


CONSOLIDATED LIST OF COURSE OUTCOMES
Department of Computer Science Engineering

Sl. No	Course Code & Course Name	Course Outcome Number	Course Outcome
1	MA101 Calculus	C101.1	To provide some basic tools which are useful in modelling and analysing physical phenomena.
		C101.2	To analyse the physical phenomena involving continuous change of variables.
		C101.3	To evaluate differential and integral calculus of functions of one or more variables and of vector functions.
		C101.4	To evaluate the areas and volumes using integrals
		C101.5	To analyse the application of vector valued functions
		C101.6	To provide basic training in plotting and visualizing graphs of functions and intuitively understanding their properties
2	CY100 Engineering Chemistry	C102.1	Understand various spectroscopic techniques like UV-Visible, IR, NMR and its applications.
		C102.2	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
		C102.3	Basic knowledge of Thermal analytical techniques and conductivity measurements. Basic knowledge of chromatographic techniques.
		C102.4	Have a scope in the area of material science, Have knowledge of synthesizing nano materials and their application in industry, carbon nano tube technology in every industry now a days.
		C102.5	Have knowledge of chemical properties of fuels, Know the properties of lubricants.
		C102.6	Study various types of water treatment methods to develop skills for treating wastewater.
3	BE110Engineering Graphics	C103.1	Draw the projection of points and lines located in different quadrants
		C103.2	Prepare multiview orthographic projections of objects by visualizing them in different positions
		C103.3	Draw sectional views and develop surfaces of a given object
		C103.4	Prepare pictorial drawings using the principles of isometric and perspective projections to visualise objects in 3 dimensions.
		C103.5	Convert 3D views to orthographic views and vice versa
		C103.6	Obtain multiview projections and solid models of objects using CAD tools
4		C104.1	Ability to understand hardware and software characteristics of a computer.
		C104.2	Ability to design algorithmic solution to problems and convert algorithms to Python programs.



	BE10105 Introduction to Computing and problem solving	C104.3	Ability to design programs with Interactive Input and Output, utilizing arithmetic expression, repetitions, decision making, arrays.
		C104.4	Ability to design modular Python programs using functions and develop recursive solutions.
		C104.5	Ability to design programs using strings, lists, tuples and dictionaries.
		C104.6	Ability to design programs using file Input and Output and understand object-oriented concepts.
5	BE103 Introduction to Sustainable Engineering	C105.1	The students should have knowledge about the concept and importance of sustainability
		C105.2	The students should be able to understand different types of pollution and waste generation, their causes, effects and control
		C105.3	The students should be able to understand environmental management standards and environmental impact assessment
		C105.4	The students should be able to understand the concepts of bio mimicking, green engineering, green building, sustainable habitat, sustainable urbanization
		C105.5	Students should have a knowledge of various types of conventional and non-conventional energy sources
		C105.6	Students should be able to understand the role of engineering and technology in sustainable development
6	EC 100 Basics of Electronics Engineering	C106.1	To understand and identify passive components
		C106.2	Student can identify active components and can design, setup simple circuits using diodes
		C106.3	To understand the basics of BJT and detailed study of its characteristics
		C106.4	To understand and detailed study of JFET & MOSFET
		C106.5	To understand the working of rectifier
		C106.6	Voltage and currents can be measured and monitored using electronic measuring instruments
7	CY110 Engineering Chemistry Lab	C107.1	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses
		C107.2	Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs
		C107.3	Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds
		C107.4	Acquire the ability to understand, explain and use instrumental techniques for chemical analysis
		C107.5	Learn to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments
		C107.6	Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economical and environmental problems and why it is an integral part of curriculum



8	EC110 Electronics engineering Workshop	C108.1	Graduates will be able to recognize the appropriate methods to solve electronics and communication problems.
		C108.2	Graduates will be able to acquire basic training and skills to solve basic electronics problems.
		C108.3	Graduates will be able to apply the equations and formulas to solve related practical value problems.
		C108.4	Graduates will be able to calculate the problems in Diodes, biasing of transistor, amplifiers, oscillators and regulator circuits.
		C108.5	Graduates will be able to evaluate communication systems like RADAR , GPS , Entertainment Electronics
		C108.6	Graduates will be able to measure current voltage values using equipments and to analyse a waveform
9	CS110 Computer science workshop	C109.1	Students are able to identify common hardware components and their purpose.
		C109.2	Students gain sufficient awareness about latest software tools.
		C109.3	Students are able to develop programs in Python for common problems of reasonable complexity.
		C109.4	Students are able to implement algorithms studied in the course Introduction to Computing and Problem Solving
		C109.5	Students are able to learn the implementation of control structures, iterations and recursive functions, lists, tuples and dictionaries
		C109.6	Students are able to implement operations of files
10	MA102 Differential Equations	C110.1	Graduates will be able acquire basic knowledge of homogeneous differential equations and methods of solving them.
		C110.2	Graduates will be able acquire basic knowledge of non-homogeneous differential equations and methods of solving them.
		C110.3	Graduates will be able to apply Fourier series for analysing periodic functions in terms of their frequency components.
		C110.4	Graduates will be able form and solve using partial differential equations
		C110.5	Graduates will be able to Identify, analyse and subsequently solve the distribution of heat problems whose behaviour can be described by differential equations.
		C110.6	Graduates will be able to Identify, analyse and subsequently solve the waves whose behaviour can be described by differential equations.
11	PH100 Engineering Physics	C111.1	To develop an ability to understand the concepts of waves and harmonic oscillations and apply its knowledge in mechanical and electrical systems
		C111.2	Ability to differentiate between interference, diffraction and Polarization in various optical phenomenon
		C111.3	Distinguish between different types of superconductors and study their applications
		C111.4	To study the concepts of quantum mechanics and statistical mechanics



		C111.5	Using the knowledge of acoustics in designing acoustically important Buildings.
		C111.6	To apply the concepts of laser technology in various devices
12	BE100Engineering Mechanics	C112.1	Solve problems dealing with forces and determine the resultant. Also Identify the forces acting on a body and draw the free body diagram
		C112.2	Solve problems on forces acting on a body in space. Also determine the support reactions of beams subjected to concentrated loads and uniformly distributed loads
		C112.3	Determine the centroid and moment of inertia of composite areas.
		C112.4	Analyse the concept of friction to solve problems of bodies placed on rough surfaces and solve problems on support reactions of beams using principle of virtual work.
		C112.5	Use Newton's second law to solve problems on bodies in motion and apply the concept of instantaneous centre to bodies having combined translation and rotation.
		C112.6	Knowledge on types of Vibration and solve problem using the concept of Simple Harmonic Motion
13	BE102Design & Engineering	C113.1	Graduates will be able to classify and experiment different stages in design with their significance
		C113.2	Aware of the product oriented and user-oriented aspects that make the design a success.
		C113.3	The students will be able to identify & initiate different creative designs.
		C113.4	Enable the students to analyse the prototype models needed for development of project
		C113.5	Graduates will be able to Select the design requirements for designing various products.
		C113.6	The students can evaluate the product based on intellectual property rights
14	PH110Engineering Physics Lab	C114.1	Develop analytical/experimental skills and impart prerequisite hands-on experience for engineering laboratories
		C114.2	Understand the need for precise measurement practices for data recording
		C114.3	Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations
		C114.4	Analyze the techniques and skills associated with modern scientific tools such as lasers and fiber optics
		C114.5	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results
		C114.6	To apply the concepts of laser technology in various devices
15	EE 100Basics of Electronics Engineering	C115.1	To understand and identify passive components
		C115.2	Student can identify active components and can design, setup simple circuits using diodes
		C115.3	To understand the basics of BJT and detailed study of its characteristics
		C115.4	To understand and detailed study of JFET&MOSFET



		C115.5	To understand the working of rectifier
		C115.6	Voltage and currents can be measured and monitored using electronic measuring instruments
16	EE110 Electrical Workshop	C116.1	Students will be able to recognize supply arrangements and their limitations, standard voltages and their tolerances, safety aspects of electrical systems and importance of protective measures in wiring systems.
		C116.2	Students will identify the types of wires, cables and other accessories used in wiring.
		C116.3	Students should be able to wire up and predict estimate of simple lighting circuits for domestic buildings and distinguish between light and power circuits
		C116.4	Students will be able to measure electrical circuit parameters like current, voltage and power in a circuit.
		C116.5	Students will be able to explain the usage of Multimeters and LCR Q meters
		C116.6	Creating awareness of energy conservation in electrical systems.
17	CS 100 Basics of computer programming	C117.1	Identify appropriate C language constructs to solve problems.
		C117.2	Analyze problems, identify subtasks and implement them as functions/procedures.
		C117.3	Implement algorithms using efficient C-programming techniques.
		C117.4	Explain the concept of file system for handling data storage and apply it for solving problems
		C117.5	Apply sorting & searching techniques to solve application programs.
18	CS 120 Computer programming lab	C118.1	Students will be able to analyse a problem, find appropriate programming language construct should be used and implement C program.
		C118.2	Students gain sufficient awareness about latest software tools.
		C118.3	Students are able to develop programs in C for common problems of reasonable complexity.
		C118.4	Students are able to to implement algorithms studied in the course Computer Programming.
		C118.5	Students are able to learn the implementation of control structures, Iterations and recursive functions.
		C118.6	Students are able to implement operations on different types of files.
19	MA201 Linear Algebra & Complex Analysis	C201.1	Graduates will be able to identify the analytic functions and harmonic functions.
		C201.2	Graduates will be able to understand the conformal mappings and to find regions that are mapped under certain Transformations
		C201.3	Graduates will be able to evaluate the complex integrals
		C201.4	Graduates will be able to evaluate the complex integrals as an applications of residue theorems
		C201.5	Graduates will be able to understand the concept of vector space, to solve the system of linear equations
		C201.6	Graduates will be able to and to evaluate the Eigen value, Eigen vectors of a matrix and diagonalize a matrix.
20		C202.1	Understand to identify and apply operations on discrete structures such as sets, relations and functions in different areas of computing.



	CS201 Discrete Computational Structures	C202.2	Learn to solve problems using counting techniques and combinatorics.
		C202.3	Learn to solve problems using algebraic structures- Group & Ring
		C202.4	Learn to solve problems using algebraic structures- Lattices & Boolean Algebra.
		C202.5	Learn to verify the validity of an argument using propositional and predicate logic
		C202.6	Learn to construct proofs using direct proof, proof by contrapositive, Proof by contradiction and proof by cases, and by mathematical induction.
21	CS203 Switching Theory and Logic Design	C203.1	Ability to understand common forms of number representations and to be able to convert between different representations
		C203.2	Ability to apply the basic concepts of Boolean algebra for the simplification and implementation of logic functions using suitable gates namely NAND, NOR etc.
		C203.3	Ability to design simple Combinational Circuits such as Adders, Subtractors, Code Convertors, Decoders, Multiplexers, Magnitude Comparators etc.
		C203.4	Ability to understand Sequential Circuits and clocked sequential circuits.
		C203.5	Ability to design Sequential Circuits such as different types of Counters, Shift Registers, Serial Adders, Sequence Generators.
		C203.6	Ability to use Hardware Description Language for describing simple logic circuits and to apply algorithms for addition/subtraction operations on Binary, BCD and Floating Point Numbers.
22	CS205 Data Structures	C204.1	compare different programming methodologies and define asymptotic notations to analyze performance of algorithms.
		C204.2	use appropriate data structures like arrays, linked list, stacks and queues to solve real world problems efficiently.
		C204.3	represent and manipulate data using nonlinear data structures like trees and graphs to design algorithms for various applications.
		C204.4	illustrate and compare various techniques for searching and sorting.
		C204.5	appreciate different memory management techniques and their significance.
		C204.6	illustrate various hashing techniques.
23	CS207 Electronics Devices & Circuits	C205.1	To introduce to the students the fundamental concepts of electronic devices and circuits for engineering applications
		C205.2	To develop the skill of analysis and design of various analog circuits using electronic devices
		C205.3	To provide comprehensive idea about working principle, operation and applications of electronic circuits
		C205.4	To equip the students with a sound understanding of fundamental concepts of operational amplifiers



		C205.5	To expose to the diversity of operations that operational amplifiers can perform in a wide range of applications
		C205.6	To expose to a variety of electronic circuits/systems using various analog ICs
24	HS200 Business Economics	C206.1	To familiarize the prospective engineers with elementary Principles of Economics and Business Economics.
		C206.2	To acquaint the students with tools and techniques that are useful in their profession in Business Decision Making which will enhance their employability
		C206.3	To apply business analysis to the “firm” under different market conditions
		C206.4	To apply economic models to examine current economic scenario and evaluate policy options for addressing economic issues
		C206.5	To gain understanding of some Macroeconomic concepts to improve their ability to understand the business climate
		C206.6	To prepare and analyse various business tools like balance sheet, cost benefit analysis and rate of returns at an elementary level
25	CS231 Data Structures Lab	C207.1	appreciate the importance of structure and abstract data type, and their basic usability in different applications
		C207.2	Analyse and differentiate different algorithms based on their time complexity.
		C207.3	Implement linear and non-linear data structures using linked lists.
		C207.4	Understand and apply various data structure such as stacks, queues, trees, graphs, etc. to solve various computing problems.
		C207.5	Implement various kinds of searching and sorting techniques, and decide when to choose which technique.
		C207.6	Identify and use a suitable data structure and algorithm to solve a real-world problem.
26	CS233 Electronics Circuits Lab	C208.1	To introduce the working of analog electronic circuits.
		C208.2	To design, implement and demonstrate analog circuits using electronic components.
		C208.3	To provide hands-on experience to the students so that they are able to put theoretical concepts to practice.
		C208.4	To use computer simulation tools such as PSPICE, or Multisim to the simulation of electronic circuits.
		C208.5	To create an ability to develop descriptions, explanations, predictions and models using evidence.
		C208.6	To create an ability to communicate effectively the scientific procedures and explanations about the experiments in oral/report forms.
27	MA202 Probability Distributions, Transforms and Numerical Methods	C209.1	Graduates will have a concept of discrete probability density functions
		C209.2	Graduates will have a concept of continuous probability density functions
		C209.3	Graduates will get an idea about the Laplace transforms and will be able to apply them in their engineering branches



		C209.4	Graduates will get an idea about the Fourier transforms and will be able to apply them in their engineering branches
		C209.5	Graduates will have a concept of numerical methods for iteration and interpolation and their applications in solving Engineering problems
		C209.6	Graduates will have a concept of numerical methods to solve system of linear equations and numerical integration, and their applications in solving Engineering problems
28	CS202 Computer Organization and Architecture	C210.1	Recognize and express the relevance of basic components, I/O organization and
		C210.2	Explain the types of memory systems and mapping functions used in memory systems
		C210.3	Demonstrate the control signals required for the execution of a given instruction
		C210.4	Illustrate the design of Arithmetic Logic Unit and explain the usage of registers in it
		C210.5	Explain the implementation aspects of arithmetic algorithms in a digital computer
		C210.6	Develop the control logic for a given arithmetic problem
29	CS204 Operating Systems	C211.1	identify the significance of operating system in computing devices.
		C211.2	exemplify the communication between application programs and hardware devices through system calls.
		C211.3	compare and illustrate various process scheduling algorithms.
		C211.4	apply appropriate memory and file management schemes.
		C211.5	illustrate various disk scheduling algorithms.
		C211.6	appreciate the need of access control and protection in an operating system.
30	CS206 Object Oriented Design and Programming	C212.1	apply object-oriented principles in software design process.
		C212.2	develop Java programs for real applications using java constructs and libraries.
		C212.3	understand and apply various object-oriented features like inheritance, data
		C212.4	abstraction, encapsulation and polymorphism to solve various computing problems using java
		C212.5	implement Exception Handling in java.
		C212.6	use graphical user interface and Event Handling in java.
31	CS208 Principles of Database Design	C213.1	define, explain and illustrate the fundamental concepts of databases.
		C213.2	construct an Entity-Relationship (E-R) model from specifications and to perform the transformation of the conceptual model into corresponding logical data structures.
		C213.3	model and design a relational database following the design principles.
		C213.4	develop queries for relational database in the context of practical applications
		C213.5	define, explain and illustrate fundamental principles of data organization, query optimization and concurrent transaction processing.



		C213.6	appreciate latest trends in database design
32	HS210 Life Skills	C214.1	To develop communication competence in prospective engineers.
		C214.2	To enable them to convey thoughts and ideas with clarity and focus.
		C214.3	To develop report writing skills.
		C214.4	To equip them to face interview & Group Discussion.
		C214.5	To inculcate critical thinking process.
		C214.6	To prepare them on problem solving skills.
33	CS232 Free and Open-Source Software Lab	C215.1	Identify and apply various Linux commands
		C215.2	Develop shell scripts and GUI for specific needs
		C215.3	Use tools like GIT
		C215.4	Perform basic level application deployment, kernel configuration and installation, packet
		C215.5	management and installation etc.
34	CS234 Digital Systems Lab	C216.1	identify and explain the digital ICs and their use in implementing digital circuits.
		C216.2	design and implement different kinds of digital circuits.
		C216.3	To familiarize students with digital ICs, the building blocks of digital circuits
		C216.4	To provide students the opportunity to set up different types of digital circuits and study their behaviour
35	CS301 Theory of Computation	C301.1	Classify formal languages into regular, context-free, context sensitive and unrestricted languages
		C301.2	Design finite state automata, regular grammar, regular expression and Myhill- Nerode relation representations for regular languages.
		C301.3	Design push-down automata and context-free grammar representations for context-free languages
		C301.4	Design Turing Machines for accepting recursively enumerable languages.
		C301.5	Understand the notions of decidability and undecidability of problems, Halting problem
		C301.6	Discuss Chomsky classification of formal languages with discussion on grammar and automata for regular, context-free, context sensitive and unrestricted languages
36	CS303 System Software	C302.1	Distinguish software into system and application software categories
		C302.2	Identify standard and extended architectural features of machines.
		C302.3	Identify machine dependent features of system software
		C302.4	Identify machine independent features of system software.
		C302.5	Design algorithms for system software and analyse the effect of data structures
		C302.6	Understand the features of device drivers and editing & debugging tools



37	CS305 Microprocessors and Microcontrollers	C303.1	Describe different modes of operations of a typical microprocessor and microcontroller.
		C303.2	Design and develop 8086 assembly language programs using software interrupts and various assembler directives.
		C303.3	Interface microprocessors with various external devices.
		C303.4	Analyse and compare the features of microprocessors and microcontrollers.
		C303.5	Design and develop assembly language programs using 8051 microcontrollers.
		C303.6	To impart basic understanding of the internal organisation of 8086 Microprocessor and 8051 microcontroller
38	CS307 Data Communication	C304.1	Ability to apply the time domain and frequency domain concepts of signals in data communication
		C304.2	Ability to Compare and select transmission media based on transmission impairments and channel capacity
		C304.3	Ability to Select and use appropriate signal encoding techniques for a given scenario
		C304.4	Ability to Select and use appropriate multiplexing techniques for a given scenario
		C304.5	Ability to Design suitable error detection and error correction algorithms to achieve error free data communication
		C304.6	Ability to explain different switching techniques and Identify and list the various issues present in the design of a data communication system
39	CS309 Graph Theory and Combinatorics	C305.1	Demonstrate the knowledge of fundamental concepts in graph theory, including properties and characterization of graphs and trees.
		C305.2	Use graphs for solving real life problems
		C305.3	Distinguish between planar and non-planar graphs and solve problems.
		C305.4	Develop efficient algorithms for graph related problems in different domains of engineering and science.
		C305.5	To introduce the fundamental concepts in graph theory, including properties and characterization of graphs/ trees
		C305.6	To analyse Graphs theoretic algorithms
40	CS361 Soft Computing	C306A.1	Learn numerical methods to find optimum point and value of a function-Learn to solve the LPP
		C306A.2	Learn to solve transportation problems and assignment problems. Apply in real life situations.
		C306A.3	Understand Decision making procedures and its application- Know the role opening model and simulation in real life scenario.
		C306A.4	Understand the essential features and scope of optimization techniques- Learn properties of objective function and formalization of optimization problem.
		C306A.5	Learn applications of network models and analyze the model-Learn to use Tabu search methods in various fields.



		C306A.6	Understand Genetic algorithms and its application
41	CS365 Optimization Techniques	C306B.1	Formulate mathematical models for optimization problems.
		C306B.2	Analyse the complexity of solutions to an optimization problem.
		C306B.3	Design programs using meta-heuristic search concepts to solve optimization problems.
		C306B.4	Develop hybrid models to solve an optimization problem
		C306B.5	To build an understanding on the basics of optimization techniques.
		C306B.6	To introduce basics of linear programming and meta- heuristic search techniques
42	CS341 Design Project	C307.1	The students will be able to think innovatively on the development of components, products in the engineering field
		C307.2	The students will be able to think innovatively on the development of components, processes or technologies in the engineering field
		C307.3	The students will be able to analyse the problem requirements and arrive workable design solutions
		C307.4	The students will be able to understand the engineering aspects of design with reference to simple products to assess its impact on the society, health, environment and safety
		C307.5	The students will be able to understand the engineering aspects of process or technologies with reference to simple products to assess its impact on the society, health, environment and
		C307.6	The students will be able to develop design that add value to products and solve technical problems
43	CS331 System Software Lab	C308.1	Develop 8086 programs and execute it using a microprocessor kit
		C308.2	Develop 8086 programs and, debug and execute it using MASM assemblers
		C308.3	Develop and execute programs to interface stepper motor, 8255, 8279 and digital to analog converters with 8086 trainer kit
		C308.4	Implement and execute different scheduling and paging algorithms in OS
		C308.5	Design and implement assemblers, Loaders and macroprocessors.
44	CS333 Application Software Development Lab	C309.1	Design and implement a database for a given problem using database design principles.
		C309.2	Apply stored programming concepts (PL-SQL) using Cursors and Triggers
		C309.3	Use graphical user interface, Event Handling and Database connectivity to develop and deploy applications and applets.
		C309.4	Develop medium-sized project in a team.
		C309.5	To introduce stored programming concepts (PL-SQL) using Cursors and Triggers
		C309.6	To familiarize front end tools of database.
45		C310.1	Analyze a given algorithm and express its time and space complexities in asymptotic notations.



	CS302 Design and Analysis of Algorithms	C310.2	Solve recurrence equations using Iteration Method, Recurrence Tree Method and Master's Theorem.
		C310.3	Design algorithms using Divide and Conquer Strategy.
		C310.4	Compare Dynamic Programming and Divide and Conquer Strategies.
		C310.5	Solve Optimization problems using Greedy strategy.
		C310.6	Classify computational problems into P, NP, NP-Hard and NP-Complete.
46	CS304 Compiler design	C311.1	Explain the concepts and different phases of compilation with compile time error handling.
		C311.2	Represent language tokens using regular expressions, context free grammar and finite automata and design lexical analyser for a language.
		C311.3	Compare top down with bottom-up parsers, and develop appropriate parser to produce parse tree representation of the input.
		C311.4	Generate intermediate code for statements in high level language.
		C311.5	Design syntax directed translation schemes for a given context free grammar.
		C311.6	Apply optimization techniques to intermediate code and generate machine code for high level language program.
47	CS306 Computer Networks	C312.1	Visualise the different aspects of networks, protocols and network design models.
		C312.2	Examine various Data Link layer design issues and Data Link protocols.
		C312.3	Analyse and compare different LAN protocols.
		C312.4	Compare and select appropriate routing algorithms for a network.
		C312.5	Examine the important aspects and functions of network layer, transport layer and application layer in internetworking.
		C312.6	To build an understanding of the fundamental concepts of computer networking.
48	CS308 Software Engineering and Project Management	C313.1	Identify suitable life cycle models to be used.
		C313.2	Analyze a problem and identify and define the computing requirements to the problem.
		C313.3	Translate a requirement specification to a design using an appropriate software engineering methodology.
		C313.4	Formulate appropriate testing strategy for the given software system.
		C313.5	Develop software projects based on current technology, by managing resources economically and keeping ethical values.
		C313.6	To introduce the fundamental concepts of software engineering.
49	HS300 Principles of Management	C314.1	A student who has undergone this course would be able to manage people and organizations
		C314.2	critically analyses and evaluate management theories and practices
		C314.3	Understand Nature and importance of planning and type of planning



		C314.4	Explore different type organization levels and span of control in management
		C314.5	Understand the Human relation process in Global and entrepreneurial perspective
		C314.6	Bring the Leadership Behavior and activities for management success
50	CS364 Mobile Computing	C315A.1	Explain various Mobile Computing application, services and architecture.
		C315A.2	Understand various technology trends for next generation cellular wireless networks.
		C315A.3	Describe protocol architecture of WLAN technology.
		C315A.4	Understand Security Issues in mobile computing.
		C315A.5	To impart basic understanding of the wireless communication systems.
		C315A.6	To expose students to various aspects of mobile and ad-hoc networks.
51	CS368 Web Technologies	C315B.1	To understand different components in Internet and Web Technology.
		C315B.2	To summarize the basic tags and properties in HTML, XHTML
		C315B.3	To be able to apply CSS to design web pages
		C315B.4	To create interactive web pages using Javascript and jQuery
		C315B.5	To be able to prepare XML and JSON documents to store and transport data.
		C315B.6	To be able to develop web applications using PHP.
52	CS332 Microprocessor lab	C316.1	Develop assembly language programs for problem solving using software interrupts and various assembler directives.
		C316.2	Implement interfacing of various I/O devices to the microprocessor/microcontroller through assembly language programming.
		C316.3	To practice assembly language programming on 8086.
		C316.4	To practice fundamentals of interfacing/programming various peripheral devices with microprocessor/microcontroller.
53	CS334 Network Programming Lab	C317.1	To introduce Network related commands and configuration files in Linux Operating System.
		C317.2	To introduce tools for Network Traffic Analysis and Network Monitoring.
		C317.3	To practice Network Programming using Linux System Calls.
		C317.4	To design and deploy Computer Networks.
54	CS352 Comprehensive Exam	C318.1	The students will be confident in discussing the fundamental aspects of any engineering problem/situation and give answers in dealing with them
		C318.2	To prepare students to have successful careers in in the core areas of Computer science and Engineering and related companies of national and international repute to excel.



		C318.3	To train students in with objective types multiple choice questions and mock interviews in the core areas of Computer science and Engineering
		C318.4	To train the students to develop the ability to succeed in competitive exams for higher education in postgraduate programs & research (GATE / GRE / PSU's).
		C318.5	The ability to face the test and interview conducted by different companies and succeed
		C318.6	To train the students towards higher studies in Technology or Management depending on their inclination & aptitude. For postgraduate programs & research (GATE / GRE / PSU's).
55	CS401 Computer Graphics	C401.1	analyse and implement algorithms for line drawing, circle drawing and polygon filling
		C401.2	apply geometrical transformation on 2D and 3D objects
		C401.3	analyse and implement algorithms for clipping
		C401.4	apply various projection techniques on 3D objects
		C401.5	summarize visible surface detection methods
		C401.6	interpret various concepts and basic operations of image processing
56	CS403 Programming Paradigms	C402.1	compare scope and binding of names in different programming languages
		C402.2	analyse control flow structures in different programming languages
		C402.3	appraise data types in different programming languages
		C402.4	analyse different control abstraction mechanisms
		C402.5	appraise constructs in functional, logic and scripting languages
		C402.6	analyse object-oriented constructs in different programming languages
57	CS405 Computer System Architecture	C403.1	To summarize different parallel computer models
		C403.2	To analyse the advanced processor technologies and interpret memory hierarchy.
		C403.3	Compare different multiprocessor system interconnecting mechanisms and interpret the mechanisms for enforcing cache coherence
		C403.4	To analyse different message passing mechanisms
		C403.5	To analyse different pipe lining techniques
		C403.6	To appraise concepts of multithreaded and data flow architectures
58	CS407 Distributed Computing	C404.1	distinguish distributed computing paradigm from other computing paradigms
		C404.2	identify the core concepts of distributed systems
		C404.3	illustrate the mechanisms of inter process communication in distributed system
		C404.4	apply appropriate distributed system principles in ensuring transparency, consistency and fault-tolerance in distributed file system



		C404.5	compare the concurrency control mechanisms in distributed transactional environment
		C404.6	outline the need for mutual exclusion and election algorithms in distributed systems
59	CS409 Cryptography and Network Security	C405.1	Summarize different classical encryption techniques
		C405.2	Identify mathematical concepts for different cryptographic algorithms
		C405.3	Demonstrate cryptographic algorithms for encryption/key exchange.
		C405.4	Summarize different authentication and digital signature schemes
		C405.5	Identify security issues in network, transport and application layers.
		C405.6	Identify different security protocols.
60	CS461 Computational geometry	C406A.1	Develop efficient algorithms by exploiting geometric properties, and using appropriate data structures and geometric techniques.
		C406A.2	Apply techniques and algorithms for solving problems in diversified fields like database searching, data mining, graphics and image processing, pattern recognition, computer vision, motion planning and robotics.
		C406A.3	searching, data mining, graphics and image processing, pattern recognition, computer
		C406A.4	Perform complexity analysis of algorithms
		C406A.5	Implement geometric algorithms
		C406A.6	Identify properties of geometric objects
61	CS467 Machine Learning	C406B.1	compare the different dimensionality reduction techniques
		C406B.2	illustrate the working of classifier models like SVM, Neural Networks and identify classifier model for typical machine learning applications
		C406B.3	classifier model for typical machine learning applications
		C406B.4	apply theoretical foundations of decision trees to identify best split and Bayesian classifier to label data points
		C406B.5	identify the state sequence and evaluate a sequence emission probability from a given HMM
		C406B.6	illustrate and apply clustering algorithms
62	CS451 Seminar & Project Preliminary	C407.1	Present seminar in the latest field of computer science and engineering
		C407.2	Communicate effectively, the subjects learned in the form of seminar presentation
		C407.3	Communicate effectively, the modern trends in the field of computer science and engineering
		C407.4	Apply the fundamentals of mathematics, science and engineering knowledge to identify , formulate , design and investigate complex engineering problems of computer applications .
		C407.5	Apply appropriate techniques and modern engineering hardware and software tools in computer applications



		C407.6	Apply reasoning informed by the contextual knowledge to assess societal , health, safety, legal and cultural issues with societal and environmental context , applying ethical principles in the field of computer applications
63	CS431 Compiler Design Lab	C408.1	To implement the different Phases of compiler.
		C408.2	To implement and test simple optimization techniques.
		C408.3	To give exposure to compiler writing tools
		C408.4	Students will be able to implement lexical analysis and syntax analysis
		C408.5	Students will be able to generate intermediate code
		C408.6	Students will be able to implement optimization techniques
64	CS402 Data Mining and Ware Housing	C409.1	Students will be able to identify the key process of Data mining and Warehousing
		C409.2	Students will be able to analyze and compare various classification algorithms and apply in appropriate domain
		C409.3	Students will be able to make use of the concept of association rule mining in real world scenario
		C409.4	Students will be able to evaluate the performance of various classification methods using performance metrics
		C409.5	Students will be able to select appropriate clustering and algorithms for various applications
		C409.6	Students will be able to apply appropriate techniques to convert raw data into suitable format for practical data mining tasks
65	CS404 Embedded Systems	C410.1	demonstrate the role of individual components involved in a typical embedded system
		C410.2	analyse the characteristics of different computing elements and select the most appropriate one for an embedded system
		C410.3	understand firmware and model the operation of a given embedded system
		C410.4	substantiate the role of different software modules in the development of an embedded system
		C410.5	understand simple tasks to run on an RTOS
		C410.6	examine the latest trends prevalent in embedded system design
66	CS464 Artificial Intelligence	C411A.1	Students will be able to appreciate the scope and limits of the artificial intelligence (AI) field
		C411A.2	Students will be able to assess the applicability, strengths, and weaknesses of the basic knowledge representation
		C411A.3	Students will be able to interpret the role of knowledge representation, problem solving, and learning
		C411A.4	Students will be able to introduce and discuss the basic concepts of AI Techniques and Learning



		C411A.5	Students will be able to explain various search algorithms (uninformed, informed, and heuristic) for problem solving
		C411A.6	Students will be able to comprehend the fundamentals of Natural Language Processing
67	CS472 Principles of Information Security	C411B.1	To gain knowledge about the common threats faced today and prevention mechanisms like Access Control method
		C411B.2	To interpret the foundational theory behind information security policies and models , and will be able to design a secure system
		C411B.3	To be able to identify the potential vulnerabilities in software
		C411B.4	To identify the potential threats caused by Malwares.
		C411B.5	To appreciate the relevance of security in various domains
		C411B.6	To develop secure web services and perform secure e-transactions
68	BT362 Sustainable Energy Processes	C412A.1	Students should be able to Identify global and Indian energy sources.
		C412A.2	Students should be able to Explain application of solar and wind energy.
		C412A.3	Students should be able to Explain conversion of biomass to energy.
		C412A.4	Students should be able to Explain the capture of energy from oceans.
		C412A.5	Students should be able to Explain fuel cells and energy storage routes.
		C412A.6	Students should be able to Explain capture, conversion solar and wind energy.
69	CS492 Project	C413.1	Think innovatively on the development of components, products, processes or technologies in the engineering field
		C413.2	Analyse the problem requirements and arrive workable design solutions
		C413.3	To give a platform for the students to apply the theoretical knowledge they gained during the course and conduct analysis and create working models.
		C413.4	To enable the students to use different design platforms for design and analysis of project.
		C413.5	To give a chance to improve communication skills and enable the students to express the theoretical knowledge to defend
		C413.6	To enrich and develop the industrial working environment to students