / branch.

A student is required to study additional 20 credits in another Engg. / Tech. discipline/ branch / Emerging Areas for Specialization Minor distributed over semesters III to VIII.

The total number of credits required for completion of the Specialization Minor in another Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Specialization Minor from other Engg. / Tech. discipline / branch, not from Major Engg. / Tech. discipline / branch.

Specialized Minor Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Specialization Minors offered by Civil are as follows.

- A. Sustainability and Industrial Pollution Control
- B. Structural Design
- C. Building Science and Planning

The detail syllabus structure for the same is as follows.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Sustainability and Industrial Pollution Control

Syllabus Structure for Specialization Minor in Sustainability and Industrial Pollution Control: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-313A | Water Treatment Operations and Processes | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-314A | Water Treatment Operations and Processes Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Sustainability and Industrial Pollution Control: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-416A | Biochemical Processes for Wastewater Treatment | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-417A | Biochemical Processes for Wastewater Treatment lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Sustainability and Industrial Pollution Control: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-512A | Industrial Water Pollution Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-513A | Industrial Water Pollution Control Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Sustainability and Industrial Pollution Control: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-614A | Air Pollution | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-615A | Air Pollution Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Sustainability and Industrial Pollution Control: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-812A | Watershed Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-813A | Watershed Management Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Structural Design

Syllabus Structure for Specialization Minor in Structural Design: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-313B | Elements of Structural Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-314B | Elements of Structural Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Structural Design: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-416B | Advanced Structural Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-417B | Advanced Structural Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Structural Design: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-512B | Civil Engineering Materials and Concrete | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-513B | Civil Engineering Materials and Concrete Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Structural Design: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-614B | Design of Concrete Structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-615B | Design of Concrete Structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Structural Design: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-812B | Design of Steel Structures | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-813B | Design of Steel Structures Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Building Science and Planning

Syllabus Structure for Specialization Minor in Building Science and Planning: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-313C | Elements of Architecture | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-314C | Elements of Architecture Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Building Science and Planning: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-416C | Topographic Surveying | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-417C | Topographic Surveying Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Building Science and Planning: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-512C | Building Construction Technology | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-513C | Building Construction Technology Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Building Science and Planning: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-614C | Green Building | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-615C | Green Building Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (CIVIL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Building Science and Planning: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CE-812C | Smart City Planning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CE-813C | Smart City Planning Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

**Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)**

Bachelor of Engineering

in

Computer

(As per NEP 2020 Guidelines)

Faculty of Science and Technology



**'A' Grade
NAAC Re-Accredited
(4th Cycle)**

SEMESTER – WISE SYLLABUS STRUCTURE

For Affiliated Colleges

Semester – I to VIII

W.E.F. 2024 – 25

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
- CC: Co-curricular Courses
- CEP: Community engagement project
- ELC: Experiential Learning Courses
- FP: Field projects
- HSSM: Humanities, Social Science, and Management
- IKS: Indian Knowledge System
- LL: Liberal Learning Courses
- MPCC: Minor Program Core Courses
- OE: Generic/ Open Electives
- OJT: On Job Training: Internship/ Apprenticeship
- RM: Research Methodology
- RP: Research Project
- SEC: Skill Enhancement Courses
- VEC: Value Education Courses
- VSC: Vocational Skill Courses
- VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course | | | | 02 | 02 | | | | | 04 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| (VEC) | | | | | | | | | | |
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Semester wise Credit distribution structure for Four Year UG Engineering Program with Specialization Minor (Additional 20 credits):

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---------------------------|---|----|-----|----|---|----|-----|------|---------------|
| Program Core Course (PCC) | | | 4 | 4 | 4 | 4 | | 4 | 20 |

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

PROGRAM / BRANCH CODE:

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELCTRONICS & TELECOMMUNICATION ENGINEERING

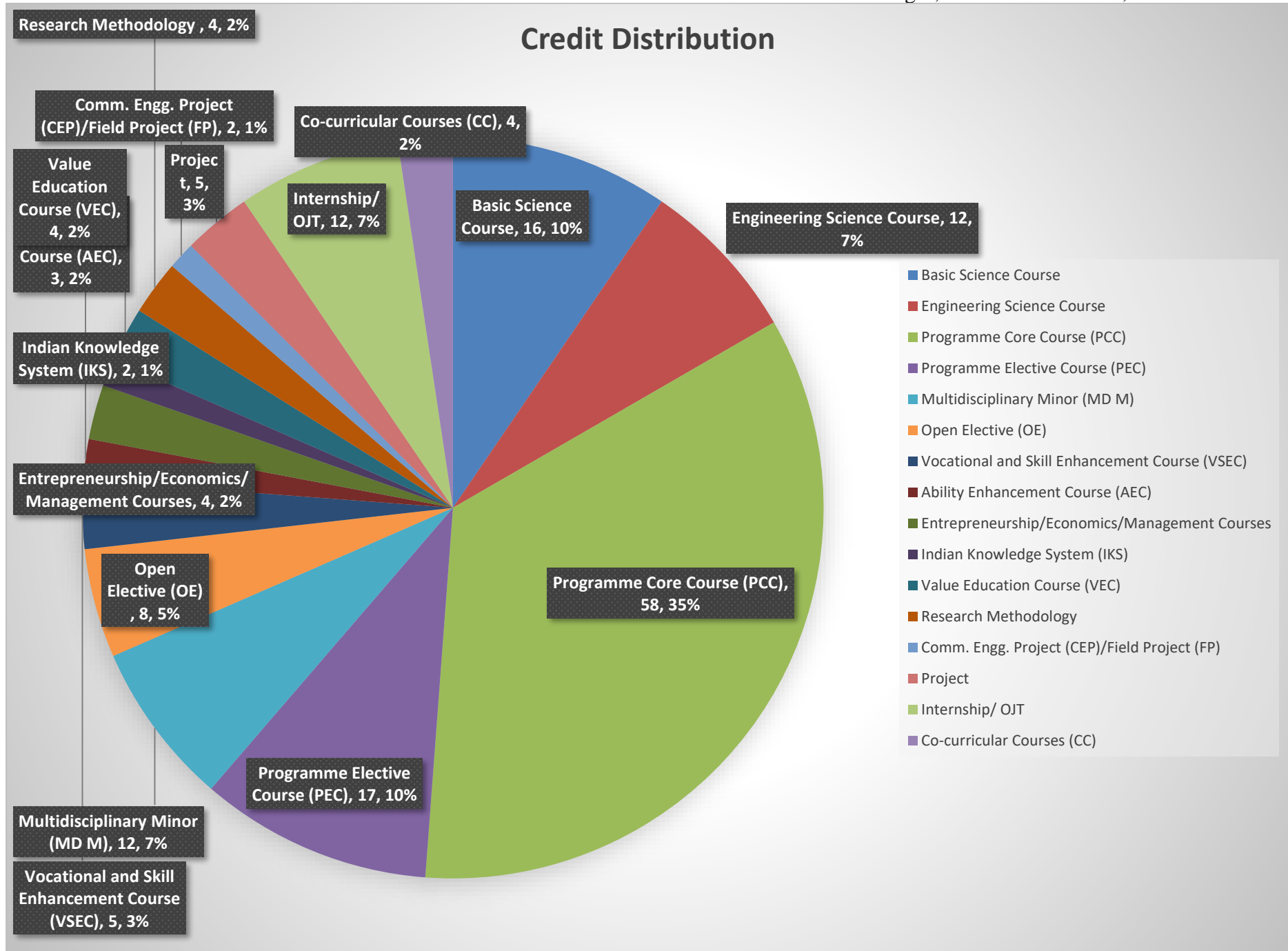
EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
 For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25



SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Computer) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-101 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-102 | Engineering Physics-Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CS -103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CS -104 | Basic Electrical and Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -105 | Basic Electrical and Electronics Engineering -Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -106 | Programming for Problem Solving | ESC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| CS -107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -108 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -109 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CS -110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Computer) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -201 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -202 | Engineering Chemistry-Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| CS -203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| CS -204 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -205 | Engineering Graphics-Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -206 | Introduction to Artificial Intelligence and Machine Learning | PCC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| CS -207 | Introduction to Artificial Intelligence and Machine Learning-Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -208 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| CS -209 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CS -210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. CERTIFICATE in Computer (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -211 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| CS -212 | Mini Project | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – III, Level – 5.0) (Computer) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -301 | Discrete Mathematics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -302 | Discrete Mathematics Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -303 | Computer Organization and Architecture | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -304 | Computer Organization and Architecture Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -305 | Linux Programming Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| CS -306 | Biology for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE -307 | Open Elective – I | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -308 | Principles of Economics | HSSM | 2 | | | 2 | | | | | | 2 |
| CS -309 | Universal Human Values | HSSM | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| CS -310 | Community Engagement Project / Field Project | ELC | | | 4 | 4 | | | 50 | | 50 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – IV, Level – 5.0) (Computer) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -401 | Data Structure and Algorithms | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -402 | Data Structure and Algorithms-Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -403 | Database Management Systems | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -404 | Database Management Systems-Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -405 | Object Oriented Programming Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| CS -406 | Analog Electronics and Signal System | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE -407 | Open Elective – II | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -408 | Web Designing and Publishing | VSEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CS -409 | Ability Enhancement Course | AEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CS -410 | Innovation and Entrepreneurship | HSSM | 2 | | | 2 | | | | | | 2 |
| CS -411 | Environmental Science | HSSM | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. DIPLOMA in Computer (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -412 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| CS -413 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for Third Year Engineering (Semester – V, Level – 5.5) (Computer) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -501 | Software Engineering and Automation Testing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -502 | Software Engineering and Automation Testing Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -503 | Theory of Computation and Compiler Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -504 | Theory of Computation and Compiler Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -505 | Mobile Application Development Lab | PCC | 3 | | 4 | 7 | | | 50 | 25 (PR) | 75 | 5 |
| CS -506 | Program Elective Course – I | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -507 | Program Elective Course – I- Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CS -508 | Industry 4.0 | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE -509 | Open Elective – III | OE | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

| Program Elective Course – I | | |
|-----------------------------|---|-------------------------------------|
| Course Code | | Name of the Subject / Course |
| CS -506 | A | Block chain Platforms and Use cases |
| CS -506 | B | Data Analytics |
| CS -506 | C | Quantum Computing |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – VI, Level – 5.5) (Computer) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -601 | Operating Systems | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -602 | Operating Systems Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -603 | Computer Networks | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -604 | Computer Network Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -605 | Program Elective Course – II Lab | PEC | 3 | | 4 | 7 | | | 50 | 25 (PR) | 75 | 5 |
| CS -606 | Program Elective Course – III | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -607 | Program Elective Course – III Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CS -608 | Industrial Automation | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| CS -609 | Introduction to Network Management and Virtualization | VSEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

| Program Elective Course – II Lab | | | Program Elective Course – III | | |
|----------------------------------|---|---|-------------------------------|---|--------------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| CS -605 | A | Web Technology Lab | CS-606 | A | Block Chain Security and Performance |
| CS -605 | B | User Interface and User Experience Design Lab | CS -606 | B | Deep Learning and Neural Network |
| CS -605 | C | Internet of Things Lab | CS-606 | C | Database Security and Access Control |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. B. VOCATIONAL in Computer (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -610 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| CS -611 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VII, Level – 6.0) (Computer) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|------------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -701 | Augmented and Virtual Reality | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -702 | Augmented and Virtual Reality Lab | PCC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| CS -703 | Program Elective Course – IV | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| CS -704 | Program Elective Course – IV Lab | PEC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| CS -705 | Embedded Systems | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| CS -706 | Internship / OJT | ELC | | | 24 | 24 | | | 125 | 50 (OR) | 175 | 12 |
| | | | 7 | | 28 | 35 | 120 | 180 | 200 | 150 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – IV | | |
|------------------------------|---|------------------------------|
| Course Code | | Name of the Subject / Course |
| CS -703 | A | Data Mining and Warehousing |
| CS -703 | B | Machine Learning |
| CS -703 | C | Natural Language Processing |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VIII, Level – 6.0) (Computer) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS -801 | Cyber Security and Ethical Hacking | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS -802 | Cyber Security and Ethical Hacking Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -803 | Program Elective Course – V | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| CS -804 | Program Elective Course – V Lab | PEC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| CS -805 | Program Elective Course – VI | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| CS -806 | Program Elective Course – VI Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| CS -807 | Professional Ethics in Engineering | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| CS -808 | Research Methodology | ELC | 3 | | 2 | 5 | | | 25 | | 25 | 4 |
| CS -809 | Project | ELC | | | 10 | 10 | | | 50 | 25 (OR) | 75 | 5 |
| | | | 12 | | 18 | 30 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – V | | | Program Elective Course – VI | | |
|-----------------------------|------------------------------|--|------------------------------|------------------------------|--------------------------------|
| Course Code | Name of the Subject / Course | | Course Code | Name of the Subject / Course | |
| CS -803 | A | Cryptography | CS-805 | A | Design thinking and Innovation |
| CS -803 | B | Deep Learning | CS-805 | B | Introduction to Generative AI |
| CS -803 | C | Artificial Intelligence & Soft Computing | CS-805 | C | Social Media Analytics |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Open Elective

A Student can opt for any one subject out of available institute wide subjects defined in the following list as Open Elective provided, he/she has not taken that particular subject in his/her Programme core, Programme elective, Multidisciplinary Minor, other Open elective and Vocational and Skill Enhancement courses etc. throughout his / her four years of UG Engineering Programme. The student must opt a subject that is compulsorily from faculty other than that of the Major discipline.

| Course Code | Name of the Subject / Course | Faculty Offered by | Department Offered by |
|--|--|--------------------|-----------------------|
| Open Elective - I (w.e.f. 2025 - 26 at Semester - III, Second Year Engineering) | | | |
| OE – 307 A | Quantitative Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 307 B | Management Science | Comm. & Mgmt. | Management |
| OE – 307 C | Business Ethics & Professional Values | Comm. & Mgmt. | Management |
| OE – 307 D | Plant Nursery and Management | Sci. & Tech. | Botany |
| OE – 307 E | General Clinical Pathology | Sci. & Tech. | Biochemistry |
| OE – 307 F | Herbal Home Remedies | Sci. & Tech. | Botany |
| OE – 307 G | Psychology of Well-being | Humanities | Psychology |
| OE – 307 H | Fundamentals of Banking | Humanities | Economics |
| Open Elective - II (w.e.f. 2025 - 26 at Semester - IV, Second Year Engineering) | | | |
| OE – 407 A | Human Resource Management | Comm. & Mgmt. | Management |
| OE – 407 B | Logical Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 407 C | Retail Management | Comm. & Mgmt. | Commerce |
| OE – 407 D | Public Health and Hygiene | Sci. & Tech. | Zoology |
| OE – 407 E | Agricultural Pest Management | Sci. & Tech. | Zoology |
| OE – 407 F | Basics of Stock Markets | Comm. & Mgmt. | Commerce |
| OE – 407 G | Problems of Philosophy | Humanities | Philosophy |
| OE – 407 H | Social and Preventive Pharmacy | Sci. & Tech. | Pharmacy |
| OE – 407 I | Tree Plantation and Management | Sci. & Tech. | Botany |
| Open Elective - III (w.e.f. 2026 - 27 at Semester - V, Third Year Engineering) | | | |
| OE – 509 A | Legal Aspects of Business | Comm. & Mgmt. | Management |
| OE – 509 B | Modern Office Management | Comm. & Mgmt. | Commerce |
| OE – 509 C | Food Adulteration and Safety | Sci. & Tech. | Environment |
| OE – 509 D | Insurance Management | Comm. & Mgmt. | Commerce |
| OE – 509 E | Indian Social Problems | Humanities | Sociology |
| OE – 509 F | Disaster Management | Sci. & Tech. | Environment |
| OE – 509 G | Pharma Marketing Management | Sci. & Tech. | Pharmacy |
| OE – 509 H | Introduction to Earth System Science | Sci. & Tech. | Geology |
| OE – 509 I | Circular Economy | Humanities | Economics |

Honors offered by Computer for students of the same Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Honors in the same Engg. / Tech. discipline / branch / Emerging Areas.

A student is required to study additional 20 credits in the same Engg. / Tech. discipline/ branch / Emerging Areas for Honors distributed over semesters III to VIII.

The total number of credits required for completion of the Honors in the same Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Honors from the same Engg. / Tech. discipline / branch.

Honors Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Honors offered by Computer are as follows.

- A. Data Science
- B. Blockchain
- C. Cyber Security

The detail syllabus structure for the same is as follows.

Specialization Honors in “Data Science”

Syllabus Structure for Specialization Honors in “Data Science”: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-311 A | Data Science and Visualization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-312 A | Data Science and Visualization Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Honors in “Data Science”: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-414 A | Statistics and Machine Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-415 A | Statistics and Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Honors in “Data Science”: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-510A | Machine Learning and Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-511 A | Machine Learning and Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Honors in “Data Science”: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-612 A | Artificial Intelligence for Big Data Analytics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-613 A | Artificial Intelligence for Big Data Analytics Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Honors in “Data Science”: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-810A | Deep learning and deep learning techniques | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-811A | Deep learning and deep learning techniques Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Specialization Honors in “Blockchain”

Syllabus Structure for Specialization Honors in “Blockchain”: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-311B | Fundamentals of Blockchain | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-312B | Fundamentals of Blockchain Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Honors in “Blockchain”: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-414B | Smart Contracts and Solidity | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-415B | Smart Contracts and Solidity Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Honors in “Blockchain”: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-510B | Blockchain Platforms and Use cases | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-511B | Blockchain Platforms and Use cases Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Honors in “Blockchain”: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-612B | Blockchain Security and Performance | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-613B | Blockchain Security and Performance Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Honors in “Blockchain”: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-810B | Blockchain and FinTech | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-811B | Blockchain and FinTech Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Specialization Honors in “Cyber Security”

Syllabus Structure for Specialization Honors in “Cyber Security”: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-311C | Information Theory for Cybersecurity | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-312C | Information Theory for Cybersecurity Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Honors in “Cyber Security”: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-414C | Data Encryption | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-415C | Data Encryption Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Honors in “Cyber Security”: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-510C | Steganography and Digital Watermarking | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-511C | Steganography and Digital Watermarking Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Honors in “Cyber Security”: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-612C | Security Assessment and Risk Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-613C | Security Assessment and Risk Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Honors in “Cyber Security”: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-810C | Database Security and Access Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-811C | Database Security and Access Control Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Specialization Minor offered by Computer for students of other Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Specialization Minor in another Engg. / Tech. discipline / branch / Emerging Areas, not in Major Engg. / Tech. discipline / branch.

A student is required to study additional 20 credits in another Engg. / Tech. discipline/ branch / Emerging Areas for Specialization Minor distributed over semesters III to VIII.

The total number of credits required for completion of the Specialization Minor in another Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Specialization Minor from other Engg. / Tech. discipline / branch, not from Major Engg. / Tech. discipline / branch.

Specialized Minor Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Specialization Minors offered by Computer are as follows.

- A. Data Science
- B. Virtual Reality and Augmented Reality
- C. Cyber Security

The detail syllabus structure for the same is as follows.

Specialization Minor in “Data Science”

Syllabus Structure for Specialization Minor in “Data Science”: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-313A | Data Science and Visualization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-314A | Data Science and Visualization Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Minor in “Data Science”: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-416A | Statistics and Machine Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-417A | Statistics and Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in “Data Science”: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-512A | Machine Learning and Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-513A | Machine Learning and Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Minor in “Data Science”: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-614A | Artificial Intelligence for Big Data Analytics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-615A | Artificial Intelligence for Big Data Analytics Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (COMPUTER)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in “Data Science”: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-812A | Deep Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-813A | Deep Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Specialization Minor in “Virtual Reality and Augmented Reality”

Syllabus Structure for Minor in Virtual Reality and Augmented Reality: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -313B | Computer Graphics for Virtual Reality | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -314B | Computer Graphics for Virtual Reality Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Minor in Virtual Reality and Augmented Reality: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -416B | Virtual Reality | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -417B | Virtual Reality Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Minor in Virtual Reality and Augmented Reality: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | | | | | Theory | | Practical | | Total | |
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -512B | Augmented Reality | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -513B | Augmented Reality Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Minor in Virtual Reality and Augmented Reality: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | | | | | Theory | | Practical | | Total | |
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -614B | Virtual Reality in Game Development | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -615B | Virtual Reality in Game Development Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Minor in Virtual Reality and Augmented Reality: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -812B | Application Development using Augmented Reality and Virtual Reality | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -813B | Application Development using Augmented Reality and Virtual Reality Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Specialization Minor in “Cyber Security”

Syllabus Structure for Specialization Minor in “Cyber Security”: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-313C | Information Theory for Cybersecurity | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-314C | Information Theory for Cybersecurity lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Minor in “Cyber Security”: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-416C | Data Encryption | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-417C | Data Encryption Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Minor in “Cyber Security”: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-512C | Steganography and Digital Watermarking | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-513C | Steganography and Digital Watermarking lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

Syllabus Structure for Specialization Minor in “Cyber Security”: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-614C | Security Assessment and Risk Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-615C | Security Assessment and Risk Analysis lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

**Syllabus Structure for Specialization Minor in “Cyber Security”: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)**

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CS-812C | Database Security and Access Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CS-813C | Database Security and Access Control lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |

**Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)**

Bachelor of Engineering

in

Electronics and Telecommunication

(As per NEP 2020 Guidelines)

Faculty of Science and Technology



**'A' Grade
NAAC Re-Accredited
(4th Cycle)**

SEMESTER – WISE SYLLABUS STRUCTURE

For Affiliated Colleges

Semester – I to VIII

W.E.F. 2024 – 25

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
- CC: Co-curricular Courses
- CEP: Community engagement project
- ELC: Experiential Learning Courses
- FP: Field projects
- HSSM: Humanities, Social Science, and Management
- IKS: Indian Knowledge System
- LL: Liberal Learning Courses
- MPCC: Minor Program Core Courses
- OE: Generic/ Open Electives
- OJT: On Job Training: Internship/ Apprenticeship
- RM: Research Methodology
- RP: Research Project
- SEC: Skill Enhancement Courses
- VEC: Value Education Courses
- VSC: Vocational Skill Courses
- VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course | | | | 02 | 02 | | | | | 04 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| (VEC) | | | | | | | | | | |
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Semester wise Credit distribution structure for Four Year UG Engineering Program with Specialization Minor (Additional 20 credits):

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---------------------------|---|----|-----|----|---|----|-----|------|---------------|
| Program Core Course (PCC) | | | 4 | 4 | 4 | 4 | | 4 | 20 |

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

PROGRAM / BRANCH CODE:

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELECTRONICS & TELECOMMUNICATION ENGINEERING

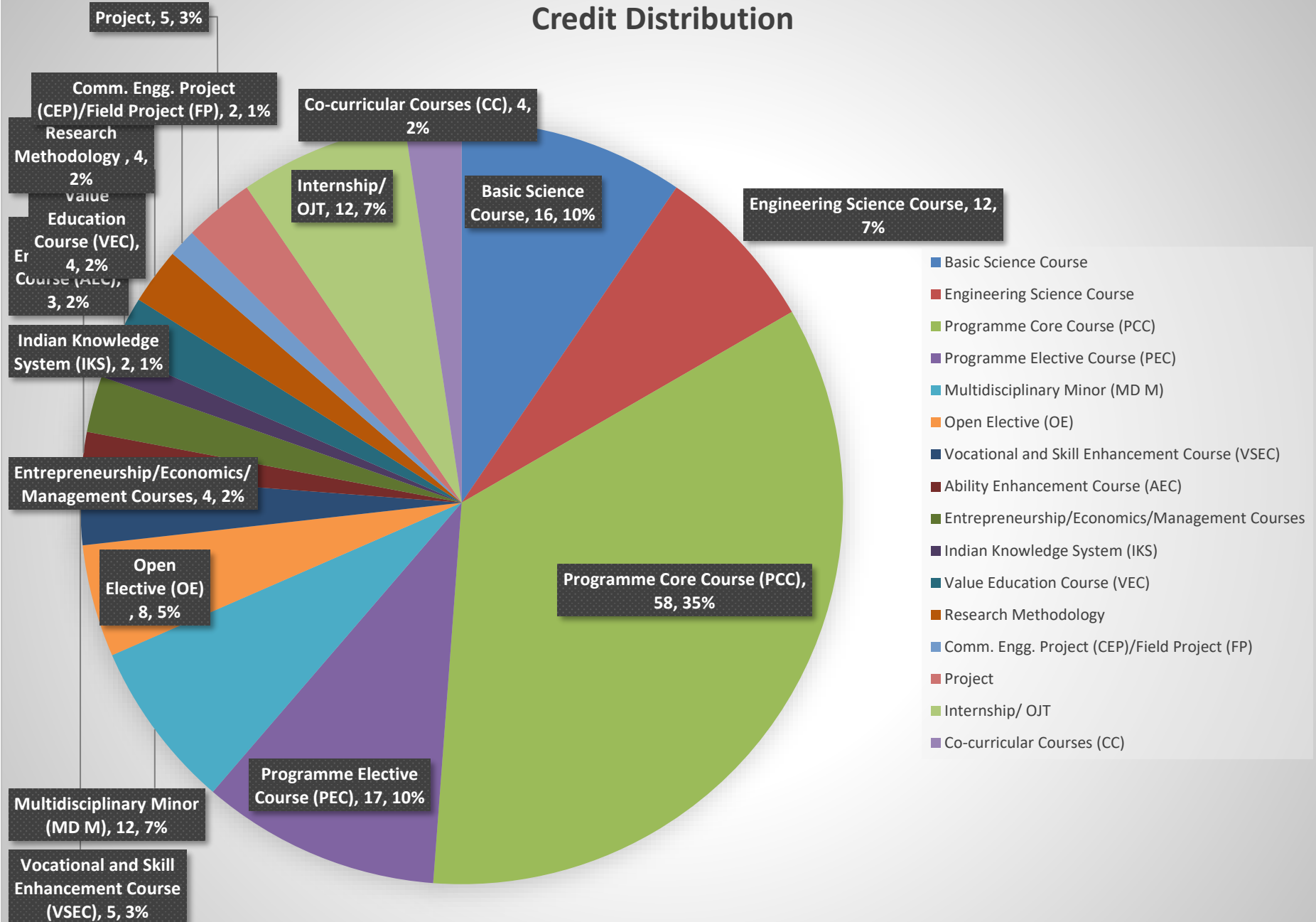
EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Credit Distribution



SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Electronics & Telecommunication) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 101 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 102 | Engineering Chemistry lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| EC 103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| EC 104 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 105 | Engineering Graphics Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 106 | Programming for Problem Solving | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 108 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 109 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EC 110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Electronics & Telecommunication) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 201 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 202 | Engineering Physics Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| EC 203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| EC 204 | Basic Electrical & Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 205 | Basic Electrical & Electronics Engineering Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 206 | Introduction to Artificial Intelligence & Machine Learning | PCC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| EC 207 | Introduction to Artificial Intelligence & Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 208 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 209 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EC 210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. CERTIFICATE in Electronics & Telecommunication (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 211 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EC 212 | Mini Project | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – III, Level – 5.0) (Electronics & Telecommunication) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 301 | Solid State Devices and Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 302 | Solid State Devices and Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 303 | Digital System Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 304 | Digital System Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 305 | Electronics Workshop Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (OR) | 50 | 2 |
| EC 306 | Computer Networks | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE 307 | Open Elective Course – I | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 308 | Industrial Organization & Management | HSSM | 2 | | | 2 | | | | | | 2 |
| EC 309 | Universal Human Values | HSSM | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EC 310 | Community Engagement Project / Field Project | ELC | | | 4 | 4 | | | 50 | | 50 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – IV, Level – 5.0) (Electronics & Telecommunication) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 401 | Analog Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 402 | Analog Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 403 | Analog and Digital Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 404 | Analog and Digital Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 405 | Electronics Design Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (OR) | 50 | 2 |
| EC 406 | Biology for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE 407 | Open Elective Course – II | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 408 | PCB Artwork Layout & Etching | VSEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 409 | Ability Enhancement Course | AEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 410 | Entrepreneurship Development Program | HSSM | 2 | | | 2 | | | | | | 2 |
| EC 411 | Environmental Science | HSSM | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. DIPLOMA in Electronics & Telecommunication (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC-412 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EC-413 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – V, Level – 5.5) (Electronics & Telecommunication) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 501 | Signals and System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 502 | Signals and System Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 503 | Microprocessors & Micro controllers | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 504 | Microprocessors & Micro controllers Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 505 | Control System Lab | PCC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| EC 506 | Program Elective Course – I | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 507 | Program Elective Course – I Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 508 | Internet of Things | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE 509 | Open Elective – III | OE | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – I | | |
|-----------------------------|---|---------------------------------------|
| Course Code | | Name of the Subject / Course |
| EC 506 | A | Analog Integrated Circuits |
| EC 506 | B | Sensors & Automation |
| EC 506 | C | Information Theory & Coding Technique |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – VI, Level – 5.5) (Electronics & Telecommunication) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 601 | Digital Signal Processing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 602 | Digital Signal Processing Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 603 | Microwave Theory and Technique | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 604 | Microwave Theory and Technique | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 605 | Program Elective Course – II Lab | PEC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| EC 606 | Program Elective Course – III | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 607 | Program Elective Course – III Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 608 | Digital Image Processing | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EC 609 | Fault Finding in PCB | VSEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – II Lab | | | Program Elective Course – III | | |
|----------------------------------|------------------------------|---------------------------|-------------------------------|------------------------------|---------------------------|
| Course Code | Name of the Subject / Course | | Course Code | Name of the Subject / Course | |
| EC 605 | A | CMOS Design Lab | EC-606 | A | Electromagnetic Waves |
| EC 605 | B | Antenna Theory Lab | EC-606 | B | Embedded System & RTOS |
| EC 605 | C | Robotics & Automation Lab | EC-606 | C | Audio & Speech Processing |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. B. VOCATIONAL in Electronics & Telecommunication (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 610 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EC 611 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VII, Level – 6.0) (Electronics & Telecommunication) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|------------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 701 | Optical Fiber Sensors | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 702 | Optical Fiber Sensors | PCC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| EC 703 | Program Elective Course – IV | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| EC 704 | Program Elective Course – IV | PEC | | | 2 | 4 | | | 25 | 50 (OR) | 75 | 1 |
| EC 705 | Data Science for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EC 706 | Internship / OJT | ELC | | | 24 | 24 | | | 125 | 50 (OR) | 175 | 12 |
| | | | 7 | | 28 | 35 | 120 | 180 | 200 | 150 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – IV | | |
|------------------------------|---|----------------------------------|
| Course Code | | Name of the Subject / Course |
| EC 703 | A | Advanced IoT Applications |
| EC 703 | B | Battery Management System |
| EC 703 | C | FPGA Architectures & Programming |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VIII, Level – 6.0) (Electronics & Telecommunication) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 801 | Satellite & Mobile Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 802 | Satellite & Mobile Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 803 | Program Elective Course – V | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| EC 804 | Program Elective Course – V Lab | PEC | | | 2 | 4 | | | 25 | 25 (OR) | 50 | 1 |
| EC 805 | Program Elective Course – VI | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 3 |
| EC 806 | Program Elective Course – VI Lab | PEC | | | 2 | 4 | | | 25 | | 25 | 1 |
| EC 807 | Instrumentation and Measurement | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EC 808 | Research Methodology | ELC | 3 | | 2 | 5 | | | 25 | | 25 | 4 |
| EC 809 | Project | ELC | | | 10 | 10 | | | 50 | 25 (OR) | 75 | 5 |
| | | | 12 | | 18 | 30 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

| Program Elective Course – V | | | Program Elective Course – VI | | |
|-----------------------------|---|------------------------------|------------------------------|---|------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| EC 803 | A | Power Electronics | EC-805 | A | Consumer Electronics |
| EC 803 | B | Agriculture Electronics | EC-805 | B | Cyber Security |
| EC 803 | C | Nano Electronics | EC-805 | C | High Speed Electronics |

Open Elective

A Student can opt for any one subject out of available institute wide subjects defined in the following list as Open Elective provided, he/she has not taken that particular subject in his/her Programme core, Programme elective, Multidisciplinary Minor, other Open elective and Vocational and Skill Enhancement courses etc. throughout his / her four years of UG Engineering Programme. The student must opt a subject that is compulsorily from faculty other than that of the Major discipline.

| Course Code | Name of the Subject / Course | Faculty Offered by | Department Offered by |
|--|--|--------------------|-----------------------|
| Open Elective - I (w.e.f. 2025 - 26 at Semester - III, Second Year Engineering) | | | |
| OE – 307 A | Quantitative Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 307 B | Management Science | Comm. & Mgmt. | Management |
| OE – 307 C | Business Ethics & Professional Values | Comm. & Mgmt. | Management |
| OE – 307 D | Plant Nursery and Management | Sci. & Tech. | Botany |
| OE – 307 E | General Clinical Pathology | Sci. & Tech. | Biochemistry |
| OE – 307 F | Herbal Home Remedies | Sci. & Tech. | Botany |
| OE – 307 G | Psychology of Well-being | Humanities | Psychology |
| OE – 307 H | Fundamentals of Banking | Humanities | Economics |
| Open Elective - II (w.e.f. 2025 - 26 at Semester - IV, Second Year Engineering) | | | |
| OE – 407 A | Human Resource Management | Comm. & Mgmt. | Management |
| OE – 407 B | Logical Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 407 C | Retail Management | Comm. & Mgmt. | Commerce |
| OE – 407 D | Public Health and Hygiene | Sci. & Tech. | Zoology |
| OE – 407 E | Agricultural Pest Management | Sci. & Tech. | Zoology |
| OE – 407 F | Basics of Stock Markets | Comm. & Mgmt. | Commerce |
| OE – 407 G | Problems of Philosophy | Humanities | Philosophy |
| OE – 407 H | Social and Preventive Pharmacy | Sci. & Tech. | Pharmacy |
| OE – 407 I | Tree Plantation and Management | Sci. & Tech. | Botany |
| Open Elective - III (w.e.f. 2026 - 27 at Semester - V, Third Year Engineering) | | | |
| OE – 509 A | Legal Aspects of Business | Comm. & Mgmt. | Management |
| OE – 509 B | Modern Office Management | Comm. & Mgmt. | Commerce |
| OE – 509 C | Food Adulteration and Safety | Sci. & Tech. | Environment |
| OE – 509 D | Insurance Management | Comm. & Mgmt. | Commerce |
| OE – 509 E | Indian Social Problems | Humanities | Sociology |
| OE – 509 F | Disaster Management | Sci. & Tech. | Environment |
| OE – 509 G | Pharma Marketing Management | Sci. & Tech. | Pharmacy |
| OE – 509 H | Introduction to Earth System Science | Sci. & Tech. | Geology |
| OE – 509 I | Circular Economy | Humanities | Economics |

Honors offered by Electronics and Telecommunication for students of the same Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Honors in the same Engg. / Tech. discipline / branch / Emerging Areas.

A student is required to study additional 20 credits in the same Engg. / Tech. discipline/ branch / Emerging Areas for Honors distributed over semesters III to VIII.

The total number of credits required for completion of the Honors in the same Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Honors from the same Engg. / Tech. discipline / branch.

Honors Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Honors offered by Electronics and Telecommunication are as follows.

- A. 5G and Advance Technology
- B. VLSI Design and Technology
- C. Data Science

The detail syllabus structure for the same is as follows.

Honors in 5G and Advance Technology

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -311A | Analog and Digital Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -312A | Analog and Digital Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -414A | Fiber Optics Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -415A | Fiber Optics Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -510A | Microwave Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -511A | Microwave Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -612A | Antenna and Wave Propagation | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -613A | Antenna and Wave Propagation Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -810A | Mobile Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -811A | Mobile Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Honors in VLSI Design and Technology

Syllabus Structure for Honors in VLSI Design and Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | | | | | Theory | | Practical | | Total | |
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -311B | Digital System Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -312B | Digital System Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in VLSI Design and Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | | | | | Theory | | Practical | | Total | |
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -414B | Signal and System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -415B | Signal and System Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in VLSI Design and Technology _: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -510B | Linear Integrated Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -511B | Linear Integrated Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in: VLSI Design and Technology Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -612B | CMOS Integrated Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -613B | CMOS Integrated Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in VLSI Design and Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -810B | RF and HF Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -811B | RF and HF Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Honors in Data Science

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – III) (w.e.f. 2025 – 26) (As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -311C | Probability and Statistics for Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -312C | Probability and Statistics for Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – IV) (w.e.f. 2025 – 26) (As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -414C | Basics of Data Sciences | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -415C | Basics of Data Sciences Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -510C | Data Analytics and Visualization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -511C | Data Analytics and Visualization Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -612C | Machine Learning and Deep Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -613C | Machine Learning and Deep Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -810C | Industrial Application of Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -811C | Industrial Application of Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor offered by Electronics and Telecommunication for students of other Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Specialization Minor in another Engg. / Tech. discipline / branch / Emerging Areas, not in Major Engg. / Tech. discipline / branch.

A student is required to study additional 20 credits in another Engg. / Tech. discipline/ branch / Emerging Areas for Specialization Minor distributed over semesters III to VIII.

The total number of credits required for completion of the Specialization Minor in another Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Specialization Minor from other Engg. / Tech. discipline / branch, not from Major Engg. / Tech. discipline / branch.

Specialized Minor Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Specialization Minors offered by Electronics and Telecommunication are as follows.

- A. 5G and Advance Technology
- B. VLSI Design and Technology
- C. Data Science

The detail syllabus structure for the same is as follows.

Specialization Minor in 5G and Advance Technology

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -313A | Principles of Analog and Digital Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -314A | Principles of Analog and Digital Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -416A | Light Wave Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -417A | Light Wave Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -512A | Microwave Theory and Techniques | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -513A | Microwave Theory and Techniques Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -614A | Antenna Theory | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -615A | Antenna Theory Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -812A | Satellite & Mobile Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -813A | Satellite & Mobile Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor in VLSI Design and Technology

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -313B | Digital Electronics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -314B | Digital Electronics Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -416B | Basics of Signal & System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -417B | Basics of Signal & System Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -512B | Analog Integrated Circuit & Application | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -513B | Analog Integrated Circuit & Application Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -614B | CMOS Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -615B | CMOS Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -812B | Fundamentals of RF and HF Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -813B | Fundamentals of RF and HF Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor in Data Science

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -313B | Fundamentals of Statistics in Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -314B | Fundamentals of Statistics in Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -416B | Introduction of Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -417B | Introduction of Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -512B | Principles of Data Analytics and Visualization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -513B | Principles of Data Analytics and Visualization Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -614B | Fundamentals of Machine Learning and Deep Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -615B | Fundamentals of Machine Learning and Deep Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -812B | Application of Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -813B | Application of Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |



MBA

**Kavayitri Bahinabai Chaudhari North
Maharashtra University, Jalgaon**

FACULTY OF COMMERCE & MANAGEMENT

**Structure, Equivalence and Syllabus
of
Master in Business Administration
(MBA)-I
As per NEP 2020
(Semester 60-40 pattern)
w.e.f AY 2024-25**

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

(NACC Accredited 'A' Grade University)
MASTER IN BUSINESS ADMINISTRATION (M.B.A.)
(FACULTY OF COMMERCE & MANAGEMENT)
w.e.f. AY 2024-25

SUMMARY OF DISTRIBUTION OF CREDIT

| Sr. No | Type of course | Sem I | Sem II | Sem III | Sem IV |
|--------|-----------------|-------|--------|---------|--------|
| 01 | Mandatory (DSC) | 18 | 18 | 6 | 8 |
| 02 | Elective (DSE) | 4 | 4 | 12 | 12 |
| 03 | RM | 4 | -- | -- | -- |
| 04 | OJP/SIP/FP | -- | 4 | 8 | -- |
| 05 | RP | -- | -- | -- | 6 |
| 06 | Total Credits | 26 | 26 | 26 | 26 |

| Subject Type | Core | Elective | RM | OJT/FP | Research Project | Total |
|--------------|------|----------|----|--------|------------------|-------|
| Credits | 50 | 32 | 04 | 12 | 6 | 104 |

Total Credits = 104

KBCNMU, Jalgaon

FACULTY OF COMMERCE AND MANAGEMENT, M.B.A. (MASTER OF BUSINESS ADMINISTRATION) PROGRAMME W.E.FROM 2024-25

Proposed Credit Distribution structure for Two Years P.G Course MBA

| Year (2 Yr PG) | Level | Semester | Major (Core) Subjects | | RM | OJT/FP | RP | Cumulative Credits /Sem |
|---------------------------|-------|----------|---|---|---------------------------------------|----------------------------|-----|-------------------------|
| | | | Mandatory (DSC) | Elective (DSE) | | | | |
| I | 6.0 | Sem-I | MBA 501 Management Science (4T) MBA 502 Organisation Behaviour (4T) MBA 503 Managerial Economics (2T) MBA 504 Business Accounting & Costing (4T) MBA 505 Operations Management (4T) | MBA 506A Startups Ecosystem OR MBA 506B Computer Application in Business (4T) | MBA-507 RM- Research Methodology (4T) | --- | --- | 26 |
| | | Sem-II | MBA 511 Business Analytics (4T) MBA 512 Business Communication (2T) MBA 513 Human Resource Management (4T) MBA 514 Marketing Management (4T) MBA 515 Financial Management (4T) | MBA 516A Industry 4.0 OR MBA 516B Business Ethics and Corporate Governance OR MBA 516C SWAYAM/ MOOC courses (4) | | MBA-517: Field Project (4) | --- | 26 |
| Cum. Cr. For MBA-I | | | 36 | 8 | 4 | 4 | --- | 52 |

EXIT OPTION: PG Diploma in Business Administration (after 3 year UG Degree)

| Year (2 Yr PG) | Level | Semester | Major (Core) Subjects | | RM | OJT/FP | RP | Cumulative Credits/Sem |
|-------------------------------------|-------|----------|---|--|-----|----------------------|------------------------------|------------------------|
| | | | Mandatory (DSC) | Elective (DSE) | | | | |
| II | 6.5 | Sem-III | MBA 601 Strategic Management (2T) MBA 602 Business Law (2T) MBA 603 International Business Environment (2T) | MBA 604 Specialisation-I (4T)* MBA 605 Specialisation-II (4T)* MBA 606 Specialisation-III (4T)* (A,B,C,D,E,F,G) | --- | MBA 607 OJT/ SIP (8) | --- | 26 |
| | | Sem-IV | MBA 611 Design thinking and Innovation Management (2T) MBA 612 Indian Commercial Law (2T) MBA 613 Management Information System (2T) MBA 614 Project Management (2T) | MBA 615 Specialisation-V (4T)* MBA 616 Specialisation-VI (4T)* MBA 617 Specialisation-VII (4T)* (A,B,C,D,E,F,G) | --- | | MBA-618 Research Project (6) | 26 |
| Cum. Cr. for MBA II | | | 14 | 24 | --- | 8 | 6 | 52 |
| 2 Year 4 Semester MBA Degree | | | 50 | 32 | 4 | 12 | 6 | 104 |

Abbreviations: T: Theory Course OJT: On Job Training: Internship/ Apprenticeship P: Practical course RP: Research Project FP: Field Project
DSC: Discipline Specific Core Course RM: Research methodology DSE: Discipline Specific Elective Course SIP: Summer Internship Project

* The students can opt any of the following Specialisation

- | | | |
|---|--|-------------------------------|
| A. Financial Management, | B. Marketing Management, | C. Human Resource Management, |
| D Production and Operations Management. | E. Information Technology and Systems Management | |
| F. Agro-Business Management | G. Business Analytics | H. Healthcare Management |

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon



(NAAC Reaccredited 'A' Grade University)

FACULTY OF COMMERCE and MANAGEMENT

STRUCTURE OF MASTER IN BUSINESS ADMINISTRATION (M.B.A.)

W.E.F. A.Y. 2024-25

1. TITLE OF THE DEGREE

This degree shall be titled as Master in Business Administration (MBA) with the mention of Specialization in the bracket as “MBA (Specialization)”. This new curriculum shall be effective from Academic year 2024-25.

2. OBJECTIVES

The primary goal of the MBA program is to prepare future managers to meet the evolving demands of the industry in a competitive and challenging environment. The program is designed to provide deep insights into various functional areas of management and to build essential core competencies for addressing the complexities of day-to-day management.

The key objectives of the program are:

1. To establish a strong foundational understanding across all key areas of management, including Marketing, Finance, Human Resource Management, Production and Operations Management, Information Technology and Systems Management, Healthcare Management, and Business Analytics.
2. To equip students with the necessary knowledge, skills, and mindset to lead effectively in a global business environment.
3. To foster an entrepreneurial mindset and the skills needed for innovation and business creation.
4. To enhance students' ability to appreciate the organizational perspective and interconnectedness of different functional areas.
5. To enable students to focus and specialize in their chosen area of interest through a wide range of elective courses.

3. DURATION

The regular Full Time Course shall be of 2 Years duration; comprising of 4 Semesters through Theory papers, Practical, Project report, Viva-voce, SWAYAM MOOCS Courses, OJT, FP and such other Continuous Evaluation Systems as may be prescribed, in this respect, from time to time.

4. ELIGIBILITY FOR ADMISSION

As per admission rules framed by the Directorate of Technical Education, Government of Maharashtra.

5. PATTERN

The new MBA Curriculum 2024 integrates the National Education Policy, 2020 as well as the draft guidelines of Government of Maharashtra

6. EVALUATION OF THE STUDENT:

- I. The evaluation of the student shall be divided into two parts viz. Internal Assessment and Semester examination (University Assessment) with a weightage in the ratio of 40:60(20:30 in Case of 2 credit course)
- II. Standard of passing –In order to pass the examination the candidate has to obtain at least 40% marks for each head separately, that is 24 marks out of 60 (External) & 16 marks out of 40 marks (Internal) for all courses comprising of 4 credits . Similarly, the candidate has to obtain at least 40% marks for each head separately, that is 12 marks out of 30 (External) & 8 marks out of 20 marks (Internal) for all courses comprising of 2 credits.
- III. Minimum marks for passing the Project Report and Viva Voce i.e. the marks obtained in internal examination and external Viva Voce shall be 50% separately.
- IV. The Discipline Specific Elective (DSE) must have a minimum enrollment of 10% of the total student intake.
- V. The distribution of marks for each theory paper of 4 credits at term (Semester) end examination and for continuous internal assessment shall be as follows:

| Assessment Components | Internal Continuous Assessment(ICA) (40 Marks) | | | Semester-End Examination (University Assessment-UA)(60 Marks) |
|-----------------------|--|---|---|---|
| | Class Test (Test-1 & 2 each of 30 Marks) Best of Two | Class Participation (In regular classes / Practical's etc.) | Other Assessment (Home Assignments/ Group Discussion Presentations/ Quiz / Seminar/ Avishkar Participation) | |
| Marks | 30 | 05 | 05 | 60 |

- VI. Internal Assessment: For the internal assessment, 40 marks shall be assigned which includes:

| Assessment Components | Internal Continuous Assessment (College Assessment-CA) (20 Marks) | Semester-End Examination (University Assessment-UA) (30 Marks) |
|-----------------------|---|--|
|-----------------------|---|--|

University Assessment: Each theory paper comprising of 60 marks shall be of 3 hours duration and 30 marks shall be of One and half hour.

- VII. The student shall be allowed to keep the terms of the next year as per the University rules.

7. Grades:

Marks for each course would be converted into grade points as per **Seven-Point** grading scale which is available on University website.

8. GUIDELINES FOR TEACHING

- i. There shall be at least 48 lecture hours per semester per course for 4 credit course and 24 lecture hours per semester per course for 2 credit course. The duration of the lectures shall be 60 minutes each. There shall be at least 12 weeks of teaching before commencement of examination of respective semester.
- ii. There shall be 4 lectures / week for 4 credit course and 2 lectures/ week for 2 credit course.
- iii. The semester workload is balanced with 04 credit and 02 credit courses along with On Job Training, Field Project and Research Project.
- iv. Self-study shall be natural requirement beside the time table. The Faculty will have to exert a little extra for cultivating reading habits amongst the students.
- v. The teaching method shall comprise a mix of Lectures, Seminars, Group discussions, Presentations, case studies, Brain storming, Game playing, Interactions with Executives etc. so as to prepare the students to face the global challenges as business executive for this Audio-visual aids and Practical field work should be a major source of acquiring knowledge.
- vi. Institute may use a combination of various teaching methods such as cases, projects, independent studies, computer aided instructions, group discussions, Video's, lectures, seminars, presentations by students, and lectures by guest speakers from industry and government. The case method is generally seen as a most effective tool, and it should be included as part of the curriculum teaching as far as possible. This sharpens analytical skills of students and helps analyze problems from multi-functional perspectives. Case study method preferably shall be used wherever possible for the better understanding of the students.

9. GUIDELINES FOR ON JOB TRAINING / SUMMER INTERNSHIP PROJECT

- i. Each student shall have to undergo a OJT/SIP training for a period of not less than 8 weeks during vacation falling after the end of IInd Semester.
- ii. The student has to undertake project individually. Joint Projects are not allowed in any case. SIP Report is to be submitted by every individual student separately.
- iii. More than 5 students of same institute are not allowed to undertake project in the same organization/company (irrespective of branch / location etc.). All the students (max. 5) working in same organization must prepare a report on different topics.
- iv. The SIP process involves working under the mentorship of an executive of the concerned organization and also with a faculty member of the institute where the student is studying. The student is expected to first understand the organization and its

setting and the industry/field in which the organization is operating. Thereafter, the student is expected to concentrate on the specific topic of study, its objectives, its rationale, and adopt a methodology and identify a suitable analysis procedure for the completion of the study. Wherever possible the student may provide recommendations and action plans, along with the findings of the study.

- v. Thereafter, the student should prepare a report and submit one copy to the organization (hard copy or soft copy) and Two Hard copy to the institute. The student should also obtain a certificate from the organization/s where the SIP was done and attach the same with the copy submitted to the institute. (The institute / College shall submit the detailed list of candidate to the University with Project Titles, name of the organization, internal guide and functional elective.
- vi. In the Third semester, examination student shall submit "Detailed Report" individually on the basis of Specialization. The topic should be decided with consultation and guidance of internal guide of the Institute/college at the end of the first year, so that the student can take up the training during the vacations. The Project shall be necessarily Research oriented, Innovative and Problem solving.
- vii. Teacher shall not be entrusted/allowed to take more than 15 students for guidance and supervision of project report.
- viii. The student has to write a report based on the actual training undergone during the summer vacations at the specific selected business enterprise, get it certified by the concerned teacher that the SIP/OJT rreport has been satisfactorily completed and shall submit Two hard bound typed copy of the same to the Head / Director of the institute along with a CD of Project Report. In order to save the paper, both side printing is allowed.
- ix. It is responsibility of concerned Institute to check the authenticity of Project.
- x. Student may use SPSS software if required.
- xi. Project viva voce shall be conducted at the end of Semester III.
- xii. Viva Voce for one student shall be of minimum 10 minutes. The Student should prepare PowerPoint presentation based on Project work to be presented at the time of Viva voce.
- xiii. Ten percent (10%) of the projects May be given by institute to the students for summer training as basic research projects.
- xiv. The project work will carry maximum 100 marks, of which internal teacher shall award out of maximum 40 marks on the basis of work done by the student as an internal assessment. Viva voce of 60 marks will be conducted by the panel of the external examiners to be appointed by the University.
- xv. No students will be permitted to appear for Viva-voce examinations, unless and until (s) he submits the SIP/OJT report before the stipulated time.

10. ADDITIONAL MAJOR SPECIALIZATION

- i. The student who has passed MBA of North Maharashtra University with a specific specialization, may be allowed to appear for MBA examination again, with other specialization by keeping term for the IIIrd and IVth semester for the so opted 6 papers of additional specialization. He/she has to appear for 6 papers along with SIP/OJT and Research Project of the additional specialization so opted.
- ii. Student shall be given exemption for all other papers except specialization opted.
- iii. The student has to pay only Tuition fees for one year as may be prescribed from time to time for this purpose.
- iv. The student shall not have entitled to receive separate Degree Certificate or Grade for this additional specialization. The student shall be entitled to get Marks statement only.

11. STRUCTURE OF THE QUESTION PAPER

- i. Each question paper shall be of 60 marks and of 3 hours duration.
- ii. 10.2. For Theory papers there will be 2 Sections. In section I, a candidate shall be required to answer 3 questions out of 5 questions and in section II, student shall be required to answer 2 questions out of 3 questions. All questions shall carry equal marks i.e. 12 marks each.
- iii. **For Composite papers (theory and practical / problems)** there will be 2 sections. In section I (practical/problem) a student shall be required to answer 3 questions out of 5 questions & in section II (Theory) he/she shall be required to answer 2 questions out of 3 questions. All questions shall carry equal marks i.e. 12 marks each.
- iv. **For papers including case studies** there shall be 2 Sections. In Section I (Theory) a student shall be required to answer 3 questions out of 5 questions and in Section II (Case studies) 2 case Studies out of 3 case studies to be attempted by the students. All questions shall carry equal marks i.e. 12 marks each.
- v. **For case studies (Specialization Paper)** out of 5 cases 3 cases should be attempted by the student. Each case shall carry 20 marks.

12. ELIGIBILITY OF THE FACULTY

Strictly As per norms fixed by AICTE (www.aicte-india.org) and KBC North Maharashtra University, Jalgaon (www.nmu.ac.in)

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

(NAAC Reaccredited 'A' Grade University)

FACULTY OF COMMERCE and MANAGEMENT

EQUIVALENCE OF OLD AND NEW COURSES FOR

MASTER IN BUSINESS ADMINISTRATION (M.B.A.)



| Old Paper | Old (w.e.f.- AY 2024-25) | New Paper | New courses (w.e.f.- AY 2024-25) |
|-----------------------|---|-----------|---|
| Semester-I | | | |
| 101 | Management Science | 501 | Management Science |
| 102 | Organizational Behaviour | 502 | Organizational Behaviour |
| 103 | Managerial Economics | 503 | Managerial Economics |
| 104 | Human Resource Management | 513 | Human Resource Management |
| 105 | Business Accounting and Costing | 504 | Business Accounting and Costing |
| 106 | Operations Management | 505 | Operations Management |
| 107 | Communication Skill | 512 | Communication Skill |
| Semester - II | | | |
| 201 | Business Ethics & CSR | 516B | Business Ethics and Corporate Governance |
| 202 | Business Research Methods | 507 | Business Research Methods |
| 203 | Indian Economy and Policy | 516A | Industry 4.0 |
| 204 | Marketing Management | 514 | Marketing Management |
| 207 | Financial Management | 515 | Financial Management |
| 206 | Computer applications in Business | 506B | Computer applications in Business |
| 205 | Business Analytics | 511 | Business Analytics |
| Semester - III | | | |
| 301 | Strategic Management | 601 | Strategic Management |
| 302 | Management Information Systems | 613 | Management Information Systems |
| 303 | Legal Aspects of Business | 602 | Legal Aspects of Business |
| 304 | Specialization-I | 604 | Specialization-I |
| 305 | Specialization-II | 605 | Specialization-II |
| 306 | Specialization-III | 606 | Specialization-III |
| 307 | Specialization-IV | 603 | International Business Environment |
| Semester - IV | | | |
| 401 | Design Thinking and Innovation Management | 611 | Design Thinking and Innovation Management |
| 402 | Entrepreneurship and Project Management | 506A | Startups Ecosystem |
| 403 | Indian Commercial Laws | 512 | Indian Commercial Laws |
| 404 | Specialization-V | 615 | Specialization-V |
| 405 | Specialization-VI | 616 | Specialization-VI |
| 406 | Specialization -VII | 617 | Specialization -VII |
| 407 | Project Report | 618 | OJT/SIP Report |



KBC North Maharashtra University, Jalgaon

(NAAC Reaccredited 'A' Grade University)

FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: 501: Management Science

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description

The course delivers a comprehensive overview of key managerial functions—planning, organizing, controlling, leading, and decision-making—across different organizational levels. It is designed to provide business students with the foundational skills necessary to make effective contributions within their future workplaces. By offering a systematic perspective on organizational operations and management practices, both locally and globally, the course prepares students to navigate and impact diverse business environments successfully.

Course Objectives:

- To develop a comprehensive conceptual framework for understanding management sciences & Global management practices.
- To get extensive knowledge of various management functions.
- To enhance the ability to analyze & solve case studies in Management.

Course Outcomes:

1. Define conceptual framework & trace the evolution of management sciences.
2. Explain the managerial functions of planning, organizing and directing.
3. Discuss coordination, decision-making and controlling within management.
4. Apply Indian management practices to real-world scenarios.
5. Relate and compare global management practices.
6. Solve case studies in management to enhance decision-making skills.

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Management and Principles of Management (8)

1.1 Introduction to Management:

- a) Definition of Management, Nature, Scope, Purpose, Functions & Importance
- b) Management an Art or Science & as a Profession, Management Vs Administration, Levels of Management & their respective functions, Managerial Skills & roles (Mintzberg)

1.2 Evolution of Management Thought: Classical approach, scientific approach, Behavioral approach and Quantitative approach

Unit – II Functions of Management - I (8)

2.1 Planning:

- a) Concept, Need, Nature, Process of Planning, Effective Planning-Principles, Types of Plans

2.2 Organizing:

- a) Concept, Organizational Design, Forms of Organizational Structure, Formal and Informal Organization.
- b) Departmentation - Need, Importance & Bases for Departmentation.

2.4 Staffing: Concept of Man Power Planning and Management by Objectives (MBO), Process and Benefits of MBO

2.3 Directing: Meaning, nature and importance of direction – Types of directing – Principles of effective direction.

Unit III - Management Functions - II (8)

3.1 Coordination: Need & Importance, Coordination & Cooperation, Techniques of Effective Coordination.

3.2 Decision Making: Types of Decision, decision-making processes, Effective Decision-Making, Decision-making environment (certainty, risk, uncertainty),

3.3 Controlling: Definition, Need and Importance, Method: Pre-control - Concurrent control - Post control.

Unit IV - Management Practices (06)

4.1 Indian Ethos and Values:

- a) Fundamentals of Indian Ethos
- b) Values of Indian Culture and Society
- c) Indian ethos in Management Practices

4.2 Management Audit: Meaning, Need, Objectives and Advantages

Unit V - Global Management Practices (8)

5.1 Management styles:

- a) Comparison between American, Japanese and Indian styles
- b) TOWS matrix: A modern tool for analysis
- c) Diversity and Multiculturalism: Nature, Dimensions, Effects, how to manage Diversity and Multiculturalism in the organization.

5.2 Operational Best Practices:

- a) Benchmarking: Definition, Need, Levels & prerequisites, Process of Benchmarking
- b) Japanese Manufacturing: Kanban, Kaizen, Poka Yoke, JIT, 5S.

Unit VI - Case study: (10)

6.1 Analyze a Real-World Managerial Situation.

6.2 Steps Involved – Fact/Summary, Problem Identification, Analysis of Problems, Alternate Solutions, Best Solution

REFERENCE BOOKS:

1. Essentials of Management - Koontz & Weihrich – McGraw Hill
2. Principles of Management – Bhat & Kumar – Oxford University Press
3. Management Principles & Application - Griffin, Ricky W. : (Cengage Learning/Thomson Press)
4. Principle of Management: L M Prasad-
5. Principles of Management: Text and Cases, 1e - Bhattacharyya - Pearson
6. Global Business Management – Adhikari - Macmillan
7. Indian Ethos - Nandagopal Tata McGraw Hill
8. Global Management Solutions: Demystified by Seth- Cengage Learning
9. Principles Of Management – Neeru Vashisth - Taxmann
10. Management - Robbins & Coulter – (Prentice Hall Of India, 8th Edition)
11. Management: A Global And Entrepreneurial Perspective - Weihrich Heinz And Koontz Harold (McGraw Hill 12th Edition 2008)
12. Management by Stoner, Freeman, Gilbert – Pearson/ Prentice Hall
13. Management: Value-Oriented Holistic Approach by S.A. Sherlekar – Himalaya Publishing House



KBC North Maharashtra University, Jalgaon

(NAAC Reaccredited 'A' Grade University)

FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: MBA 502 Organisation Behaviour

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description

This **course** is an introduction to the basic concepts and topics in organizational behavior and Management Drawing from fields including management, anthropology, sociology, information technology, ethics, economics, and psychology, OB provides a foundation for the effective management of people in organizations. The field of OB is about understanding how people and groups in organizations behave, react, and interpret events. The **course** focuses on **OB** at three levels: individual, interpersonal, and collective. It also describes the role of organizational systems, structures, and processes in shaping behavior, and explains how organizations really work. Its purpose is to provide an understanding of how organizations can be managed more effectively and at the same time enhance the quality of employees work life. It covers a wide breadth of theories and applications dealing with such topics as perception, personality, motivation, rewarding behavior, team dynamics, stress, power and politics, negotiation and conflict management.

Course Objectives:

- To study Human behavior at work
- To get knowledge of Individual, Interpersonal & Group perspectives
- To get knowledge of Power & Politics
- To get in depth knowledge work motivation & work stress
- To get knowledge of Power & Politics

Course Outcomes:

At the end of the Course, the Student will be able to:

- CO1. **Define** various concepts in Organisation Behavior
- CO2. **Focus** on improvement of the individual attributes and **articulate** the process of group Development.
- CO3. **Practice** cordial Interpersonal Relationship and **Apply** appropriate techniques of motivation.
- CO4. **Administer** power tactics to deal with organizational politics and **Assess** work stress.

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Introduction

(6)

- 1.1. Meaning, Nature, Scope, Key elements & Importance of OB
- 1.2. Various models of OB; Multidisciplinary nature of OB.
- 1.3. Emerging challenges for OB.
- 1.4 Need for studying Organizational Behavior .

Unit – II Foundations of Individual Behavior**(12)**

2.1. Personality: Concept, Determinants of Personality; Personality Traits influencing behavior; EI and its impact on Personality.

2.2. Attitudes: Concept, Types, Components, Functions of Attitudes, Ways to change Attitudes; Attitudes & Behavior.

2.3. Perception: Meaning; Perceptual Process; Factors Influencing Perception, Attribution theory; Biases affecting Perception; Perception and OB.

2.4. Learning: Meaning; Theories of Learning, Principles of learning: Reinforcement, Punishment and Extinction, Learning & Behavior.

Unit – III: Group Behavior and Interpersonal Relationships (10)

3.1. The Nature and Types of Groups in Organizations

3.2. Group Development: Stages, Properties and Processes

3.3. Conflict Management: Sources, Types, and Resolution Strategies

3.4. Types of Conflicts: Individual, Interpersonal & Intergroup

3.5. Interpersonal Relations: Transactional Analysis and Johari Window

Unit – IV Motivation**(8)**

5.1. Nature & Types of Motivation: Financial & Non-Financial

5.2. Theories of Motivation:

5.2.1. Need Hierarchy Theory

5.2.2. Theory X and Theory Y

5.2.3. Motivation-Hygiene Two Factor theory;

5.2.4. ERG theory

5.2.5. Vroom's Expectancy theory

5.2.6. McClelland's learned Needs Theory

Unit – V Power & Politics**(8)**

6.1. Concept; Difference between Authority, Power & Leadership.

6.2. Sources of Power; Power Tactics.

6.3. Organizational Politics; Reasons for Political Behavior.

6.4. Leadership Styles and Their Impact on Organizational Culture

6.5. Political strategies and tactics to acquire power, Managing Political Behavior.

Unit – VI: Integrating Organizational Behavior**(06)**

6.1. Application of OB Concepts in Real-world Scenarios

6.2. Analyzing Case Studies on OB

6.3. Emerging Trends in OB and Future Directions

6.4. Ethical Considerations in OB

6.5. Technology and OB- Social responsibility

REFERENCE BOOKS:

1. Organization Behavior – V.S.P.Rao – Excel Publication
2. Organization Behavior – Stephen Robbins, Vohra – Pearson
3. Organization Behavior – Suja R. Nair, Himalaya Publications
4. Organization Behavior –S.S. Khanka – S Chand
5. Organization Behavior – K. Ashwathappa – Himalaya
6. Organization Behavior – P. Subba Rao – Himalaya
7. Organization Behavior –Fred Luthans – Mcgraw Hill
8. Human Behavior at Work –Keith Devis- Mcgraw Hill



KBC North Maharashtra University, Jalgaon

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FACULTY OF COMMERCE & MANAGEMENT
New Syllabus: M.B.A. w.e.f. AY 2024-25



SEMESTER: I Paper: MBA 503 Managerial Economics

30 + 20 Pattern: External Marks 30 + Internal Marks 20 = Maximum Total Marks: 50
Required Lectures: 24 hours

Course Description

Managerial Economics is the application of economic theory and methodology to managerial decision making problems within various organizational settings. The emphasis of this course will be on demand & Supply analysis, Pricing and output strategies in different product market, production and cost analysis etc. This course will enable the students to investigate major areas of management decision making in the context of various business-oriented organizations for which economic analysis is a useful input.

Course Objectives:

1. To aware about the key concepts of managerial economic.
2. To familiarize with the students the importance of economic approaches in managerial decision making.
4. To analyze the possible effects and implications of both short and long-term planning decisions on the revenue and profitability of the Business.
5. To make managers capable for taking the best possible decisions for any scenario.

Course Outcomes:

After Completion of this course, Students will be able to

- 1) **Describe** the Key concepts in Managerial Economics
- 2) **Explain** the various economic laws, concepts related to managerial economics
- 3) **Identify** the different market structure and **decide** appropriate pricing strategies
- 4) **Frame** policy for production to minimize the cost and maximize the profit

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation & Other Assessment | 10% | 05 |
| Internal Test | 30% | 15 |
| External Exam | 60% | 30 |
| Total Marks | | 50 |

Unit – I General Foundations of Managerial Economics (4)

- 1.1 Managerial Economics- Meaning, Definition, Nature and Significance of Managerial Economics,
- 1.2 Relationship of Managerial Economics with Decision Making.
- 1.3 Distinction between Micro and Macroeconomics.

Unit – II Demand and Supply Analysis (8)

- 2.1 Demand: Concept of Demand, Determinants of Demand; Law of Demand – Function, Curves and Shifting of curves; Elasticity of Demand

- 2.2 Demand Forecasting: Meaning, Types and Methods of Demand Forecasting, Short term Demand forecasting, Long term Demand Forecasting
- 2.3 Supply: Concept of Supply, Determinants of Supply; Law of Demand – Function, Curves and Shifting of curves; Elasticity of Supply

Unit – III Market Structure and Price & Output Decisions (6)

- 3.1 Concept of Product Pricing & Factors Affecting Pricing Decisions
- 3.2 Pricing Methods: Marginal Cost Pricing, Limit Pricing, Market Skimming Pricing Penetration Pricing, Bundling Pricing, Peak Load Pricing, Internet Pricing Models.
- 3.3 Market Structure and Competition: Price and output determination under perfect competition, Monopoly, Monopolistic competition, Oligopoly and Duopoly

Unit – IV Production Function, Cost and Revenue Analysis (6)

- 4.1 The Law of Diminishing Marginal Returns
- 4.2 Cost Analysis: Cost Function, Classification of Costs Relationship between AC and MC Curves, Cost-Output Relationship in the Short-run, Cost-Output Relationship in the Long-run
- 4.3 Revenue Analysis: Meaning of Revenue, Revenue Curves under Perfect Competition Revenue Curves under Imperfect Competition.

Reference Books

1. Managerial Economics – Jaswinder Singh- Dreamtech Press
2. Managerial Economics- Atmanand- Excel Books
3. Managerial Economics - Damodaran – Oxford
4. Managerial Economics- Salvatore, Rastogi – Oxford
5. Managerial Economics - D. M. Mithani- Himalaya Publishing House
6. Managerial Economics - Chaturvedi, S. L. Gupta- International Books House Pvt. Ltd.
7. Managerial Economics 10e - Thomas & Morris –McGraw Hill
8. Business Economics – Gillespe - Oxford
9. Managerial Economics - Dr. H.L. Ahuja- S. Chand
10. Managerial Economics – DN Dwivedi- Vikas Publishing



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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: 504 : Business Accounting and Costing

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description: The course provides an overview of Business Accounting and Costing. It enables students to learn the process of preparation of Final Accounts and Cost Sheet which is immensely important to map the position of the firm and take day to day financial decisions.

Course Objectives:

- To provide basic knowledge Business Accounting and Costing.
- To study accounting concepts, conventions & standard.
- To get knowledge about Costs, Material, Labor & Overhead and Cost Accounting.
- To prepare reconciliation statements and Cost Sheet.

Course Outcomes: On successful completion of the course, the students will be able to:

1. Describe the basic concepts related to Accounting, Financial Statements and Cost Accounting.

(Remember)

2. Explain in detail, all the theoretical concepts taught through the syllabus. **(Understand)**

3. Perform all the necessary calculations through the relevant numerical problems. **(Apply)**

4. Analyse the situation and decide the key financial as well as non-financial elements involved in the situation. **(Analyse)**

5. Evaluate the financial impact of the decision on the business. **(Evaluate)**

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Accounting Process (08)

1.1 Meaning and Importance of Accounting in Business Organization

1.2 Accounting Concepts & Conventions

1.3 Double Entry System of Accounting, Types of Accounts

1.4 Preparation of Journal, Ledger and Trial Balance

1.5 Subsidiary books

1.6 Elementary Study of Accounting Standards: As-1, As-2, AS-4, AS-5, AS-6, AS-9, AS-10

1.7 Introduction to International Financial Reporting Standards (IFRS)

Unit – II Final Accounts: (08)

2.1 Meaning of Financial Statements

2.2 Importance and Objectives of Financial Statements

2.3 Proprietor's Final Accounts with Adjustments

2.4 Conceptual Understanding of Financial Statements of Corporate Entities: Share Capital, Reserves and Surplus, Long Term Borrowings, Current Assets, Current Liabilities, Cash & Cash Equivalents

Unit – III Bank Reconciliation Statement (08)

- 3.1 Preparation of Cash Book with Cash and Bank column
- 3.2 Causes of Difference between two balances
- 3.3 Methods of Reconciliation
- 3.4 Preparation of Bank Reconciliation Statement

Unit – IV Cost Accounting (08)

- 4.1 Basic Concepts of Cost Accounting
- 4.2 Objectives, Importance and Advantages of Cost Accounting
- 4.3 Cost Centre, Cost Unit, Types of Cost, Elements of Cost, Classification of Costs
- 4.4 Preparation of Cost Sheet

Unit – V Materials Management (08)

- 5.1 Documentation of Purchase and storekeeping
- 5.2 Recording of Material LIFO, FIFO, Weighted Average
- 5.3 Levels of Inventory
- 5.4 EOQ, Ordering Cost, Carrying Cost
- 5.5 Techniques of Inventory Management: ABC Analysis, JIT etc.
- 5.6 Practical problems on Decision making relating to Inventory Management

Unit – VI Labor and Overheads (08)

6.1 Labor

- 6.1.1 Time Keeping and Time booking
- 6.1.2 Elements of wages
- 6.1.3 Time Rate System Vs Piece Rate system
- 6.1.4 Differential Piece Rate System: Taylor's System, Merrick's System
- 6.1.5 Premium Bonus Methods: Halsey Plan, Rowan Plan
- 6.1.6 Important factors for controlling labor Cost

6.2 Overheads

- 6.2.1 Primary Distribution
- 6.2.2 Methods of Absorption
- 6.2.3 Under absorption and over absorption of Overheads

REFERENCE BOOKS:

1. Management accounting – Paresh Shah – Oxford University Press
2. Financial Accounting for Management by Ramachandran& Kakani – McGraw Hill
3. Fundamentals of Accounting, Dr. P C Tulsian, S. Chand Publications
4. Fundamentals of Financial Accounting – Ashok Sehgal - Taxmann
6. Financial Accounting, 1e -Tulsian- Pearson
9. Financial Management by Shrivastava & Mishra- Oxford University Press
10. Financial Accounting for Managers – T P Ghosh - Taxmann
11. Fundamentals of Accounting, A K Agrawal and Kamlesh Agrwal, Kitab Mahal
14. Cost Accounting: RSN Pillai, S. chand Publications
15. Costing, by Gangadhar Kayande-Patil, Chaitnya Publications



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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: MBA 505: Operation Management

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description

The course provides an overview of operations management and an understanding of production as a process of converting or transforming resources into products.

Course Objectives:

- To provide fundamental knowledge about operations management
- To make acquainted with materials and inventory management
- To study supply chain management, quality management and advanced concept of operations management

Course Outcomes: On successful completion of the course, the students will be able to:

- Define operations management, describe concepts, product design, major processes (**Understand**)
- Explain capacity planning, production planning and control (**Understand**)
- Justify factors affecting location selection and articulate facility layout (**Evaluate**)
- Explain materials and inventory management (**Analyze**)
- Write about Supply chain management and Quality management (**Apply**)
- Develop Concept related to Principles of Work study and work measurement (**Develop**)

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Introduction to Operations Management (08)

- 1.1. Meaning, nature and scope of operations management, the role of operations management in strategic management, elements of operations strategy, production and operations management(POM) decisions and applications, the role of operations managers
- 1.2. Product design- concept, factors influencing, characteristics of good product design
- 1.3. Process planning, process strategy, major process decisions, types of process
- 1.4. Make or buy decisions, operations in the service sector

Unit – II Capacity Planning, Production planning and control (08)

- 2.1. Capacity planning- time horizons, types, measures, and determinants of capacity, forecasting Long-term future capacity demand.
- 2.2. Identifying and analyzing sources of capacity, economies and diseconomies of scale, developing and selecting capacity alternatives
- 2.3. Production planning functions, Production control functions
- 2.4. Routing, scheduling, dispatching and progressing

Unit – III Facility location planning and Facility layout (08)

- 3.1. Facility location planning- meaning, and factors affecting location selection

- 3.2. Facility layout- meaning, factors influencing, principles, steps in layout planning and design
- 3.3. Types of layouts- process layout, product layout, group technology layout
- 3.4. Types of layouts- project layout, combined layout, service facility layout

Unit – IV Materials and inventory management (08)

- 4.1. Materials management- objectives, significance, benefits of material planning,
- 4.2. Factors influencing material planning, materials budgeting, and material control
- 4.3. Inventory management-meaning, objectives, inventory management and control, ABC analysis
- 4.4. Store management functions, codification, material handling- definition, scope and objectives.

Unit – V Supply chain management and Quality management (08)

- 5.1. Supply chain management- meaning, objectives, activities involved
- 5.2. Logistics, warehousing, service operations types- Quasi manufacturing, customer-as-participants, and customer-as-product
- 5.3. Quality management meaning, inspection- nature, scope, the concept of productivity
- 5.4. Value analysis and value engineering

Unit – VI Work Study and Work Measurement (08)

- 6.1 Work Study: meaning and Advantages
- 6.2 Method Study: objective, scope, steps involved in methods study
- 6.3 Motion Study:
 - 6.3.1 Principles,
 - 6.3.2 Recording techniques of motion study
- 6.4 Work Measurement: meaning and techniques
- 6.5 Time Study:
 - 6.5.1 Steps in making time study
 - 6.5.2 Computation of standard time

REFERENCE BOOKS:

1. Production and Operations Management 2e –K. Ashwathappa and K. Shridhar Bhat- Himalaya Publishing. ISBN 978-9350971888
2. Production and Operations Management 3e –Kanishka Bedi–Oxford University Press. ISBN978-0198072096
3. Production and Operations Management 6th Edition –S.N. Chary–Tata Mc-Graw Hill, ISBN-13 978-9353164812
4. Production and Operations Management - N.G. Nair–Tata Mc-Graw Hill
5. Production and Operations Management, 9th Edition –S. A. Chunawalla and D. R. Patel - Himalaya Publishing ISBN-13 978-8178664316
6. Operation Management for competitive Advantages, published by Tata Mcgraw Hill, by Richard B. Chase, F. Robert Jacobs and Nitin K. Agrawal.



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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: MBA 506A: Startup Ecosystem

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Objectives:

- i. To understand the concept and knowledge of Startups and Entrepreneurship
- ii. To enable students to identifying business opportunities and developing business plans.
- iii. To prepare the mindset and discipline of systemic inspiration driven by a desire to identify new sources of ideas, and innovation to establish their own startups.

Course Outcomes:

- 1) Identify key concepts of startups and historical perspectives of startups (**Remember**)
- 2) Explain the factors responsible for the growth of startups in India (**Understand**)
- 3) Apply knowledge and skill to create opportunities in establishing startups. (**Apply**)
- 4) Analyze the challenges faced by startups (**Analyze**)
- 5) Evaluate the startup policy of Government and its implications (**Evaluate**)
- 6) Design a business plan for setting up startup. (**Create**)

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit I: Introduction to Start-ups

- 1.1 Why start-ups, what are start-ups
- 1.2 Definitions of Startups
- 1.3 Historical Perspective of Start-ups
- 1.4 Features of Start-up
- 1.5 Factors Responsible for Success of Start-ups
- 1.6 Factors Responsible for The Failures of Start-ups

Case study: India's New Age Start-Ups

Unit II: Scenario of Start-ups in India

- 2.1 Phases of Startups in India:

- 2.2 Phases of Human Enterprise
- 2.3 Key Trends driving Start-ups in India
- 2.4 Indian States with Start-up Policies
- 2.5 Start-up India Boots from Non-metros
- 2.6 Angel Hubs

Case study-on Indian Unicorns

Unit III: Generating Idea & Preparing Business Plan

- 3.1 Where Do Ideas Come From?
- 3.2 Tips for getting maximum benefit out of your ideas
- 3.3 Elements of a promising business idea
- 3.4 How to validate your ideas
- 3.5 How to Make a Great Business Plan
- 3.6 Characteristics of a successful business plan
- 3.7 Content of Business Plan

Case study – Business plan of any company

Unit IV: Financing Resource of start-ups in India

- 4.1 Types of Funding Sources for Start-ups-Seed Funding, Angel Funding
- 4.2 Venture Capital (VC) for startups-Features of Venture Capital, Stages in Venture Financing, Problems of Indian Venture Capital.
- 4.3 Crowd Funding-Types of Crowd-Funding, Risks of Crowd funding, Crowdfunding in India
- 4.4 Bootstrapping-Why Bootstrap a Startup? The Limitations of Bootstrapping

Case study on Crowd funding or Bootstrapping can be discuss

Unit V: Startups: Incubators & Accelerators

- 5.1 Concept of The Start-up Incubators and Accelerator
- 5.2 Difference between Accelerator and Incubator
- 5.3 Characteristics of incubators and accelerators
- 5.4 Types of Incubators in India
- 5.5 Initiatives undertaken by IIM'S, IIT'S & other premier educational institutes to promote Incubators and Accelerators.
- 5.6 Startup India Action Plan for Industry Academia Partnership and Incubation

Case study: IIT Chennai Incubation Centre

Unit VI: Startups and Innovation

- 6.1 Definitions of Innovation
- 6.2 The Elements of Innovation
- 6.3 Forms of Innovation, Types of Innovation, Disruptive Innovation
- 6.4 Stages of Innovation
- 6.5 Innovation and Startups
- 6.6 India –A land of Frugal innovation
- 6.7 Innovation Initiatives of few Ministries/Departments

Case study on Innovation can be discuss in class

REFERENCE BOOKS & Articles

1. **Chaudhari, R. (2016)** *Quest for exceptional leadership: Mirage to reality*. Sage Publication.
2. Confederation of Indian Industry (CII) & Deloitte (2016) *Report on E-commerce in India-A game changer for the economy*. Retrieved from <https://www2.deloitte.com/content/dam/deloitte/in/documents/technology-media-telecommunications/in-tmt-e-commerce-inindia-noexp.pdf>
3. Friday O. Okpara (2007) The Value of Creativity and Innovation in Entrepreneurship. journal of Asia Entrepreneurship and sustainability.
4. Giudici G, Guerini M and Lamastra C R, Why Crowdfunding Projects can succeed: The role of Proponents' Individual Territorial Social Capital, SSRN Electronic Journal, April 2013.
5. Gopalakrishnan, R. A Biography of Innovations: From Birth to Maturity. Penguin Random House India Private Limited. Kindle Edition.
6. Gupta, Shishir. Startup Easy - Part 1: The Essentials: A Step by Step Guide for Entrepreneurs
7. Report of the Expert committee on Innovation and Entrepreneurship, August 2015, NITI Aayog, New Delhi.
8. Sardar, R.J & Waghmare, G (2021) Startup Ecosystem in India: Text and Cases, Himalaya Publishing House, ISBN: 978-93-5433-574-7
9. Sachitanand R, Crowdfunding platforms for start-ups: Little awareness & legal hurdles may slow down promising start, ET Bureau; 2014 Apr 20. Available from: http://articles.economictimes.indiatimes.com/2014-04-20/news/49266205_1_aditi-gupta-rs-5-lakh-platforms
10. Sharma, P., (2017): Kranti Nation- India and the Fourth Industrial Revolution Pan Macmillan. Kindle Edition. ISBN 978-1-5098-8891-7.
11. Steven Fisher, Ja-nae' Duane, The Startup Equation -A Visual Guidebook for Building Your Startup, Indian Edition, Mc Graw Hill Education India Pvt. Ltd.
12. Zafar, A.(2014) Startup Capitals, Random house publishers India Pvt limited,



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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

Paper: 506B Computer Applications in Business

60+40 Pattern: External Marks 60 +Internal Marks 40 Total Marks: 100

Required Lectures: 24 hours



Course Description:-

The course is designed to give a broad overview of essential personal computing skills tailored for students in business and other non-computer science fields. This might cover topics such as: **Basic Computer Operation**, Data Management, internet and Communication Tools, Security and Privacy etc.

Course Objectives:

- 1) To develop a solid conceptual framework for understanding information technology fundamentals.
- 2) To apply calculations to business data and generate a variety of charts for data visualization.
- 3) To Understand the Information security and risk management are crucial for protecting sensitive data.
- 4) To Create professional business documents with well-organized content that effectively communicates and supports business objectives.

Course Outcome:-

- 1) To troubleshoot standalone desktop or desktop connected to a network.
- 2) To recognize when additional information is needed to solve problems.
- 3) To Understand the Types of risk and types of controls available to counter them.
- 4) To summarize the impact of information and Digital Business on society.
- 5) To compile professional documents using the word, excel, PowerPoint.

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit - I Introduction to Computers

- 1.1. Basics of computer: Definition of computer, characteristics of computer, Computer Generations, Classification of Computers, Block Diagram of Computer
- 1.2. Computer Hardware: Introduction, Input devices, Output Devices, Storage devices, CPU structure
- 1.3. Computer Software: Introduction, Software Installing and Uninstalling, Booting
- 1.4. Computer Networks: Overview of Computer Network, Types of computer networks, Network topologies, networking devices
- 1.5 Security Protocols, Identification and Authentication ,Network Security ,E-mail Security

Unit - II Digital Business

- 2.1 Electronic Commerce: The Digital Revolution and Society, The Digital Enterprise, Virtual Communities, Online Communities, Emerging E-Commerce Platforms, Electronic Markets and Networks, E-Commerce Business Models, Benefits and Limitations of E-Commerce, Impact of E-Commerce on business, government, customers, citizens, and society
- 2.2. Mobile Commerce: Introduction, Attributes Applications and Benefits of M-Commerce, Mobile Marketing - Shopping and Advertising.
- 2.3. Social Commerce: Introduction, Social Business Networks and Social Enterprise, Social Media, Platforms for Social Networking, Social Media Marketing
- 2.4. Internet of Things: Concept of IoT, Smart Homes and Appliances, Wearable Computing and Smart Gadgets.

2.5. Digital Business Applications: Electronic Retailing, E-Banking, Digital Government, E-Employment, E-Health

2.6 , Information Technology Act, Tools of Digital Business

Unit - III MS Word

3.1. Word Processing: Introduction to word processing, word processing concepts, use of templates

3.2 Working with word documents: Editing text, Find and Replace Text, Formatting, Spell Check, Autocorrect, Auto text, Bullets and numbering, Tabs, Paragraph Formatting, Indent, Page Formatting, Header and Footer

3.3 Tables: Inserting, Filling and Formatting a table, Inserting Pictures and Video

3.4 Mail Merging: Mail Merging including linking with Database

3.5 Saving and Printing Documents: Save options, Print Preview, Page setup

3.6 Creating Business Documents using the above facilities

Unit - IV MS Excel

4.1 Spreadsheet concepts: Managing worksheets, Formatting, Entering data, Editing, and Printing a worksheet; Handling operators in formula, Project involving multiple spreadsheets, Organizing Charts and graphs.

4.2 Generally used Spreadsheet functions: Mathematical, Statistical, Financial, Logical, Date and Time, Lookup and reference, Database, and Text functions, Vlookup, Pivot Table

4.3 Meaning and Advantages of macros

4.4. Controlling and protecting spreadsheets

Unit - V MS Power Point

5.1 M.S. PowerPoint: Opening, viewing, creating, and printing slides

5.2 Basics of presentations: Inserting Tables, Images, texts, Symbols, Charts, Media, Design, Transition,Applying Animatiions, Slideshow

5.3 Advanced Features: Advanced Slide Master Features, Working with Notes and Handouts

Unit - VI Recent Trends in Computer Applications

6.1 Integrated enterprise system (ERP, CRM, and SCM)

6.2 Email and video conferencing tools for business communication.

6.3 Analytical tools of data interpretation

6.4 SAP Introduction- . Meaning of SAP, Models Evolution of SAP, Advantages and disadvantages of SAP

6.5 Artificial Intelligence

6.6 AR/VR

6.7 Block Chain

6.8 Cloud Computing.

List Of Practical

Note: To be demonstrated by teacher and teacher will conduct a compulsory internal test on practical.

- 1) Demonstration of software installation.
- 2) Create Professional resume.
- 3) Prepare an invitation letter using mail merge.
- 4) Prepare Balancesheet in M.S. Excel to calculate Net Profit / Loss using formula.
- 5) Demonstrate Company's Financial growth using Graphs in excel.
- 6) Demonstrate Vlookup & Hlookup in excel.
- 7) Create a professional presentation on the business plan.
- 8) Creating and managing E-Mail account.
- 9) Creating and managing personal Blog.
- 10) Demonstration on AI tools.

REFERENCE BOOKS

1. Fundamentals of Information Technology, Leon, Vikas
2. Computer Applications in Management, Kakkar DN, Goyal R, New Age

3. Information Technology for Management, B Muthukumar, Oxford University Press
4. How to Prepare for Data Interpretation, Arun Sharma, Tata Mc Graw Hill
5. E-Business and E-Commerce Management- Strategy, Implementation and Practice, Dave Chaffey, Pearson
6. Information Technology Law and Practice by Vakul Sharma, Universal Law Publishing Co. Pvt. Ltd
7. The Indian Cyber Law by Suresh T. Vishwanathan, Bharat Law House New Delhi Education.
8. Microsoft Word 2016 Step by Step, Joan Preppernau
9. Fundamental of computer by Rajaraman , Prentice Hall of India,New Dehli.
10. Business data communication by Shelly, Thomson Learning, Bombay.



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FACULTY OF COMMERCE & MANAGEMENT
New Syllabus: M.B.A. w.e.f. AY 2024-25
SEMESTER: I
Paper: 507: Research Methodology



60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100
Required Lectures: 48 hours

Course Description

This course addresses the issues inherent in selecting a research problem and discusses the techniques and tools to be employed in completing a research project. This will also enable the students to prepare report writing and framing research proposals.

Course Objectives:

- To develop a comprehensive understanding of the research process
- To train students in the application of research designs and data analysis techniques.
- To enhance students' ability to interpret and present research findings.

Course Outcomes:

The successful completion of this course enables the students

| CLO No. | CLO | Cognitive level |
|---------|---|-----------------|
| 1 | Understand the fundamental concepts of research | 2 |
| 2 | Apply appropriate research designs and sampling methods | 3 |
| 3 | Analyze and interpret research data using statistical tools | 4 |
| 4 | Evaluate different measurement and scaling techniques | 5 |
| 5 | Create well-structured research reports and proposals | 6 |
| 6 | Synthesize research approaches with technological tools | 6 |

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit 1: Introduction to Research

- 1.1. Meaning and Objectives of Research
- 1.2. Types of Research: Descriptive Research, Analytical Research, Applied Research, Fundamental Research, Qualitative Research, Quantitative Research, Conceptual and Empirical Research
- 1.3. Research process in detail
- 1.4. Define research problem and Technique involved in defining a problem
- 1.5. Literature Survey
- 1.6. Formulation of hypothesis

Unit 2: Research Design & Sample Design

- 2.1. Meaning & Need of Research Design, Different Research Designs
- 2.2. Meaning of Sample design and Fundamental definitions of Sampling
- 2.3. Steps in Sample Design
- 2.4. Probability & Non-Probability Sampling

Unit 3: Measurement and Scaling

- 3.1. Measurement in Research,
- 3.2. Classification of measurement scales-Nominal, Ordinal, Interval or Ratio
- 3.3. Meaning of Scaling, Scaling Techniques-Rating & Ranking
- 3.4. Basic Concept Concerning Testing of Hypotheses
- 3.5. Procedure for Hypotheses Testing

Unit 3: Data Collection Methods

- 4.1. Primary Vs secondary data
- 4.2. Guidelines for constructing Questionnaire
- 4.3. Important aspects of a Questionnaire
- 4.4. Difference Between Survey and Experiment

Unit 5: Data Analysis and Tools

- 5.1. Measures of Central Tendency, Correlation and Regression and Chi-square test
- 5.2. Analysis of Variance and Covariance
- 5.3. Multiple Correlation and regression, Factor analysis and Cluster analysis
- 5.4. Application of statistical software for data analysis (SPSS, R, Python) and their key features.

Unit 6: Research Report Writing

- 6.1. Meaning of Interpretation, Precautions in Interpretation
- 6.2. Research report – Types of research reports,
- 6.3. Layout and Mechanics of writing a research report
- 6.4. Guidelines for writing a Summer Internship Project and Field Project/OJT

REFERENCE BOOKS:

- 1) Business Research Methods, Donald R Cooper and Pamela S Schindler, 9/e, Tata McGraw-Hill Publishing Company Limited
- 2) Research Methodology – methods & Techniques, C.R. Kothari, Vishwa prakashan.
- 3) Business Research Methods 8e, Zikmund- Babin-Carr- Adhikari-Griffin-Cengage learning.
- 4) Methodology and Techniques of Social Science Research, Wilkinson & Bhandarkar, Himalaya Publishing House.
- 5) An Introduction to Management for Business Analysis, Spiegel, M.R., McGraw Hill
- 6) Research Methodology in Management, Michael, V.P., Himalaya Publishing House.
- 7) Business Research Methods- Alan Broman, Emma Bell 3e, Oxford university

SEM-II



KBC North Maharashtra University, Jalgaon

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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: II

Paper: MBA 511: Business Analytics

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description

This course provides an introduction to the fundamentals of Business analytics and statistics. Business analytics refers to the ways in which enterprises such as businesses, non-profits, and governments can use data to gain insights and make better decisions. Business analytics is applied in operations, marketing, finance, and strategic planning among other functions.

Course Objectives:

1. Understand the fundamental concepts of Statistics
2. Understand the importance and use of various statistical measures includes – Central Tendency, Partition Values, Dispersion, Correlation, Regression, Index Numbers and Time Series Analysis.
3. Understand the hypothesis testing concept and use of Chi-Square Test, t-Test, and ANOVA for hypothesis testing
4. Develop formulation skills in LPP and transportation models and finding solutions
5. Identify Business analytics applications
6. Know various software used in analytics

Course Outcomes:

1. **Describe** application of statistics in Business
2. **Apply** statistics on business problems
3. **Interpret** the Linear programming problem and Transportation models' solutions and infer solutions to the real-world problems.
4. **Understand** basics of Business Analytics
5. **Show** functional application of analytics
6. **Utilize** appropriate Business Analytics Software

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Descriptive Statistics

(8)

- 1.1 Meaning, Importance and limitations of Statistics.
- 1.2 Meaning of Raw Data, Primary Data, Secondary Data, Variable, Attribute, Population and Sample.
- 1.3 Measure of Central Tendency: Mean, Median and Mode (For Raw Data, Discrete Series and Continuous Series of Data)
- 1.4 Measures of Dispersion – Range, Coefficient of Range, Quartile Deviation, Mean Deviation and Standard Deviation

Unit – II Test of Significance (8)

2.1 χ^2 (Chi-Square) test- -Introduction, Chi-square distribution, Properties of Chi-square distribution and Application of Chi-square distribution. Conditions for the validity of Chi-square test, Degrees of Freedom, Tests of Goodness-of-fit.

2.2 t-tests – Student’s-‘t’ distribution, Properties, Uses, One Sample t- test, Independent sample-‘t’ test.

2.3 One way ANOVA: meaning, Assumptions

Unit – III Correlation and Regression (8)

3.1 Meaning, Types and Degree of Correlation

3.2 Scatter Diagram Method

3.3 Karl Pearson’s Coefficient of Correlation

3.4 Rank Correlation Coefficient, Spearman Correlation

3.5 Regression – Meaning, Definition, Simple and Multiple Regression, Correlation and Regression. Calculation of Regression Equations and Coefficients

Unit – IV Linear Programming & Transportation Problems (8)

4.1 Linear Programming Problem:

4.1.1 Stages of LPP, Problem Formulation of LPP

4.1.2 Requirements of LPP, Graphical Method to Solve LPP

4.2 Transportation Problems:

4.2.1 Formulation of Transportation Problem

4.2.2 Methods of Finding Initial Solution.

a) North-West corner rule

b) Least Cost Method

c) Vogel’s Approximation Method

Unit – V Business Analytics Basics (8)

5.1 Definition of analytics, Evolution of analytics, Need of Analytics,

5.2 Business Intelligence, Business analytics vs business analysis, Business intelligence vs Data Science, Data Analyst Vs Business Analyst,

5.3 Types of Analytics, Tools for Analytics. Concept of insights. Importance of data in business analytics,

5.4 Analytical decision-making process, characteristics of the analytical decision-making process.

5.5 Breaking down a business problem into key questions that can be answered through analytics, Skills of a good business analyst.

Unit – VI Overview of Business analytics applications in (8)

5.1 Marketing Analytics, HR Analytics, Supply Chain Analytics, Retail Analytics, Financial Analytics Sales Analytics, Web & Social Media Analytics, Healthcare Industry.

5.2 Future of Business Analytics.

5.3 features of Business Analytics software - Google Data Studio, Microsoft Power BI, Python, R, Tableau

REFERENCE BOOKS:

- f) Business Statistics 2nd Edition by S.C. Gupta & Indira Gupta –Himalaya Publishing House, ISBN-13 978-9350974070
- g) Statistical & Quantitative Methods 15th Edition by Ranjeet Chitale – Nirali Prakashan, ISBN 13, 9788190693585
- h) Operations Research 3rd Edition by Sharma J K - (Pearson), ISBN-1403931518, 9781403931511
- i) Business Statistics 2nd edition by Vohra – McGraw Hill **978-1259004872**
- j) Business Statistics by Thukral – Taxmann – ISBN 8171946054, 9788171946051
- k) Statistical Methods 46th Edition by S.P.Gupta – Sultan Chand & Sons ISBN: 9789351611769
- l) Business Statistics 3rd Edition by Beri- Tata McgrawHill
- m) Business Intelligence and Analytics - Edited by Drew Bentley ISBN: 978-1-9789-2136-8
- n) Business Analytics_ Data Analysis & Decision Making- S. Christian Albright Wayne L. Winston – Cengage



KBC North Maharashtra University, Jalgaon

(NAAC Reaccredited 'A' Grade University)
FACULTY OF COMMERCE & MANAGEMENT
New Syllabus: M.B.A. w.e.f. AY 2024-25
SEMESTER: I



Paper :MBA 512: Business Communication

30 + 20 Pattern: External Marks 30 +Internal Marks 20 = Maximum Total Marks: 50
Required Lectures: 24 hours

Course Description:

This course provides a comprehensive exploration of the principles and practices of effective business communication, both in written and oral forms. Students will gain proficiency in crafting professional business documents, delivering impactful presentations, and navigating the complexities of communication in diverse, cross-cultural, and digital environments. The course also covers the role of communication in crisis management, ensuring students are well-prepared to handle communication challenges in a corporate setting. This course aims to equip students with the essential communication skills required for success in the modern business world.

Course Objectives:

- To develop an understanding of the fundamentals of business communication
- To enhance students' written communication skills
- To build competency in oral communication and presentation skills
- To explore contemporary issues in business communication, such as cross-cultural communication, communication in the digital age, and crisis communication.

Course Outcomes: At the end of the Course, the Student will be able to:

| | |
|------------|---|
| CO1 | Develop a deep understanding of the principles and practices of effective business communication.. |
| CO2 | Enhance proficiency in written communication including reports, letters, and emails. |
| CO3 | Build strong oral communication and presentation skills necessary for a corporate environment. |
| CO4 | Equip students with the skills to manage communication in diverse and digital contexts. |

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|---------------|-------------------------|
| Class Participation & Other Assessment | 10% | 05 |
| Internal Test | 30% | 15 |
| External Exam | 60% | 30 |
| Total Marks | | 50 |

Unit 1: Fundamentals of Business Communication

(6)

1.1 Introduction to Business Communication:

Definition, importance, and components.

The process and types of communication: verbal and non-verbal.

Barriers to effective communication and overcoming them.

1.2 Communication Levels:

Analysing Interpersonal, Intrapersonal, Group, Public, and Mass communication.

The role of technology in modern communication

Unit 2: Written Communication in Business (6)

2.1 Business Correspondence:

Principles and formats of business letters.

Writing effective emails and memos.

2.2 Essentials of report writing: structure, style, and formats.

Business Proposals and Presentations:

Crafting persuasive business proposals.

Designing and delivering business presentations.

2.3 Resume / CV Writing: Resume formats and C V writing,

2.4 Letter writing: Trade enquiry, Customer's complaint, Non-receipt of payments, Letter of Acceptance, Resignation Letter and Promotion Letter

Unit 3: Oral Communication and Presentation Skills (6)

3.1 Oral Communication:

Fundamentals of effective speaking and listening.

Group discussions and meetings: planning, execution, and follow-up.

3.2 Presentation Skills:

Planning and structuring presentations.

Use of visual aids and technology in presentations.

3.3 Interpersonal Skills:

Building rapport, negotiation, and conflict resolution

3.4 Interviews: Preparing for and conducting interviews, including mock interview sessions.

Unit 4: Contemporary Issues in Business Communication (6)

4.1 Cross-Cultural Communication:

Understanding cultural differences in communication.

Strategies for effective cross-cultural communication.

4.2 Communication in the Digital Age:

Impact of social media on business communication.

Ethical considerations in business communication.

4.3 Crisis Communication:

Strategies for managing communication during crises.

Class room discussion on case studies on successful and failed crisis communication.

Reference books:

1. Lesikar R/ Flatley M. (9th ed). Basic Business Communication: Skills For Empowering The Internet Generation. TMH.
2. Bedi R/ Aruna K. (1st ed). Business Communication. Vrinda.
3. Kaul Asha. Business Communication. PHI.
4. Rai U./ Rai S. M (10th). Business Communication. Himalaya.
5. Sinha K. K. Business Communication. Galgotia.
6. Sharma R. C/ Mohan K. (3rd ed). Business Correspondence & Report Writing. TMH.
7. Raman Meenakshi. Business Communication.

Note: Students are encouraged to refer to various online resources including video content for overall improvement in communicative English



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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: 513 Human Resource Management

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description

Human Resource Management links people-related activities to business strategy. The course develops a critical understanding of the role and functions of the various human resource activities in an organization, providing students with a comprehensive review of key HRM concepts, techniques and issues. This course introduces the various functions of human resource management. The course facilitates an insight into the effective management of employees that will guide the budding managers through the principles and practices of HRM and the core models of best practices.

Course Objectives:

1. To understand the basic concepts, functions and processes of human resource Management
2. To Design and formulate various HRM processes
3. To develop ways of facilitating internal changes necessary to accomplish business strategies.
4. To create strong foundation for further studies in the field of HRM
5. To get acquainted with the current practices of HRM

Course Outcomes:

CO1. **Describe** HRM, its functions and practices

CO2. **Explain** Human Resource Procurement process.

CO3. **Prepare** for Career Development and Succession Planning.

CO4. **Administer** performance Appraisal system and **interpret** employee training, and executive development programs.

Course Assessment & Evaluation Criteria-

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Introduction to Human Resource Management (HRM)

(06)

- 1.1. Meaning. Definitions, Nature, Scope, Objectives & Functions of HRM.
- 1.2. HRM Vs. Personnel Management, HRM Vs. HRD, HRM Environment.
- 1.3. Role & Qualities of HR Manager.
- 1.4. Future Role & Challenges before HRM.

Unit – II Process of Procurement

(12)

- 2.1. **Human Resource Planning:** Concept, Need, Characteristic & Benefits of HRP, Factors Affecting HRP, Process of Human Resource Planning, Requirements of Effective HRP, Barriers to HRP.
- 2.2. **Recruitment:** Concept, Purpose & Factors Affecting Recruitment, Sources & Process of Recruitment.
- 2.3. **Selection:** Concept, Selection process, Selection tests, barriers of selection.
- 2.4. **Placement:** Concept & Problems.
- 2.5. **Induction/Orientation:** Concept, Objective, Steps & Problems in Orientation, Topics of Induction Programme.

2.6. Concept of Promotion, Demotion, Transfer, Layoff, Downsizing, Rightsizing, VRS.

Unit – III Career & Succession Planning

(06)

3.1. **Career Planning:** Meaning, Need, features, objective of career Planning, Process of career planning, Career Guidance.

3.2. **Career Development:** Roles in career Development, Career Development Initiatives.

3.3. **Succession Planning:** Meaning, Process & Benefits of Succession Planning.

Unit – IV Performance appraisal

(08)

4.1. Definitions and Objectives of Performance appraisal.

4.2. Process & Methods of Performance Appraisal: Traditional Methods, Modern Methods.

4.3. Problems with Performance Appraisal.

4.4. Competency Mapping: Concept, Need, Competencies Applications, Classifying Competencies.

Unit – V Employee Training & Executive Development

(08)

5.1. Meaning, Need and Objective of Training & Development.

5.2. Difference between Training & Development and Education.

5.3. Methods of Training & Development: On the Job & Off the Job, Evaluation of Training.

5.4. Evaluation and Assessment of Training Programs.

Unit – VI Advanced HRM Practices

(08)

6.1. Concept of VUCA, Human Resource Information System, Moonlighting by employees, HR Analytics and Digital Transformation.

6.2. Work Life Balance, Employee Engagement, Employer branding, Attrition & Retention.

6.3. Emotional Intelligence, Flexi-time & Flexi-work, Counselling, coaching & mentoring.

6.4. Sustainable HRM: Green HRM, Corporate Social Responsibility (CSR) in HR, and Ethical HRM.

REFERENCE BOOKS:

1. Human Resource Management: A south Asian Perspective – Mathis, Jackson, Tripathi – Cengage
2. Human Resource Management, Text & Cases By Dr. V.S.P Rao - Excel Books
3. Human Resource Management by Wayne Mondy – Pearson
4. Human Resource Management by Haladkar & Sarkar – Oxford University Press
5. Human Resource Management By Dr. Shikha Kapoor - Taxmann
6. Human Resource Management By Dr K. Ashwathappa – Tata McGraw Hill
7. Human Resource Management: A south Asian Perspective By Snell, Bohalender, Vohra- Cengage
8. Essentials of Human Resource Management By P. SubbaRao – Himalaya Publishing House
9. HR From the Outside In: Six Competencies for the Future of Human Resources – Boudreau & Cascio - McGraw-Hill Education- ISBN: 978-0071790351



KBC North Maharashtra University, Jalgaon

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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: 514: Marketing Management



60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours

Course Description

Marketing is an organizational philosophy and a set of guiding principles for interfacing with customers, competitors, collaborators, and the environment. Marketing entails planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services. It starts with identifying and measuring consumers' needs and wants, assessing the competitive environment, selecting the most appropriate customer targets and developing marketing strategy and implementation. This course will infuse the idea that creates customer value and market place exchanges that benefit the organization and its stakeholders.

Course Objectives:

1. To familiarize with the basic concepts, and techniques of marketing management
2. To understand various marketing tools/models for solving marketing problems.
3. To understand effective marketing strategies to achieve organizational objectives.

Course Outcomes:

The successful completion of this course enables the students

| CLO No. | CLO | Cognitive level |
|---------|---|-----------------|
| 1 | To understand the basic concept of marketing. | 2 |
| 2 | Apply key marketing theories, frameworks and tools to solve Marketing problems. | 3 |
| 3 | Evaluate marketing problems and solving those problems for marketing effectiveness. | 5 |

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit 1 – Introduction to Marketing (08)

1.1 Definitions and Basic Concept: Market, Marketing, Selling, Buying need, Wants and Demand, Products, Value, Cost and Satisfaction

1.2 Scope of Marketing. Process of Marketing Management, Difference between Selling and Marketing.

1.3 Marketing Environment- Macro-environment and Micro-environment

1.4 Marketing Management Philosophies:- Production Concept, Product Concept, Selling Concept, Marketing Concept, Social Marketing Concept, Holistic Concept

1. 6 Marketing Mix- Product, Price, Promotion and Place

Unit 2 – Market Segmentation & Consumer Behaviour (08)

2.1 Identification of market

2.2 Market Segmentation, Process of Market Segmentation

- 2.3 Bases for Segmenting Consumer Market and Industrial Market
- 2.4 Consumer behavior: Determinants of consumer behavior
- 2.5 Factors influence consumer behavior.
- 2.6 Consume Decision Making Process

Unit 3 - Designing and Managing Products (08)

- 4.1 Concept of Product, Levels of Product
- 4.2 Concept of Product Life Cycle
- 4.3 Product Differentiation and its Basis
- 4.4 Product Line Analysis, Product Mix Analysis
- 4.5 New Product Development

Unit 4 - Pricing, Promotion, and Distribution Decisions (08)

- 5.1 Factors affecting price determination.
- 5.2 Pricing policies and Strategies.
- 5.3 Promotion methods: Advertising, Personal selling, Public Relations, Direct Marketing and Sales Promotion
- 5.4 Types of Distribution Channel
- 5.5 Monitoring and Managing Distribution Channels

Unit 5 - Marketing 4.0 in the Digital Economy (08)

- 3.1 Introduction
- 3.2 Marketing 4.0
- 3.3 Digital Marketing
- 3.4 Origin of Digital Marketing
- 3.5 Moving from Traditional to Digital Marketing
- 3.6 Integrating Traditional and Digital Marketing

Unit 6 - Neo-Marketing Trends (05)

- 6.1 Web-based Marketing
- 6.2 Social Media Marketing
- 6.3 Sustainable Marketing
- 6.4 Service Marketing
- 6.5 Green Marketing

REFERENCE BOOKS:

Text Book:

Principles of Marketing: A South Asian Perspective, 13e – Kotler - Pearson

Reference Books:

- iv. Marketing –Asian Edition by inha, Bines, Fill & Page – Oxford University Press
- v. Marketing Management – Rajan Saxena – Tata McGraw Hill
- vi. Marketing Management – Iacobucci, Kapoor - Cengage
- vii. Marketing Management: South Asian Perspective, 14e - Kotler/ Koshy – Pearson
- viii. Marketing : A South Asian Perspective – Lamb, Hair, Sharma - Cengage
- ix. Marketing Management – Ramaswamy, Namakumari 4th edition - Macmillan
- x. Marketing Management – Arunkumar N. Meenakshi – Vikas Publishing
- xi. Marketing Management – Stanton – McGraw Hill
- xii. Marketing Management by Kotler, Keller & Koshi- Pearson/ Prentice Hall
- xiii. Marketing –Varma & Duggal – Oxford University Press
- xiv. Basics of Marketing Management – R.B. Rudani- S. Chand & Company Ltd



KBC North Maharashtra University, Jalgaon

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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: 515 Financial Management

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description: The course provides an overview of Financial Management and stretches understanding of Finance as a decision-making science.

Course Objectives:

- 1) The study fundamental concepts of Financial Management.
- 2) To gain basic knowledge about Finance for planning & control.
- 3) To prepare students to undertake practical problems w. r. t. managerial decision making.

Course Outcomes: On successful completion of the course, the students will be able to:

1. Describe the basic concepts related to Financial Management, Various techniques of Financial Statement Analysis, Working Capital, and Budgetary Controls. (**Remember**)
2. Explain in detail all theoretical concepts throughout the syllabus. (**Understand**)
3. Perform all the required calculations through relevant numerical problems. (**Apply**)
4. Explain the situation and find the solution. (**Analyse**)
5. Justify the impact of business decisions on Financial Position of the firm. (**Evaluate**)

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Financial Management (08)

- 1.1. Meaning, Nature, Scope and Objectives
- 1.2. Sources of finance
- 1.3. Functional areas of finance
- 1.4 Financial Forecasting
- 1.5. Few Concepts of finance:
 - 1.5.1. Time value of Money, Concept of risk & return
 - 1.5.2. Interest Rates: Nominal Interest Rate, Real Interest Rate
 - 1.5.3. Measuring shareholders Value Creation: Economic value Added

Unit – II Finance for Planning & control (08)

2.1. Budget & Budgetary Control

- 2.1.1. Concept, Objectives, & Limitations
- 2.1.2. Classification of Budgets – Operating, Financial & Capital Budget
- 2.1.3. Cash Budget, Flexible budget

2.2. Standard Costing

- 2.2.1. Concept, Essentials of an effective system of standard costing
- 2.2.2. Calculation of Material Variances

- 2.2.3. Calculation of Labor Variances
- 2.2.4. Causes & Disposition of the variances

Unit - III Analysis & Interpretation of Financial Statements (08)

- 3.1 Techniques of financial Statement Analysis: Comparative Financial Statements, Common Size Statement, Trend Analysis, Ratio Analysis
- 3.2 Ratio Analysis: Liquidity Ratios, Activity Ratios, Profitability Ratios, Solvency Ratios
- 3.3 Limitations of Ratio Analysis

Unit – IV Funds flow & Cash Flow Analysis (08)

- 4.1 Concept of Funds, Funds from Operations,
- 4.2 Statement of changes in working capital, Funds Flow Statement
- 4.3 Preparation of Cash flow statement (Refer AS-3)

Unit – V Marginal Costing & Break-Even Analysis (08)

- 5.1 Concept of Marginal Cost: Contribution, Variable Cost, Fixed Cost, Semi-Variable Cost
- 5.2 Margin of Safety, PV Ratio
- 5.3 Assumptions of Break-Even Analysis & Calculations of Break Even Point

Unit – VI Management of Working Capital (08)

- 6.1 Concepts: Gross and Net, Permanent & Temporary, Operating Cycle
- 6.2 Factors Determining Working Capital Requirement
- 6.3 Disadvantages of insufficient Working Capital
- 6.4 Estimation of Working Capital Requirement
- 6.5 Financing of Working Capital, Maximum Permissible Bank finance

REFERENCE BOOKS:

1. Financial Management: Dr. R P Rustagi, Taxmann Publications
2. Financial Management by Shrivastava & Mishra- Oxford University Press
3. Accounting for Management by Ramanathan- Oxford
4. Financial Accounting for Management by Ramachandran& Kakani – McGraw Hill
5. Management Accounting: Khan & Jain , Tata Mc-Graw Hill
6. Financial Management: Ravi Kishore, Taxmann Publications
7. Management Accounting: I. M. Pandey, Vikas Publication
8. Management Accounting, 1e Bhattacharyya - Pearson
9. Management accounting – Paresh Shah – Oxford University Press
10. Management Accounting: Dr. S.N. Maheshwari& Dr. S.K. Maheshwari, Vikas Publications
11. Accounting for Managers - Vijaykumar - Tata Mc-Graw Hill
12. Management Accounting: Dr. Jawaharlal, Himalay Publications
13. Principles of Management Accounting: Manmohan& S. N. Goyal
14. Accounting for Managers: Thukaram Rao , new age
15. Management Accounting: Prasanna Chandra, Prentice Hall
16. Cost & Management Accounting: Ravi Kishore, Taxmann Publications
17. Management Accounting: Dr. J. Madegowada, Himalaya



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FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

Paper: 516 A: Industry 4.0

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum

Total Marks: 100 Required

Lectures: 48 hours



Course Description:

This course provides an in-depth understanding of Industry 4.0, tracing its evolution from previous industrial revolutions. It examines the impact of digital transformation on business models, the role of data analytics, and the importance of cyber security. The course also explores emerging technologies and strategic management practices essential for successful Industry 4.0 adoption and implementation.

Course Objectives:

1. To understand the evolution of Industry 4.0, including its historical context.
2. To analyze the impact of digital transformation on business models, focusing on platform-based models.
3. To evaluate the role of data analytics, cyber security, and ethical considerations in Industry 4.0.
4. To explore and develop strategies for adopting and leveraging emerging technologies within various sectors.

Course Outcomes:

1. **Identify** and **explain** the key technologies and drivers of Industry 4.0.
2. **Assess** shifts in business models due to digital transformation
3. **Utilize** data analytics techniques to support decision-making processes in Industry 4.0.
4. **Evaluate** cyber security measures and ethical considerations in Industry 4.0 implementations.
5. **Develop** strategies to leverage emerging technologies for competitive advantage.
6. **Design and Implement** strategic plans for Industry 4.0 adoption

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit 1: Introduction to Industry 4.0

(8)

- a. Definition and Evolution of Industry 4.0
- b. Historical context: Industry 1.0 to Industry 4.0
- c. Key Drivers and Technologies of Industry 4.0- Internet of Things (IoT), Cyber-Physical Systems, Big Data and Analytics, Artificial Intelligence and Machine Learning and Cloud Computing
- d. Overview of Society 5.0.

Unit 2: Digital Transformation and Business Models

(8)

- a. Concept of Digital Transformation
- b. Shifts in Business Models: From Traditional to Platform-Based Models
- c. New Business Models in Industry 4.0- Platform-Based, Subscription-Based, Product-as-a-Service(PaaS)

- d. Challenges and Best Practices in Digital Transformation
- e. Case Studies on Digital Transformation and Business Models

Unit 3: Data Analytics and Decision Making (8)

- o Role and Importance of Data Analytics in Industry 4.0
- o Types of Data Analytics
- o Data Visualization Tools and Techniques
- o Case Studies on Data-Driven Decision Making

Unit 4: Cybersecurity and Ethical Issues (8)

- a. Importance of Cybersecurity in Industry 4.0
- b. Common Cybersecurity Threats and Risks
- c. Ethical Considerations and Data Privacy
- d. Regulatory Frameworks and Compliance
- e. Case Studies on Cybersecurity and Ethical Issues

Unit 5: Innovations and Technologies (8)

- a. Overview of Emerging Technologies- Blockchain, Augmented Reality (AR) and Virtual Reality(VR), Robotics and Automation
- b. Role of Innovation in Maintaining Competitive Edge
- c. Case Studies of Innovative Technologies in Practice

Unit 6: Implementation and Future of Industry 4.0 (8)

- 6.1 Strategic Planning for Industry 4.0 Adoption
- 6.2 Critical Success Factors, Obstacles and Risk Management
- 6.3 Implementation Strategies and Change Management
- 6.4 Case studies and applications in various sectors viz., Healthcare, Agriculture, Manufacturing, Banking, Logistics, and Supply Chain Management

REFERENCE BOOKS:

1. Industry 4.0: The Industrial Internet of Things by Alasdair Gilchrist, Apress Publication, 2016, ISBN 978-1484220467.
2. The Fourth Industrial Revolution by Klaus Schwab, Crown Business Publication, 2017, 978-1524758868
3. Digital Transformation: Survive and Thrive in an Era of Mass Extinction by Thomas Siebel, RosettaBooks, 2019, 978-1948122481
4. Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking by Foster Provost and Tom Fawcett, O'Reilly Media, 2013, 978-1449361327
5. Cybersecurity and Cyberwar: What Everyone Needs to Know by P.W. Singer and Allan Friedman, Oxford University Press, 2014, 978-0199918096
6. Leading Digital: Turning Technology into Business Transformation by George Westerman, Didier Bonnet, and Andrew McAfee, Harvard Business Review Press, 2014, 978-1625272478



KBC North Maharashtra University, Jalgaon

(NAAC Reaccredited 'A' Grade University)

FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

MBA 516B: Business Ethics and Corporate Governance

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



Course Description:

This course is designed to develop in the students an understanding of the concept of Business Ethics and its application in business decision making with emphasize on CSR and sustainable business practices in the age of Globalization. It also aims at providing the students the understanding of ethical issues related to business and good governance necessary for long term survival of business.

Course Objectives:

- To provide fundamental knowledge about Business ethics and CSR
- To create strong foundation for further studies in the field of Ethics and CSR
- To prepare students to play an active part in corporate governance.

Course Outcomes: On successful completion of the course, the students will be able to

1. **Acquire** conceptual understanding of Business Ethics
2. **Understand** ethical issues in functional areas of management
3. **Analyze** and apply CSR Principles & Strategies
4. **Plan and execute** CSR activities in organization
5. **Understand** professional ethics for business
6. **Acquire** conceptual understanding of Corporate Governance

Course Assessment & Evaluation Criteria

| Components | Weight | Per Course Marks |
|--|--------|------------------|
| Class Participation * and Home Assignments (It can be weekly) | 12.5% | 5 |
| Presentation (assign topics & posters), Classroom writing Skill, Quizzes & Allied Assignment | 12.5% | 5 |
| Internal Test | 75% | 30 |
| External Exam | 60% | 60 |
| Total Marks | | 100 |

Unit – I Social Issues (6)

- 1.1 Concept, Characteristic, Nature and Causes of Social Problems
- 1.2 Social problems in Indian context
- 1.3 Social Issues in corporate environment: Casteism, Corruption, Black money, Sexual Harassment at workplace & their impact on Society
- 1.4 Why social issues are business issues?

Unit – II Business Ethics (6)

- 2.1 Definition, Objective and Nature of Business Ethics
- 2.2 Importance of Business Ethics, Factors influencing Business Ethics
- 2.3 Ethical Theories: Utilitarianism, Virtue, social contract theory
- 2.4 Ethical Dilemma, Types of ethical dilemmas.

2.5 Culture: Cultural differences, Hofstede Dimensions of Cultural Differences, cultural discrimination

Unit – III Ethical Decision Making (8)

- 3.1 Values, Morals, Norms, Beliefs
- 3.2 Characteristics of moral standards, Kohlberg's model of cognitive moral development
- 3.3 Applied Ethics, Code of Ethics, Code of Conduct and Code of Practice
- 3.4 Ethical Decision Making Process, Ethical consistency, Ethical decision making models
- 3.5 Individual Factors, and Organizational Factors Contributing to Unethical Behavior

Unit – IV Professional Ethics (8)

- 4.1 Elements for developing ethical corporate behavior, Importance Professional ethics
- 4.2 Ethics in Marketing, Ethics in HRM, Ethics in Finance & Accounting, Ethics in Information Technology
- 4.3 Business Ethics in Global Economy, and international business management
- 4.4 Relationship between Business Ethics & Business Development, Role of Business Ethics in Building a Civilized Society.

Unit – V Ethics and Corporate Social Responsibility (10)

- 5.1 Concept, Key aspects, Scope & Importance of Corporate Social Responsibility
- 5.2 Business ethics and CSR, Types of CSR, CSR Principles & Strategies
- 5.3 Criterion for determining the Social Responsibility of Business,
- 5.4 Corporate social responsiveness, Corporate Social performance. CSR as organizational Brand building effort.
- 5.5 CSR Activity planning & Execution, CSR law under companies' act 2013, CSR Ratings

Unit- VI Corporate Governance (10)

- 6.1 Definition, Characteristics, Structure & Need and purpose of Corporate Governance
- 6.2 Principles of Corporate Governance, Role players in corporate governance
- 6.3 Issues, Benefits and Limitations in Corporate Governance
- 6.4 Corporate Governance Models: Anglo-American, European, and Asian Models
- 6.5 Corporate Governance Practices in India

Reference Books:

1. Business Ethics and Corporate Governance- C.S.V. Murthy
2. Business Ethics- Manisha Paliwal, New Age International Publishers
3. Business Ethics: K Aswathappa, J Usha Rani, SunandaGundaVajhala; Himalayala Publishing house; First edition 2017.
5. Business Ethics and Corporate Governance: Dr. S. S. Khanka; S Chand and Company PvtLtd; First edition 2014.
6. Corporate Social Responsibility – MadhumitaChattergi – Oxford University Press
7. Ethics in Business & corporate governance: Mandal – Tata McGraw Hill
8. Corporate Governance: Principal Policies & Practices by Fernando, Pearson Education
9. Corporate Governance, Values & Ethics – Vasisth, Rajput - Taxmann
10. Business Ethics – Albuquerque - Oxford University Press
11. Business Ethics: An Indian Perspective – Francis Mishra - TMH
12. Business Ethics Manisha Paliwal, New age International
13. Corporate Governance and Business Ethics – Mathur – Macmillan
14. Business Ethics – Hartman, Chatterjee – McGraw Hill



KBC North Maharashtra University, Jalgaon

(NAAC Reaccredited 'A' Grade University)

FACULTY OF COMMERCE & MANAGEMENT

New Syllabus: M.B.A. w.e.f. AY 2024-25

SEMESTER: I

MBA 516 C SWAYAM / MOOC Courses

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Required Lectures: 48 hours



SWAYAM OR NPTEL OR MOOC Courses :

Students can complete Online course of total 4 credits through online platform of SWAYAM/NPTEL/MOOCs or equivalent for sector skill as per stated in the AICTE regulation (2016) or equivalent.

Any course with credits as per available list and schedule can be opted by student in the form of SWAYAM/NPTEL/MOOCs or equivalent, provided the student secures the certificate after completion of examination through same course link .courses from other course providers , from other platforms shall not be considered valid unless recommended by BOS .

The students should submits a valid course completion certificate with credit before external exams and by the end of II semester, which will be added to the second semester marks statement

If 4 credit courses are not available then student may opt for 2 credit two courses.

At least 80% contents of the NPTEL/SWAYAM/MOOC or equivalent as per NSQR framework ,skill council of India course should match with syllabus contents of the subject prescribed by the university.

Source:

Swayam link: https://swayam.gov.in/nc_details/NPTEL

Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)

Bachelor of Engineering
in
Mechanical
(As per NEP 2020 Guidelines)

Faculty of Science and Technology



SEMESTER – WISE SYLLABUS STRUCTURE
For Affiliated Colleges
Semester – I to VIII
W.E.F. 2024 – 25

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
 CC: Co-curricular Courses
 CEP: Community engagement project
 ELC: Experiential Learning Courses
 FP: Field projects
 HSSM: Humanities, Social Science, and Management
 IKS: Indian Knowledge System
 LL: Liberal Learning Courses
 MPCC: Minor Program Core Courses
 OE: Generic/ Open Electives
 OJT: On Job Training: Internship/ Apprenticeship
 RM: Research Methodology
 RP: Research Project
 SEC: Skill Enhancement Courses
 VEC: Value Education Courses
 VSC: Vocational Skill Courses
 VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course | | | | 02 | 02 | | | | | 04 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| (VEC) | | | | | | | | | | |
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Semester wise Credit distribution structure for Four Year UG Engineering Program with Specialization Minor (Additional 20 credits):

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---------------------------|---|----|-----|----|---|----|-----|------|---------------|
| Program Core Course (PCC) | | | 4 | 4 | 4 | 4 | | 4 | 20 |

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

PROGRAM / BRANCH CODE:

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELCTRONICS & TELECOMMUNICATION ENGINEERING

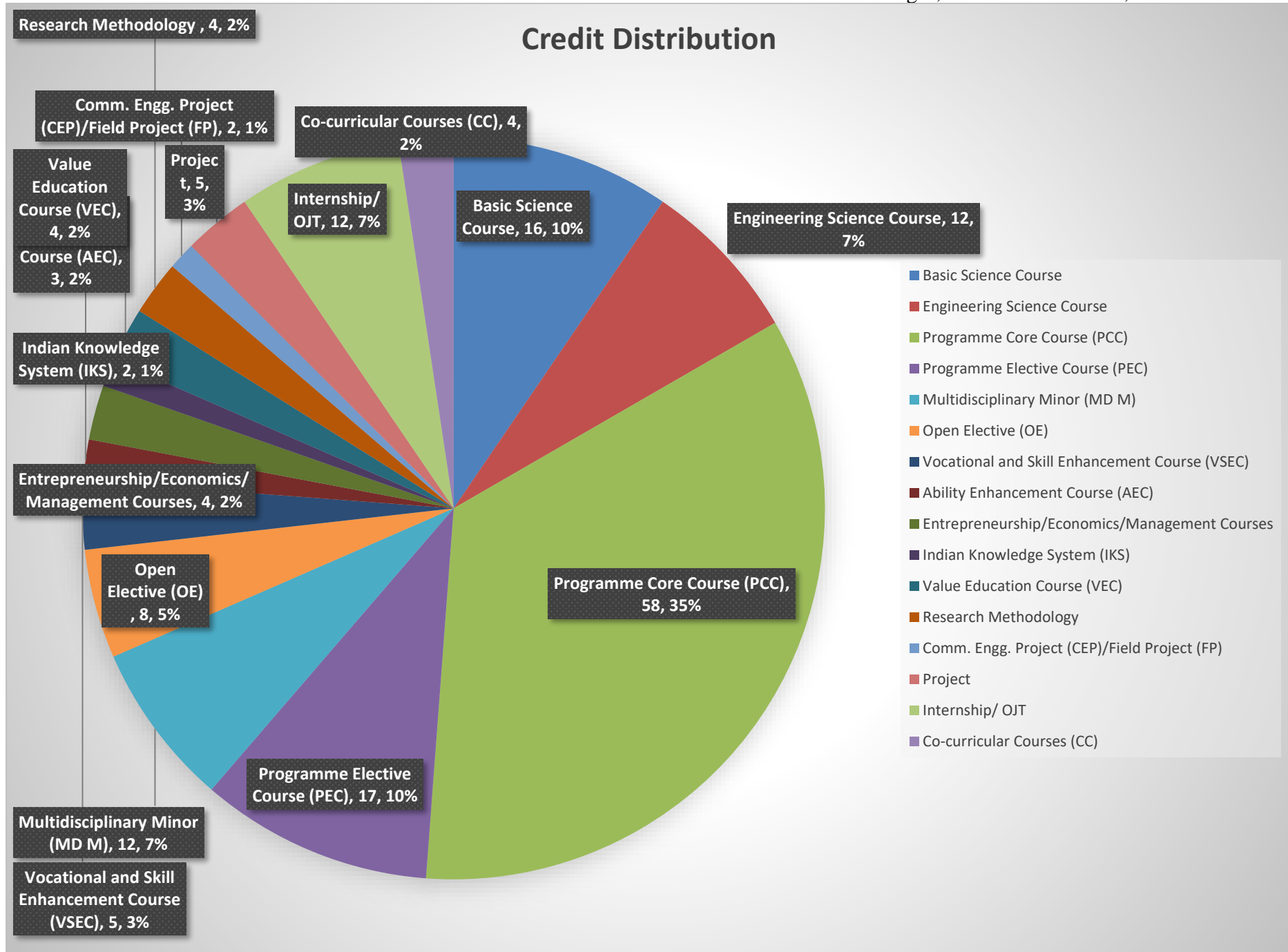
EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
 For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25



SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Mechanical) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-101 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-102 | Engineering Chemistry Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| ME-103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| ME-104 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-105 | Engineering Graphics Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-106 | Programming for Problem Solving | ESC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| ME-107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-108 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-109 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| ME-110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Mechanical) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-201 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-202 | Engineering Physics Lab | BSC | | | 2 | 2 | | | 25 | - | | |
| ME-203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| ME-204 | Basic Electrical and Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-205 | Basic Electrical and Electronics Engineering Lab | ESC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-206 | Introduction to Artificial Intelligence and Machine Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-207 | Introduction to Artificial Intelligence and Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-208 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-209 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| ME-210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. CERTIFICATE in Mechanical (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-211 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| ME-212 | Mini Project | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – III, Level – 5.0) (Mechanical) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-301 | Engineering Mechanics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-302 | Engineering Mechanics Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-303 | Applied Thermodynamics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-304 | Applied Thermodynamics Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-305 | Machine Drawing and Computer Graphics lab. | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| ME-306 | Ergonomics and Human-Centered Design | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-307 | Open Elective – I | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-308 | Industrial Economics | HSSM | 2 | | | 2 | | | | | | 2 |
| ME-309 | Universal Human Values | HSSM | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| ME-310 | Community Engagement Project / Field Project | ELC | | | 4 | 4 | | | 50 | | 50 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – IV, Level – 5.0) (Mechanical) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-401 | Manufacturing Processes | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-402 | Manufacturing Processes Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-403 | Fluid Mechanics & Hydraulic Machines | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-404 | Fluid Mechanics & Hydraulic Machines Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-405 | Measurements & Metrology lab. | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| ME-406 | Biology for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-407 | Open Elective – II | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-408 | Advance Welding Processes | VSEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| ME-409 | Ability Enhancement Course | AEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| ME-410 | Operation Research | HSSM | 2 | | | 2 | | | | | | 2 |
| ME-411 | Environmental Science | HSSM | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. DIPLOMA in Mechanical (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-412 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| ME-413 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – V, Level – 5.5) (Mechanical) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-501 | Computer Aided Design and Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-502 | Computer Aided Design and Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-503 | Heat Transfer & Thermal Machines | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-504 | Heat Transfer & Thermal Machines Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-505 | Modeling & Simulation Lab | PCC | 3 | | 4 | 7 | | | 50 | 25 (PR) | 75 | 5 |
| ME-506 | Program Elective Course – I | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-507 | Program Elective Course – I Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| ME-508 | Mechanics of Material | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-509 | Open Elective – III | OE | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – I | | |
|-----------------------------|---|-----------------------------------|
| Course Code | | Name of the Subject / Course |
| ME-506 | A | Tribology |
| ME-506 | B | Kinematics & Dynamics of Machines |
| ME-506 | C | Hydraulics and Pneumatics |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – VI, Level – 5.5) (Mechanical) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-601 | Mechatronics, Robotic and Control Systems | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-602 | Mechatronics, Robotic and Control Systems Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-603 | Machine Element & System Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-604 | Machine Element & System Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-605 | Program Elective Course – II Lab | PEC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| ME-606 | Program Elective Course – III | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-607 | Program Elective Course – III Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| ME-608 | Data Analysis and Statistical Analysis | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| ME-609 | Air Conditioning Maintenance | VSEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

| Program Elective Course – II Lab | | | Program Elective Course – III | | |
|----------------------------------|---|--|-------------------------------|---|----------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| ME-605 | A | CAD/CAM Integration with Modeling Software Lab | ME-606 | A | AI/ML for Mechanical Engineering |
| ME-605 | B | Computational Fluid Dynamics Lab | ME-606 | B | Programming for Mechatronics |
| ME-605 | C | Die and Mold Design and Tool Engineering Lab | ME-606 | C | Autonomous System Integration |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. B. VOCATIONAL in Mechanical (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-610 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| ME-611 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VII, Level – 6.0) (Mechanical) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | Credits | |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|------------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | | Total |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-701 | Engineering Materials & Applications | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-702 | Engineering Materials & Applications Lab | PCC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| ME-703 | Program Elective Course – IV | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| ME-704 | Program Elective Course – IV | PEC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| ME-705 | Materials Management | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| ME-706 | Internship / OJT | ELC | | | 24 | 24 | | | 125 | 50 (OR) | 175 | 12 |
| | | | 7 | | 28 | 35 | 120 | 180 | 200 | 150 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – IV | | |
|------------------------------|------------------------------|-------------------------------------|
| Course Code | Name of the Subject / Course | |
| ME-703 | A | Advanced Manufacturing Technologies |
| ME-703 | B | Power Plant Engineering |
| ME-703 | C | Additive Manufacturing |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VIII, Level – 6.0) (Mechanical) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ME-801 | Lean Manufacturing and Process Optimization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ME-802 | Lean Manufacturing and Process Optimization Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| ME-803 | Program Elective Course – V | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| ME-804 | Program Elective Course – V Lab | PEC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| ME-805 | Program Elective Course – VI | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| ME-806 | Program Elective Course – VI Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| ME-807 | Supply Chain Management | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| ME-808 | Research Methodology | ELC | 3 | | 2 | 5 | | | 25 | | 25 | 4 |
| ME-809 | Project | ELC | | | 10 | 10 | | | 50 | 25 (OR) | 75 | 5 |
| | | | 12 | | 18 | 30 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

| Program Elective Course – V | | | Program Elective Course – VI | | |
|-----------------------------|---|----------------------------------|------------------------------|---|-------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| ME-803 | A | Refrigeration & Air Conditioning | ME-805 | A | Internal Combustion Engines |
| ME-803 | B | Electrical and hybrid Vehicle | ME-805 | B | Automation in Manufacturing |
| ME-803 | C | Lean Six Sigma | ME-805 | C | Product Life Cycle Management |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Open Elective

A Student can opt for any one subject out of available institute wide subjects defined in the following list as Open Elective provided, he/she has not taken that particular subject in his/her Programme core, Programme elective, Multidisciplinary Minor, other Open elective and Vocational and Skill Enhancement courses etc. throughout his / her four years of UG Engineering Programme. The student must opt a subject that is compulsorily from faculty other than that of the Major discipline.

| Course Code | Name of the Subject / Course | Faculty Offered by | Department Offered by |
|--|--|--------------------|-----------------------|
| Open Elective - I (w.e.f. 2025 - 26 at Semester - III, Second Year Engineering) | | | |
| OE – 307 A | Quantitative Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 307 B | Management Science | Comm. & Mgmt. | Management |
| OE – 307 C | Business Ethics & Professional Values | Comm. & Mgmt. | Management |
| OE – 307 D | Plant Nursery and Management | Sci. & Tech. | Botany |
| OE – 307 E | General Clinical Pathology | Sci. & Tech. | Biochemistry |
| OE – 307 F | Herbal Home Remedies | Sci. & Tech. | Botany |
| OE – 307 G | Psychology of Well-being | Humanities | Psychology |
| OE – 307 H | Fundamentals of Banking | Humanities | Economics |
| Open Elective - II (w.e.f. 2025 - 26 at Semester - IV, Second Year Engineering) | | | |
| OE – 407 A | Human Resource Management | Comm. & Mgmt. | Management |
| OE – 407 B | Logical Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 407 C | Retail Management | Comm. & Mgmt. | Commerce |
| OE – 407 D | Public Health and Hygiene | Sci. & Tech. | Zoology |
| OE – 407 E | Agricultural Pest Management | Sci. & Tech. | Zoology |
| OE – 407 F | Basics of Stock Markets | Comm. & Mgmt. | Commerce |
| OE – 407 G | Problems of Philosophy | Humanities | Philosophy |
| OE – 407 H | Social and Preventive Pharmacy | Sci. & Tech. | Pharmacy |
| OE – 407 I | Tree Plantation and Management | Sci. & Tech. | Botany |
| Open Elective - III (w.e.f. 2026 - 27 at Semester - V, Third Year Engineering) | | | |
| OE – 509 A | Legal Aspects of Business | Comm. & Mgmt. | Management |
| OE – 509 B | Modern Office Management | Comm. & Mgmt. | Commerce |
| OE – 509 C | Food Adulteration and Safety | Sci. & Tech. | Environment |
| OE – 509 D | Insurance Management | Comm. & Mgmt. | Commerce |
| OE – 509 E | Indian Social Problems | Humanities | Sociology |
| OE – 509 F | Disaster Management | Sci. & Tech. | Environment |
| OE – 509 G | Pharma Marketing Management | Sci. & Tech. | Pharmacy |
| OE – 509 H | Introduction to Earth System Science | Sci. & Tech. | Geology |
| OE – 509 I | Circular Economy | Humanities | Economics |

Honors offered by Mechanical for students of the same Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Honors in the same Engg. / Tech. discipline / branch / Emerging Areas.

A student is required to study additional 20 credits in the same Engg. / Tech. discipline/ branch / Emerging Areas for Honors distributed over semesters III to VIII.

The total number of credits required for completion of the Honors in the same Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Honors from the same Engg. / Tech. discipline / branch.

Honors Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Honors offered by Mechanical are as follows.

- A. Robotics
- B. 3D Printing
- C. Energy Engineering

The detail syllabus structure for the same is as follows.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Robotics

Syllabus Structure for Honors in Robotics: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311A | Principles of Robotics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312A | Principles of Robotics lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Robotics: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414A | Kinematics & Synthesis of Mechanism | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415A | Kinematics & Synthesis of Mechanism lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Robotics: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510A | Robotics Instrumentation | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511A | Robotics Instrumentation lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Robotics: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612A | Hydraulics & Pneumatics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613A | Hydraulics & Pneumatics lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Robotics: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810A | Industrial Robotics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811A | Industrial Robotics lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in 3D Printing

Syllabus Structure for Honors in 3D Printing: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311B | 3D printing processes | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312B | 3D printing processes lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 3D Printing: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414B | 3D printing machines and systems | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415B | 3D printing machines and systems lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in 3D Printing: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510B | Material characterization Techniques in 3D printing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511B | Material characterization Techniques in 3D printing lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 3D Printing: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612B | Rapid tooling and industrial processes | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613B | Rapid tooling and industrial processes lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in 3D Printing: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810B | Implementation of 3D printing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811B | Implementation of 3D printing lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Energy Engineering

Syllabus Structure for Honors in Energy Engineering: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311C | Fuels and combustion | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312C | Fuels and combustion lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Energy Engineering: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414C | Solar Photovoltaic Systems Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415C | Solar Photovoltaic Systems Design lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Energy Engineering: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510C | Energy Conservation, Audit and Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511C | Energy Conservation, Audit and Management lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Energy Engineering: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612C | Energy Environment and Impact Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613C | Energy Environment and Impact Analysis lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Energy Engineering: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810C | Solar Thermal Power Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811C | Solar Thermal Power Engineering lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor offered by Mechanical for students of other Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Specialization Minor in another Engg. / Tech. discipline / branch / Emerging Areas, not in Major Engg. / Tech. discipline / branch.

A student is required to study additional 20 credits in another Engg. / Tech. discipline/ branch / Emerging Areas for Specialization Minor distributed over semesters III to VIII.

The total number of credits required for completion of the Specialization Minor in another Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Specialization Minor from other Engg. / Tech. discipline / branch, not from Major Engg. / Tech. discipline / branch.

Specialized Minor Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Specialization Minors offered by Mechanical are as follows.

- A. Robotics
- B. 3D Printing
- C. Energy Engineering

The detail syllabus structure for the same is as follows.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Robotics

Syllabus Structure for specialization minor in Robotics: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311A | Principles of Robotics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312A | Principles of Robotics lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for specialization minors in Robotics: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414A | Kinematics & Synthesis of Mechanism | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415A | Kinematics & Synthesis of Mechanism lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for specialization minor in Robotics: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510A | Robotics Instrumentation | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511A | Robotics Instrumentation lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for specialization minor in Robotics: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612A | Hydraulics & Pneumatics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613A | Hydraulics & Pneumatics lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25
Syllabus Structure for specialization minor in Robotics: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810A | Industrial Robotics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811A | Industrial Robotics lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in 3D Printing

Syllabus Structure for specialization minor in 3D Printing: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311B | 3D printing processes | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312B | 3D printing processes lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for specialization minor in 3D Printing: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414B | 3D printing machines and systems | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415B | 3D printing machines and systems lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for specialization minor in 3D Printing: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510B | Material characterization Techniques in 3D printing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511B | Material characterization Techniques in 3D printing lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for specialization minor in 3D Printing: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612B | Rapid tooling and industrial processes | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613B | Rapid tooling and industrial processes lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for specialization minor in 3D Printing: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810B | Implementation of 3D printing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811B | Implementation of 3D printing lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Energy Engineering

Syllabus Structure for specialization minor in Energy Engineering: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311C | Fuels and combustion | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312C | Fuels and combustion lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for specialization minor in Energy Engineering: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414C | Solar Photovoltaic Systems Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415C | Solar Photovoltaic Systems Design lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for specialization minor in Energy Engineering: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510C | Energy Conservation, Audit and Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511C | Energy Conservation, Audit and Management lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for specialization minor in Energy Engineering: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612C | Energy Environment and Impact Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613C | Energy Environment and Impact Analysis lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (MECHANICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for specialization minor in Energy Engineering: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810C | Solar Thermal Power Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811C | Solar Thermal Power Engineering lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

**Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)**

**Bachelor of Engineering
in
Electrical**

(As per NEP 2020 Guidelines)

Faculty of Science and Technology



**SEMESTER – WISE SYLLABUS STRUCTURE
For Affiliated Colleges
Semester – I to VIII
W.E.F. 2024 – 25**

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
- CC: Co-curricular Courses
- CEP: Community engagement project
- ELC: Experiential Learning Courses
- FP: Field projects
- HSSM: Humanities, Social Science, and Management
- IKS: Indian Knowledge System
- LL: Liberal Learning Courses
- MPCC: Minor Program Core Courses
- OE: Generic/ Open Electives
- OJT: On Job Training: Internship/ Apprenticeship
- RM: Research Methodology
- RP: Research Project
- SEC: Skill Enhancement Courses
- VEC: Value Education Courses
- VSC: Vocational Skill Courses
- VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course | | | | 02 | 02 | | | | | 04 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| (VEC) | | | | | | | | | | |
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Semester wise Credit distribution structure for Four Year UG Engineering Program with Specialization Minor (Additional 20 credits):

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---------------------------|---|----|-----|----|---|----|-----|------|---------------|
| Program Core Course (PCC) | | | 4 | 4 | 4 | 4 | | 4 | 20 |

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

PROGRAM / BRANCH CODE:

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELCTRONICS & TELECOMMUNICATION ENGINEERING

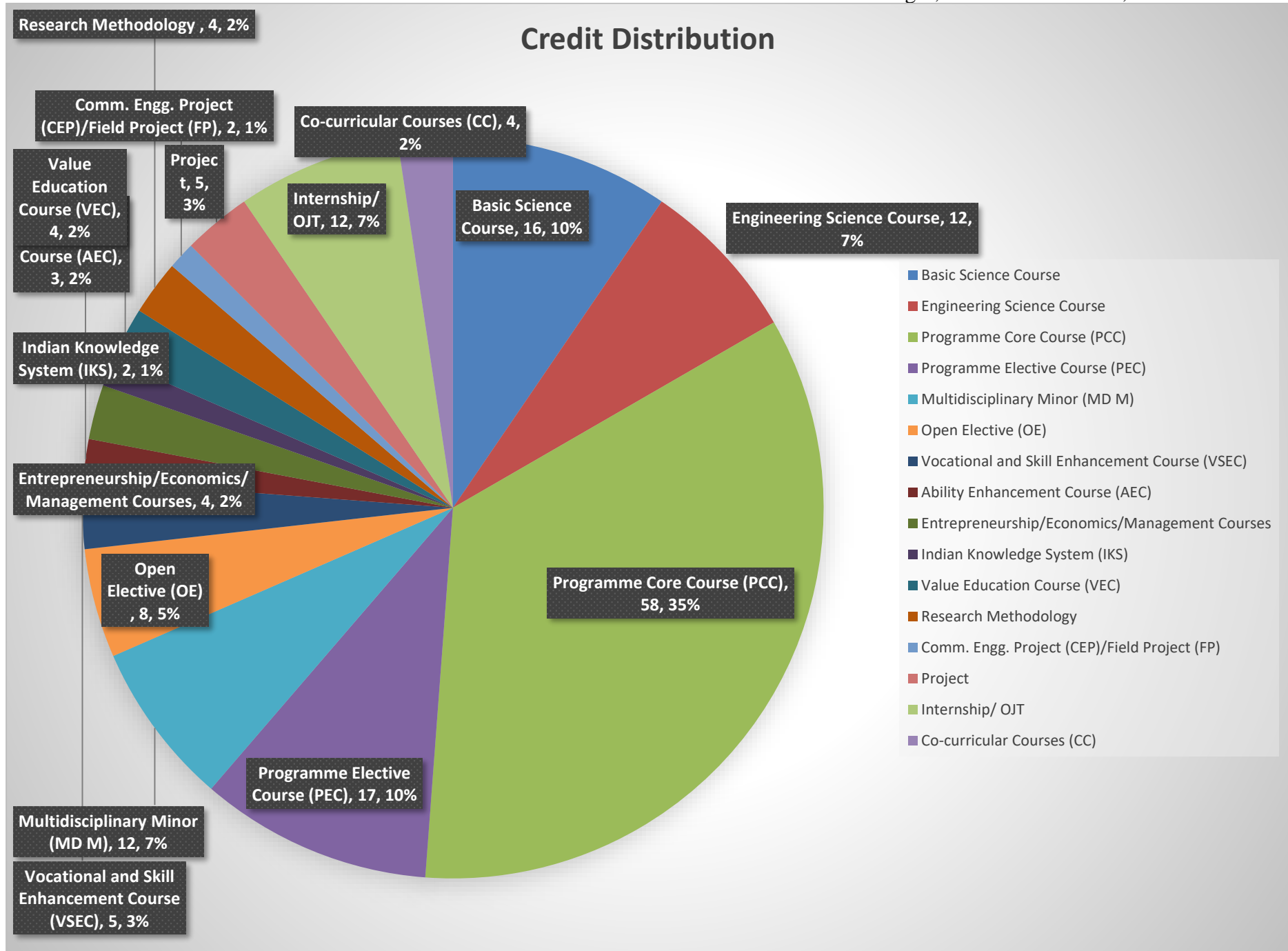
EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
 For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25



SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Electrical) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE-101 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE-102 | Engineering Physics Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| EE -103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| EE -104 | Basic Electrical and Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -105 | Basic Electrical and Electronics Engineering Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EE -106 | Programming for Problem Solving | ESC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| EE -107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -108 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EE -109 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EE -110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Electrical) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -201 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -202 | Engineering Chemistry Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| EE -203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| EE -204 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -205 | Engineering Graphics Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EE -206 | Introduction to Artificial Intelligence and Machine Learning | PCC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| EE -207 | Introduction to Artificial Intelligence and Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -208 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EE -209 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EE -210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. CERTIFICATE in Electrical (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -211 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EE -212 | Mini Project | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – III, Level – 5.0) (Electrical) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -301 | Electrical Circuit Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -302 | Electrical Circuit Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -303 | Electrical Machines-I | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -304 | Electrical Machines-I Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -305 | Electrical Workshop Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| EE -306 | Biology for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE-307 | Open Elective – I | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -308 | Knowledge Management | HSSM | 2 | | | 2 | | | | | | 2 |
| EE -309 | Universal Human Values | HSSM | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EE -310 | Community Engagement Project / Field Project | ELC | | | 4 | 4 | | | 50 | | 50 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – IV, Level – 5.0) (Electrical) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -401 | Electrical Machines-II | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -402 | Electrical Machines-II Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -403 | Analog and Digital Electronics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -404 | Analog and Digital Electronics | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -405 | Electrical Measurement Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (PR) | 50 | 2 |
| EE -406 | Electromagnetic Fields | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE -407 | Open Elective – II | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -408 | Repairing and Maintenance of Electrical Appliances | VSEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EE -409 | Ability Enhancement Course | AEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EE -410 | Entrepreneurship Development | HSSM | 2 | | | 2 | | | | | | 2 |
| EE -411 | Environmental Science | HSSM | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. DIPLOMA in Electrical (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -412 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EE -413 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – V, Level – 5.5) (Electrical) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -501 | Power System -I | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -502 | Power System -I Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -503 | Power Electronics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -504 | Power Electronics Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -505 | High Voltage Engineering Lab | PCC | 3 | | 4 | 7 | | | 50 | 25 (PR) | 75 | 5 |
| EE -506 | Program Elective Course – I | PEC | 3 | | | 3 | 40 | 60 | 25 | | 125 | 3 |
| EE -507 | Program Elective Course – I Lab | PEC | | | 2 | 2 | | | | | | 1 |
| EE -508 | Signals and Systems | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE -509 | Open Elective – III | OE | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – I | | |
|-----------------------------|---|--------------------------------|
| Course Code | | Name of the Subject / Course |
| EE -506 | A | Power Generation and Economics |
| EE -506 | B | Electrical Machine Design |
| EE -506 | C | Special Machines |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – VI, Level – 5.5) (Electrical) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -601 | Control System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -602 | Control System Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -603 | Power System-II | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -604 | Power System-II Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE -605 | Program Elective Course – II Lab | PEC | 3 | | 4 | 7 | | | 50 | 25 (PR) | 75 | 5 |
| EE -606 | Program Elective Course – III | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -607 | Program Elective Course – III Lab | PEC | | | 2 | 2 | | | 25 | 25 | 25 | 1 |
| EE -608 | Wind and Solar Power Systems | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EE -609 | Electrical Installation | VSEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

| Program Elective Course – II Lab | | | Program Elective Course – III | | |
|----------------------------------|---|---|-------------------------------|---|------------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| EE -605 | A | Software Application Lab | EE -606 | A | Microprocessor and Microcontroller |
| EE -605 | B | Programmable Logic Controller, Supervisory Control and Data Acquisition Lab | EE -606 | B | Utilization of Electrical Energy |
| EE -605 | C | Computer Aided Electrical Drawing Lab | EE -606 | C | Illumination Engineering |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. B. VOCATIONAL in Electrical (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -610 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EE -611 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VII, Level – 6.0) (Electrical) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|------------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -701 | Economic Operations and Control of Power Systems | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -702 | Economic Operations and Control of Power Systems Lab | PCC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| EE -703 | Program Elective Course – IV | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| EE -704 | Program Elective Course – IV Lab | PEC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| EE -705 | Sustainable Power Generation Systems | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EE -706 | Internship / OJT | ELC | | | 24 | 24 | | | 125 | 50 (OR) | 175 | 12 |
| | | | 7 | | 28 | 35 | 120 | 180 | 200 | 150 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – IV | | |
|-------------------------------------|---|---|
| Course Code | | Name of the Subject / Course |
| EE -703 | A | Smart Grid |
| EE -703 | B | Electric Vehicle |
| EE -703 | C | Advances in UHV Transmission and Distribution |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VIII, Level – 6.0) (Electrical) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE 801 | Power System Protection | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE 802 | Power System Protection Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE 803 | Program Elective Course – V | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| EE 804 | Program Elective Course – V Lab | PEC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EE 805 | Program Elective Course – VI | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| EE -806 | Program Elective Course – VI Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EE -807 | Artificial Intelligence | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EE -808 | Research Methodology | ELC | 3 | | 2 | 5 | | | 25 | | 25 | 4 |
| EE -809 | Project | ELC | | | 10 | 10 | | | 50 | 25 (OR) | 75 | 5 |
| | | | 12 | | 18 | 30 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination

ESE: End Semester Examination

ICA: Internal Continuous Assessment

CA: College Assessment

UA: University Assessment

| Program Elective Course – V | | | Program Elective Course – VI | | |
|-----------------------------|---|-------------------------------|------------------------------|---|---|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| EE -803 | A | Electric Drives | EE -805 | A | Flexible AC Transmission System and Power Quality |
| EE -803 | B | Electric Traction Engineering | EE -805 | B | HVDC Transmission System |
| EE -803 | C | Power System Stability | EE -805 | C | Power System Design Practice |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Open Elective

A Student can opt for any one subject out of available institute wide subjects defined in the following list as Open Elective provided, he/she has not taken that particular subject in his/her Programme core, Programme elective, Multidisciplinary Minor, other Open elective and Vocational and Skill Enhancement courses etc. throughout his / her four years of UG Engineering Programme. The student must opt a subject that is compulsorily from faculty other than that of the Major discipline.

| Course Code | Name of the Subject / Course | Faculty Offered by | Department Offered by |
|--|--|--------------------|-----------------------|
| Open Elective - I (w.e.f. 2025 - 26 at Semester - III, Second Year Engineering) | | | |
| OE – 307 A | Quantitative Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 307 B | Management Science | Comm. & Mgmt. | Management |
| OE – 307 C | Business Ethics & Professional Values | Comm. & Mgmt. | Management |
| OE – 307 D | Plant Nursery and Management | Sci. & Tech. | Botany |
| OE – 307 E | General Clinical Pathology | Sci. & Tech. | Biochemistry |
| OE – 307 F | Herbal Home Remedies | Sci. & Tech. | Botany |
| OE – 307 G | Psychology of Well-being | Humanities | Psychology |
| OE – 307 H | Fundamentals of Banking | Humanities | Economics |
| Open Elective - II (w.e.f. 2025 - 26 at Semester - IV, Second Year Engineering) | | | |
| OE – 407 A | Human Resource Management | Comm. & Mgmt. | Management |
| OE – 407 B | Logical Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 407 C | Retail Management | Comm. & Mgmt. | Commerce |
| OE – 407 D | Public Health and Hygiene | Sci. & Tech. | Zoology |
| OE – 407 E | Agricultural Pest Management | Sci. & Tech. | Zoology |
| OE – 407 F | Basics of Stock Markets | Comm. & Mgmt. | Commerce |
| OE – 407 G | Problems of Philosophy | Humanities | Philosophy |
| OE – 407 H | Social and Preventive Pharmacy | Sci. & Tech. | Pharmacy |
| OE – 407 I | Tree Plantation and Management | Sci. & Tech. | Botany |
| Open Elective - III (w.e.f. 2026 - 27 at Semester - V, Third Year Engineering) | | | |
| OE – 509 A | Legal Aspects of Business | Comm. & Mgmt. | Management |
| OE – 509 B | Modern Office Management | Comm. & Mgmt. | Commerce |
| OE – 509 C | Food Adulteration and Safety | Sci. & Tech. | Environment |
| OE – 509 D | Insurance Management | Comm. & Mgmt. | Commerce |
| OE – 509 E | Indian Social Problems | Humanities | Sociology |
| OE – 509 F | Disaster Management | Sci. & Tech. | Environment |
| OE – 509 G | Pharma Marketing Management | Sci. & Tech. | Pharmacy |
| OE – 509 H | Introduction to Earth System Science | Sci. & Tech. | Geology |
| OE – 509 I | Circular Economy | Humanities | Economics |

Honors offered by Electrical for students of the same Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Honors in the same Engg. / Tech. discipline / branch / Emerging Areas.

A student is required to study additional 20 credits in the same Engg. / Tech. discipline/ branch / Emerging Areas for Honors distributed over semesters III to VIII.

The total number of credits required for completion of the Honors in the same Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Honors from the same Engg. / Tech. discipline / branch.

Honors Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Honors offered by Electrical are as follows.

- A. High Voltage and Power Systems Engineering
- B. Microgrid Technologies
- C. Electrical Energy Systems

The detail syllabus structure for the same is as follows.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in High Voltage and Power Systems Engineering

Syllabus Structure for Honors in High Voltage and Power Systems Engineering: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311A | Electrical Engineering Material and Application | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312A | Electrical Engineering Material and Application Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in High Voltage and Power Systems Engineering: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414A | Advance Measurement and Instrumentation | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415A | Advance Measurement and Instrumentation Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in High Voltage and Power Systems Engineering: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510A | EHV and HVDC Transmission System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511A | EHV and HVDC Transmission System Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in High Voltage and Power Systems Engineering: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612A | Advances in UHV Transmission & Distribution | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613A | Advances in UHV Transmission & Distribution Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in High Voltage and Power Systems Engineering: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810A | Computer Methods in Power System Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811A | Computer Methods in Power System Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Microgrid Technologies

Syllabus Structure for Honors in Microgrid Technologies: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311B | Distributed Generation Recourses | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312B | Distributed Generation Recourses Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Microgrid Technologies: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414B | Energy Storage and Battery Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415B | Energy Storage and Battery Management Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Microgrid Technologies: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510B | Microgrid Architectures and Converters | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511B | Microgrid Architectures and Converters Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Microgrid Technologies: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612B | Microgrid Operation and Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613B | Microgrid Operation and Control Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Microgrid Technologies: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810B | Microgrid Stability and Protection | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811B | Microgrid Stability and Protection Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Honors in Electrical Energy Systems

Syllabus Structure for Honors in Electrical Energy Systems: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -311C | Energy Conversion and Storage Technology | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -312C | Energy Conversion and Storage Technology Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Electrical Energy Systems: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -414C | Wind and Solar Energy Technology | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -415C | Wind and Solar Energy Technology Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Electrical Energy Systems: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -510C | Control and Integration of Renewable Energy | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -511C | Control and Integration of Renewable Energy Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Electrical Energy Systems: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -612C | Electrical Energy Conservation and Auditing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -613C | Electrical Energy Conservation and Auditing Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Honors in Electrical Energy Systems: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| CH -810C | Energy Management System and SCADA | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| CH -811C | Energy Management System and SCADA Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor offered by Electrical for students of other Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Specialization Minor in another Engg. / Tech. discipline / branch / Emerging Areas, not in Major Engg. / Tech. discipline / branch.

A student is required to study additional 20 credits in another Engg. / Tech. discipline/ branch / Emerging Areas for Specialization Minor distributed over semesters III to VIII.

The total number of credits required for completion of the Specialization Minor in another Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Specialization Minor from other Engg. / Tech. discipline / branch, not from Major Engg. / Tech. discipline / branch.

Specialized Minor Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Specialization Minors offered by Electrical are as follows.

- A. Electrical and Power Engineering
- B. Electrical Machines and Drives
- C. Electric Vehicles

The detail syllabus structure for the same is as follows.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Electrical and Power Engineering

Syllabus Structure for Specialization Minor in Electrical and Power Engineering: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -313A | Electrical Machines and Transformer | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -314A | Electrical Machines and Transformer Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Electrical and Power Engineering: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -416A | Power System Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -417A | Power System Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Electrical and Power Engineering: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -512A | Power System Analysis | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -513A | Power System Analysis Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Electrical and Power Engineering: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -614A | High Voltage Power Transmission | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -615A | High Voltage Power Transmission Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Electrical and Power Engineering: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------------|---------------------------|----------------------------|-------|-------------------|-------------|-------------|-------------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -812A | Fundamental of Protection and Switch Gear | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -813A | Fundamental of Protection and Switch Gear Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Electrical Machines and Drives

Syllabus Structure for Specialization Minor in Electrical Machines and Drives: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -313B | AC Circuit and Measurement | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -314B | AC Circuit and Measurement Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Electrical Machines and Drives: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -416B | DC Machines and Transformer | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -417B | DC Machines and Transformer Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Electrical Machines and Drives: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -512B | AC Machines | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -513B | AC Machines Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Electrical Machines and Drives: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -614B | Electrical Machines Operation Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -615B | Electrical Machines Operation Control Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Electrical Machines and Drives: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------------|---------------------------|----------------------------|-------|-------------------|-------------|-------------|-------------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -812B | Industrial Drives and Control | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -813B | Industrial Drives and Control Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Specialization Minor in Electric Vehicles

Syllabus Structure for Specialization Minor in Electric Vehicles: Additional Credit (Semester – III) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -313C | Electric Vehicle Technology | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -314C | Electric Vehicle Technology Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Electric Vehicles: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -416C | Electric Vehicle Motors and Drives | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -417C | Electric Vehicle Motors and Drives Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Electric Vehicles: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -512C | Electric Vehicle Batteries and Management | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -513C | Electric Vehicle Batteries and Management Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Electric Vehicles: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -614C | Electric Vehicle Charging Station and Site Assessment | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -615C | Electric Vehicle Charging Station and Site Assessment Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRICAL)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Electric Vehicles: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------------|---------------------------|----------------------------|-------|-------------------|-------------|-------------|-------------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EE -812C | Electric Vehicle Charging Station Installation and Safety | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EE -813C | Electric Vehicle Charging Station Installation and Safety Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

**Kavayitri Bahinabai Chaudhari
NORTH MAHARASHTRA UNIVERSITY,
JALGAON (M.S.)**

Bachelor of Engineering

in

Electronics and Telecommunication

(As per NEP 2020 Guidelines)

Faculty of Science and Technology



**'A' Grade
NAAC Re-Accredited
(4th Cycle)**

SEMESTER – WISE SYLLABUS STRUCTURE

For Affiliated Colleges

Semester – I to VIII

W.E.F. 2024 – 25

Objectives of the Program:

1. To provide a holistic and multidisciplinary technical education that develops all capacities of human beings – intellectual, aesthetic, social, physical, emotional, ethical, and moral – in an integrated manner.
2. To enrich students with new knowledge and skills to engage meaningfully in the emerging socio-economic transformation.
3. To prepare professionals in cutting-edge areas that are fast gaining prominence with important applications to health, environment, and sustainable living for enhancing employability of the youth.

Program Outcomes (POs) for an engineering graduate:

- i. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ii. **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- iii. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- iv. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.
- v. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- vi. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- vii. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- viii. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ix. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- x. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

- xi. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- xii. **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Abbreviations:

- AEC: Ability Enhancement Courses
- CC: Co-curricular Courses
- CEP: Community engagement project
- ELC: Experiential Learning Courses
- FP: Field projects
- HSSM: Humanities, Social Science, and Management
- IKS: Indian Knowledge System
- LL: Liberal Learning Courses
- MPCC: Minor Program Core Courses
- OE: Generic/ Open Electives
- OJT: On Job Training: Internship/ Apprenticeship
- RM: Research Methodology
- RP: Research Project
- SEC: Skill Enhancement Courses
- VEC: Value Education Courses
- VSC: Vocational Skill Courses
- VSEC: Vocational Skill and Skill Enhancement Courses

Semester wise Credit distribution structure for Four Year UG Engineering Program with Multidisciplinary Minor:

| Semester | | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|--|---|----|----|-----|----|----|----|-----|------|---------------|
| Basic Science Course | BSC/ESC | 08 | 08 | | | | | | | 16 |
| Engineering Science Course | | 08 | 04 | | | | | | | 12 |
| Programme Core Course (PCC) | Program Courses | | 04 | 10 | 10 | 13 | 13 | 04 | 04 | 58 |
| Programme Elective Course (PEC) | | | | | | 04 | 04 | 03 | 06 | 17 |
| Multidisciplinary Minor (MD M) | Multidisciplinary Courses | | | 02 | 02 | 02 | 02 | 02 | 02 | 12 |
| Open Elective (OE) Other than a particular program | | | | 03 | 03 | 02 | | | | 08 |
| Vocational and Skill Enhancement Course (VSEC) | Skill Courses | 01 | 01 | | 01 | | 02 | | | 05 |
| Ability Enhancement Course (AEC) | Humanities Social Science and Management (HSSM) | 02 | | | 01 | | | | | 03 |
| Entrepreneurship/Economics/ Management Courses | | | | 02 | 02 | | | | | 04 |
| Indian Knowledge System (IKS) | | | 02 | | | | | | | 02 |
| Value Education Course | | | | 02 | 02 | | | | | 04 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

| | | | | | | | | | | |
|---|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| (VEC) | | | | | | | | | | |
| Research Methodology | Experiential Learning Courses | | | | | | | | 04 | 04 |
| Community Engagement Project (CEP)/Field Project (FP) | | | | 02 | | | | | | 02 |
| Project | | | | | | | | | 05 | 05 |
| Internship/ OJT | | | | | | | | 12 | | 12 |
| Co-curricular Courses (CC) | Liberal Learning Courses | 02 | 02 | | | | | | | 04 |
| Total Credits (Major) | | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 168 |

Under Bachelor's Engg./ Tech. Honours Degree in chosen Major Engg./ Tech. Discipline with Multidisciplinary Minor (Multidisciplinary and Honors, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in the same Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Honors from the same faculty / discipline.

Under Bachelor's Engg./ Tech. Degree in chosen Major Engg./ Tech. Discipline with Double Minor (Multidisciplinary and Specialization Minor, 180-194 credits), students would take up five-six additional courses of 18 to 20 credits in another Engg./ Tech. discipline/ Emerging Areas Specialization distributed over semesters III to VIII. Students will have to compulsorily choose Minor from other faculty / discipline.

Semester wise Credit distribution structure for Four Year UG Engineering Program with Specialization Minor (Additional 20 credits):

| Semester | I | II | III | IV | V | VI | VII | VIII | Total Credits |
|---------------------------|---|----|-----|----|---|----|-----|------|---------------|
| Program Core Course (PCC) | | | 4 | 4 | 4 | 4 | | 4 | 20 |

Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

The credit structure for different levels under the Four-year Bachelor's Multidisciplinary Engineering UG Programme with multiple entry and multiple exit options are as given below:

| Level | Qualification Title | Credit Requirements | Semester | Year |
|-------|--|---------------------|----------|------|
| 4.5 | One Year UG Certificate in Engg./ Tech. | 42 | 2 | 1 |
| 5.0 | Two Years UG Diploma in Engg./ Tech. | 84 | 4 | 2 |
| 5.5 | Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.) | 126 | 6 | 3 |
| 6.0 | 4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor | 168 | 8 | 4 |

PROGRAM / BRANCH CODE:

CH: CHEMICAL ENGINEERING

CE: CIVIL ENGINEERING

CS: COMPUTER ENGINEERING

EC: ELECTRONICS & TELECOMMUNICATION ENGINEERING

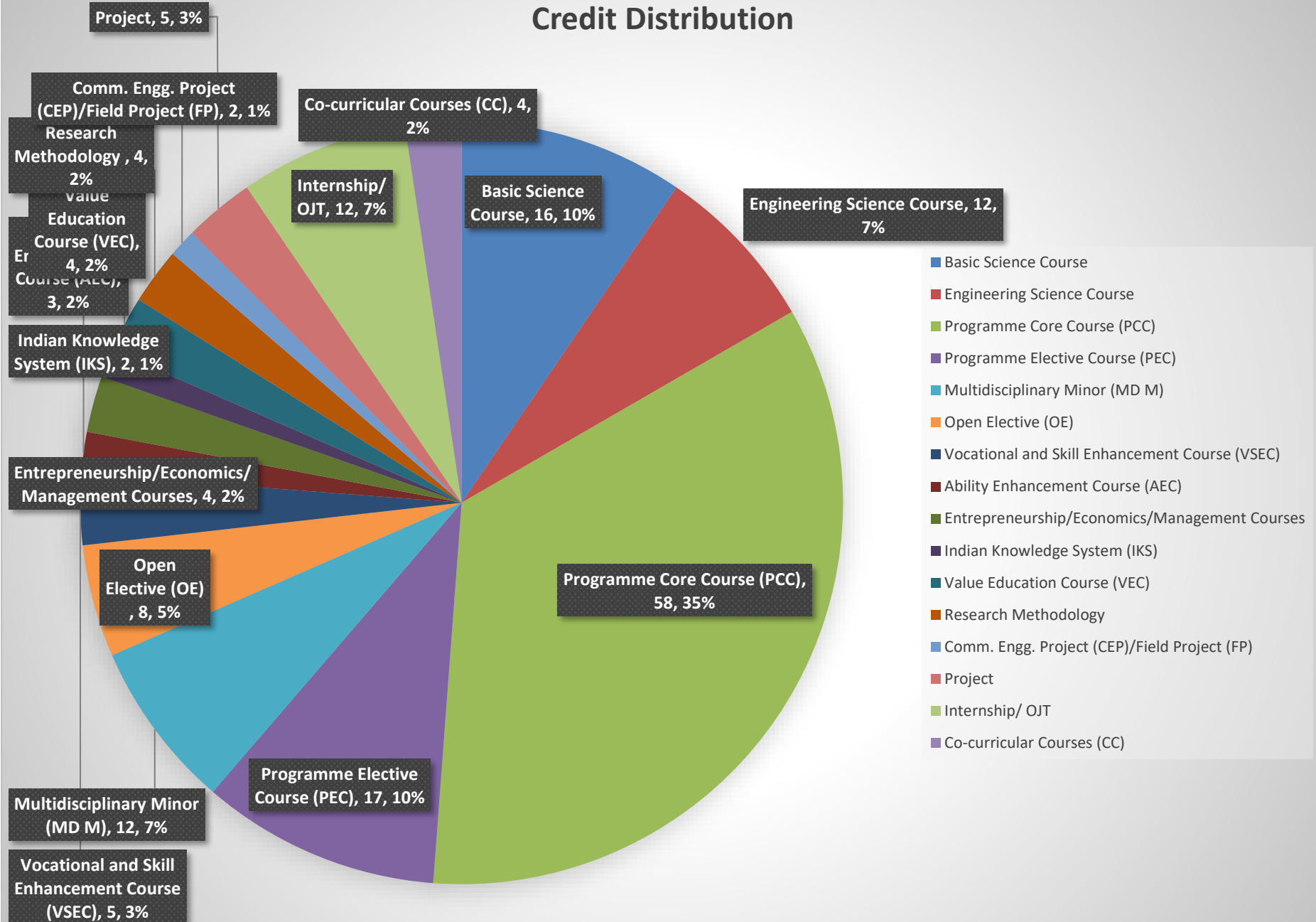
EE: ELECTRICAL ENGINEERING

ME: MECHANICAL ENGINEERING

AI: ARTIFICIAL INTELLIGENCE

AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Credit Distribution



SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – I, Level – 4.5) (Electronics & Telecommunication) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 101 | Engineering Chemistry | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 102 | Engineering Chemistry lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| EC 103 | Engineering Mathematics – I | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| EC 104 | Engineering Graphics | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 105 | Engineering Graphics Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 106 | Programming for Problem Solving | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 107 | Programming for Problem Solving Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 108 | Soft Skills Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 109 | Introduction to Indian Knowledge System | IKS | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EC 110 | Co-curricular Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

Note: 3-week long Induction Program for students entering the institution must be conducted right at the start.

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for First Year Engineering (Semester – II, Level – 4.5) (Electronics & Telecommunication) (w.e.f. 2024 – 25)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 201 | Engineering Physics | BSC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 202 | Engineering Physics Lab | BSC | | | 2 | 2 | | | 25 | - | 25 | 1 |
| EC 203 | Engineering Mathematics - II | BSC | 3 | 1 | - | 4 | 40 | 60 | | - | 100 | 4 |
| EC 204 | Basic Electrical & Electronics Engineering | ESC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 205 | Basic Electrical & Electronics Engineering Lab | ESC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 206 | Introduction to Artificial Intelligence & Machine Learning | PCC | 3 | - | | 3 | 40 | 60 | | | 100 | 3 |
| EC 207 | Introduction to Artificial Intelligence & Machine Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 208 | Workshop Practices Lab | VSEC | - | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |
| EC 209 | English | AEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EC 210 | Liberal Learning Course | CC (LL) | 1 | | 2 | 3 | | | 50 | | 50 | 2 |
| | | | 14 | 1 | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment
CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. CERTIFICATE in Electronics & Telecommunication (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 211 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EC 212 | Mini Project | VSEC / Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – III, Level – 5.0) (Electronics & Telecommunication) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 301 | Solid State Devices and Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 302 | Solid State Devices and Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 303 | Digital System Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 304 | Digital System Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 305 | Electronics Workshop Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (OR) | 50 | 2 |
| EC 306 | Computer Networks | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE 307 | Open Elective Course – I | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 308 | Industrial Organization & Management | HSSM | 2 | | | 2 | | | | | | 2 |
| EC 309 | Universal Human Values | HSSM | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| EC 310 | Community Engagement Project / Field Project | ELC | | | 4 | 4 | | | 50 | | 50 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Second Year Engineering (Semester – IV, Level – 5.0) (Electronics & Telecommunication) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 401 | Analog Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 402 | Analog Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 403 | Analog and Digital Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 404 | Analog and Digital Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 405 | Electronics Design Lab | PCC | 1 | | 2 | 3 | | | 25 | 25 (OR) | 50 | 2 |
| EC 406 | Biology for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE 407 | Open Elective Course – II | OE | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 408 | PCB Artwork Layout & Etching | VSEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 409 | Ability Enhancement Course | AEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 410 | Entrepreneurship Development Program | HSSM | 2 | | | 2 | | | | | | 2 |
| EC 411 | Environmental Science | HSSM | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. DIPLOMA in Electronics & Telecommunication (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC-412 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EC-413 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – V, Level – 5.5) (Electronics & Telecommunication) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 501 | Signals and System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 502 | Signals and System Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 503 | Microprocessors & Micro controllers | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 504 | Microprocessors & Micro controllers Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 505 | Control System Lab | PCC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| EC 506 | Program Elective Course – I | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 507 | Program Elective Course – I Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 508 | Internet of Things | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| OE 509 | Open Elective – III | OE | 2 | | | 2 | | | 25 | | 25 | 2 |
| | | | 16 | | 10 | 26 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – I | | |
|-----------------------------|---|---------------------------------------|
| Course Code | | Name of the Subject / Course |
| EC 506 | A | Analog Integrated Circuits |
| EC 506 | B | Sensors & Automation |
| EC 506 | C | Information Theory & Coding Technique |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Third Year Engineering (Semester – VI, Level – 5.5) (Electronics & Telecommunication) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|-----------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 601 | Digital Signal Processing | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 602 | Digital Signal Processing Lab | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 603 | Microwave Theory and Technique | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 604 | Microwave Theory and Technique | PCC | | | 2 | 2 | | | 25 | 25 (PR) | 50 | 1 |
| EC 605 | Program Elective Course – II Lab | PEC | 3 | | 4 | 7 | | | 50 | 25 (OR) | 75 | 5 |
| EC 606 | Program Elective Course – III | PEC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 607 | Program Elective Course – III Lab | PEC | | | 2 | 2 | | | 25 | | 25 | 1 |
| EC 608 | Digital Image Processing | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EC 609 | Fault Finding in PCB | VSEC | 1 | | 2 | 3 | | | 25 | | 25 | 2 |
| | | | 15 | | 12 | 27 | 160 | 240 | 175 | 75 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – II Lab | | | Program Elective Course – III | | |
|----------------------------------|---|------------------------------|-------------------------------|---|------------------------------|
| Course Code | | Name of the Subject / Course | Course Code | | Name of the Subject / Course |
| EC 605 | A | CMOS Design Lab | EC-606 | A | Electromagnetic Waves |
| EC 605 | B | Antenna Theory Lab | EC-606 | B | Embedded System & RTOS |
| EC 605 | C | Robotics & Automation Lab | EC-606 | C | Audio & Speech Processing |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

EXIT COURSE FOR U. G. B. VOCATIONAL in Electronics & Telecommunication (DURATION 8 WEEKS)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 610 | Internship / Apprenticeship | OJT | | | | | | | 125 | | | 4 |
| EC 611 | Mini Project | Project | | | | | | | 25 | | | 4 |
| | | | | | | | | | 150 | | | 8 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Fourth Year Engineering (Semester – VII, Level – 6.0) (Electronics & Telecommunication) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-----------|-------------------|------------|------------|------------|------------|-----------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| EC 701 | Optical Fiber Sensors | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| EC 702 | Optical Fiber Sensors | PCC | | | 2 | 2 | | | 25 | 50 (OR) | 75 | 1 |
| EC 703 | Program Elective Course – IV | PEC | 2 | | | 2 | 40 | 60 | | | 100 | 2 |
| EC 704 | Program Elective Course – IV | PEC | | | 2 | 4 | | | 25 | 50 (OR) | 75 | 1 |
| EC 705 | Data Science for Engineers | MD M | 2 | | | 2 | 40 | 60 | 25 | | 125 | 2 |
| EC 706 | Internship / OJT | ELC | | | 24 | 24 | | | 125 | 50 (OR) | 175 | 12 |
| | | | 7 | | 28 | 35 | 120 | 180 | 200 | 150 | 650 | 21 |

ISE: Internal Sessional Examination ESE: End Semester Examination ICA: Internal Continuous Assessment

CA: College Assessment UA: University Assessment

| Program Elective Course – IV | | |
|-------------------------------------|---|-------------------------------------|
| Course Code | | Name of the Subject / Course |
| EC 703 | A | Advanced IoT Applications |
| EC 703 | B | Battery Management System |
| EC 703 | C | FPGA Architectures & Programming |

Open Elective

A Student can opt for any one subject out of available institute wide subjects defined in the following list as Open Elective provided, he/she has not taken that particular subject in his/her Programme core, Programme elective, Multidisciplinary Minor, other Open elective and Vocational and Skill Enhancement courses etc. throughout his / her four years of UG Engineering Programme. The student must opt a subject that is compulsorily from faculty other than that of the Major discipline.

| Course Code | Name of the Subject / Course | Faculty Offered by | Department Offered by |
|--|--|--------------------|-----------------------|
| Open Elective - I (w.e.f. 2025 - 26 at Semester - III, Second Year Engineering) | | | |
| OE – 307 A | Quantitative Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 307 B | Management Science | Comm. & Mgmt. | Management |
| OE – 307 C | Business Ethics & Professional Values | Comm. & Mgmt. | Management |
| OE – 307 D | Plant Nursery and Management | Sci. & Tech. | Botany |
| OE – 307 E | General Clinical Pathology | Sci. & Tech. | Biochemistry |
| OE – 307 F | Herbal Home Remedies | Sci. & Tech. | Botany |
| OE – 307 G | Psychology of Well-being | Humanities | Psychology |
| OE – 307 H | Fundamentals of Banking | Humanities | Economics |
| Open Elective - II (w.e.f. 2025 - 26 at Semester - IV, Second Year Engineering) | | | |
| OE – 407 A | Human Resource Management | Comm. & Mgmt. | Management |
| OE – 407 B | Logical Reasoning and Problem Solving | Sci. & Tech. | Mathematics |
| OE – 407 C | Retail Management | Comm. & Mgmt. | Commerce |
| OE – 407 D | Public Health and Hygiene | Sci. & Tech. | Zoology |
| OE – 407 E | Agricultural Pest Management | Sci. & Tech. | Zoology |
| OE – 407 F | Basics of Stock Markets | Comm. & Mgmt. | Commerce |
| OE – 407 G | Problems of Philosophy | Humanities | Philosophy |
| OE – 407 H | Social and Preventive Pharmacy | Sci. & Tech. | Pharmacy |
| OE – 407 I | Tree Plantation and Management | Sci. & Tech. | Botany |
| Open Elective - III (w.e.f. 2026 - 27 at Semester - V, Third Year Engineering) | | | |
| OE – 509 A | Legal Aspects of Business | Comm. & Mgmt. | Management |
| OE – 509 B | Modern Office Management | Comm. & Mgmt. | Commerce |
| OE – 509 C | Food Adulteration and Safety | Sci. & Tech. | Environment |
| OE – 509 D | Insurance Management | Comm. & Mgmt. | Commerce |
| OE – 509 E | Indian Social Problems | Humanities | Sociology |
| OE – 509 F | Disaster Management | Sci. & Tech. | Environment |
| OE – 509 G | Pharma Marketing Management | Sci. & Tech. | Pharmacy |
| OE – 509 H | Introduction to Earth System Science | Sci. & Tech. | Geology |
| OE – 509 I | Circular Economy | Humanities | Economics |

Honors offered by Electronics and Telecommunication for students of the same Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Honors in the same Engg. / Tech. discipline / branch / Emerging Areas.

A student is required to study additional 20 credits in the same Engg. / Tech. discipline/ branch / Emerging Areas for Honors distributed over semesters III to VIII.

The total number of credits required for completion of the Honors in the same Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Honors from the same Engg. / Tech. discipline / branch.

Honors Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Honors offered by Electronics and Telecommunication are as follows.

- A. 5G and Advance Technology
- B. VLSI Design and Technology
- C. Data Science

The detail syllabus structure for the same is as follows.

Honors in 5G and Advance Technology

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -311A | Analog and Digital Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -312A | Analog and Digital Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -414A | Fiber Optics Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -415A | Fiber Optics Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -510A | Microwave Engineering | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -511A | Microwave Engineering Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -612A | Antenna and Wave Propagation | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -613A | Antenna and Wave Propagation Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in 5G and Advance Technology Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -810A | Mobile Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -811A | Mobile Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Honors in VLSI Design and Technology

Syllabus Structure for Honors in VLSI Design and Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26) (As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | | | | | Theory | | Practical | | Total | |
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -311B | Digital System Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -312B | Digital System Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in VLSI Design and Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26) (As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | | | | | Theory | | Practical | | Total | |
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -414B | Signal and System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -415B | Signal and System Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in VLSI Design and Technology _: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -510B | Linear Integrated Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -511B | Linear Integrated Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in: VLSI Design and Technology Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -612B | CMOS Integrated Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -613B | CMOS Integrated Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in VLSI Design and Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -810B | RF and HF Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -811B | RF and HF Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Honors in Data Science

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – III) (w.e.f. 2025 – 26) (As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -311C | Probability and Statistics for Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -312C | Probability and Statistics for Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – IV) (w.e.f. 2025 – 26) (As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-----------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -414C | Basics of Data Sciences | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -415C | Basics of Data Sciences Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -510C | Data Analytics and Visualization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -511C | Data Analytics and Visualization Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -612C | Machine Learning and Deep Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -613C | Machine Learning and Deep Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Honors in Data Science: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -810C | Industrial Application of Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -811C | Industrial Application of Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor offered by Electronics and Telecommunication for students of other Branch of Engineering

In addition to 168 credits of UG Engineering Programmes (Bachelor of Engineering) i.e. Major in which the student has taken admission, a student may opt for Specialization Minor in another Engg. / Tech. discipline / branch / Emerging Areas, not in Major Engg. / Tech. discipline / branch.

A student is required to study additional 20 credits in another Engg. / Tech. discipline/ branch / Emerging Areas for Specialization Minor distributed over semesters III to VIII.

The total number of credits required for completion of the Specialization Minor in another Engg./ Tech. discipline/ Emerging Areas is 20 credits, in addition to 168 credits in Major.

Students will have to compulsorily choose Specialization Minor from other Engg. / Tech. discipline / branch, not from Major Engg. / Tech. discipline / branch.

Specialized Minor Degree in the Bachelor of Engineering programme shall be awarded to students earning additional total credits of all six semesters from second year to final year, i.e., 20 Credits, in addition to 168 credits or 126 credits respectively. The student admitted in first year must earn 168 credits and 126 credits admitted in lateral entry (admitted after Diploma or B.Sc.) at second year.

Specialization Minors offered by Electronics and Telecommunication are as follows.

- A. 5G and Advance Technology
- B. VLSI Design and Technology
- C. Data Science

The detail syllabus structure for the same is as follows.

Specialization Minor in 5G and Advance Technology

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -313A | Principles of Analog and Digital Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -314A | Principles of Analog and Digital Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -416A | Light Wave Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -417A | Light Wave Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -512A | Microwave Theory and Techniques | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -513A | Microwave Theory and Techniques Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -614A | Antenna Theory | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -615A | Antenna Theory Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in 5G and Advance Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -812A | Satellite & Mobile Communication | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -813A | Satellite & Mobile Communication Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor in VLSI Design and Technology

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -313B | Digital Electronics | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -314B | Digital Electronics Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|-------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -416B | Basics of Signal & System | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -417B | Basics of Signal & System Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -512B | Analog Integrated Circuit & Application | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -513B | Analog Integrated Circuit & Application Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -614B | CMOS Design | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -615B | CMOS Design Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in VLSI Design and Technology: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -812B | Fundamentals of RF and HF Circuits | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -813B | Fundamentals of RF and HF Circuits Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Specialization Minor in Data Science

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – III) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -313B | Fundamentals of Statistics in Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -314B | Fundamentals of Statistics in Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – IV) (w.e.f. 2025 – 26)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|----------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -416B | Introduction of Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -417B | Introduction of Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – V) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -512B | Principles of Data Analytics and Visualization | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -513B | Principles of Data Analytics and Visualization Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – VI) (w.e.f. 2026 – 27)
(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|--|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -614B | Fundamentals of Machine Learning and Deep Learning | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -615B | Fundamentals of Machine Learning and Deep Learning Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |

SEMESTER – WISE SYLLABUS STRUCTURE OF B. E. (ELECTRONICS AND TELECOMMUNICATION)
For KBC NMU Affiliated Colleges, Semester – I to VIII, W.E.F. 2024 – 25

Syllabus Structure for Specialization Minor in Data Science: Additional Credit (Semester – VIII) (w.e.f. 2027 – 28)

(As per NEP 2020 Guidelines)

| Course Code | Name of the Course | Category | Teaching Scheme | | | | Evaluation Scheme | | | | | Credits |
|-------------|---------------------------------|----------|-------------------|---------------------|----------------------|-------|-------------------|----------|-----------|----------|-------|---------|
| | | | Theory Hrs / week | Tutorial Hrs / week | Practical Hrs / week | Total | Theory | | Practical | | Total | |
| | | | | | | | ISE (CA) | ESE (UA) | ICA (CA) | ESE (UA) | | |
| ET -812B | Application of Data Science | PCC | 3 | | | 3 | 40 | 60 | | | 100 | 3 |
| ET -813B | Application of Data Science Lab | PCC | | | 2 | 2 | | | 25 | 25 (OR) | 50 | 1 |



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Mandatory Disclosure

Part-III

January 2024 - 2025





Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY
BAMBHORI, POST BOX NO. 94, JALGAON – 425001 (M.S.)
Included under section 2 (f) & 12 (B) of the UGC Act, 1956
Grade B ++ (2.91) NAAC Accredited

Website- www.sscoetjalgaon.ac.in

Email: sscoetjal@gmail.com

Principal: Dr. K.S.Wani

M. Tech., DBM, Ph.D.

Phone No. (0257) 2258393

Fax No. (0257) 2258392

Ref. No. COET/Exam./

/ 19

Date:

C E R T I F I C A T E

Certified that all enclosures contained in PART-I , PART-II & PART-III bearing page no. to page no. are pertaining to our institution which are being submitted in two separate above mentioned bound booklets/box file of Mandatory Disclosure. All xerox copies may be treated as original.

PRINCIPAL

SSBT's College of Engineering & Technology, Bambhori, Jalgaon
Department of Electronics & Telecommunication Engineering
Teaching Load Distribution for 2024-25 Term - I

| Sr. No | Faculty Member | Class | Subject | Theory | Pract | T.E. Min.proj | B.E. Sem | B.E. Proj | Total |
|--------|-------------------|----------|---------|------------|-------|---------------|----------|-----------|-------|
| 1 | Dr. M.P. Deshmukh | SE | DSD | 3 | 4 | 2 | 2 | 2 | 13 |
| 2 | Mr. V.M. Deshmukh | SE(COMP) | AEC | 6 | 4 | 2 | | | |
| | | SE | EM | 3 | | | | | 15 |
| 3 | Mr. N.M. Kazi | FE | BEEE | 3+2TU T | 2 | | 2 | 2 | |
| | | TE | MC | 3 | 4 | | | | 18 |
| 4 | Mr. A.H. Karode | TE | EMW | 3 | | | | 2 | |
| | | SE(IT) | SS | 3 | | | | | |
| | | FE | BEEE | | 8 | | | | 16 |
| 5 | Mr. S.K. Khode | BE | CCN | 3 | | | 2 | 2 | |
| | | SE(COMP) | AEC | | 4 | | | | |
| | | SE(IT) | AEC | | 2 | | | | |
| | | BE | AE | 3 | | | | | 16 |
| 6 | Dr. M.P. Deshmukh | BE | DSP | 3 | 6 | | | 2 | |
| | | TE | SS | 3 | 4 | | | | 18 |
| 7 | Mr. V.M. Deshmukh | BE | FOC | 3 | 8 | | 2 | 2 | |
| | | TE | BM | 3 | | | | | 18 |
| 8 | Mr. N.M. Kazi | SE | SSDC | 3 | | 4 | | 2 | |
| | | SE | EDCLAB | 1 | 4 | | | | |
| | | SE(IT) | AEC | 3 | 2 | | | | 19 |
| 9 | Mr. A.H. Karode | SE(COMP) | SS | 6 | | | 2 | | |
| | | SE(COMP) | AEC | | 4 | | | | |
| | | BE | DSP | | 2 | | | | |
| | | SE | PL-I | | 4 | | | | 18 |
| 10 | Mr. S.K. Khode | TE | PE | 3 | 4 | | 2 | | |
| | | SE(IT) | AEC | | 2 | | | | |
| | | BE | VLSI | 3 | 4 | | | | 18 |
| 11 | Mr. N.M. Kazi | FE | BEEE | 3+2TU T | 2 | 4 | | | |

| | | | | | | | | | |
|--|--|----|--------------|-----------|-----------|-----------|-----------|-----------|------------|
| | | SE | IOM | 3 | | | | | |
| | | BE | VLSI | | 4 | | 2 | | 20 |
| | | | Total | 71 | 78 | 12 | 14 | 14 | 189 |

SSBT's College of Engineering & Technology, Bambhori, Jalgaon
Department of Electronics & Telecommunication Engineering
Teaching Load Distribution for 2024-25 Term - II

| Sr. No. | Name of the Faculty Member | Class | Name of the Course | TH in Hrs. | PR in Hrs. | | | Total in Hrs. |
|---------|----------------------------|-----------|----------------------------|------------|----------------|----------------|---------------|---------------|
| | | | | | Hrs. per Batch | No. of Batches | Total in Hrs. | |
| 1 | Dr. M.P. Deshmukh | TE | EM | 3 | 2 | 1 | 5 | 11 |
| | | TE | Minor Project (Stage – II) | | | 2 | 2 | |
| | | BE | Project – II | | | 4 | 4 | |
| 2 | Mr. V.M. Deshmukh | SE | AC | 3 | 2 | 2 | 7 | 14 |
| | | FE | BEEE | 3 | 2 | 1 | 5 | |
| | | TE | Minor Project (Stage – II) | | | 2 | 2 | |
| 3 | Mr. N.M. Kazi | TE | C-MOS | 3 | | | 3 | 16 |
| | | SE(comp) | DE | 3 | 2 | 3 | 9 | |
| | | BE | Project – II | | | 4 | 4 | |
| 4 | Mr. A.H. Karode | SE | NL | 3 | - | | 3 | 17 |
| | | SE | Elex-N.LAB | 1 | 2 | 2 | 5 | |
| | | FE | BEEE | 3 | 2 | | 5 | |
| | | BE | Project – II | -- | | 4 | 4 | |
| 5 | Mr. S.K. Khode | BE | TNM | 3 | - | | 3 | 16 |
| | | SE(comp) | DE | 3 | 2 | 3 | 9 | |
| | | BE | Project – II | -- | | 4 | 4 | |
| 6 | Dr. M.P. Deshmukh | BE | ES | 3 | 2 | 4 | 11 | 17 |
| | | FE | BEEE() | | 2 | 1 | 2 | |
| | | BE | Project– II | -- | | 4 | 4 | |
| 7 | Mr. V.M. Deshmukh | TE | WSN | 3 | | | 3 | 16 |
| | | SE | EDP | 3 | | | 3 | |
| | | TE | EM | | 2 | 1 | 2 | |
| | | BE | Project-II | -- | | 4 | 4 | |
| | | FE | BEEE() | | 2 | 2 | 4 | |
| 8 | Mr. N.M. Kazi | TE | ED | 3 | 2 | 2 | 7 | 18 |
| | | FE | BEEE() | 3 | | | 3 | |
| | | TE | Minor Project (Stage – II) | | | 4 | 4 | |
| | | BE | Project – II | | | 4 | 4 | |
| 9 | Mr. A.H. Karode | BE | RMT | 3 | 2 | 4 | 11 | 18 |
| | | SE | ADC | 3 | 2 | 2 | 7 | |
| 10 | Mr. S.K. Khode | BE | SMC | 3 | 2 | 4 | 11 | 17 |
| | | FE | BEEE | - | 2 | 3 | 6 | |
| 11 | Mr. N.M. Kazi | TE | CS | 3 | 2 | 2 | 7 | 17 |

| | | | | | | | | |
|--|--------------|-----------|-----------------------------------|----|----|----|-----|-----|
| | | SE | ELEX(W-S) | - | 2 | 2 | 4 | |
| | | FE | BEEE | | 1 | 2 | 2 | |
| | | TE | Minor Project (Stage – II) | | | 4 | 4 | |
| | Total | | | 55 | 38 | 80 | 177 | 177 |

S.S.B.T.'s College of Engineering & Technology, Bambhori, Jalgaon
M.C.A Department
Academic Year 2024-25
Term- I (UG)
Teaching Load Distribution

| S. N. | Name of the Faculty Member | Year | Name of the Course | PR. In Hrs. | | | | Total Load (Hrs) |
|-------|----------------------------|--------|---|-------------|-----|-------------|--------------|------------------|
| | | | | Th. | Pr. | No. of Bach | Project | |
| 1 | Dr. Dinesh D. Puri | MCA II | Data Analytics | 04 | -- | -- | 04 | 06 |
| | | | Lab on Data Analytics | -- | 02 | 01 | 02 | |
| 2 | Ms. Sapana A. Fegade | MCA I | Python Programming | 04- | -- | -- | 04 | 18 |
| | | | Lab on python Programming | -- | 04 | 02 | 08 | |
| | | MCA II | Designation and Analysis of Algorithms | 04 | -- | -- | 04 | |
| | | | Lab on Design And Analysis of Algorithms | -- | 02 | 01 | 02 | |
| 3 | Ms. Reeta V. Patil | MCA-I | Object Oriented Programming java | 04 | -- | -- | 04 | 16 |
| | | | Lab on Object Oriented Programming Java | -- | 04 | 02 | 08 | |
| | | MCA II | High Performance Computing Paradigms and Application | 04 | -- | -- | 04 | |
| 4 | Ms. Dhanashree Shinde | MCA I | Data Structure and Algorithm | 04 | 02 | 02 | 04 | 16 |
| | | | Lab on Data Structure and Algorithm | -- | 04 | 02 | 08 | |
| | | MCA II | Compiler Construction | 04 | -- | -- | 04 | |
| 5 | Ms. Bhagyashri Patil | MCA I | Fundamental of Artificial Intelligence | 04 | -- | -- | 04 | 10 |
| | | MCA II | Microsoft Net Technologies | 04 | -- | -- | 04 | |
| | | | Lab on Microsoft Net Technologies | -- | 02 | 01 | 02 | |
| 6 | Mr. Arsalan Shaikh | MCA I | Data Science | 04 | 02 | 02 | 04 | 14 |
| | | | Lab on Data Science | -- | 04 | 02 | 08 | |
| | | MCA II | Lab on High performance Computing Paradigms And Application | -- | 02 | 01 | 02 | |
| | | | | | | | Total | 80 |

S.S.B.T.'s College of Engineering & Technology, Bambhori, Jalgaon
M.C.A Department
Academic Year 2024-25
Term-II (UG)
Teaching Load Distribution

| S. N. | Name of the Faculty Member | Year | Name of the Course | PR. In Hrs. | | | | Total Load (Hrs) |
|-------------------|----------------------------|-----------------|-----------------------------|-------------|-----|-------------|---------|------------------|
| | | | | Th. | Pr. | No. of Bach | Project | |
| 1 | Dr. Dinesh D. Puri | MCA I & II Year | Reserch Methodology | 04 | -- | -- | -- | |
| | | | | | | | | |
| 2 | Ms. Sapana A. Fegade | MCA I & II Year | Machine Learning | 04 | -- | -- | 04- | |
| | | | | | | | | |
| 3 | Ms. Reeta V. Patil | MCA I & II Year | Database Management System | 04 | 04 | 02 | 12 | |
| | | | | | | | | |
| 4 | Ms. Dhanashree Shinde | MCA I & II Year | Natural Language Processing | 02 | 04 | 02 | 10 | |
| | | | | | | | | |
| 5 | Mr. Arsalan Shaikh | MCA I & II Year | Data Science II | 02 | 04 | 02 | 10 | |
| | | | | | | | | |
| 6 | Ms. Bhagyashri Patil | MCA I & II Year | | 02 | 04 | 02 | 12 | |
| | | | | | | | | |
| Total load | | | | | | | | |



Shram Sadhna Bombay Trust's
College of Engineering and Technology, Bambhori, Jalgaon.

Grade A (3.14) NAAC Accredited (2nd Cycle)

Included under Section 2 (f) & 12(b) of the UGC ACT, 1956

First Year Engineering Department

TEACHING LOAD DISTRIBUTION

Academic Year 2024 – 25 (Term – I)

| Sr. No. | Name of the Faculty Member | Class | Name of the Course | TH in Hrs. + Tut | PR in Hrs. | | | Total in Hrs. |
|---------|-----------------------------|--------|--------------------|------------------|----------------|--------------------------|---------------|---------------|
| | | | | | Hrs. Per Batch | No. of Batches | Total in Hrs. | |
| 1. | Dr. Sandip S. Patil | FE(A) | PPS(A,B) | 08 | 02 | 02 CC | 04 | 12 |
| 2. | Dr. Kiran S. Patil | FE (C) | PHY(C) | 04 | 02 | 06PHY+01 CC=07 | 14 | 18 |
| 3. | Dr. Sunita S. Patil | FE | M-I(A,C) | 08+02 | 02 | 01 CC | 02 | 17 |
| | | SE | M-III (ETC) | 04+1 | | | | |
| 4. | Mr. Prashant N. Ulhe | FE | EG (A) | 04 | 02 | 3EG+02 PPS 01WS+1CC=7 | 14 | 18 |
| 5. | Mr. Amol C. Wani | FE | BEEE(C,D) | 08 | 02 | 03BEEE+2WS+01 CC=6 | 12 | 20 |
| 6. | Mr. Chandrashekhar U. Nikam | FE | PHY (D) | 04 | 02 | 03PHY+3 BEEE+1CC=7 | 14 | 18 |
| 7. | Ms. Deepmalal I. Desai | FE(B) | CHE (A) | 04 | 02 | 05CHE+02CC=07 | 14 | 18 |
| 8. | Mr. Pravin D. Patil | FE | EG (B) | 04 | 02 | 03EG+3WS+1CC=7 | 14 | 18 |
| 9. | Ms. Priti R. Sharma | FE | PPS(B,C) | 08 | 02 | 04PPS+02WS=6 | 12 | 20 |
| 10. | Ms. Meera P. Kulkarni | FE | M-I (B,D) | 08+02 | 02 | 01 CC | 02 | 17 |
| | | SE | M-III (Comp) | 04+01 | | | | |
| 11. | Mr. Mahendra B. Patil | FE | PHY (E,F) | 08 | 02 | 03PHY+03BEEE=06 | 12 | 20 |
| 12. | Mr. Ujwalsing T. Patil | FE | CHE (B) | 04 | 02 | 08 PPS | 16 | 20 |
| 13. | Ms. Dhanshree S. Tayade | FE | PPS(B,C) | 8 | 02 | 4PPS+2WS=06 | 12 | 20 |
| 14. | Ms. Jayshree R. Tayade | FE | M-I (E) | 04+01 | | 02SS+1CC+2IKS=5 | 10 | 20 |
| | | SE | M-III (Elect.) | 04+01 | | | | |
| 15. | Ms. Tanuja Chouhan | FE | ENG (E,F) | 02 | 02 | 09 ENG | 18 | 20 |
| 16. | Ms. Pooja M. Malu | FE | TH: IKS(A,B) | 02 | 02 | 01CHE+2SS+2IKS+3 CC=8 | 16 | 18 |
| 17. | MS. NANCY SAWHNEY | FE | BEEE(E,F) | 08 | 02 | 03BEEE+02WS+01C C=6 | 12 | 20 |
| 18. | Ms. Anjali Rajput | FE | M-I (F) | 04+01 | | | 04 | 19 |
| | | SE | M-III (Comp) | 08+02 | | 01IKS+1CC=2 | | |
| 19. | Mr. Dashrath U. Chaudhari | FE | Soft Skill | | 02 | 02SS+1IKS+3CC=06 | 12 | 20 |
| | | | ENG (C,D) | 02 | 02 | 03 ENG | 06 | |
| 20. | Mr. Sachin Bhalerao | FE | CC(All) | 06 | | | 06 | 06 |
| 21. | Ms. Dhanshree Shinde | FE | PPS | --- | 02 | 02PPS | 04 | 04 |
| 22. | Mr. Asalan Shaikh | FE | PPS | --- | 02 | 03PPS | 06 | 06 |



Shram Sadhna Bombay Trust's
College of Engineering and Technology, Bambhori, Jalgaon.

Grade A (3.14) NAAC Accredited (2nd Cycle)

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First Year Engineering Department

TEACHING LOAD DISTRIBUTION

Academic Year 2024 – 25 (Term – II)

| Sr. No. | Name of the Faculty Member | Class | Name of the Course | TH in Hrs. + Tut | PR in Hrs. | | | Total in Hrs. |
|---------|-----------------------------|--------------|--------------------|---------------------|----------------|-----------------------------------|---------------|---------------|
| | | | | | Hrs. per Batch | No. of Batches | Total in Hrs. | |
| 1. | Dr. Sandip S. Patil | FE(B) | AI/ML(B,F) | 08 | 02 | 02 LL (STB+DC) | 04 | 12 |
| 2. | Dr. Kiran S. Patil | FE (A) | PHY(A) | 04 | 02 | 06PHY+01(LL-PR-C3)=07 | 14 | 18 |
| 3. | Dr. Sunita S. Patil | FE | M-I(A,C) | 08+02(T)+1LLTH(A) | 02 | 01(LL-PR-A1=01) | 13 | 18 |
| | | SE | M-III (CIVIL) | 04+1 | -- | | 05 | |
| 4. | Mr. Prashant N. Ulhe | FE | EG (E,F) | 08 | 02 | 04(EG)+01(LL-PR-A2)=05 | 10 | 18 |
| 5. | Mr. Amol C. Wani | FE | BEEE(B) | 04 | 02 | 03BEEE+03 WS(A)+01(LL-PR-C2)=7 | 14 | 18 |
| 6. | Mr. Chandrashekhar U. Nikam | FE | PHY (B) | 04 | 02 | 8-AI/ML(B&F+2,)+01(LL-PR-D2)=09 | 18 | 22 |
| 7. | Ms. Deepmalal I Desai | FE(C) | CHE (D) | 04 | 02 | 06CHE+01(LL-PR-A3)=07 | 14 | 18 |
| 8. | Mr. Pravin D. Patil | FE | EG (C,D) | 08 | 02 | 04EG+01(LL-PR-B3)=05 | 10 | 18 |
| 9. | Ms. Priti R. Sharma | FE | AI/ML (D,E) | 8 +1 TH-LL(D) | 02 | 05-AI/ML +01LL-PR-D1)=06 | 12 | 21 |
| 10. | Ms. Meera P. Kulkarni | FE | M-I (B,D,F) | 12+03(T)+1 TH-LL(B) | 02 | 01(LL-PR-B1)=01 | 18 | 18 |
| 11. | Mr. Mahendra B. Patil | FE | | | 02 | 09 SS-PR(D,E,F)+01(LL-PR-E2)=10 | 20 | 20 |
| 12. | Mr. Ujwalsing T. Patil | FE | CHE (E,F) | 08 | 02 | 4-EG+01(LL-PR-B2)=05 | 10 | 18 |
| 13. | Ms. Dhanshree S. Tayade | FE | AI/ML (A,C) | 8 +1 TH-LL(C) | 02 | 5-PR AI/ML +01-(LL-PR-C1)=6 | 12 | 21 |
| 14. | Ms. Jayshree R. Tayade | FE | M-I (E) | 04+1TH-LL(E)+IKS-C | 02 | 01 (LL-PR-E1)+02IKS-PR=3 | 12 | 17 |
| | | SE | M-III (MECH.) | 04+01 | - | | 05 | |
| 15. | Ms. Tanuja Chouhan | FE | ENG (A) | 01+IKS-D | 02 | 03 ENG+01(LL-PR-D3)+05-IKS=08 | 16 | 18 |
| 16. | Ms. Pooja M. Malu | FE | CHE (D) | 1-LL-TH(F) | 02 | 06CHE+01(LL-PR-F2)=7 | 14 | 19 |
| 17. | MS. NANCY SAWHNEY | FE | BEEE(A) | 04 | 02 | 03BEEE(A)+03 WS(B)+01(LL-PR-F1)=7 | 14 | 18 |
| 18. | Mr. Dashrath U. Chaudhari | | ENG (B) | 1-B-ENG+IKS-E=2 | 02 | 03 ENG+01(LL-PR-F1)+IKS-05=09 | 18 | 20 |
| 19. | Mr. Sachin Bhalerao | FE | | IKS-F | 02 | 03SS(C)+ 01(LL-PR-E3)=04 | 08 | 09 |
| 20. | Mr.N.K.Patil | FE | | | 02 | 06-WS | 12 | 12 |
| 21. | Dr.K.Shrivastava | FE | | | | 06-WS | 12 | 12 |
| | | FY=354 SY=08 | | | | | Total | 362 |

| S. No. | Name of the Staff | Year | Subject | Th. | Pr. | Tu. | Proj | Semi | Total Load (Hrs) |
|-------------------|--|--------|--------------|-----------|------------|-----------|-----------|-----------|------------------|
| 1 | Dr. Rajesh R. Karhe | TE | PE | 03 | 06 | | | | 21 |
| | | FE | BEEE | 02 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 2 | Mr. Muqem Khan Mansoor Khan | TE | S&S (PEC-I) | 03 | | | | | 22 |
| | | SE | ECA | 03 | 06 | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 3 | Mr. V. S. Pawar | BE | IEE | 03 | 06 | | | | 21 |
| | | FE | BEEE | 02 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 4 | Mr. M. M. Ansari | SE | EM/C-I | 03 | 06 | | | | 22 |
| | | BE | EAC (IDE) | 03 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 5 | Mr. S. M. Shembekar | TE | PS-I | 03 | 06 | | | | 22 |
| | | BE | PSOC | 03 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 6 | Mr. Ranveer Husain Shaikh Feroz Khatik | BE | HVE | 03 | 06 | | | | 22 |
| | | TE | EM (OEC-I) | 03 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 7 | Mr. Vijay A. Shinde | BE | IDC | 03 | 06 | | | | 22 |
| | | TE | EMF | 03 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | TE | Minor Proj-I | | | | 06 | | |
| | | BE | Seminar-II | | | | | 02 | |
| 8 | Ms. Shaikh Uzma Kausar M. Sabir | SE(M)A | EDC | 03 | 10 | | | | 26 |
| | | BE | RES (IDE) | 03 | | | | | |
| | | BE | Project-I | | | | 02 | | |
| | | BE | Seminar-II | | | | | 02 | |
| | | TE | Minor Proj-I | | | | 06 | | |
| 9 | Dr. Rajesh R. Karhe | FE | BEEE | 02 | 06 | 01 | | | 13 |
| | | TE | PS-I | | 04* | | | | |
| 10 | Mr. Muqem Khan Mansoor Khan | SE | EW | 01 | 06 | | | | 12 |
| | | SE(M)B | EDC | 03 | 02 | | | | |
| 11 | Mr. V. S. Pawar | TE | PE | | 04* | | | | 08 |
| | | BE | IDC | | 04* | | | | |
| 12 | Mr. M. M. Ansari | SE | ECA | | 04* | | | | 10 |
| | | TE | EDL | | 06 | | | | |
| 13 | Mr. S. M. Shembekar | FE | BEEE | 02 | 06 | 01 | | | 13 |
| | | BE | IEE | | 04* | | | | |
| 14 | Mr. Ranveer Husain Shaikh Feroz Khatik | SE | IOM | 03 | | | | | 07 |
| | | SE | EM/C-I | | 04* | | | | |
| Total Load | | | | 57 | 102 | 02 | 64 | 16 | 241 |

ITEM NO.17(A)

DEPARTMENT –CIVIL ENGINEERING

Teaching work Load of all classes in current Year 2024-25 (Term wise)

| Year Course Semester | Subject | Load pattern per week | | | | No.of Batches | Total Equivalent load per week | | | Total work load |
|----------------------------|-----------------|-----------------------|----|-----|-----|------------------|-----------------------------------|-----|-----|--------------------|
| | | Th | Pr | Drg | Tut | | Th | Pr | Drg | |
| | | | | | | | | | | |
| SemI SE (Civil) | SUR&G | 3X2 | 2 | | | 8 | 6 | 16 | 60 | |
| | ICE | 3X2 | | | | | 6 | | | |
| | ESE | 3X2 | | | 2 | | 6 | | | |
| | BIOLOGY | 3X2 | | | | | 8 | | | |
| | MTE-I | 1X2 | 2 | | | 8 | 2 | 16 | | |
| SemII SE (Civil) | IFM | 3X2 | 2 | | | 8 | 6 | 16 | 92 | |
| | ISM | 3X2 | | | | | 6 | | | |
| | CACED | 3X2 | | 2 | | 8 | 6 | 16 | | |
| | GEOLOGY | 1X2 | 2 | | | 8 | 2 | 16 | | |
| | M-III | 3X2 | | | 2 | | 8 | | | |
| | MTE-II | | 2 | | | 8 | | 16 | | |
| SemI TE (Civil) | CM | 3X2 | | - | | | 6 | | 234 | |
| | HDE | 3X2 | 2 | | | 8 | 6 | 16 | | |
| | MOM | 3X2 | | | | | 6 | | | |
| | GTE | 3X2 | 2 | | | 8 | 6 | 16 | | |
| | APCT | 3X2 | | | | | 6 | | | |
| | DPPM | | 2 | | | 8 | | 16 | | |
| | PROJECT STAGE I | | 6 | | | 26 | | 156 | | |
| Sem-II TE(Civil) | SE | 3X2 | 2 | | | 8 | 6 | 16 | 234 | |
| | EE | 3X2 | 2 | | | 8 | 6 | 16 | | |
| | TRE | 3X2 | 2 | | | 8 | 6 | 16 | | |
| | PEC-II | 3X2 | | | | | 6 | | | |
| | OEC-II | 3X2 | | | | | 6 | | | |
| | MINOR PROJECT | | 6 | | | 26 | | 156 | | |
| | INTERNSHIP | | | | | | | | | |

| | | | | | | | | | | |
|------------------------|---|-------------------------------|-----------------------|---|--|------------------------|-----------------------|----------------------------|----|-----|
| SemI BE (Civil) | E&C WRE-I GTE-II ELE-I PROJECT-I SEMINAR-II | 3X2 3X2 3X2 3X2 | 2 2 2 2 2 | | | 8 8 8 35 - | 6 6 6 6 | 16 16 16 70 48 | | 190 |
| SemII BE (Civil) | WRE-II ELE-II EE-II ELE-III PROJECT-II IND.LECTURE | 3X2 3X2 3X2 3X2 1 | 2 2 2 4 | 2 | | 8 8 8 35 | 6 6 6 6 1 | 16 16 16 140 | 16 | 213 |

LOAD DISTRIBUTION FOR CIVIL ENGG DEPARTMENT 2024-25 SEM-I

| SR NO. | NAME | CLASS | SUBJECT | THEORY (Hr) | TUTORIAL (BATCHXHr) | PRACTICAL (BATCHXHr) | TOTAL LOAD |
|--------|--------------------|-------|-----------|-------------|---------------------|-----------------------|------------|
| 1. | DR. M. HUSSAIN | TE | EE-I | 3 | - | - | 10 |
| | | | INT ELE | 3 | | | |
| | | | PRO & SEM | | | 4 | |
| 2. | Ms. Dipika P. Mali | SE | SUR&G | 6 | - | 3X2=6 | 16 |
| | | | PRO & SEM | | | 4 | |
| 3. | Dr.S .B.PAWAR | BE | ELE-I | 3 | - | 2X2=4 | 15 |
| | | | IE-I | | | 4 | |
| | | | PRO & SEM | | | 4 | |
| 4. | DR.P.A.SHIRULE | BE | E&C | 6 | - | 4X2=8 | 18 |
| | | | PRO & SEM | | | 4 | |
| 5. | F.I.CHAVAN | SE | ICE | 3 | | | 18 |
| | | TE | FM-II | 3 | | 1X2=2 | |
| | | SE | MTE-I | | | 1X2=2 | |
| | | TE | IE-I | | | 1X2=2 | |
| | | TE | TOM-I | | | 1X2=2 | |
| | | | PRO & SEM | | | 4 | |
| 6. | SONALI.B.PATIL | TE | FM-II | 3 | | 1X2=2 | 19 |
| | | TE | EE-I | 3 | | 2X2=4 | |
| | | SE | MTE-I | | | 1X2=2 | |
| | | TE | TOM-I | 1 | | | |
| | | | PRO & SEM | | | 4 | |
| 7. | JYOTI R. MALI | TE | SD-I | 3 | | 3X2=6 | 18 |
| | | TE | IE-I | 3 | | | |
| | | | MTE-I | | | 1X2=2 | |
| | | | PRO & SEM | | | 4 | |
| 8. | J.N.KALE | TE | CM-I | 6 | | | 18 |
| | | BE | ELE-I | | | 3X2=6 | |
| | | TE | IE-I | | | 1X2=2 | |
| | | BE | PRO & SEM | | | 4 | |
| | | SE | SUR-I | | | 2X2=4 | |

| | | | | | | | |
|----|---------------|----|--------------|---|--|--------|----|
| 9. | PANKAJ PUNASE | TE | SD-I | 3 | | 4X2=8 | 20 |
| | | TE | GTE-I | 3 | | 1X2=2 | |
| | | | PRO & SEM | | | 4 | |
| 10 | | BE | WRE-I | 3 | | | 17 |
| | | TE | IE-I | | | 4X2=8 | |
| | | SE | SUR&G | | | 3X2=6 | |
| 11 | | SE | ESE | 6 | | | 14 |
| | | | FM-II | | | 4X2=8 | |
| 12 | | BE | WRE-I | 3 | | | 17 |
| | | TE | FM-II | | | 2X2=4 | |
| | | TE | EE-I | | | 4X2=8 | |
| | | BE | E&C | | | 1X2=2 | |
| 13 | | SE | ICE | 3 | | | 15 |
| | | SE | MTE-I | 2 | | 3X2=6 | |
| | | TE | TOM-I | | | 2X2=4 | |
| 14 | | BE | GTE-II | 3 | | 5X2=10 | 17 |
| | | | EE-I | | | 2X2=4 | |
| 15 | | TE | IE-I | 3 | | | 15 |
| | | BE | E&C | | | 3X2=6 | |
| | | BE | GTE-II | | | 2X2=4 | |
| | | TE | SD-I | | | 1X2=2 | |
| 16 | | BE | ELE-I | 3 | | 2X2=4 | 18 |
| | | TE | TOM-I | 1 | | 5X2=10 | |

LOAD DISTRIBUTION FOR CIVIL ENGG DEPARTMENT 2024-25 SEM-II

| SR NO. | NAME | CLASS | SUBJECT | THEORY (Hr) | TUTORIAL (BATCHXHr) | PRACTICAL (BATCHXHr) | TOTAL LOAD |
|--------|--------------------|-------|----------------|-------------|---------------------|----------------------|------------|
| 1. | DR. M. HUSSAIN | BE | EE-II | 8 | | | 16 |
| | | TE | MINOR PRO& SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |
| 2. | Ms. Dipika P. Mali | SE | GEOLOGY | 2 | | 6X2=12 | 22 |
| | | BE | PRO-II | | | 4 | |
| | | TE | MINOR PRO& SEM | | | 4 | |
| 3. | DR.S .B.PAWAR | BE | IPC | 3 | | | 17 |
| | | | WRE-II | | | 3X2=6 | |
| | | TE | MINOR PRO& SEM | | | 4 | |
| | | | PRO-II | | | 4 | |
| 4. | DR. P.A.SHIRULE | BE | ASD | 6 | | 4X2=8 | 22 |
| | | TE | MINOR PRO& SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |
| 5. | F.I.CHAVAN | BE | WRE-II | 1 | | 4X2=8 | 25 |
| | | SE | ISM | 6 | | | |
| | | | IFM | | | 1X2=2 | |
| | | TE | MINOR PRO& SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |
| 6. | J.N.KALE | TE | CM-II | 3 | | | 22 |
| | | TE | SD-II | 3 | | 4X2=8 | |
| | | TE | MINOR PRO& SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |
| 7. | SONALI.B.PATIL | SE | IFM | 6 | | 1X2=2 | 22 |
| | | | EE-II | | | 3X2=6 | |
| | | TE | MINOR PRO& SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |

| | | | | | | | |
|----|------------------|----|-----------------------|---|--|--------|----|
| 8. | JYOTI R. MALI | SE | CACED | 3 | | | 24 |
| | | TE | IE-II | 3 | | 4X2=8 | |
| | | | MTE-II | | | 1X2=2 | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |
| 9. | PANKAJ PUNASE | TE | TOS-II | 3 | | | 22 |
| | | TE | SD-II | 3 | | 4X2=8 | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| | | BE | PRO-II | | | 4 | |
| 10 | | SE | CACED | 3 | | 3X2=6 | 19 |
| | | BE | WRE-II | 2 | | | |
| | | SE | MTE-II | | | 2X2=4 | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| 11 | | TE | IE-II | 3 | | 1X2=2 | 19 |
| | | TE | MTE-II | | | 3X2=6 | |
| | | BE | ASD | | | 1X2=2 | |
| | | SE | CACED | | | 1X2=2 | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| 12 | | BE | WRE-II | 3 | | | 22 |
| | | SE | CESGI | 3 | | | |
| | | TE | EE-II | | | 5X2=10 | |
| | | TE | IE-II | | | 1X2=2 | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| 13 | | TE | GTE-I | 3 | | 5X2=10 | 20 |
| | | BE | IPC | 3 | | | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| | | | | | | | |
| 14 | | TE | TOS-II | 3 | | | 22 |
| | | TE | GTE-I | 3 | | 3X2=6 | |
| | | BE | ASD | | | 3X2=6 | |
| | | TE | MINOR PRO & SEM | | | 4 | |
| 15 | | SE | CESGI | 3 | | | 17 |
| | | TE | IFM | | | 5X2=10 | |

| | | | | | | | |
|----|--|--------|-----------------------|--|--|--------|----|
| | | TE | MINOR PRO & SEM | | | 4 | |
| 16 | | CM-II | 3 | | | | 19 |
| | | TOM-II | | | | 6X2=12 | |
| | | TE | MINOR PRO & SEM | | | 4 | |

Internal Continuous Evaluation System in place

The internal continuous evaluation system in place at this college level is done as per University guidelines currently enforce/ received before the start of term. The schedule for, performance of practicals is notified on the departmental lab notice board. This schedule is batchwise and it also indicates the completion/ submission date of practical, drawing and assignment sheets. It is meant for those subjects for whom term work marks are to be sent to the University.

The attendance record of the students is maintained in ERP software and in the register meant for this purpose. This register also evaluates the performance of the students under the following headings:

- a) Attendance in class/practical
- b) Performance in class/practical
- c) Class tests/ viva voce
- d) Assignment/ Journal

The above are quantified and marks are awarded in the next week, displayed and consolidated at the end of term. At term end the term work assessment programme is displayed and the work is evaluated by two faculty members who are appointed by the Principal and the term work marks are forwarded to the University under the signature of both the examiners.

Students' assessment of Faculty, System in place.

. During the 5th week of the term the feedback by the students is taken subject wise for the staff who teach them. A set of questionnaire is circulated them and feedback is obtained. This feedback is taken by academic monitoring committee comprising of three HOD's and Coordinator of Academic and Research and Development. The feedback is submitted to the Principal and he apprises the faculty member about their weak points and they are given the opportunity to improve upon their deficiencies and their weak points during the term itself.

Also during the term, students are free to pass on the difficulties through suggestion boxes kept at various location and if they are related to their academic difficulties, their difficulties are solved and the concerned faculty is advised by the Principal with sole aim of improvement in academics. Personal hearing is given by Coordinator of Academics and Research and Development and the Principal.