

Course Outcome for B.E. Information Technology

| Class | Semester | Name of the Subject | CO | Course Outcome |
|-------|----------|--|----------|--|
| FE | I | Physics | 822101.1 | To study Bragg's Law and introduced to the principles of lasers, types of lasers and applications |
| | | | 822101.2 | Various terms related to properties of materials such as, permeability, polarization, etc. |
| | | | 822101.3 | Some of the basic laws related to quantum mechanics as well as magnetic and dielectric |
| | | | 822101.4 | properties of materials |
| | | | 822101.5 | Simple quantum mechanics calculations |
| | | | 822101.6 | Nanotechnology and their industrial applications. |
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| FE | I | Mathematics - I | 822102.1 | Apply differential and integral calculus. Apart from some other applications they will have a basic understanding of Beta and Gamma functions. |
| | | | 822102.2 | The fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems. |
| | | | 822102.3 | The tool of Fourier series for learning advanced Engineering Mathematics. |
| | | | 822102.4 | To 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. |
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| FE | I | Basic Electrical & Electronics Engineering | 822103.1 | Students will be able to demonstrate knowledge of circuit analysis using various basic laws and theorems of electrical circuits |
| | | | 822103.2 | Students will be able to demonstrate and understand definition and relationship of various AC circuits. |
| | | | 822103.3 | Understand working principle of PN junction diode, Zener diode and their applications. |
| | | | 822103.4 | Describe different configuration of Bipolar Junction Transistor. |
| | | | 822103.5 | Describe different configurations of FET |
| | | | 822103.6 | Understand operating principle Power Electronics Devices |

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| | | | 822103.7 | Describe use of the Basic gate and Universal gate |
| FE | I | Programming for Problem Solving | 822104.1 | To formulate simple algorithms for arithmetic and logical problems |
| | | | 822104.2 | Understand the fundamentals of C programming. |
| | | | 822104.3 | To test and execute the programs and correct syntax and logical errors |
| | | | 822104.4 | Choose the loops and decision making statements to solve the problem. |
| | | | 822104.5 | To decompose a problem into functions and synthesize a complete program using divide and conquer approach |
| | | | 822104.6 | To use arrays, pointers and structures to formulate algorithms and programs |
| FE | I | Physics Lab | 822105.1 | To study Bragg's Law and introduced to the principles of lasers, types of lasers and applications |
| | | | 822105.2 | Various terms related to properties of materials such as, permeability, polarization, etc. |
| | | | 822105.3 | Some of the basic laws related to quantum mechanics as well as magnetic and dielectric |
| | | | 822105.4 | properties of materials |
| | | | 822105.5 | Simple quantum mechanics calculations |
| | | | 822105.6 | Nanotechnology and their industrial applications. |
| FE | I | Basic Electrical and Electronics Engineering Lab. | 822106.1 | Identify electrical and electronics components/equipments. |
| | | | 822106.2 | Simplify D.C. network using Superposition Theorem. |
| | | | 822106.3 | Simplify D.C. network using Thevenin's Theorem. |
| | | | 822106.4 | Learn diode V-I Characteristic |
| | | | 822106.5 | Understand BJJ as a switch |
| | | | 822106.6 | Understand LED, JFET, SCR V-I characteristics |
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| FE-IT | I | Programming for Problem Solving Lab | 822107.1 | Understand the fundamentals of C programming. |
| | | | 822107.2 | Choose the loops and decision making statements to solve the problem. |
| | | | 822107.3 | Use functions to solve the given problem. |
| | | | 822107.4 | Implement different Operations on arrays. |
| | | | 822107.5 | Understand strings and structures. |
| | | | 822107.6 | Understand the usage of pointers. |
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| FE | II | Chemistry | 822201.1 | Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces. |
| | | | 822201.2 | Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques |
| | | | 822201.3 | Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity. |
| | | | 822201.4 | Rationalise bulk properties & processes using thermodynamic considerations |
| | | | 822201.5 | List major chemical reactions that are used in the synthesis of molecules. |
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| FE | II | Engineering Graphics | 822203.1 | Introduction to engineering design and its place in society |
| | | | 822203.2 | Exposure to the visual aspects of engineering design |
| | | | 822203.3 | Exposure to engineering graphics standards |
| | | | 822203.4 | Exposure to solid modeling. |
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| FE | II | English | 822204.1 | To acquire basic proficiency in English including reading and listening |
| | | | 822204.2 | To demonstrate proficiency in the use of written English, including proper spelling, Grammar and punctuation. |
| | | | 822204.3 | To enhance their ability to use spoken words in interpersonal communication, small group interactions and public speaking Comprehension, writing and speaking skills. |
| | | | 822204.4 | Become accomplished technical communicators. |
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| FE | II | Mathematics-II | 822202.1 | Use mathematical tools needed in evaluating multiple integrals and their usage. |

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| | | | 822202.2 | Apply effective mathematical tools for the solutions of differential equations that model physical processes. |
| | | | 822202.3 | Use tools of differentiation and integration of functions of a complex variable that are used in various techniques dealing engineering problems. |
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| FE | II | Chemistry Lab | 822206.1 | Upon successful completion of lab Course, student will be able to: The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to: |
| | | | 822206.2 | Estimate rate constants of reactions from concentration of reactants/products as a function of time |
| | | | 822206.3 | Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc |
| | | | 822206.4 | Synthesize a small drug molecule and analyse a salt sample . |
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| FE | II | Engineering Graphics Lab | 822207.1 | Introduction to engineering design and its place in society |
| | | | 822207.2 | Exposure to the visual aspects of engineering design |
| | | | 822207.3 | Exposure to engineering graphics standards |
| | | | 822207.4 | Exposure to solid modeling. |
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| FE | II | English Lab | 822208.1 | Students will be sensitized towards recognition of English sound pattern. |
| | | | 822208.2 | The fluency in speech will be enhanced. |
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| FE | II | Workshop Practices | 822205.1 | Students will be able to fabricate components with their own hands. |
| | | | 822205.2 | Get practical knowledge of the dimensional accuracies and dimensional tolerances possible |
| | | | 822205.3 | with different manufacturing processes. |
| | | | 822205.4 | Assemble different components, they will be able to produce small devices of their interest. |
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| SE | III | Mathematics – III | 822301.1 | Solve field problems in engineering involving Ordinary differential equations using Laplace Transform. |
| | | | 822301.2 | Apply concept of Fourier and Z-transform to solve field problems in engineering |
| | | | 822301.3 | Formulate and solve problems involving random variables. |
| | | | 822301.4 | Apply statistical methods for analyzing experimental data. |
| | | | 822301.5 | Understand basic concept statistics, probability distribution and test of significance |
| SE | III | Signals and Systems | 822302.1 | Demonstrate the ability to represent signals mathematically in continuous time and discrete time, and in frequency domain. |
| | | | 822302.2 | Understand the use of numerical method to analyze digital signal processing. |
| | | | 822302.3 | Understand Discrete Fourier Transform (DFT) and properties. |
| | | | 822302.4 | Analyze discrete time systems using Laplace and Z – transform. |
| | | | 822302.5 | Basic Understanding of state space analysis of system. |
| SE | III | Analog Electronic Circuits | 822303.1 | To categorize and calculate the DC and AC parameters of BJT / FET. |
| | | | 822303.2 | To describe and solve the frequency analysis of BJT. |
| | | | 822303.3 | To decide and formulate the various classes of operation of power amplifier. |
| | | | 822303.4 | To predict and classify the different configurations of feedback amplifiers. |
| | | | 822303.5 | To identify and analyze the different open loop and close loop applications of OP-Amp. |
| SE | III | Discrete Mathematics | 822304.1 | Formulate the given logic sentence it in terms of predicates, quantifiers, and logical connectives |
| | | | 822304.2 | Formulate real life problems in terms of set theory concepts. |
| | | | 822304.3 | Analyze the solution using deductive logic and prove the solution based on logical inference for given problem |
| | | | 822304.4 | Describe given mathematical problem according to its algebraic structure |
| | | | 822304.5 | Analyze the given problem as graph networks and solve with techniques of graph theory. |
| SE | III | Organizational Behavior | 822305.1 | Explain organizationbehaviour |
| | | | 822305.2 | Define individual behavior |

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| | | | 822305.3 | Determine group issues |
| | | | 822305.4 | Apply leadership styles |
| | | | 822305.5 | Analyze factors causing work stress |
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| SE | III | Analog Electronic Circuits Lab | 822306.1 | To design and formulate the operating point parameters of BJT / FET. |
| | | | 822306.2 | To measure the effect of bypass capacitor in frequency response. |
| | | | 822306.3 | To assess the effect of positive feedback in oscillator. |
| | | | 822306.4 | To test OP-Amp as an integrator and differentiator. |
| | | | 822306.5 | To measure the performance of OP-Amp low pass/ high pass filter |
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| SE | III | Discrete Mathematics Lab | 822307.1 | Solve the problem based on set theory and logical connectives. |
| | | | 822307.2 | Identify various number conversion techniques. |
| | | | 822307.3 | Apply shortest path techniques in real life. |
| | | | 822307.4 | Analyze minimum spanning tree using Prims and Kruskal algorithm |
| | | | 822307.5 | |
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| SE | III | Object Oriented Programming Lab | 822308.1 | Create class and object for various application. |
| | | | 822308.2 | Use the concept pointers, constructors, destructors etc. for dynamic memorymanagement techniques. |
| | | | 822308.3 | Apply the concept of inheritance to avoid data duplication. |
| | | | 822308.4 | Create and demonstrate operator overloading. |
| | | | 822308.5 | Implement class and function template. |
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| SE | IV | Biology | 822401.1 | Describe the concepts of modern cell theories and identify the differences in eukaryotic and prokaryotic cells. |
| | | | 822401.2 | Explain the major groups of animal and plant kingdom. |
| | | | 822401.3 | Demonstrate the advanced techniques in plant and animal tissue culturing, and able to calculate the growth rate of cells through culturing. |

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| | | | 822401.4 | Classify the microorganisms through different isolation techniques and illustrate microbial culture techniques. |
| | | | 822401.5 | Illustrate mechanism involved rDNA technology and apply the different aspects of Biotechnology. |
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| SE | IV | Digital Electronics | 822402.1 | Develop a digital logic and apply it to solve real life problems. |
| | | | 822402.2 | Understand and use of K-Map and Tabular method for simplification of logical expression. |
| | | | 822402.3 | Analyze, design and implement combinational logic circuits |
| | | | 822402.4 | Analyze and implement the sequential logic circuits using flip-flops. |
| | | | 822402.5 | Classify registers and design of the counters. |
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| SE | IV | Data Structure & Algorithms | 822403.1 | Enumerate the concepts of data and data structure |
| | | | 822403.2 | Analyze linear data structures |
| | | | 822403.3 | Analyze nonlinear data structure |
| | | | 822403.4 | Enumerate sorting and searching algorithms |
| | | | 822403.5 | Analyze space and time complexity |
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| SE | IV | Computer Organization & Architecture | 822404.1 | To draw and explain internal architecture of 8086 with its register organization. |
| | | | 822404.2 | Explain various arithmetic and logical 8086 instructions and assembler directives. |
| | | | 822404.3 | Explain single bus architecture within the processor with complete execution cycle. |
| | | | 822404.4 | Explain various types of memories and solve numerical on cache memory design. |
| | | | 822404.5 | Explain and solve arithmetic operations like multiplication using booths algorithm and bit pairing method. |
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| SE | IV | Finance & Accounting | 822405.1 | Understand the meaning, scope, significance, legal aspects and applications of accounting in Engineering field . |
| | | | 822405.2 | Understanding and use of book-keeping and the distinction of accounting with bookkeeping |
| | | | 822405.3 | Understand and apply Concept Double Entry System, Journal, Ledger for accounting purpose. |

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| | | | 822405.4 | Understand both the theoretical and practical role of financial management in business corporations. |
| | | | 822405.5 | Exposure to primary and secondary markets. |
| SE | IV | Digital Electronics Lab | 822406.1 | Generate a logic circuit for Boolean expression using basic gates. |
| | | | 822406.2 | Design a simplified logic circuit using K-Map/ QM method |
| | | | 822406.3 | Create a higher order combinational circuit from lower order combinational circuit |
| | | | 822406.4 | Modify any logic circuit of any type register. |
| | | | 822406.5 | Deploy a counter of any modulus using flip-flops. |
| SE | IV | Data Structure & Algorithms Lab | 822407.1 | Evaluate linear data structure |
| | | | 822407.2 | Evaluate inter conversions of mathematical notations |
| | | | 822407.3 | Evaluate Tree traversals |
| | | | 822407.4 | Evaluate nonlinear data structure |
| | | | 822407.5 | Evaluate searching and sorting techniques. |
| SE | IV | Computer Organization & Architecture Lab | 822408.1 | Apply DOS/BIOS interrupts and its functions for input and output operations. |
| | | | 822408.2 | Identify and apply 8086 assembly language macro. |
| | | | 822408.3 | Understand and apply 8086 assembly language NEAR and FAR procedure |
| | | | 822408.4 | Apply various string matching operations. |
| | | | 822408.5 | Write program for BCD to HEX conversion and BCD addition |
| SE | IV | IT Workshop | 822409.1 | Discuss basics of MATLAB/Scilab open source simulation software |
| | | | 822409.2 | Demonstrate Mathematical operations in MATLAB /Scilab |
| | | | 822409.3 | Illustrate plotting operations on linear expression |
| | | | 822409.4 | Demonstrate relational and logical operations on matrix |
| | | | 822409.5 | Use of matrix manipulation operations |

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| SE | IV | Environmental Studies | 85555.1 | Illustrate Natural Resources and associated problems |
| | | | 85555.2 | Outline Ecosystem |
| | | | 85555.3 | Describe Biodiversity |
| | | | 85555.4 | Illustrate Environmental pollution |
| | | | 85555.5 | Illustrate social issues that effect Environment |
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| TE | V | Database Management Systems | 822501.1 | Explain the basics of Database Management System and develop the entity relationship diagram for any database application. |
| | | | 822501.2 | Construct the queries using Formal Relational Query Languages. |
| | | | 822501.3 | Construct the queries using Structured Query Language and explain the working of Function, Procedure and Triggers. |
| | | | 822501.4 | Identify and apply normalization methods on database, along with understanding of indexing basic concept |
| | | | 822501.5 | Discuss the concept of transaction, concurrency, recovery and various database system architectures. |
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| TE | V | Software Engineering | 822502.1 | Define basic concepts of software engineering |
| | | | 822502.2 | Describe software requirements |
| | | | 822502.3 | Illustrate the design of software |
| | | | 822502.4 | Test developed software for requirements validation |
| | | | 822502.5 | Outline software project planning activities and schedule them for project execution |
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| TE | V | Formal Language and Automata Theory | 822503.1 | Understand the basic of formal languages and automata theory. |
| | | | 822503.2 | Describe and transform regular expression for computation. |
| | | | 822503.3 | Construct/convert grammars for formal languages. |
| | | | 822503.4 | Interpret PDA for Context free language and regular language. |
| | | | 822503.5 | Design and analyze the Turing machine for formal languages. |
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| TE | V | E- Commerce (PEC-I) | 822544.1 | Describe the foundations and importance of E-commerce |
| | | | 822544.2 | Discuss retailing in E-commerce |

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| | | | 822544.3 | Demonstrate the impact of E-commerce on business models and strategy |
| | | | 822544.4 | Categorize Internet trading relationships including Business to Consumer, Business-to- |
| | | | 822544.5 | Assess electronic payment systems. |
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| TE | V | Cyber Law and Ethics (OEC - I) | 822553.1 | To able to understand the objective and scope of IT act 2000 |
| | | | 822553.2 | To get acquainted with the Intellectual Property issues for obtaining the copyright, patents, trademark |
| | | | 822553.3 | To able to get familiar with the procedure of handling the process of Physical security breach |
| | | | 822553.4 | To able to understand the characteristics of Cybercrime and its classification |
| | | | 822553.5 | To be able to classify and understand information security system with respect to threats and attacks. |
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| TE | V | Database Management Systems Lab | 822506.1 | Develop a database with various constraints using SQL Data Definition Language. |
| | | | 822506.2 | Use DML queries to retrieve, insert, delete and update the database. |
| | | | 822506.3 | Apply various SQL features such as Aggregate functions, Set Operations and Views to resolve the queries. |
| | | | 822506.4 | Demonstrate Stored Procedure, Stored function and Trigger on a Sample Databases. |
| | | | 822506.5 | Develop database application using ODBC/JDBC interface to store and retrieve data from the database. |
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| TE | V | Software Engineering Lab | 822507.1 | Analyze the type of UML diagrams required for proposed software system |
| | | | 822507.2 | Decide contents of the UML diagrams |
| | | | 822507.3 | Design basic and advanced structural UML modeling diagrams |
| | | | 822507.4 | Design basic and advanced behavioral UML modeling diagrams |
| | | | 822507.5 | Develop various UML models for proposed software |
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| TE | V | Web Programming Language Lab | 822508.1 | Able to learn new web languages (PHP, JavaScript) |

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| | | | 822508.2 | Make use of appropriate web scripting language for different applications |
| | | | 822508.3 | Install and configure web server |
| | | | 822508.4 | Design interactive website |
| | | | 822508.5 | Design and develop database web application |
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| TE | V | Minor Project (Stage – I) | 822509.1 | Demonstrate a sound technical knowledge of their selected project topic. |
| | | | 822509.2 | Undertake problem identification, formulation and solution. |
| | | | 822509.3 | Design engineering solutions to complex problems utilizing a systems approach. |
| | | | 822509.4 | Conduct an engineering project |
| | | | 822509.5 | Demonstrate the knowledge, skills and attitudes of a professional engineer. |
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| TE | VI | Operating Systems | 822601.1 | Discuss fundamental of OS |
| | | | 822601.2 | Solve process scheduling, critical section, concurrency problems. |
| | | | 822601.3 | Explain deadlock & memory management concept. |
| | | | 822601.4 | Describe file management system. |
| | | | 822601.5 | Identify efficient disk scheduling algorithm. |
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| TE | VI | Computer Networks | 822602.1 | Explain the basics concepts of data communication and networking. |
| | | | 822602.2 | Solve numerical of IP addressing and describe internet protocol along with address mapping. |
| | | | 822602.3 | Describe error reporting and forwarding along with routing protocols. |
| | | | 822602.4 | Demonstrate process to process communication at transport layer using TCP and UDP. |
| | | | 822602.5 | Discuss network security and wireless networking concepts. |
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| TE | VI | Design and Analysis of Algorithms | 822603.1 | Understand and design of basic algorithms and computer time complexity. |
| | | | 822603.2 | Design and analyze algorithm by Divide and conquer approach. |
| | | | 822603.3 | Apply backtracking and Branch-bound approach to real word problem. |
| | | | 822603.4 | Simulate Greedy and Dynamic programming approach. |
| | | | 822603.5 | Recognize basic computational types of problem |
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| TE | VI | Embedded System | 822642.1 | Explain the basic concept of Embedded System |
| | | | 822642.2 | Describe Embedded System Architecture and its communication protocols |
| | | | 822642.3 | Use process of Embedded System Development |
| | | | 822642.4 | Apply concept of ARM architecture |
| | | | 822642.5 | Explain Real Time Operating System. |
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| TE | VI | Project Management | 822651.1 | Use and explain different stages of project management |
| | | | 822651.2 | Make use of project planning and scheduling tools |
| | | | 822651.3 | Know the methods of cost estimation of project |
| | | | 822651.4 | Apply project risk management for controlling risk |
| | | | 822651.5 | Understand the procurement management for the project |
| | | | | |
| TE | VI | Operating Systems Lab | 822606.1 | Apply process scheduling concept. |
| | | | 822606.2 | Explain file management & memory management concept. |
| | | | 822606.3 | Discuss concurrency problems. |
| | | | 822606.4 | Analyse the disk scheduling algorithm. |
| | | | 822606.5 | Describe Inter Process Communication mechanism |
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| TE | VI | Computer Networks Lab | 822607.1 | Apply the concept of bit stuffing in framing. |
| | | | 822607.2 | Use Run Length Encoding for data compression. |
| | | | 822607.3 | Demonstrate client server communication using TCP and UDP Socket. |
| | | | 822607.4 | Develop Cryptographic algorithms. |
| | | | 822607.5 | Build the network scenario in network simulation tool. |
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| TE | VI | Design and Analysis of Algorithms Lab | 822608.1 | Analyze and Implement divide and conquer approach. |
| | | | 822608.2 | Implement dynamic programming approach |
| | | | 822608.3 | Implement Branch and bounding approach |
| | | | 822608.4 | Implement backtracking approach. |
| | | | 822608.5 | Implement greedy algorithm approach |
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| TE | VI | Minor Project | 822609.1 | Demonstrate a sound technical knowledge of their selected project topic. |
| | | | 822609.2 | Undertake problem identification, formulation and solution. |
| | | | 822609.3 | Design engineering solutions to complex problems utilizing a systems approach. |
| | | | 822609.4 | Conduct an engineering project |
| | | | 822609.5 | Demonstrate the knowledge, skills and attitudes of a professional engineer. |
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| BE | VII | Compiler Design | 722701.1 | Design Lexical Analyzer |
| | | | 722701.2 | Design Syntax Analyzer |
| | | | 722701.3 | Generate Intermediate Code |
| | | | 722701.4 | Illustrate different storage management schemes |
| | | | 722701.5 | Design Code Generator |
| | | | | |
| BE | VII | Machine Learning | 722721.1 | Recognize the characteristics of machine learning that make it useful to real-world problems. |
| | | | 722721.2 | Able to use regularized regression and Classification algorithms. |
| | | | 722721.3 | Evalute machine learning algorithms and model selection. |
| | | | 722721.4 | Understand scalable machine learning and machine learning for IoT. |
| | | | 722721.5 | Understand Deep leaning and Expert system. |
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| BE | VII | Data Mining | 722731.1 | To introduce students to the basic concepts and techniques of Data Mining. |
| | | | 722731.2 | To develop skills of using recent data mining software for solving practical problems. |
| | | | 722731.3 | To gain experience of doing independent study and research. |
| | | | 722731.4 | To study the methodology of engineering legacy databases for data warehousing and data mining to derive business rules for decision support systems. |
| | | | 722731.5 | Develop and apply critical thinking, problem-solving, and decision-making skills. |
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| BE | VII | Quantitative Reasoning and Problem Solving | 722743.1 | Perform arithmetic calculations on number system, HCF and LCM and age |
| | | | 722743.2 | Solve application problems involving Time, Distance, Speed. |
| | | | 722743.3 | Calculate Time Taken at varies case. |
| | | | 722743.4 | Calculate percentage, average and simple interest. |

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| | | | 722743.5 | Classify data as categorical or quantitative. |
| BE | VII | Compiler Design Lab | 722705.1 | Demonstrate LEX and YACC tools. |
| | | | 722705.2 | Design Lexical Analyzer. |
| | | | 722705.3 | Design Syntax Analyzer. |
| | | | 722705.4 | Design Code Optimization. |
| | | | 722705.5 | Design Code Generator |
| BE | VII | Advanced Technology Lab I | 722706.1 | Break down real world problems / application. |
| | | | 722706.2 | Demonstrate Full Stack development. |
| | | | 722706.3 | Design Full Stack based applications. |
| | | | 722706.4 | Decide tools for Full Stack development. |
| | | | 722706.5 | Develop Full Stack based applications. |
| BE | VII | Project (Stage – I) | 722707.1 | Demonstrate a sound technical knowledge of their selected project topic. |
| | | | 722707.2 | Undertake problem identification, formulation and solution. |
| | | | 722707.3 | Design engineering solutions to complex problems utilizing a systems approach. |
| | | | 722707.4 | Conduct an engineering project |
| | | | 722707.5 | Demonstrate the knowledge, skills and attitudes of a professional engineer. |
| BE | VIII | Cyber Security | 822801.1 | Determine the act of Cyberoffenses. |
| | | | 822801.2 | Determine the Cybercrime through portable devices. |
| | | | 822801.3 | Determine the methods used in Cybercrime |
| | | | 822801.4 | Determine Phishing and Identity theft |
| | | | 822801.5 | Describe Computer Forensics. |
| BE | VIII | Soft Computing (Professional Elective Course – V) | 822821.1 | Apply soft computing methodologies includes neural network. |
| | | | 822821.2 | Apply soft computing methodologies includes fuzzy logic |

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|-------|----------|---|----------|---|
| | | | 822821.3 | Apply soft computing methodologies includes genetic algorithm |
| | | | 822821.4 | Apply soft computing methodologies includes hybrid system |
| | | | 822821.5 | Design of certain scientific and commercial application using soft computing approach |
| | | | | |
| BE | VIII | BlockChain (Professional Elective Course – VI) | 822832.1 | Understand the structure of a blockchain and why/when it is better than a simple distributed database |
| | | | 822832.2 | Discuss security aspects in blockchain through cryptography |
| | | | 822832.3 | Describe how Cryptocurrency mining works |
| | | | 822832.4 | Write smart contract using Ethereum frameworks and Hyperledger Fabric |
| | | | 822832.5 | Integrate ideas from various domains and develop block chain based solutions |
| | | | | |
| BE | VIII | Logical Reasoning and Problem Solving (Open Elective Course – IV) | 822843.1 | Tell Analogy, Classification, perform coding and decoding on data |
| | | | 822843.2 | Recognize logical and philosophical reasoning. |
| | | | 822843.3 | Recognize logical reasoning applicable to real-life situations, solve real-life problems |
| | | | 822843.4 | Experience with diversity to demonstrate knowledge and sensitivity. |
| | | | 822843.5 | Solve application problems involving Clock, Calendar and Ratio and Proportion. |
| | | | | |
| BE | VIII | Cyber Security Lab | 822805.1 | To describe Information Technology Act of India. |
| | | | 822805.2 | Describe Cyber Security |
| | | | 822805.3 | Demonstrate Offensive Cyber Security Tools |
| | | | 822805.4 | Demonstrate Defensive Cyber Security Tools |
| | | | 822805.5 | Demonstrate Security Testing Tools for Web Applications. |
| | | | | |
| BE | VIII | Advanced Technology Lab II | 822806.1 | Break down real world problems / application. |
| | | | 822806.2 | Demonstrate Full Stack development |
| | | | 822806.3 | Design Full Stack based applications |

| Class | Semester | Name of the Subject | CO | Course Outcome |
|--------------|-----------------|----------------------------|-----------|--|
| | | | 822806.4 | Decide tools for Full Stack development |
| | | | 822806.5 | Develop Full Stack based applications. |
| | | | | |
| BE | VIII | Project | 822807.1 | Demonstrate a sound technical knowledge of their selected project topic. |
| | | | 822807.2 | Undertake problem identification, formulation and solution. |
| | | | 822807.3 | Design engineering solutions to complex problems utilizing a systems approach. |
| | | | 822807.4 | Design engineering solutions to complex problems utilizing a systems approach. |
| | | | 822807.5 | Demonstrate the knowledge, skills and attitudes of a professional engineer. |
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