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 2025 - 2026

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: _____

ESTD. 1983
BAMBHORI,JALGAON
ISO 9001:2015
Grade A (3.14) NAAC Accredited
2nd Cycle

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. 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

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

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.sscoetjalgaon.ac.in	E-Mail: sscoetjal@gmail.com

II. NAME & ADDRESS OF THE DIRECTOR

Name	**Dr. Girish Kumar Patnaik**
Designation	**Principal**
Address	PQ, SSBT's C.O.E.T. Campus, P.B. No.94, Bambhori, Jalgaon-425001
STD Code With Phone No.	0257 – 2258393 (O)
Fax No.	0257- 2258392 (O)
E-mail	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**

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 theAICTE – 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 theState Government – DTE (Ex-officio)	Member
8.	Industrialis from the region nominated by	Member

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, *Management's nominee for Secretary*	Member
3)	Dr. M. Husain, *HOD, Nominated by Principal*	Member
4)	Dr. S.B. Pawar, *Elected Faculty Member*	Member
5)	Shri. M.M. Ansari, *Elected Faculty Member*	Member
6)	Mrs. Meera Deshpande, *Elected Faculty Member*	Member
7)	Shri. S.R. Girase, *Elected Non-Teaching Staff Member*	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 *Nominated from Social Work Sector*	Member
12)	Dr. S.A. Thakur, *IQAC Coordinator*	Member
13)	Secretary, Student Council	Member
14)	Dr. G.K. Patnaik, *Principal*	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.

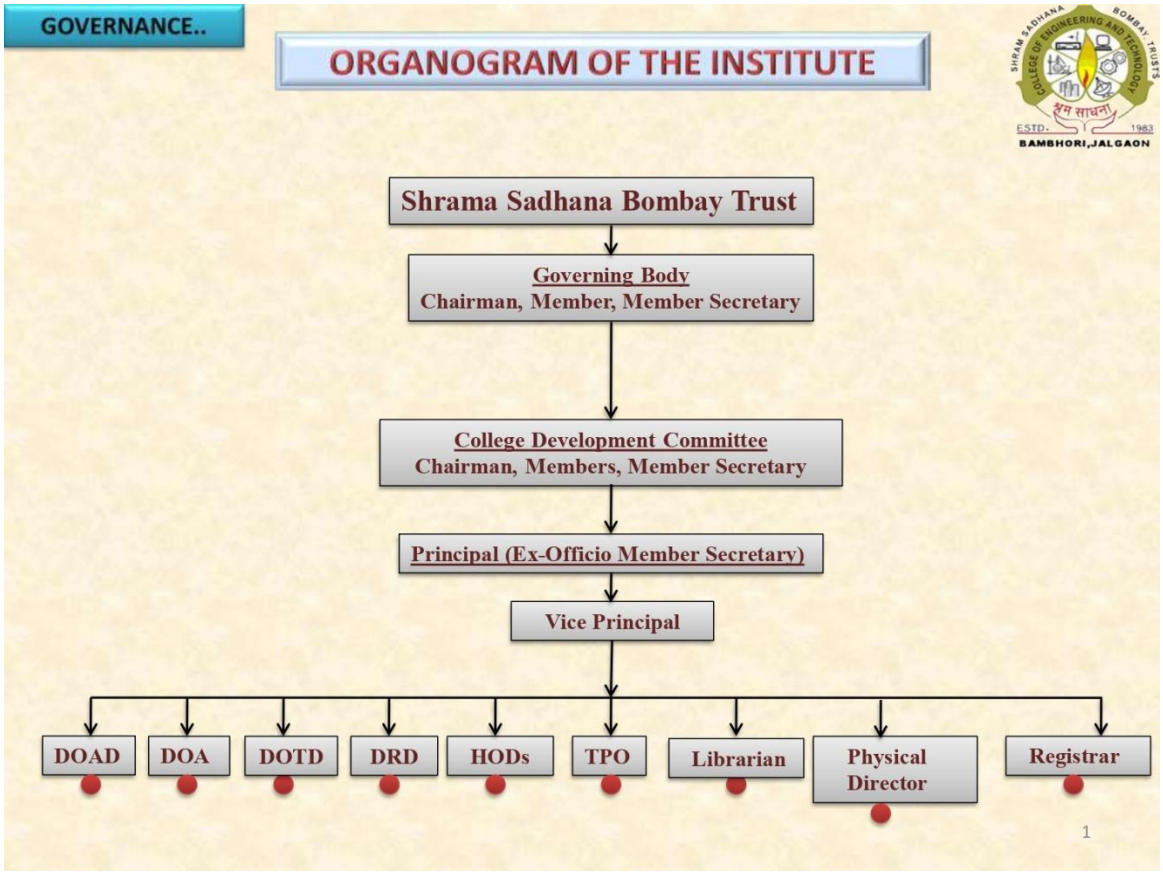
There are suggestion boxes placed at vantage points for all personnel to drop their ideas in confidence which are looked into with all seriousness.

* **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.

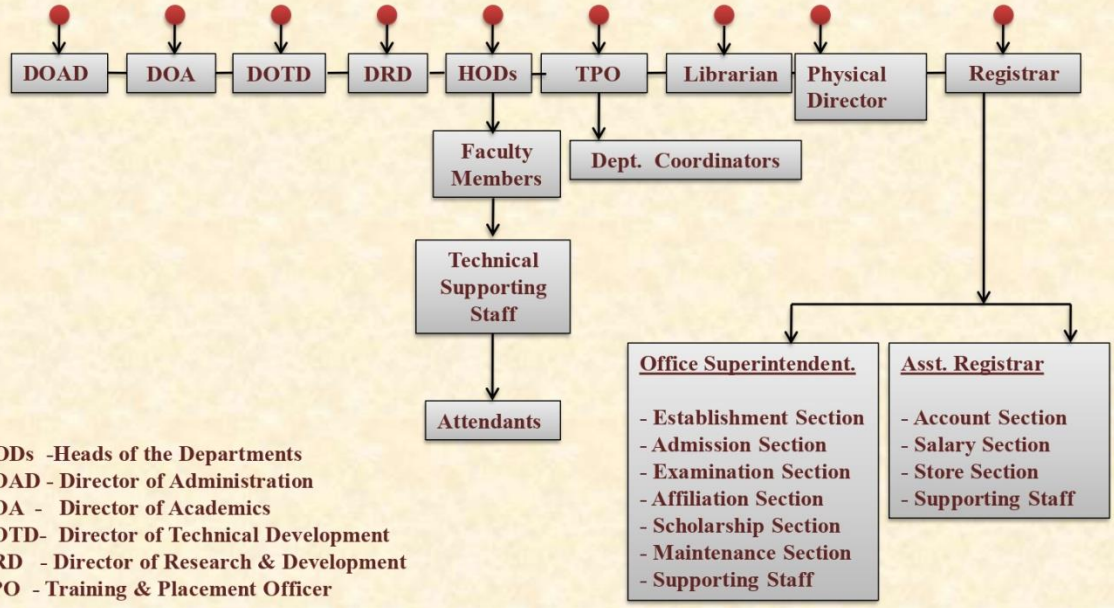
Also grievance cell is functioning in the college. The students grievances are looked into by the H.O.D. Concerned, Principal and if needed, they are referred to the management for appropriate decision. For Hostel the students approach the Rectors (Girls' Hostel and Boys' Hostel) and then they are referred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

Organogram of the Institution



GOVERNANCE..

ORGANOGRAM OF THE INSTITUTE



HODs -Heads of the Departments
DOAD - Director of Administration
DOA - Director of Academics
DOTD- Director of Technical Development
DRD - Director of Research & Development
TPO - Training & Placement Officer

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.

	UG									
Year	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.

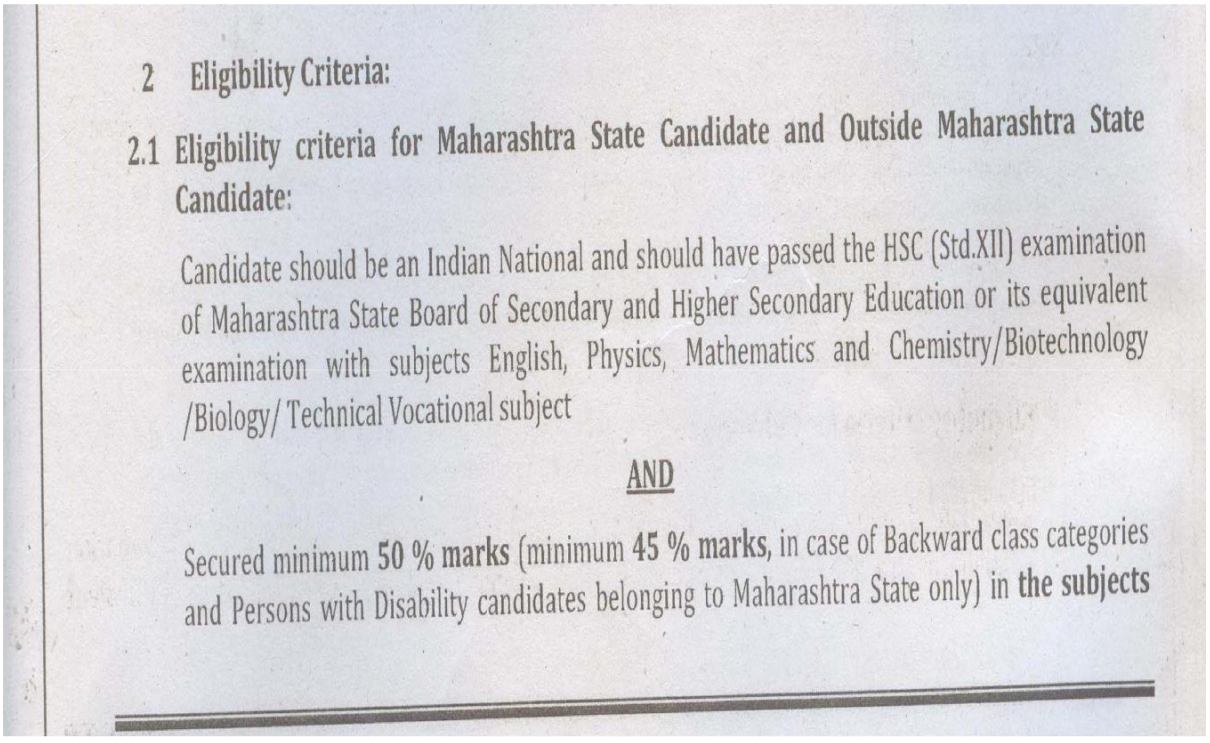
The candidate who has been provisionally admitted may cancel admission by submitting as application in duplicate, in the prescribed pro forma – O and may request for refund of fees. The refund of fees as applicable shall be made in due course. It is made clear that such application for cancellation will 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

ISO 9001:2015

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)	Percen-tage
1	2	3	4	5	6	7	8
1st Year Engineering							
2nd Year Engineering							
3rd Year Engineering							
4th 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	Qualifi cation	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 Wef-15.02.2002 NMU/18/553/8 Dt. 21-05-08 Wef-17.07.2006 NMU/18/1789/11 Dt. 13-12-2011 Wef-14.02.2012.	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 Wef-03.02.92 NMU/18/1142, Dt. 03-12-08 Wef-28.08.08	Yes, as Lecturer & Asst.Prof.	OPEN
03	Dr. P.A. Shirule	07/06/1973	**Associate Prof. & HOD**	B.E. Civil Engg. M.E. Civil (Enviormental) 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 Wef-9.2.04	Yes, as Lecturer	OBC
04	Dr. F.I. Chavan	13/05/1974	**Associate Prof.**	B.E. Civil Engg. M.E. Civil Engg. (Enviormental) 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 Wef-15.09.09	Yes, as Lecturer	OPEN

Sr. No.	Name of staff	Date of Birth	Designation	Qualifi cation	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 Wef-16.09.09	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 Wef-16.09.09	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 Asst.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 Wef-05.05.1995. NMU/18/J-4/580 /06, Dt. 06-03-06 Wef-09.02.2004 NMU/18/619 /16, Dt. 29-06-2016 Wef-21.03.2016	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 Wef-15.02.02 NMU/18/1119/8, Dt. 27-11-08 Wef-28.08.08	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 Wef-7.2.04 NMU/18/1065/2009 Dt.30.9.09 Wef 1.7.09	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 Wef- 01.07.2009	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)Ph.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 Electronices) 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 Electronices) 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 Chadrashekhar 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 Wef-15.02.2002 NMU/18/1118/08 Dt. 27-11-08 Wef-28.08.2008	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 Wef-09.02.2004	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 Wef- 15.09.2009	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 Wef-16.1.92 NMU/18/1117/08 Dt. 27-11-08 Wef 28.08.08	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 Wef –9.2.2004 NMU/18/1075/2009 Dt.30.9.09 Wef 1.7.09	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 Wef 1.2.2004	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 Wef-17.07.2006	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 Wef- 15.09.2009	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 Wef –15.02.2002 NMU/18/1071/2009 Dt.30.9.09 Wef –22.6.09	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 Wef 09.02.2004 NMU/18/321/2010 Dt.10.03.2010 Wef 15.09.2009	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 Wef – 09.02.2004	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 Wef –20.02.2002	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 Wef – 29.08.2008	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 Wef- 19.09.2009	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 Wef-17.3.2016	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 Wef-17.07.2006	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 Wef- 11.2.2004	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 Wef- 15.09.2009	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. Wef-18.03.0216	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 Wef-12.2.04 NMU/18/1066/2009 Dt.30.9.09 Wef 18.7.09	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 Wef-15.02.2002	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 Wef-15.02.2002	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 Wef- 25.06.2009	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 Wef 17.07.06	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 Wef- 15.09.2009	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 Wef-26.08.2008	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 Wef- 29.08.2008	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 Wef-26.08.2008	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.

Staticstical 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.

Staticstical Information of Faculty, 2024-2025

Sr. No.	Department	Approved Faculty	Regular but not approved Faculty	Contractaul 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.

Staticstical 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)

2. **Chemical Engineering**

   SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)

3. **Civil Engineering**

   SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)

4. **Computer Engineering**

   SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)

5. **Electrical Engineering**

   SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)

6. **Electronics & Telecommunication Engineering**

   SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)

7. **Mechanical Engineering**

8. **SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)**

9. **MASTER OF BUSINESS ADMINISTRATION**

10. **SSBTs College of Engineering, Jalgaon (sscoetjalgaon.ac.in)**

11. **MASTER OF COMPUTER APPLICATION**

12. **SSBTs College of Engineering, Jalgaon (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	**10th 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 31st, 1990	September 16th, 1991	Basic 700/-
2	SSVPS's B.S.Deore College of Engineering, Dhule	Lecturer	September 17th, 1991	February 28th, 2001	Basic 2200/-
3	SSVPS's B.S.Deore College of Engineering, Dhule	Sr. Lecturer	March 1st, 2001	January 13th, 2003	Basic 8000/-
4	SSVPS's B.S.Deore College of Engineering, Dhule	Asst. Professor / Assoc. Professor	January 14th, 2003	October 11th, 2012	Basic 12000/- Basic 37400/-
5	SSVPS's B.S.Deore College of Engineering, Dhule	Professor	October 12th, 2012	June 17th, 2013	Basic 43000/- + AGP 10000/-
6.	SSBT's College of Engineering & Technology, Bambhori, Jalgaon	Professor	June 18th, 2013	Till date	Basic 56980/- + AGP 10000/-
7	SSBT's College of Engineering & Technology, Bambhori, Jalgaon	Principal	October 1st, 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 22nd, 2001	November 9th, 2001	ISTE-STTP Refresher course on "Recent Trends in Computer Visual Aids for effective teaching"
2	NUS, Singapore	January 8th, 2002	January 11th, 2002	3rd International Conference on Mobile Data Management, Singapore
3	SSVPS's BSD College of Engg, Dhule	February 10th, 2002		ISTE Course on "Web based Collaborative Engineering and Advanced Techniques in CATIA V5 R7"
4	NUS, Singapore	January 8th, 2002	January 11th, 2002	International Conference on Mobile Data Management, Singapore
5	SSVPS's BSD College of Engg, Dhule	April 1st, 2002	April 12th, 2002	ISTE-STTP Refresher course on "Incubating Entrepreneur's Spirit"
6	Rational, Pune	December 9th, 2002	December 18th, 2002	Course on "Rational Rose"
7	Kalinga Institute of Technology, Bhubaneswar	December 21st, 2004	December 24th, 2004	International Conference on Distributed Computing and Internet Technology at Hotel Swasti plaza, Bhubaneswar
8	Tata Research Development and Design Center, Pune	January 4th, 2005	January 8th, 2005	TCS Excellence in Computer Science Week 2005 (TECSWEEK05) on Security Modeling
9	AIRCC	December 27th, 2009	December 29th, 2009	IEEE First International Conference on Networks & Communications, Chennai, India,
10	AINA	March 22nd, 2011	March 25th, 2011	IEEE Workshops of 25th International Conference on Advanced Information Networking and Applications, 2011, Biopolis, Singapore
11	GLA University,	March 3rd,	March 4th,	7th National Conference on

	Mathura	2012	2012	Advancement of Technologies – Information System & Computer Networks
12	University Institute of Chemical Technology, North Maharashtra University, Jalgaon	March 20th, 2018		TEQIP – III Sponsored One Day Workshop on Syllabus Setting
13	North Maharashtra University, Jalgaon	March 28th, 2018		Seminar on Technology Allied Capacity Building in Higher Education, 1st CABCIN 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 13th – 15th , 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 9th – 11th, 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 4th – 6th, 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 22nd – 24th, 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, "Devloping 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 – 143http://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 Jalgoan, 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://ijircce.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.ijircce.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.ijircce.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 11th , 2003
2	"Mobile Computing"	Bhausaheb Hiray S. S. Trust's Polytechnic, Malegaon on February, 2004
3	"Design and Implementation of Campus Data Networking"	SNJB COE, Chandwad on March 15th, 2008
4	"LaTeX – A Document Preparation Software"	SSVPS's B. S. Deore College of Engineering, Dhule, November 11th, 2011
5	Workshop on LaTeX	SNJB COE, Chandwad, January 12th – 13th , 2012
6	National Workshop on NS2	GLA University, Mathura, March 2nd, 2012
7	Workshop on LaTeX	SSVPS's B. S. Deore Polytechnic, Dhule, August 25th – 26th , 2012
8	Workshop on LaTeX	SRES College of Engineering, Kopargaon, September 1st – 2nd, 2012
9	Workshop on LaTeX	ShriSant Gadge baba College of Engineering and Technology, Bhusawal, October 19th – 21st, 2012
10	Workshop on LaTeX	Matoshri College of Engineering and Research, Nashik, December 28th – 29th,

		2012
11	Workshop on LaTeX	MIT Academy of Engineering, Alandi (D), Pune, January 11th – 12th , 2013
12	Speaker, National Conference on Recent Trends in Engineering	D. N. Patel College of Engineering, Sahada, March 2nd, 2013
13	Workshop on LaTeX	SNJB COE, Chandwad, April 19th, 2013
14	Workshop on NS2	Late G. N. Sapkal College of Engineering, Nashik, March 7th, 2015
15	TEQIP sponsored Two days' workshop on LaTeX and SPSS Clementine	Government College of Engineering, Chandrapur, October 17th – 18th, 2015
16	Workshop on SuSe Linux Server Configuration	SNJB College of Engineering, Chandwad, February 6th, 2016
17	Mobile Ad Hoc Network: Challenges & Issues	2nd National Conference on Emerging Trends in Computer & Information Technology, Tapti Education Society's Bhusawal Arts, Science & P.O.Nahata Commerce College, Bhusawal, October 14th, 2016
18	Accreditation by NAAC – An Overview	North Maharashtra University, Library and Information Science Study Circle, Jalgaon, October 22nd, 2016
19	TEQIP sponsored Two days' workshop on LaTeX	Government College of Engineering, Aurangabad, November 14th – 15th, 2016
20	State Level Workshop on LaTeX	NDMVPS's KBGT College of Engineering, Nashik, March 8th – 9th, 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 25th, 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 17th, 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 21st, 2019
27	Use of ICT & Moodle	KCES's S. S. Maniyar Law College, Jalgaon on June 29th, 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 21st , 25th and 29th , 2020.
33	English for Academic Research Writing	AICTE – ISTE sponsored One Week Refresher Course On "Research Methodology and Data Analysis" from 07th Dec to 12th Dec 2020 on 11th 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 14th December 2020 to 19th December 2020 on 18th December 2020 at 10 AM at Sanjivani College of Engineering, Kopargaon
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 4th 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 Socity 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.

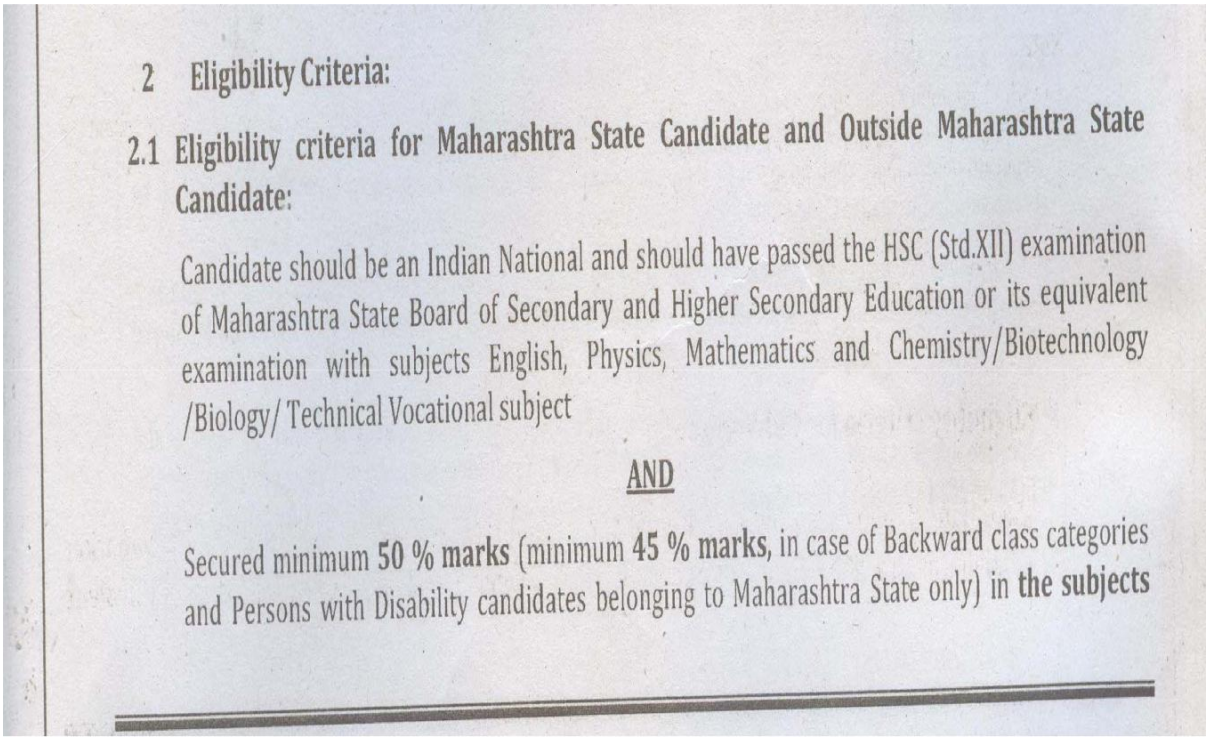
The candidate who has been provisionally admitted may cancel admission by submitting as application in duplicate, in the prescribed pro forma – O and may request for refund of fees. The refund of fees as applicable shall be made in due course. It is made clear that such application for cancellation will 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

ISO 9001:2015

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)	Percen-tage
1	2	3	4	5	6	7	8
1st Year Engineering							
2nd Year Engineering							
3rd Year Engineering							
4th 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

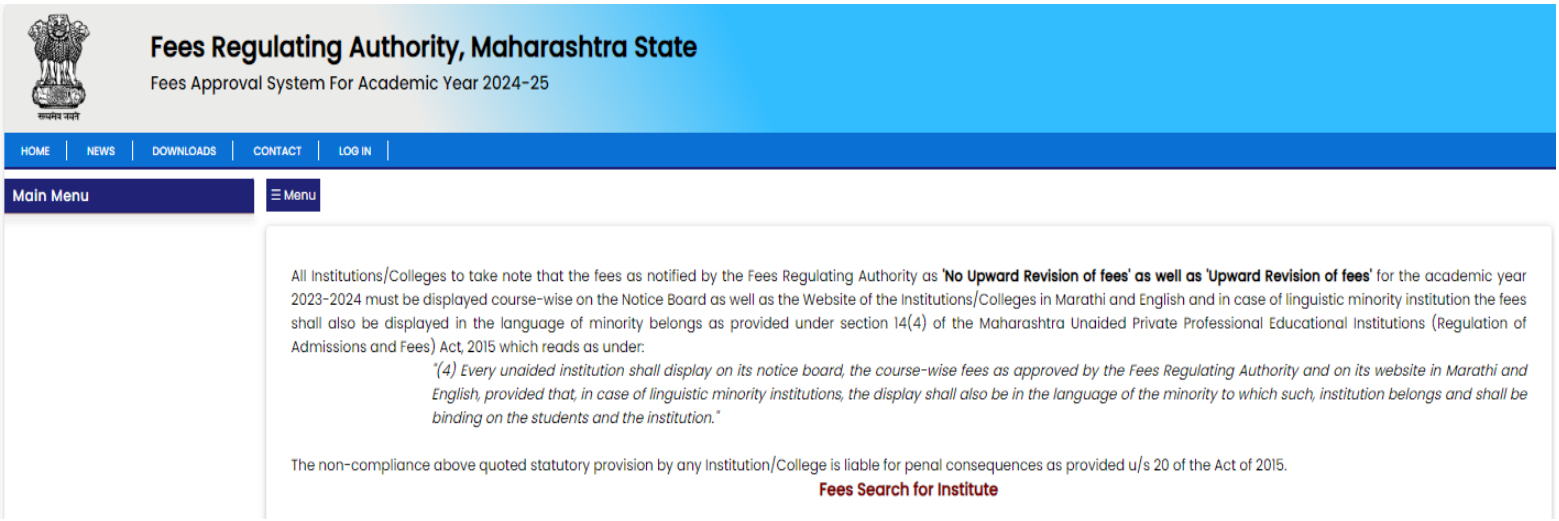
UNDERTAKING-2

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



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/918-31/10/24. 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.

SSBT's COLLEGE OF ENGINEERING & TECHNOLOGY BAMBHORI JALGAON

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

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

Ref. No. COET/Anti-Ragging/913-1/10/24 Date: 26/09/2024

28/10/2024

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. Astt. 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 Electical 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

Principal

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

COLLEGE OF ENGINEERING & TECHNOLOGY BAMBHORI JALGAON

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

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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/335/01/23 Date: 13 APR 2023

BAMBHORI, JALGAON
ISO 9001:2015
Grade A (3.14) NAAC Accredited
2nd Cycle

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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Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING AND TECHNOLOGY
Principal: Dr. G. K. Patnaik
M.E.(CSE), Ph.D. (CSE)

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

ESTD. 1983
BAMBHORI, JALGAON
ISO 9001:2015
Grade A (3.14) NAAC Accredited
2nd Cycle

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,

SSBT'S COLLEGE OF ENGINEERING & TECHNOLOGY
BAMBHORI
JALGAON

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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
BAMBHORI, JALGAON
ISO 9001:2015
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/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.

21.06.2021
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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

BAMBHORI, JALGAON
ISO 9001:2015

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/Estt./ 577 /06/21

Date: - 21/06/2021

To,

The Joint Director,

Technical Education, Regional Office,

Samangaon Road, Nashik.

Sir,

With reference to AICTE's notification dated 22nd 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,

21-6-2021

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SSBT'S COLLEGE OF ENGINEERING & TECHNOLOGY
BAMBHORI
JALGAON

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

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

Date: 28/10/2024

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

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

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

Ref.No.COET/SCST/ /066 / 04 / 23 **Date:- 10/04/2023**

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.

11/04/2023

PRINCIPAL

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

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

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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

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

Ref. No.:- COET/Estt./IIC/325-1/04/23 Date:-10/04/2023

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

Copy to:- 1. All above Concern
2. Vice-Principal
3. All HoDs
4. Principal Office

SSBT's COLLEGE OF ENGINIRING & 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 ENGINIRING & 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

PRINCIPAL

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

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

Ref.No.COET/Esst./ / / 24 **Date:- / /2024**

Constitution of Grievance Redressal Cell

Constitution of Grievance Redressel 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

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

Date: 28/10/2024

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

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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

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

Ref. No. COET/Anti-Ragging/913-1/10/24 Date: 26/09/2024

28/10/2024

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. Astt. 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 Electical 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

Principal

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

COLLEGE OF ENGINEERING & TECHNOLOGY BAMBHORI JALGAON

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

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

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

Date: 28/10/2024

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

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)
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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) b. Pipette c. Measuring cylinder d. Titration Flask (250ml) e. Burette stand f. Beakers (500 ml)	10 10 10 10 10 10	24 24 12 30 15 12	Yes
2	Determination of chloride content in the given sample of water by Mohr's method	a. Burette (25 ml) b. Pipette d. Titration Flask. (250 ml) d. Beakers(250 ml) e. Burette stand	10 10 10 10 10	24 24 30 12 15	Yes
3	Preparation of phenol formaldehyde resin	Glass rod, Beaker(500 ml) glass funnel	10 10 10	20 12 12	Yes

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 10 03	24 24 12 36 24 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 nanostuructures such as nanoparticles, nanofibers, nanorods by Chemical Method; Physical Method or Hybrid Method;	Characterization of nanostuructures 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 Software Headphones	48 1 48	48 1 48	Yes
2	Pronunciation, Intonation, Stress and Rhythm	Computers Software Headphones	48 1 48	48 1 48	No
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

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 Vaccum 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

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

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& Componenets	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 2 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 Practicals 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 Practicals

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 I- 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, wn &Mp 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 reactangular 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 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 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 01	Yes
5	To plot VI characteristics of PN Junction Diode	DMM Kit Bread Board Power suppy Resistor P-N Junction Diode Connecting wires	01 01 01 01 01 01	01 01 01 01 01 01	Yes
6	To determine operating point of BJT	DMM Kit Bread Board Power suppy Resistor BJT Connecting wires	01 01 01 01 01 01	01 01 01 01 01 01	Yes

7	To plot characteristics of LED	DMM Kit Bread Board Power suppy Resistor LED Connecting wires	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 suppy Resistor IC Connecting wires	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 Ac voltmeter analog multimeter digital multimeter Megger Power Factor Meter	01 01 01 01 01 01	01 01 01 01 01 01	Yes Yes Yes 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 Lightening arrester b. Different type of isolators. c. Substation earthing	Model of Lightening Arrester, Isolator, Earthing Rod etc	01 01 01 01	01 01 01 01	Yes
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. Model of three phase induction motor reverse forward starter	01 01	01 01	Yes
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 78××	1.Power Supply 2.Multimeter	01 01	01 01	Yes (performed on bread board)
8	Study of Negative Voltage Regulator Using IC 79 ××	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 1 2	Yes
3	Zero power factor test on three phase alternator: determination of regulation by Potier trangle 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 synchronscope	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 synchronscope	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 arrangment and Synchronising pannel	1 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 arrangment 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

Name of Course: :Electrical Engineering Class- TE Sem-VI

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	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	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 2 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	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 mear. Mc/ Arm Max	1011240.00		1011240.00						
05	TOM DOM Lab	Slip & Creep measurement 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						**332114.00**	**902114.00**
		AutoCAD2005		290000.00							
		Intel Core Computer	126164.00		126164.00						
		HCL Computer	127200.00		127200.00						
		Lenovo Computer	78750.00		78750.00						
08	RAC Lab	Vapour Absorption system	139116.00		139116.00					**644116.00**	**644116.00**
		Air Conditioning Cycle Test	365000.00		365000.00						
		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					**388711.00**	**388711.00**
		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					**102962.00**	**102962.00**
11	Mechatronics Lab	Trainers	51018.00		51018.00						
		Pneuinatic Actuator	54384.00		54384.00					**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 Disel Engine	01	312503.00
05	Twin Cylinder Disel 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.sscoetjalgaon.ac.in Email : sscoetjal@gmail.com

Mandatory Disclosure

Part-II

January 2024 - 2025

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
BAMBHORI,JALGAON
ISO 9001:2015

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	• 67 System software packages • 29 Application software packages
05.	Peripherals / Printers	• Printers= 85 • Scanners = 9
06.	Internet Accessibility (in kbps & hrs)	• 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 withAON 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 Skillsby arranging Short Term Training programs regularly for students.

The college is the member of the federation of the engineering colleges under Kavayitri BahinabaiChaudhari 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 5^{th} and 6^{th} 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 singed 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

PRINCIPAL

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

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) rdinator-Parents Meet, 17) Student Welfare Officer, 18) Rector (Boys Hostel), 19) Rector (Girls Hostel), 20) Vehicle In-charge, 21) Principal office

SSBT'S COLLEGE OF ENGINEERING & TECHNOLOGY
BAMBHORI
JALGAON

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

कवयित्री बहिणाबाई चौधरी उत्तर महाराष्ट्र विद्यापीठ

अंतरी पेटवू ज्ञानज्योत

1990

'A' Grade

NAAC Re-Accredited

(4th Cycle)

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

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 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

'A' Grade
NAAC Re-Accredited
(4th Cycle)

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, Keplars 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 &Electrodynamic with Python.

Text Books:

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:

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:

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 principal 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

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**

Concerned faculty member should suitably frame EIGHT laboratory assignments from the following list.

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:

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:

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

https:/nptel.ac.in/courses/115105120

Guide lines for ICA:

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.

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):

11th & 12th Chemistry

Course objectives:

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:

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

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:

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:

1. B.H. Mahan University chemistry, (Publisher: Pearson)
2. M.J.Sienkoand 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. LeeConciseInorganicChemistry, (Publisher: Oxford University Press)
6. Puri,Sharma,Kalia,Principlesof InorganicChemistry (Publisher: Vishal Publishing & Co.)
7. Polymer Science, V. R. Gowarikar, N. V. Viswanathan, jayadevSreedhar, 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:

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**

Concerned faculty member should suitably frame EIGHT laboratory assignments from the following list.

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

1. Tembe, Kamaluddin and Krishnan, Engineering Chemistry (NPTELWeb-book)
2. Dara, S.S.; A text book on Experiments and Calculations in Engineering Chemistry (ninth edition); (Publisher S. Chand)

Reference Books:

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:

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.

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 12th 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): 11th & 12th 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:

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:

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:

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:

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:

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. Krishnamurty, M. R. Raghuveer, "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:

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:

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

<table>
<tr><th colspan="5">BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB</th></tr>
<tr><th colspan="5">LAB COURSE CONTENT</th></tr>
<tr><td colspan="2">Basic Electrical and Electronics Engineering Lab</td><td colspan="2">Semester:</td><td>I or II</td></tr>
<tr><td colspan="2">Teaching Scheme:</td><td colspan="3">Examination scheme</td></tr>
<tr><td>Practical:</td><td>2 hours/week</td><td colspan="2">End semester exam (ESE): OR</td><td>25 marks</td></tr>
<tr><td colspan="2"></td><td colspan="2">Internal Continuous Assessment (ICA):</td><td>25 marks</td></tr>
<tr><td colspan="3">End Semester Exam (ESE) Pattern:</td><td colspan="2">Oral (OR)</td></tr>
<tr><td colspan="5">Concerned faculty member should suitably frame FOUR laboratory assignments from each group in the following list.

Group A
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.
Group B
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.</td></tr>
<tr><td colspan="5">Guide lines for ICA:</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><td colspan="5">Guidelines for ESE:</td></tr>
<tr><td colspan="5">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.</td></tr>
<tr><td colspan="5">NPTEL Links:
Introduction to Basic Electronics by Prof. T.S. Natarajan, https://nptel.ac.in/courses/122106025</td></tr>
</table>

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:

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:

1. Apply the concept of industry-standard drawing practices, including line types, symbols, and conventions used in engineering drawings.
2. Corelate 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).			

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:

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:

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, 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, 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		
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. 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:

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.
Irrespective of branch, the use of workshop practices in day to day industrial as well domestic life helps to dissolve the problems.

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:

The objective of this course is to:
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:
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**

Concerned faculty member should suitably frame EIGHT laboratory assignments from the list given below as per the following.

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 dissemble 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.

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:

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:

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

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)

2.1. Basics of a Group Discussion
2.2. Group Discussion Models

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):

11th & 12th English

Course Objectives:

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:

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

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

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- 5th 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**

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.

1. **Listening Comprehension:**
   - **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:**
   - **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:**
   - 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:**
   - Activity 4: Understand the Different styles of self-introduction
   - Practice: Introducing oneself and Introducing others
5. **Communication at Workplace:**
   - Activity 5: Understand the Workplace communication
   - Practice: Communication at the Workplace
6. **Interviews:**
   - Activity 6: Understand the Interview Skills and Etiquette.
   - Practice: Mock Interviews, Group Discussion

Text Books:

1. Raymond Murphy, Essential English Grammar, Cambridge University Press, 2^{nd} 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. F.T. Wood. Remedial English Grammar. MacMillan Publication, 2007
3. Hamp-Lyons and Ben Heasly, 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:

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:

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.
A technical student must have an introductory background of this knowledge.

	Hours/week	**No. of weeks**	**Total hours**	**Semester credits**
Theory	**1**	**14**	**14**	**2**
Practical	**2**	**14**	**28**	

Prerequisite course(s):

Course objectives:

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 (Bhāratiya 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:

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	

Indian Knowledge System – An Introduction:
Concept of IKS, Need of IKS, Organization of IKS, Historicity of IKS, some Salient Aspects of IKS.

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.

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

Unit – II:	No. of Lectures: 03 Hours	

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

Mathematics:
Introduction to Indian Mathematics, Unique aspects of Indian Mathematics, Indian Mathematicians and their Contributions, Algebra, Geometry, Trigonometry, problems in Chandaḥ Śāstra.

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

Unit – III:	No. of Lectures: 03 Hours	

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.

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,

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

Unit – IV:	No. of Lectures: 03 Hours	

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),

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.

References:

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:

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:

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**

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.

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.

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 copying 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, Oculesics: 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 12th 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): 11th & 12th 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:

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
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.		
Unit–V:	**No. of Lectures: 08 Hours**	**Marks: 12**
Complex Number: Circular functions, Hyperbolic and Inverse Hyperbolic functions, Logarithms of complex number, Resolving real and imaginary parts of a complex number.		

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:

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:

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:		
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:		
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:		
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)**	

Concerned faculty member should suitably frame FIVE laboratory assignments from the following list:

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:

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:

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:

The Joy of Computing using Python Prof. Sudarshan Iyengar,
https://nptel.ac.in/courses/106106182

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.

LIBERAL LEARNING COURSE

COURSE OUTLINE

Course Title:	**Liberal Learning Course**	**Short Title:**	**LLC**	**Course Code:**	

Course description:

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.

	Hours/week	**No. of weeks**	**Total hours**	**Semester credits**
Theory	**1**	**14**	**14**	**2**
Practical	**2**	**14**	**28**	

Prerequisite course(s):

Course objectives:

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.

Course outcomes:

After successful completion of this course the student will be able to:

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**

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.

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,

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

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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.

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

(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):

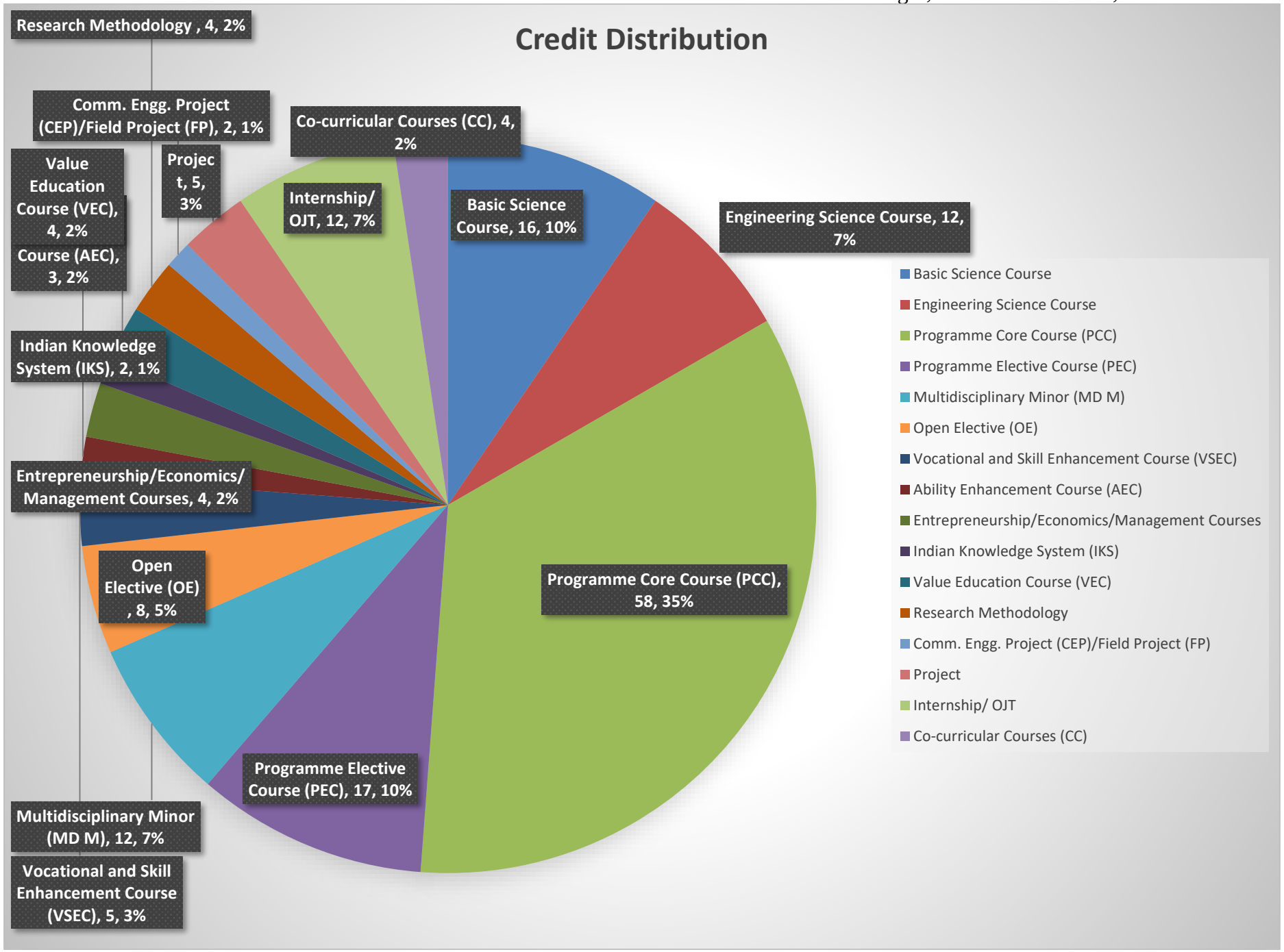
Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**Total Credits**
Program Core Course (PCC)			4	4	4	4		4	**20**

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: ELCTRONICS & TELECOMMUNICATION ENGINEERING
EE: ELECTRICAL ENGINEERING
ME: MECHANICAL ENGINEERING
AI: ARTIFICIAL INTELLIGENCE
AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING


Credit Distribution
Research Methodology , 4, 2%
Comm. Engg. Project (CEP)/Field Project (FP), 2, 1%
Co-curricular Courses (CC), 4, 2%
Value Education Course (VEC), 4, 2%
Projec t, 5, 3%
Internship/ OJT, 12, 7%
Basic Science Course, 16, 10%
Engineering Science Course, 12, 7%
Course (AEC), 3, 2%
Indian Knowledge System (IKS), 2, 1%
Entrepreneurship/Economics/ Management Courses, 4, 2%
Open Elective (OE) , 8, 5%
Programme Core Course (PCC), 58, 35%
Programme Elective Course (PEC), 17, 10%
Multidisciplinary Minor (MD M), 12, 7%
Vocational and Skill Enhancement Course (VSEC), 5, 3%
Basic Science Course
Engineering Science Course
Programme Core Course (PCC)
Programme Elective Course (PEC)
Multidisciplinary Minor (MD M)
Open Elective (OE)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC)
Entrepreneurship/Economics/Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Research Methodology
Comm. Engg. Project (CEP)/Field Project (FP)
Project
Internship/ OJT
Co-curricular Courses (CC)

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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
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EXIT COURSE FOR U. G. CERTIFICATE in Civil (DURATION 8 WEEKS)

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)		
CE-211	Internship / Apprenticeship	OJT							125			4
CE-212	Mini Project	VSEC / Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

EXIT COURSE FOR U. G. DIPLOMA in Civil (DURATION 8 WEEKS)

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)		
CE-412	Internship / Apprenticeship	OJT							125			4
CE-413	Mini Project	Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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.

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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	Cate`gory	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 -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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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	Cate`gory	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 -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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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	Cate`gory	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 -612C	Operations Research	PCC	3			3	40	60			100	3
CH -613C	Operations Research Lab	PCC			2	2			25	25 (OR)	50	1

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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.

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

कवयित्री बहिणाबाई चौधरी उत्तर महाराष्ट्र विद्यापीठ
अंतरी पेटवू ज्ञानज्योत
1990
'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.

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

(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):

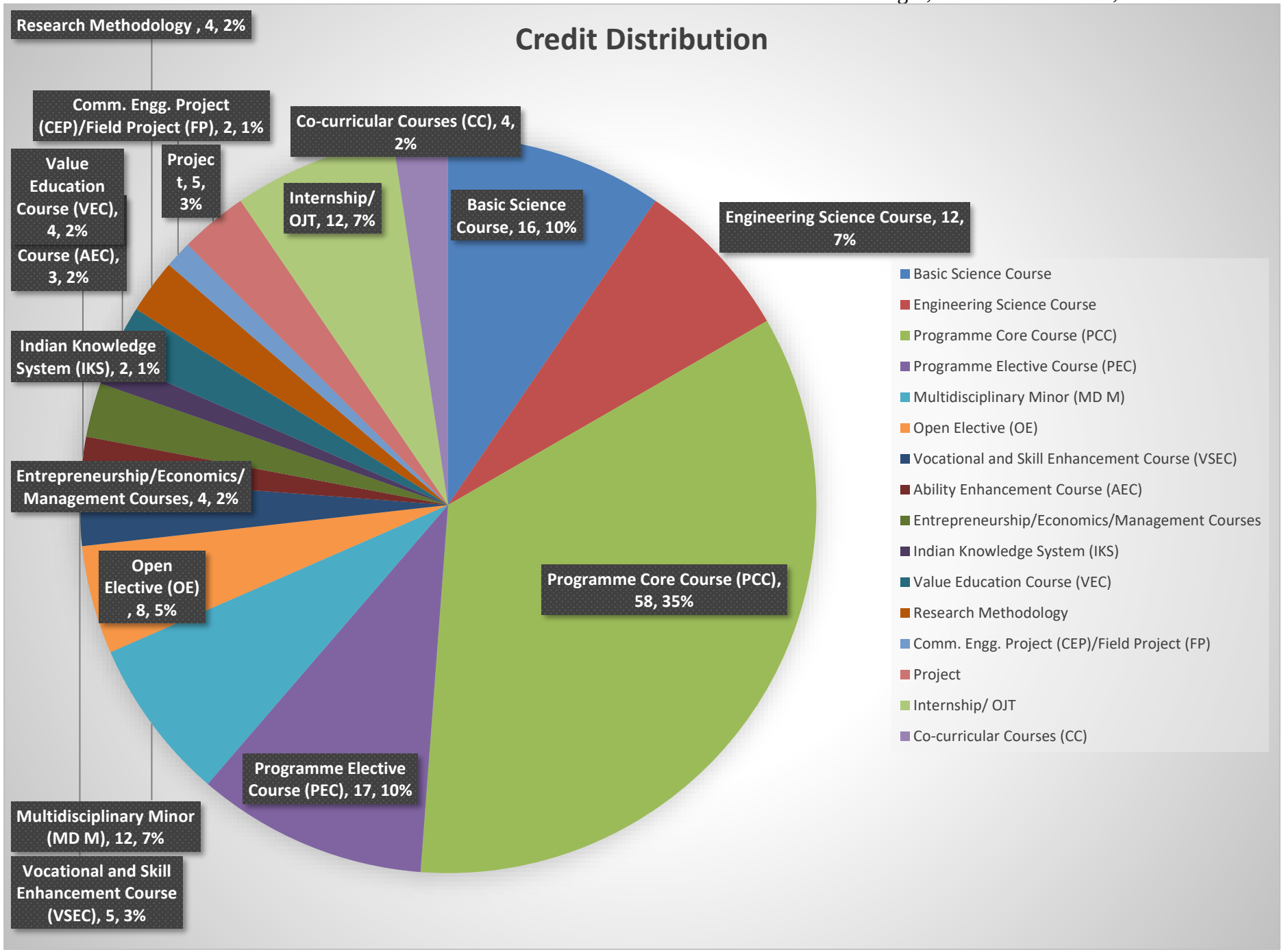
Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**Total Credits**
Program Core Course (PCC)			4	4	4	4		4	**20**

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: ELCTRONICS & TELECOMMUNICATION ENGINEERING
EE: ELECTRICAL ENGINEERING
ME: MECHANICAL ENGINEERING
AI: ARTIFICIAL INTELLIGENCE
AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING


Credit Distribution
Research Methodology , 4, 2%
Comm. Engg. Project (CEP)/Field Project (FP), 2, 1%
Co-curricular Courses (CC), 4, 2%
Value Education Course (VEC), 4, 2%
Projec t, 5, 3%
Internship/ OJT, 12, 7%
Basic Science Course, 16, 10%
Engineering Science Course, 12, 7%
Course (AEC), 3, 2%
Indian Knowledge System (IKS), 2, 1%
Entrepreneurship/Economics/ Management Courses, 4, 2%
Open Elective (OE) , 8, 5%
Programme Core Course (PCC), 58, 35%
Programme Elective Course (PEC), 17, 10%
Multidisciplinary Minor (MD M), 12, 7%
Vocational and Skill Enhancement Course (VSEC), 5, 3%
Basic Science Course
Engineering Science Course
Programme Core Course (PCC)
Programme Elective Course (PEC)
Multidisciplinary Minor (MD M)
Open Elective (OE)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC)
Entrepreneurship/Economics/Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Research Methodology
Comm. Engg. Project (CEP)/Field Project (FP)
Project
Internship/ OJT
Co-curricular Courses (CC)

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 Computer (DURATION 8 WEEKS)

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)		
CS -211	Internship / Apprenticeship	OJT							125			4
CS -212	Mini Project	VSEC / Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

EXIT COURSE FOR U. G. DIPLOMA in Computer (DURATION 8 WEEKS)

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)		
CS -412	Internship / Apprenticeship	OJT							125			4
CS -413	Mini Project	Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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
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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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
CS-414C	Data Encryption	PCC	3			3	40	60			100	3
CS-415C	Data Encryption Lab	PCC			2	2			25	25 (PR)	50	1

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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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.

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

(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**

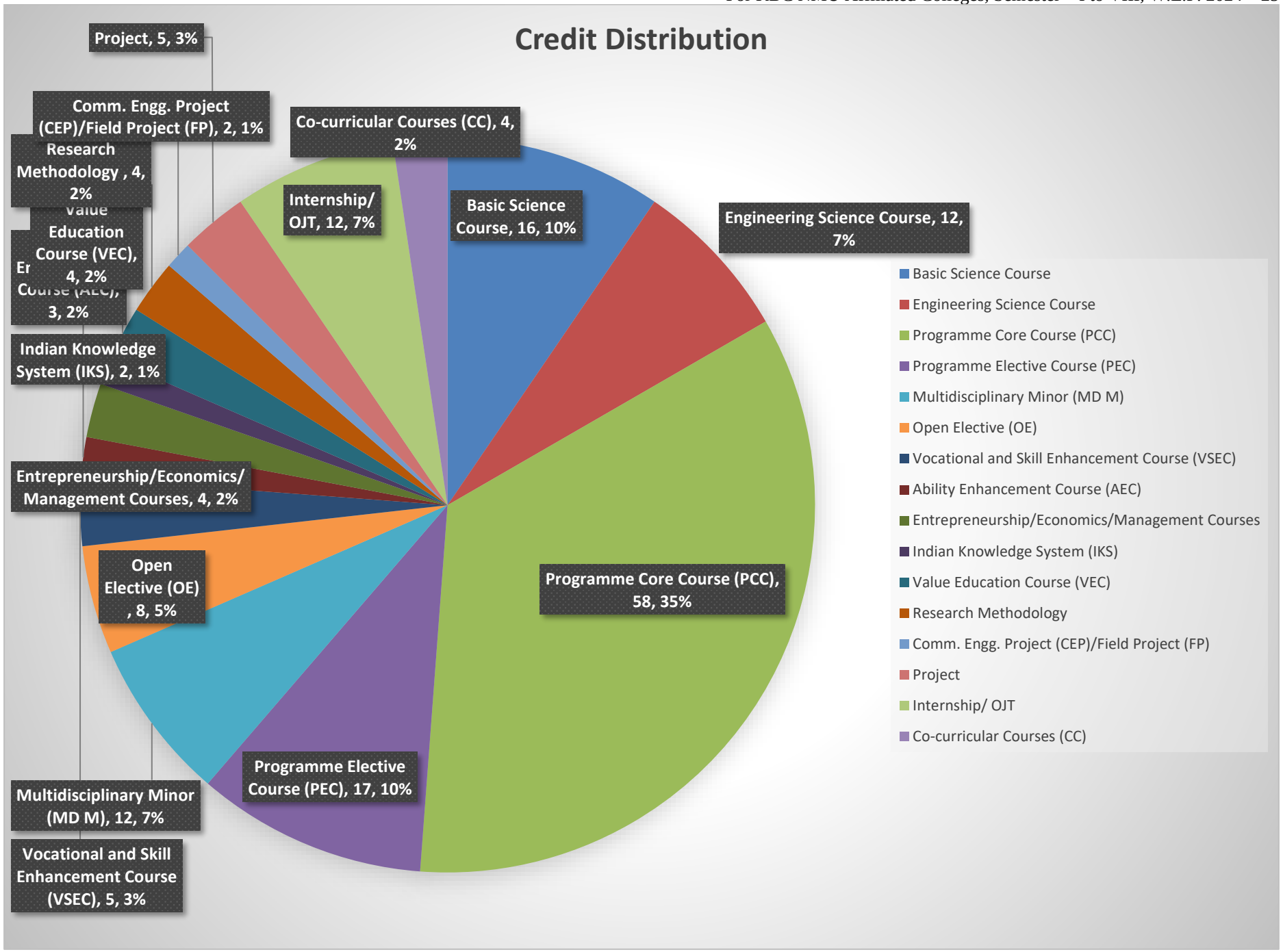
Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

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: ELCTRONICS & TELECOMMUNICATION ENGINEERING
EE: ELECTRICAL ENGINEERING
ME: MECHANICAL ENGINEERING
AI: ARTIFICIAL INTELLIGENCE
AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING


Credit Distribution
Project, 5, 3%
Comm. Engg. Project (CEP)/Field Project (FP), 2, 1%
Co-curricular Courses (CC), 4, 2%
Research Methodology , 4, 2%
Internship/ OJT, 12, 7%
Basic Science Course, 16, 10%
Engineering Science Course, 12, 7%
Value Education Course (VEC), 4, 2%
Ethics Course (AEC), 3, 2%
Indian Knowledge System (IKS), 2, 1%
Entrepreneurship/Economics/ Management Courses, 4, 2%
Open Elective (OE) , 8, 5%
Programme Core Course (PCC), 58, 35%
Programme Elective Course (PEC), 17, 10%
Multidisciplinary Minor (MD M), 12, 7%
Vocational and Skill Enhancement Course (VSEC), 5, 3%
Basic Science Course
Engineering Science Course
Programme Core Course (PCC)
Programme Elective Course (PEC)
Multidisciplinary Minor (MD M)
Open Elective (OE)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC)
Entrepreneurship/Economics/Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Research Methodology
Comm. Engg. Project (CEP)/Field Project (FP)
Project
Internship/ OJT
Co-curricular Courses (CC)

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)		
ET -612C	Machine Leaning and Deep Learning	PCC	3			3	40	60			100	3
ET -613C	Machine Leaning 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 rteport 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

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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 – NeeruVashisth - 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

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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:

a) To study Human behavior at work
b) To get knowledge of Individual, Interpersonal & Group perspectives
c) To get knowledge of Power & Politics
d) To get in depth knowledge work motivation & work stress
e) 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

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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: 10

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:

a) To provide fundamental knowledge about operations management
b) To make acquainted with materials and inventory management
c) 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:

1. Define operations management, describe concepts, product design, major processes **(Understand)**
2. Explain capacity planning, production planning and control **(Understand)**
3. Justify factors affecting location selection and articulate facility layout **(Evaluate)**
4. Explain materials and inventory management **(Analyze)**
5. Write about Supply chain management and Quality management **(Apply)**
6. 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:
6.5.1Steps 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: Starup Ecosystem

60 + 40 Pattern: External Marks 60 +Internal Marks 40 = Maximum Total Marks: 10

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 Muthukumaran, 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.

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: 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

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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 $\chi 2$ (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, Spearmen 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

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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

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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: 10

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 - Macmillion
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

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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: 100Required

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)

- Role and Importance of Data Analytics in Industry 4.0
- Types of Data Analytics
- Data Visualization Tools and Techniques
- 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-AnalyticThinking 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

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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
4. 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

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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: 10

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.

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

(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):

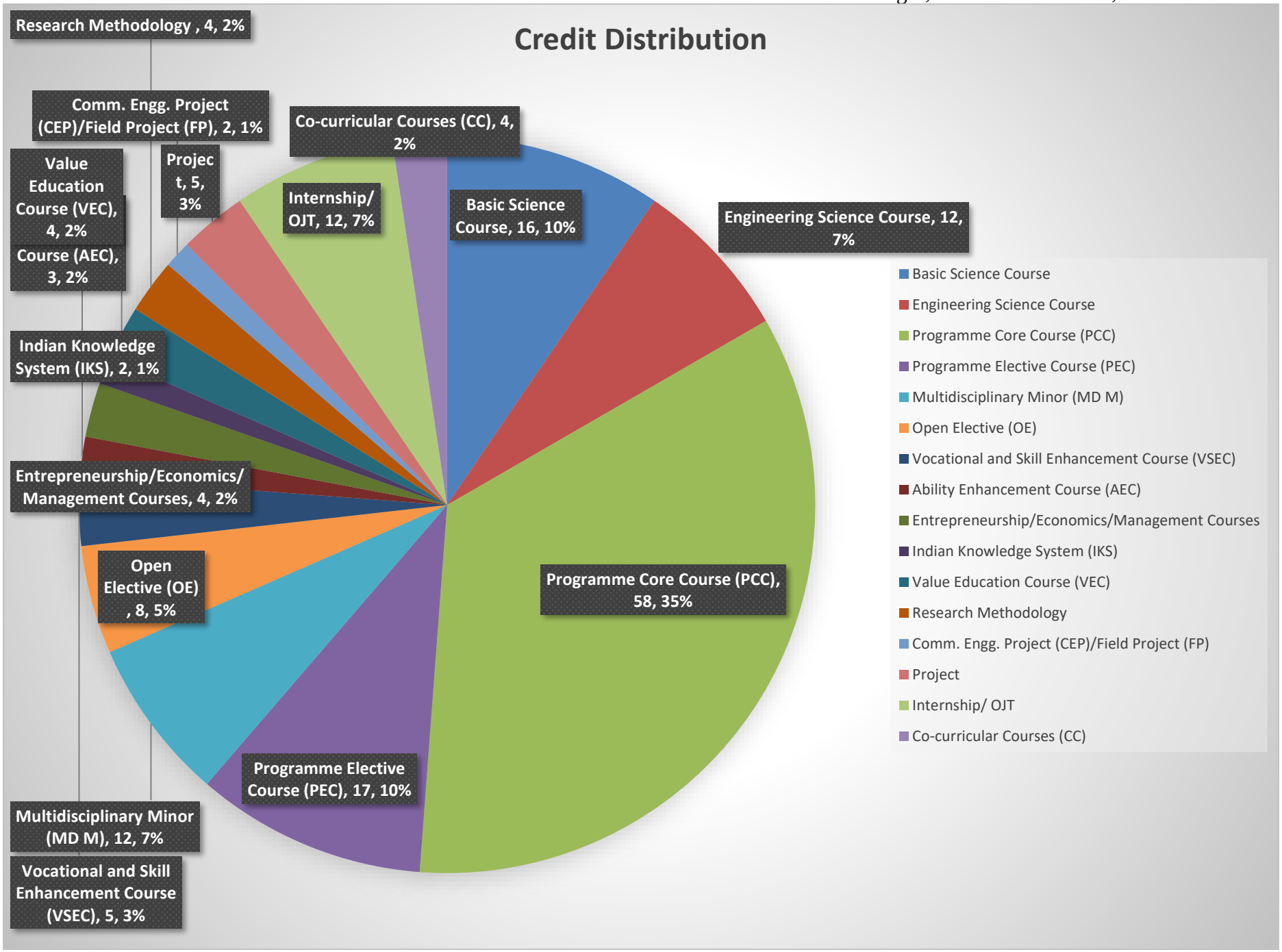
Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**Total Credits**
Program Core Course (PCC)			4	4	4	4		4	**20**

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: ELCTRONICS & TELECOMMUNICATION ENGINEERING
EE: ELECTRICAL ENGINEERING
ME: MECHANICAL ENGINEERING
AI: ARTIFICIAL INTELLIGENCE
AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING


Credit Distribution
Research Methodology , 4, 2%
Comm. Engg. Project (CEP)/Field Project (FP), 2, 1%
Co-curricular Courses (CC), 4, 2%
Value Education Course (VEC), 4, 2%
Projec t, 5, 3%
Internship/ OJT, 12, 7%
Basic Science Course, 16, 10%
Engineering Science Course, 12, 7%
Course (AEC), 3, 2%
Indian Knowledge System (IKS), 2, 1%
Entrepreneurship/Economics/ Management Courses, 4, 2%
Open Elective (OE) , 8, 5%
Programme Core Course (PCC), 58, 35%
Programme Elective Course (PEC), 17, 10%
Multidisciplinary Minor (MD M), 12, 7%
Vocational and Skill Enhancement Course (VSEC), 5, 3%
Basic Science Course
Engineering Science Course
Programme Core Course (PCC)
Programme Elective Course (PEC)
Multidisciplinary Minor (MD M)
Open Elective (OE)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC)
Entrepreneurship/Economics/Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Research Methodology
Comm. Engg. Project (CEP)/Field Project (FP)
Project
Internship/ OJT
Co-curricular Courses (CC)

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

EXIT COURSE FOR U. G. CERTIFICATE in Mechanical (DURATION 8 WEEKS)

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)		
ME-211	Internship / Apprenticeship	OJT							125			4
ME-212	Mini Project	VSEC / Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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-Cantered 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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

EXIT COURSE FOR U. G. DIPLOMA in Mechanical (DURATION 8 WEEKS)

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)		
ME-412	Internship / Apprenticeship	OJT							125			4
ME-413	Mini Project	Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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.

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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.

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

कवयित्री बहिणाबाई चौधरी उत्तर महाराष्ट्र विद्यापीठ
अंतरी पेटवू ज्ञानज्योत
1990
'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.

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

(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):

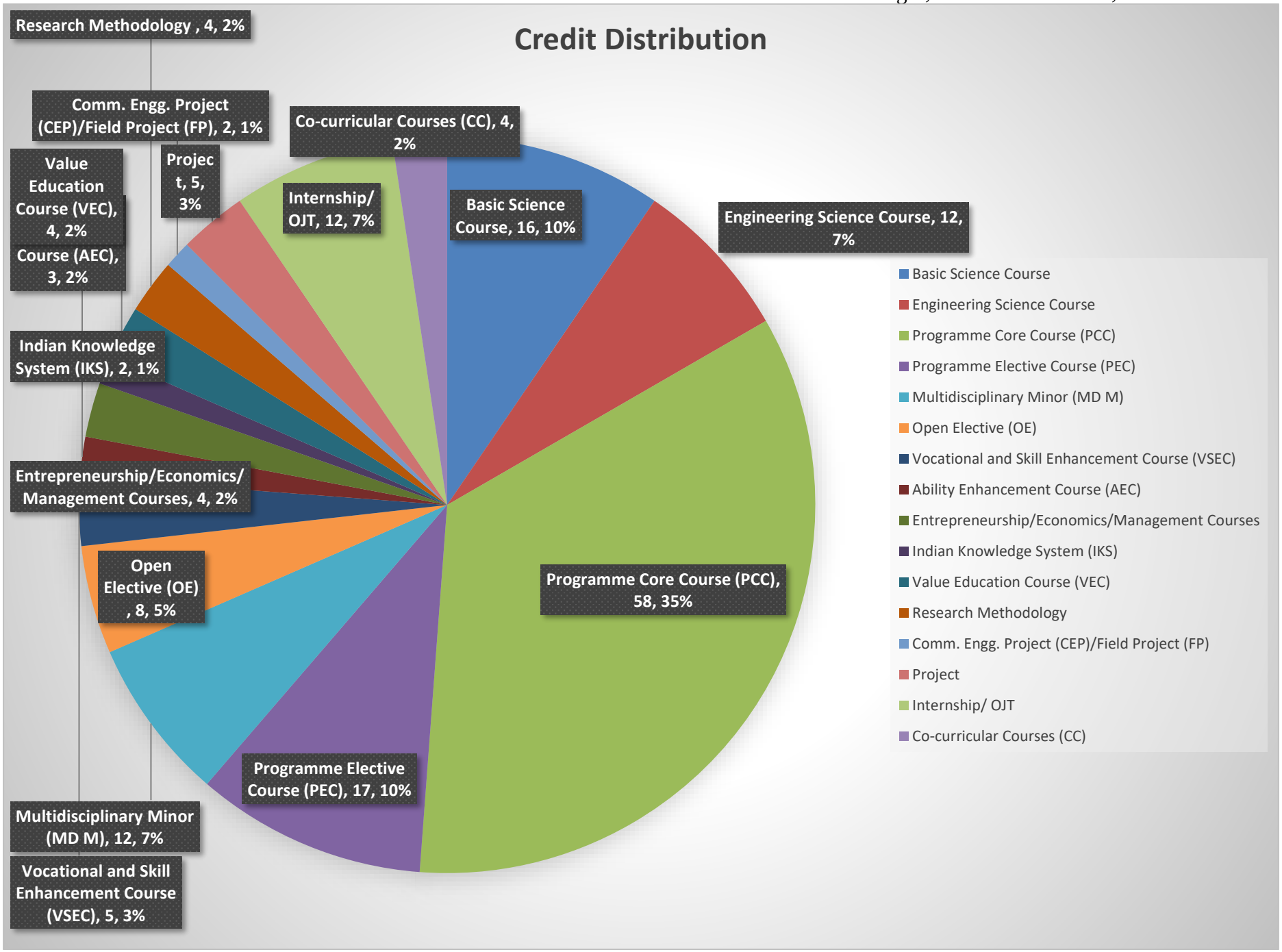
Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**Total Credits**
Program Core Course (PCC)			4	4	4	4		4	**20**

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: ELCTRONICS & TELECOMMUNICATION ENGINEERING
EE: ELECTRICAL ENGINEERING
ME: MECHANICAL ENGINEERING
AI: ARTIFICIAL INTELLIGENCE
AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING


Credit Distribution
Research Methodology , 4, 2%
Comm. Engg. Project (CEP)/Field Project (FP), 2, 1%
Co-curricular Courses (CC), 4, 2%
Value Education Course (VEC), 4, 2%
Projec t, 5, 3%
Internship/ OJT, 12, 7%
Basic Science Course, 16, 10%
Engineering Science Course, 12, 7%
Course (AEC), 3, 2%
Indian Knowledge System (IKS), 2, 1%
Entrepreneurship/Economics/ Management Courses, 4, 2%
Open Elective (OE) , 8, 5%
Programme Core Course (PCC), 58, 35%
Programme Elective Course (PEC), 17, 10%
Multidisciplinary Minor (MD M), 12, 7%
Vocational and Skill Enhancement Course (VSEC), 5, 3%
Basic Science Course
Engineering Science Course
Programme Core Course (PCC)
Programme Elective Course (PEC)
Multidisciplinary Minor (MD M)
Open Elective (OE)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC)
Entrepreneurship/Economics/Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Research Methodology
Comm. Engg. Project (CEP)/Field Project (FP)
Project
Internship/ OJT
Co-curricular Courses (CC)

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

EXIT COURSE FOR U. G. CERTIFICATE in Electrical (DURATION 8 WEEKS)

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)		
EE -211	Internship / Apprenticeship	OJT							125			4
EE -212	Mini Project	VSEC / Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

EXIT COURSE FOR U. G. DIPLOMA in Electrical (DURATION 8 WEEKS)

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)		
EE -412	Internship / Apprenticeship	OJT							125			4
EE -413	Mini Project	Project							25			4
									150			8

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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
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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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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.

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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.

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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 Electrics 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

Syllabus Structure for Specialization Minor in Electrics 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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.

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

(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**

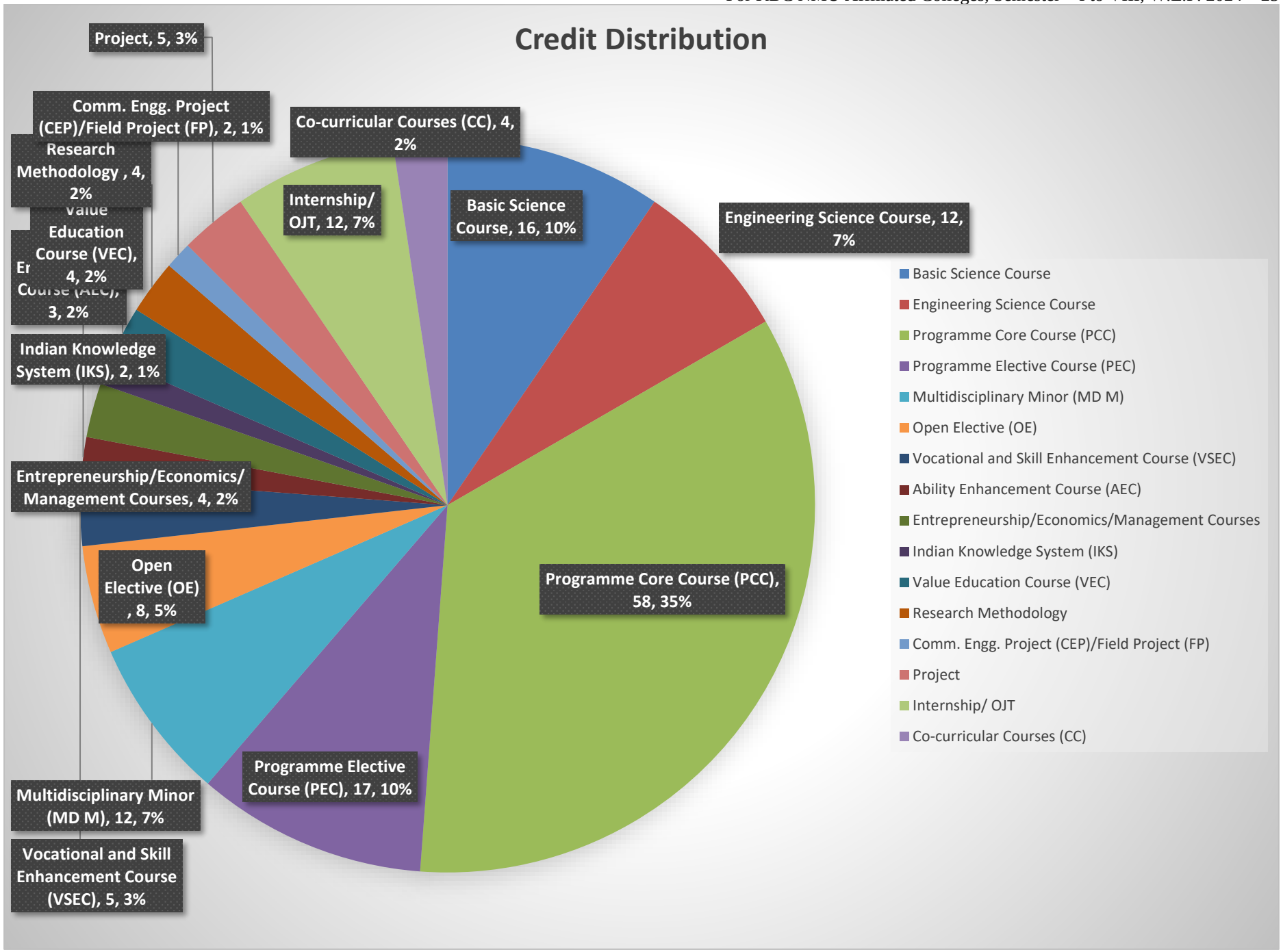
Students will have the flexibility to enter a programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs. Students exiting will be awarded provided they secure additional EIGHT credits in skill-based vocational courses.

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: ELCTRONICS & TELECOMMUNICATION ENGINEERING
EE: ELECTRICAL ENGINEERING
ME: MECHANICAL ENGINEERING
AI: ARTIFICIAL INTELLIGENCE
AIML: ARTIFICIAL INTELLIGENCE & MACHINE LEARNING


Credit Distribution
Project, 5, 3%
Comm. Engg. Project (CEP)/Field Project (FP), 2, 1%
Co-curricular Courses (CC), 4, 2%
Research Methodology , 4, 2%
Internship/ OJT, 12, 7%
Basic Science Course, 16, 10%
Engineering Science Course, 12, 7%
Value Education Course (VEC), 4, 2%
Ethics Course (AEC), 3, 2%
Indian Knowledge System (IKS), 2, 1%
Entrepreneurship/Economics/ Management Courses, 4, 2%
Open Elective (OE) , 8, 5%
Programme Core Course (PCC), 58, 35%
Programme Elective Course (PEC), 17, 10%
Multidisciplinary Minor (MD M), 12, 7%
Vocational and Skill Enhancement Course (VSEC), 5, 3%
Basic Science Course
Engineering Science Course
Programme Core Course (PCC)
Programme Elective Course (PEC)
Multidisciplinary Minor (MD M)
Open Elective (OE)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC)
Entrepreneurship/Economics/Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Research Methodology
Comm. Engg. Project (CEP)/Field Project (FP)
Project
Internship/ OJT
Co-curricular Courses (CC)

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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**

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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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)		
ET -612C	Machine Leaning and Deep Learning	PCC	3			3	40	60			100	3
ET -613C	Machine Leaning 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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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		Practical			
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	Total	ISE (CA)	ESE (UA)	ICA (CA)	ESE (UA)	Total	
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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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		Practical		Total	
			Theory Hrs / week	Tutorial Hrs / week	Practical Hrs / week	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

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-III

January 2024 - 2025

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
ISO 9001:2015

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+2TUT	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+2TUT	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 underSection2 (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				19
		SE	M-III (Comp)	08+02		01IKS+1CC=2	04	
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

Timetable In-charge **Head of the Department**

Shram Sadhna Bombay Trust's

College of Engineering and Technology, Bambhori, Jalgaon.

Grade A (3.14) NAAC Accredited (2nd Cycle)

Included underSection2 (f) & 12(b) of the UGC ACT, 1956

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. DeepmalaI 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

Timetable In-charge **Head of the Department**

S.S.B.T.'s College of Engineering & Technology, Bambhori, Jalgaon

Electrical Engineering Department **Teaching Load Distribution**

Term-I (UG) **Academic Year 2024-25**

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. Muqeem 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. Muqeem 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	SUR&G	3X2	2			8	6	16		60
SE	ICE	3X2					6			
(Civil)	ESE	3X2					6			
	BIOLOGY	3X2			2		8			
	MTE-I	1X2	2			8	2	16		
SemII	IFM	3X2	2			8	6	16		
SE	ISM	3X2					6			92
(Civil)	CACED	3X2		2		8	6		16	
	GEOLOGY	1X2	2			8	2	16		
	M-III	3X2			2		8			
	MTE-II		2			8		16		
SemI	CM	3X2		-			6			234
TE	HDE	3X2	2			8	6	16		
(Civil)	MOM	3X2					6			
	GTE	3X2	2			8	6	16		
	APCT	3X2					6			
	DPPM		2			8		16		
	PROJECT STAGE I		6			26		156		
Sem-II	SE	3X2	2			8	6	16		234
TE(Civil)	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 4 	2		8 8 8 35 	6 6 6 6 1	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.