Department of Computer Science and Engineering

Year: I   **Regulation: R19**   **Academic Year: 2019-20**   **Sem: I**

SUBJECT : English		
CO No.	**Course Outcomes**	**Taxonomy level**
After successful completion of this course students will be able to:		
C111.1	Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information.	Understanding
C111.2	Recall the familiar topics and general questions to the students	Remembering
C111.3	Rephrase suitable strategies for note-making to locate specific information.	Understanding
C111.4	Identify the paragraph structure and able to match beginning/sending/heading with paragraph.	Applying
C111.5	Make use of grammatical structure and correct word forms.	Applying

SUBJECT : Mathematics-I		
CO No.	**Course Outcomes**	**Taxonomy level**
After successful completion of this course students will be able to:		
C112.1	Test the convergence of an infinite series , utilize mean value theorems to real life problems and express a function in terms of power series.	Applying
C112.2	Solve first order and first degree differential equations arising in various Engineering fields.	Applying
C112.3	Solve linear differential equations of higher order and use the knowledge to study LCR Circuits and SHM.	Applying
C112.4	Apply the techniques of multivariable differential calculus to determine extrema and series Expansions of a function of several variables.	Applying
C112.5	Using multiple integrals to find areas, surface areas and volumes.	Applying

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CO No.	Course Outcomes– APPLIED CHEMISTRY	Taxonomy level
	After going through this course the student will be able to:	
C113.1	Analyze different types of composite materials and the preparation, properties and applications of the polymers.	Analysing
C113.2	Apply the knowledge of using redox chemistry in storage devices (batteries) and techniques used for preventing	Applying
C113.3	Summarize the importance of materials like nano materials, super conductors, liquid crystals and semi conductors.	Understanding
C113.4	Analyze the principles and applications of analytical techniques and different types of non conventional energy sources.	Analysing
C113.5	Demonstrate the importance of molecular machines and computational chemistry.	Understanding

CO No.	Course outcome---ED	Taxonomy level
	After going through this course the student will be able to:	
C114.1	Represent dimensions of an object. construct polygons, curves and scales	Remembering
C114.2	Comprehend theory of projections for points and lines.	Applying
C114.3	Understand the theory of projection in planes using 1st Angle projection.	Understanding
C114.4	Understand the projections of solids, when it is inclined to both planes simultaneously.	Understanding
C114.5	Convert the pictorial views into orthographic view and vice versa and Creating 2D&3D drawings using CAD.	Create

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CO No.	Course Outcomes ---ECS LAB	Taxonomy level
	After going through this course the student will be able to:	
C115.1	Develop Phonetic sounds and uses	Applying
C115.2	Recall word stress and Syllabic words	Remembering
C115.3	Classify Rhythm and Intonation	Understanding
C115.4	Utilize the knowledge of Contrastive stress	Applying
C115.5	Compose weak and strong forms and stress in compound words	Creating

CO No.	SUBJECT: APPLIED CHEMISTRY LAB	Taxonomy level
	After going through this course the student will be able to:	
C116.1	Describe the experimental skills to design new experiments in engineering.	Understanding
C116.2	Explain the different types of titratisons and acquire skills in instrumentation.	Understanding
C116.3	Determine hardness of various water samples.	Evaluating
C116.4	Determine the no of free ions and charges in a mixture of acids using conductivity meter .	Evaluating
C116.5	Calculate the potential between reference electrode and un known solution by using potentiometer .	Evaluating

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CO No.	SUBJECT: ITWS	Taxonomy level
	After going through this course the student will be able to:	
C117.1	Describe the experimental skills to design new experiments in engineering	Understanding
C117.2	Demonstrate basic command line interface commands on Linux	Understanding
C117.3	Teach the usage of Internet for productivity and self paced lifelong learning	Evaluating
C117.4	Describe about Compression, Multimedia and Antivirus tools	Evaluating
C117.5	Demonstrate Office Tools such as Word processors, Spreadsheets and Presentation tools	Evaluating

CO No.	SUBJECT: ES	Taxonomy level
C118.1	Explain the concepts of the ecosystem and its functions in the environment.	Understand
C118.2	Summarize the natural resources and their importance for the sustenance of life & need to conserve the natural resources.	Understand
C118.3	Demonstrate the values, threats, conservation practices to protect the biodiversity.	Apply
C118.4	Describe various attributes of the pollution and their impacts and measures to reduce pollution along with waste management practices.	Remember
C118.5	Evaluate social issues both rural and urban environment and the possible means to combat the challenges, with help of environmental legislations of India	Evaluate

B

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Department of Computer Science and Engineering

Year: I   **Regulation: R19**   **Academic Year: 2019-20**   **Sem: II**

CO No.	Course Outcomes M-II	Taxonomy level
C121.1	Solve system of linear algebraic equations using matrix techniques and find Eigen values and Eigen vectors.	Applying
C121.2	Use Cayley-Hamilton theorem to find inverse and higher powers of matrices and study the nature of Quadratic forms.	Applying
C121.3	Evaluate a root of algebraic and transcendental equations and a solution for system of linear equations using numerical methods.	Evaluating
C121.4	Apply Newton's interpolation and Lagrange's interpolation formula to find interpolating polynomial.	Applying
C121.5	Evaluate the solutions of ordinary differential equations to its analytical computations using different methods.	Evaluating

CO No.	Course Outcomes M-III	Taxonomy level
C122.1	Interpret the physical meaning of different operators such as gradient, curl and divergence, estimate the work done against a field, circulation and flux and discuss the relation between	Applying
C122.2	Apply the Laplace transform for solving differential equations	Applying
C122.3	Find or compute the Fourier series of periodic signals and be able to apply integral expressions for the Fourier and inverse Fourier transform to a range of non-periodic waveforms	Applying
C122.4	Formation of partial differential equation and Identify solution methods for first order partial differential equations	Applying
C122.5	Classify higher order partial differential equations and solve heat flow and wave problems.	Applying

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CO No.	COURSE OUTCOMES: AP	Taxonomy level
C123.1	Analyze the differences between interference and diffraction with applications	Analyzing
C123.2	Explain the fundamental concepts of quantum mechanics.	Understanding
C123.3	Explain the various electron theories.	Understanding
C123.4	Classify the energy bands of semiconductors	Understanding
C123.5	Explain the applications of dielectric and magnetic materials	Understanding

CO No.	Outcomes PPSC	Taxonomy level
C124.1	To use different operators, data types and write programs that use two-way/ multi-way selection	Apply
C124.2	To select the best loop construct for a given problem	Apply
C124.3	To design and implement programs to analyze the different pointer applications	Analysis
C124.4	To decompose a problem into functions and to develop modular reusable code	Analysis
C124.5	To apply File I/O operations	Apply

CO No.	Course outcome DLD	Taxonomy level
After going through this course, the student will be able to		
C125.1	Define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.	Remembering
C125.2	Identify the different switching algebra theorems and apply them for logic functions and Define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.	Applying
C125.3	design various logic gates starting from simple ordinary gates to complex programmable logic devices &arrays	Analyzing
C125.4	Identify the various sequential circuits starting from latches and flip flops.	Understanding
C125.5	Design the various sequential circuits like registers and counters.	Analyzing

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CO No.	COURSE OUTCOME : AP LAB	Taxonomy level
C126.1	Apply the basic concepts of mechanics to determine rigidity modulus of a material by using Torsional pendulum.	Applying
C126.2	Apply the basic concepts of laser and techniques for the Diffraction Grating.	Applying
C126.3	Apply the basic concepts of magnetism to study the variation of B versus H.	Applying
C126.4	Apply the basic concepts of dielectrics to determine dielectric constant by charging and discharging method.	Applying
C126.5	Apply the mathematical concepts/equations to obtain quantitative results	Evaluating

CO No.	COURSE OUTCOME: ECS LAB	Taxonomy level
C127.1	Explain the knowledge ability to communicate the needs and requirement of JAM	Understanding
C127.2	Describe the stand of Role Plays through that they will get good stead when they appear for the job interviews	Remembering
C127.3	Demonstrate the importance of Oral Presentation. So that they can excel in their jobs.	Analyzing
C127.4	Summarize the training offered to students through G.D	Understanding
C127.5	Evaluate the knowledge of writing Emails and Curriculum Vitae.	Evaluating

CO No.	COURSE OUTCOME-PPSCLAB	Taxonomy level
C128.1	Gains knowledge on various concepts of a C Language.	Understanding
C128.2	Able to draw flow charts and write algorithms.	Applying
C128.3	Able to design and development to C problem solving skills.	Applying
C128.4	Able to design and develop modular programming skills.	Applying
C128.5	Able to trace and debug a program.	Applying

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Department of Computer Science and Engineering

Year: II   **Regulation: R16   Academic Year: 2019-20**   **Sem: I**

CO No.	Subject: Statistics with R Programming	Taxonomy Level
C211.1	List motivation for learning R programming Language	Remembering
C211.2	Make use of data structures and advanced data structures.	Applying
C211.3	Make use of Math functions and methods to read and write files.	Applying
C211.4	Experiment with Graphs.	Applying
C211.5	Apply Probability Distributions.	Applying
C211.6	Apply linear and non-linear models for data sets.	Applying

CO No.	Subject: Mathematical Foundations of Computer Science	Taxonomy Level
C212.1	describe the need for and the ability to identify statements and predicates and mathematical principles and logic.	Understanding
C212.2	evaluate the mathematical problems in mathematical induction and algorithms in number theory	Understanding
C212.3	describe functions, relations and their operations and draw the hasse diagram.	Applying
C212.4	identify the graph, their representation and to traversal a graph in bfs and dfs.	Understanding
C212.5	apply the knowledge to construct groups and subgroups, Binomial theorem, permutations and combinations	Applying
C212.6	apply the knowledge to solve the recurrence relation, form generating functions.	Applying

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CO No.	Subject: Digital Logic Design	Taxonomy Level
C213.1	Understanding features of number systems and to design different logic circuits for real time applications.	Remembering
C213.2	Describe and minimize the Boolean expressions using the theorems in order to reduce the design complexity of combinational circuits.	Understanding
C213.3	Apply the Boolean expressions using k maps in order to reduce the design complexity of combinational circuits.	Applying
C213.4	Design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits.	Remembering
C213.5	Understand the knowledge on flip-flops which are necessary to develop the memory in the microprocessors and controllers for real time applications	Applying
C213.6	Understand the knowledge on counters which are necessary to develop the microprocessors and controllers for real time applications.	Understanding

CO No.	Subject: Python Programming	Taxonomy Level
C214.1	How to make indentation in the program.	Understanding
C214.2	Explain various data structures and extend with examples.	Understanding
C214.3	Make use of modules and packages.	Applying
C214.4	Build programs for user-defined exceptions.	Applying
C214.5	Experiment with GUI programming.	Applying
C214.6	How to write test cases.	Understanding

CO No.	Subject: Data Structures through C++	Taxonomy Level
C215.1	find solutions to different problems using arrays.	Understanding
C215.2	find solutions to different problems using stack and queue.	Understanding
C215.3	Perform different operations for storage and retrieval of data on linked lists.	Applying
C215.4	handle various operations like searching, insertion, deletion, Traversing mechanism etc. on various Trees data structures	Understanding
C215.5	handle various operations like searching, insertion, deletion, Traversing mechanism etc. on various Tree data structures.	Understanding
C215.6	Explain concepts of sorting techniques	Understanding

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CO No.	Subject: Computer Graphics	Taxonomy Level
C216.1	Illustrate Line, Circle and Ellipse Polygon, Curve and Text clipping Algorithms	Understanding
C216.2	Compare Parallel and Perspective projections	Understanding
C216.3	Develop various outputs by using Graphics programming	Applying
C216.4	Select models among lighting/shading	Understanding
C216.5	Classify Fractals and iterated functions	Understanding
C216.6	Understand to add Surface texture and create objects using Boolean operations	Understanding

CO No.	Subject: Data Structures through C++ Lab	Taxonomy Level
C217.1	Implement and test the functionality of data structures like stacks, queues and Linked list.	Applying
C217.2	Implement and test the functionality of searching and sorting techniques.	Applying
C217.3	Implement and test the functionality of trees and graph traversal techniques.	Applying

CO No.	Subject: Python Programming Lab	Taxonomy Level
C218.1	Write, test and debug python programs.	Understanding
C218.2	Use Conditional and loops for python programs.	Understanding
C218.3	Use functions and represent compound data using Lists, Tuples and Dictionaries.	Applying

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Year: II   Regulation: R16   Academic Year: 2019-20   Sem: II

CO No.	Subject: Software Engineering	Taxonomy Level
C221.1	Understand the need of Software Life Cycle Models.	Understanding
C221.2	Demonstrate the Requirements of the Software Systems process.	Remembering
C221.3	Summarize the system models of software engineering.	Understanding
C221.4	Choose appropriate software architecture style for real-time software projects.	Understanding
C221.5	Analyze various testing techniques.	Analyzing
C221.6	Analyze Risk management and Software quality of the software products.	Analyzing

CO No.	Subject: Java Programming	Taxonomy Level
C222.1	Demonstrate the object-oriented concepts, java program structure and its installation.	Understanding
C222.2	Implement of java programming constructs, control structures in Java Programming Constructs.	Applying
C222.3	Implement Object oriented constructs such as various class hierarchies, interfaces and exception handling.	Applying
C222.4	Explain the Thread concepts and I/O in Java.	Understanding
C222.5	Execute how to build dynamic user interfaces using applets and Event handling in java.	Applying
C222.6	Make use of various components of Java AWT and Swing and writing code snippets.	Applying

CO No.	Subject: Advanced Data Structures	Taxonomy Level
C223.1	Explain basic static and dynamic data structures and relevant standard algorithms for them: set, lists, dictionaries and hash tables.	Understanding
C223.2	Solve problem involving graphs, trees and heaps.	Applying
C223.3	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data on Queues and Heaps.	Applying
C223.4	Demonstrate bugs in program, recognise needed basic operations with non-linear data structures.	Understanding
C223.5	Define efficiency and complexities in different sorting techniques.	Understanding
C223.6	Explain data structure impact on algorithms, program design and program performance.	Understanding

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CO No.	Subject: Computer Organization	Taxonomy Level
C224.1	Demonstrate a view of computer system from user's perspective and representation of data.	Understanding
C224.2	Outline the RTL, Micro-operations and Basic Computer Organization and design.	Remembering
C224.3	Outline the Central processing Unit and Micro-programmed Control.	Remembering
C224.4	Understand the arithmetic operations of positive and negative numbers in a computer.	Understanding
C224.5	Illustrate different hardware components associated with the memory organization of a computer.	Remembering
C224.6	Understand the inputs, operations and outputs performed in a computer.	Understanding

CO No.	Subject: Formal Languages and Automata Theory	Taxonomy Level
C225.1	Explain Deterministic, Non-Deterministic and Mealy and Moore Machines.	Understanding
C225.2	Describe about Finite Automata, Regular Grammar and Regular Expressions.	Understanding
C225.3	Discuss about Context Free Grammar and its applications.	Understanding
C225.4	Demonstrate Pushdown Automata.	Applying
C225.5	Demonstrate of Turing Machine.	Applying
C225.6	Apply the Decidable and Undecidable of Problems arise in Computer Science.	Applying

CO No.	Subject: Principles of Programming Languages	Taxonomy Level
C226.1	Describe syntax and semantics of programming languages.	Understanding
C226.2	Explain data, data types, and basic statements of programming languages.	Remembering
C226.3	Design and implement subprogram constructs, Apply object - oriented concurrency, and event handling programming constructs.	Applying
C226.4	Develop programs in Scheme, ML, and Prolog.	Applying
C226.5	Understand and adopt new programming languages.	Understanding
C226.6	Describe logic programming.	Understanding

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CO No.	Subject: Advanced Data Structures Lab	Taxonomy Level
C227.1	Able to design and develop programs on trees , hashing techniques	Applying
C227.2	Able to design and develop programs using AVL trees.	Applying
C227.3	Able to design and develop programs on minimum spanning trees.	Applying

CO No.	Subject: Java Programming Lab	Taxonomy Level
C228.1	Able to create simple mobile applications using J2ME for low constraint devices.	Applying
C228.2	Able to design and develop simple android applications for smart phones.	Applying
C228.3	Able to deploy an application in mobile stores (ex: google play store etc.)	Applying

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Year: III   Regulation: R16   Academic Year: 2019-20   Sem: I

CO No.	Subject: Compiler Design	Taxonomy Level
C311.1	Demonstrate stages in translators and acquire knowledge of compiler & its Phases.	Understanding
C311.2	Use grammars for specifying the syntax and construct top down parsing for given grammar.	Understanding
C311.3	Build bottom up parse table for a given grammar using LR items.	Applying
C311.4	Generate intermediate code for given program.	Applying
C311.5	Understand symbol table management and machine code generation for a given program and use peep hole optimization on machine code.	Understanding
C311.6	Apply machine independent code optimization techniques to improve the performance of a program.	Applying

CO No.	Subject: Unix Programming	Taxonomy Level
C312.1	Define Basic Components and commands in UNIX Operating System.	Remembering
C312.2	Illustrate different File permission in UNIX Operating System.	Understanding
C312.3	Construct Shell Programs using shell commands.	Applying
C312.4	Demonstrate different Grep Family in UNIX Operating system.	Understanding
C312.5	Build and Debug Shell Script in Unix operating.	Understanding
C312.6	Select Different Process Types in UNIX Operating System.	Applying

CO No.	Subject: Object Oriented Analysis and Design using UML	Taxonomy Level
C313.1	Apply complex system using object-oriented approach.	Applying
C313.2	Build the class diagram with responsibilities and state using UML notation.	Applying
C313.3	Identify the events, classes and responsibilities of the problem domain.	Understanding
C313.4	Describe basic Interactions, Use cases of the problem domain.	Understanding
C313.5	Implement various states and advanced behavioural modeling using UML notation.	Applying
C313.6	Classify components and nodes of the problem domain.	Understanding

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CO No.	Subject: Database Management Systems	Taxonomy Level
C314.1	Demonstrate Data Base with different applications of DBMS.	Understanding
C314.2	Identifies the entity, attributes, Relationships and keys in various Data Models.	Understanding
C314.3	Utilize relational algebra concepts like selection, projection, relational calculus which helps in understanding queries.	Applying
C314.4	Experiment ddl, dml commands etc by writing queries in standard language of relational databases.	Applying
C314.5	Develop various advance SQL queries related to Transaction Processing & Locking using concept of Concurrency control.	Applying
C314.6	Analyse indexing mechanisms for efficient retrieval of information from a database.	Analysing

CO No.	Subject: Operating Systems	Taxonomy Level
C315.1	Explain the structure of OS and basic architectural components involved in OS.	Understanding
C315.2	Implement various process scheduling algorithms.	Applying
C315.3	Compare and contrast various memory management schemes.	Remembering
C315.4	Implement deadlock prevention and avoidance algorithms.	Applying
C315.5	Implement prototype file system.	Applying
C315.6	Explain administrative tasks on Linux servers and android internals.	Understanding

CO No.	Subject: Unified Modeling Lab	Taxonomy Level
C316.1	Able to understand the case studies and design the model.	Applying
C316.2	Able to understand how design patterns solve design problems.	Applying
C316.3	Able to develop design solutions using creational patterns.	Applying

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CO No.	Subject: Operating System & Linux Programming Lab	Taxonomy Level
C317.1	Implement various CPU Scheduling algorithms.	Applying
C317.2	Develop Multiprogramming-Memory management Implementation	Applying
C317.3	Construct deadlock, prevention and avoidance algorithms.	Applying
C317.4	Implement Different page replacement algorithms.	Applying
C317.5	Execute basic shell control of the utilities	Applying
C317.6	Solve problems using bash for shell scripting	Applying

CO No.	Subject: Database Management System Lab	Taxonomy Level
C318.1	Able to Understand, appreciate and effectively explain the underlying concepts of database technologies.	Understanding
C318.2	Able to Design and implement a database schema for a given problem-domain.	Applying
C318.3	Able to Normalize a database.	Understanding
C318.4	Able to Populate and query a database using SQL DML/DDL commands.	Applying
C318.5	Able to Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS.	Applying
C318.6	Able to use Programming, PL/SQL including stored procedures, stored functions, cursors, packages.	Applying

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Year: III   Regulation: R16   Academic Year: 2019-20   Sem: II

CO No.	Subject: Computer Networks	Taxonomy Level
C321.1	Outline the basic concepts of reference models and Identify the functionality of physical layer in computer communications.	Understanding
C321.2	Explain various physical layer transmission techniques.	Understanding
C321.3	Examine the data link layer design issues.	Understanding
C321.4	list various data link access methods and network layer functions.	Understanding
C321.5	outline the IEEE 802.11 standards.	Understanding
C321.6	Examine various application layer functionalities.	Understanding

CO No.	Subject: Data Warehousing and Mining	Taxonomy Level
C322.1	Understand the data warehouse principles, data mining concepts and working.	Understanding
C322.2	Understand various data pre-processing procedures and their application.	Understanding
C322.3	Discuss the general approach to solve Classification problem.	Applying
C322.4	Understand the alternative techniques of Classification.	Understanding
C322.5	Discuss basic concepts and algorithms of Association analysis.	Applying
C322.6	Understand the basic concepts and algorithms of Cluster Analysis.	Understanding

CO No.	Subject: Design and Analysis of Algorithms	Taxonomy Level
C323.1	Explain the fundamentals for analysing time and space complexity of algorithms.	Remembering
C323.2	Apply divide and conquer technique to solve real time problems related to computing.	Applying
C323.3	Use greedy technique to solve problems on optimization like minimum spanning tree.	Applying
C323.4	Make use of dynamic programming paradigm for solving problems like knapsack, matrix multiplication and optimal binary search tree.	Applying
C323.5	Illustrate backtracking with applications on n-queen problem sum of subsets problem, and graph colouring.	Understanding
C323.6	Explain branch and bound paradigm with Travelling sales person problem and 0/1 knapsack problem.	Applying

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CO No.	Subject: Software Testing Methodologies	Taxonomy Level
C324.1	Understand the basic testing procedure for Path testing.	Understanding
C324.2	Understand the basic testing procedures for Dataflow testing and Transaction Flow.	Understanding
C324.3	Understand the basic testing procedures for Domain testing.	Understanding
C324.4	Understand the basic testing procedures for syntax testing.	Understanding
C324.5	Understand the basic testing procedures for Logic based Testing.	Understanding
C324.6	Apply tools to resolve the problems in Real Time Environment.	Applying

CO No.	Subject: Internet of Things	Taxonomy Level
C325.1	Interpret the concepts of Internet of Things.	Understanding
C325.2	Determine the market perspective of IOT.	Understanding
C325.3	Analyze basic protocols in Web Communication.	Analysing
C325.4	Analyze and evaluate protocols used in IOT.	Analysing
C325.5	Design IOT applications in different domain and be able to analyze their performance.	Applying
C325.6	Implement basic IOT applications on embedded platform.	Applying

CO No.	Subject: Network Programming Lab	Taxonomy Level
C326.1	Able to understand and explain the basic concepts of Grid Computing	Understanding
C326.2	Able to explain the advantages of using Grid Computing within a given environment.	Understanding
C326.3	Able to prepare for any upcoming Grid deployments and be able to get started with a potentially available Grid setup.	Applying
C326.4	Able to discuss some of the enabling technologies e.g. high-speed links and storage area networks.	Understanding
C326.5	Able to build computer grids.	Applying

CO No.	Subject: Software Testing Lab	Taxonomy Level
C327.1	Able to find practical solutions to the problems.	Applying
C327.2	Able to solve specific problems alone or in teams.	Applying
C327.3	Able to manage a project from beginning to end.	Applying
C327.4	Able to work independently as well as in teams.	Applying
C327.5	Able to define, formulate and analyze a problem.	Understanding

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CO No.	Subject: Data Warehousing and Mining Lab	Taxonomy Level
C328.1	Able to understand the data mining process and important issues around data cleaning, pre-processing and integration.	Applying
C328.2	Able to understand the principle algorithms and techniques used in data mining such as Clustering, association mining, classification and prediction.	Applying

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Year: IV   Regulation: R16   Academic Year: 2019-20   Sem: I

CO No.	Subject: Cryptography and Network Security	Taxonomy Level
C411.1	Able to understand the basic security goals of cryptography and security networks.	Understanding
C411.2	Able to understand issues in symmetric key and cryptography.	Understanding
C411.3	Able to think and analyze the different techniques in asymmetric encryption.	Analyzing
C411.4	Able to understand the basics of data integrity and digital signature key management.	Understanding
C411.5	Apply the knowledge of data integrity.	Applying
C411.6	Able to learn management of key functions.	Understanding

CO No.	Subject: Software Architecture & Design Patterns	Taxonomy Level
C412.1	To understand interrelationships, principles and guidelines governing architecture and evolution over time.	Understanding
C412.2	To understand various architectural styles of software systems.	Understanding
C412.3	To understand design patterns and their underlying object-oriented concepts.	Understanding
C412.4	To understand implementation of design patterns and providing solutions to real-world software design problems.	Understanding
C412.5	To understand patterns with each other and understanding the consequences of combining patterns on the overall quality of a system.	Understanding
C412.6	Implement basic applications of SADP.	Applying

CO No.	Subject: Web Technologies	Taxonomy Level
C413.1	Analyze a web page and identify its elements and attributes.	Analyzing
C413.2	Create web pages using XHTML and Cascading Style Sheets.	Applying
C413.3	Build Dynamic Web pages.	Understanding
C413.4	Write simple client-side scripts using AJAX.	Applying
C413.5	Build web applications using PHP.	Applying
C413.6	Programming through PERL and Ruby.	Applying

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CO No.	Subject: Managerial Economics and Financial Analysis	Taxonomy Level
C414.1	Relate economic principles with business practices for getting successful outcomes.	Remembering
C414.2	Make use of cost analysis to find Break Even Point (BEP) of an enterprise in order to avoid losses.	Applying
C414.3	Compare the Price -- out determinations under different competitions in the markets and pricing strategies.	Understanding
C414.4	Interpret different forms of business organizations and the new economic environment in the real business.	Understanding
C414.5	Make use of the financial statements and relevant ratios for evaluating company's financial performance to make optimal decisions.	Applying
C414.6	Illustrate different capital budgeting methods to estimate the best investment decision in business practices.	Understanding

CO No.	Subject: Mobile Computing	Taxonomy Level
C415.1	Able to understand the basics of mobile computing, radio interface, GSM & GPRS.	Understanding
C415.2	Able to understand issues in MAC Layer.	Understanding
C415.3	Able to think and analysis the different techniques in Network Layer.	Analyzing
C415.4	Able to think and analyze the different techniques mobile transport layer and data base issues.	Analyzing
C415.5	Able to understand the basics of Data Delivery Mechanism in Mobile computing.	Understanding
C415.6	Able to think and develop new mobile applications.	Applying

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CO No.	Subject: Cloud Computing	Taxonomy Level
C416.1	Interpret the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing.	Understanding
C416.2	Build the levels of virtualization, structure, memory and I/O devices and data centres.	Understanding
C416.3	Apply the architecture and infrastructure of cloud computing, including SaaS, PaaS,IaaS, public cloud, private cloud and hybrid cloud to different problems.	Applying
C416.4	Analyze case studies to derive the best practice model to apply when developing and deploying cloud based applications.	Analyzing
C416.5	Apply the resource management skills in theory and applications related to cloud computing.	Applying
C416.6	Explain the storage technologies in File system in Cloud environment.	Understanding

CO No.	Subject: Software Architecture & Design Patterns Lab	Taxonomy Level
C417.1	Able to understand interrelationships, principles and guidelines governing architecture and evolution over time.	Understanding
C417.2	Able to analyze the architecture and build the system from the components.	Analyzing
C417.3	Able to prepare creational patterns that deal with object creation mechanisms, trying to create objects in a manner suitable to the situation.	Applying
C417.4	Able to prepare structural patterns that ease the design by identifying a simple way to realize relationships among entities.	Understanding
C417.5	Able to learn behavioral patterns that identify common communication patterns between objects and realize these patterns.	Understanding
C417.6	Able to classify various case studies.	Understanding

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CO No.	Subject: Web Technologies Lab	Taxonomy Level
C418.1	Students will be able to develop static web sites using XHTML and Java Scripts.	Applying
C418.2	Students can implement XML and XSLT for web applications.	Applying
C418.3	Students can develop Dynamic web content using Java Servlets and JSP.	Applying
C418.4	Student will be to develop JDBC connections and implement a complete Dynamic Web Application.	Applying

Coordinator

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Department of Computer Science and Engineering

Year: IV   Regulation: R16   Academic Year: 2019-20   Sem: II

CO No.	Subject: Distributed Systems	Taxonomy Level
C421.1	Explain the building blocks of distributed system.	Understanding
C421.2	Implement the inter process communication using java programs.	Understanding
C421.3	Implement the RMI communication for distributed environment.	Understanding
C421.4	Explain the OS supports, process and threading.	Understanding
C421.5	Explain the distributed file system.	Understanding
C421.6	Explain distributed deadlock transaction and replication.	Understanding

CO No.	Subject: Management Science	Taxonomy Level
C422.1	Understand the basic concepts of management science.	Understanding
C422.2	Distinguish all functional management.	Remembering
C422.3	Analyze operations management.	Analyzing
C422.4	Analyze real project management and solve PERT and CPM.	Analyzing
C422.5	Understand the management strategic management.	Understanding
C422.6	Discuss contemporary management practices.	Understanding

CO No.	Subject: Machine Learning	Taxonomy Level
C423.1	Recognize the characteristics of machine learning that make it useful to real-world problems.	Applying
C423.2	Characterize machine learning algorithms as supervised, semi-supervised, and unsupervised.	Understanding
C423.3	Choose Tree models in Machine Learning.	Applying
C423.4	Choose Linear Models in Machine Learning Like classification, Clustering Algorithms.	Applying
C423.5	Schedule Probabilistic models for categorical data in Machine Learning like regularized regression algorithms.	Applying
C423.6	Describe the concept behind neural networks for learning non-linear functions.	Understanding

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CO No.	Subject: Concurrent and Parallel Programming	Taxonomy Level
C424.1	Recall the concurrent and sequential programming constructs.	Remembering
C424.2	Interpret about processes, threads and the issues of concurrent programming and current trends.	Analyzing
C424.3	Experiment with parallel algorithms such as sorting, ranking, searching and traversals.	Applying
C424.4	Interpret parallel programming paradigms using GPGPU, P threads and STM to develop applications.	Analyzing
C424.5	Implement multi-threaded programs supported by cilk++ that runs across heterogeneous platforms.	Applying
C424.6	Implement c++ massive parallel applications using c++ AMP and GPU.	Applying

CO No.	Subject: Project	Taxonomy Level
C425.1	Summarize the contemporary scholarly literature, activities, and explored tools for hands-on in the respective project area.	Understanding
C425.2	List out the specific requirements to develop the workable solution for the identified computing problem.	Analyzing
C425.3	Develop a workable computing solution for the identified problem.	Applying
C425.4	Evaluate the performance of the developed solution.	Evaluating
C425.5	Compile the results and findings of the project in written and verbal formats.	Creating
C425.6	Summarize the contemporary scholarly literature, activities, and explored tools for hands-on in the respective project area.	Understanding

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