Department of Computer Science & Engineering

Year & Sem: I-I **Regulation:** R20

Course Name: Linear algebra & Calculus	**Course Code:** 20A54101
1	Develop the use of matrix algebra techniques that is needed by engineers for practical applications.
2	Utilize mean value theorems to real life problems.
3	Familiarize with functions of several variables which is useful in optimization.
4	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2- dimensional coordinate systems.
5	Students will become familiar with 3- dimensional coordinate systems and also learn the utilization of special functions.

Course Name: Chemistry	**Course Code:** 20A51101T
1	Compare the materials of construction for battery and electrochemical sensors
2	Explain the preparation, properties, and applications of thermoplastics &thermosetting, elastomers & conducting polymers.
3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures.
4	Apply the principle of Band diagrams in application of conductors and semiconductors.

Course Name: C-Programming & Data Structures	**Course Code:** 20A05201T
1	Analyse the basic concepts of C Programming language.
2	Design applications in C, using functions, arrays, pointers and structures.
3	Apply the concepts of Stacks and Queues in solving the problems.
4	Explore various operations on Linked lists.
5	Demonstrate various tree traversals and graph traversal techniques.
6	Design searching and sorting methods.

Course Name: Basic Electrical & Electronics Engineering		**Course Code:** 20A02101T
1	Apply concepts of KVL/KCL in solving DC circuits.	
2	Understand and choose correct rating of a transformer for a specific application.	
3	Illustrate working principles of DC Motor.	
4	Identify type of electrical machine based on their operation.	
5	Understand the basics of Power generation, Transmission and Distribution.	

Course Name: Engineering Workshop		**Course Code:** 20A03202
1	Apply wood working skills in real world applications.	
2	Build different objects with metal sheets in real world applications.	
3	Apply fitting operations in various applications.	
4	Apply different types of basic electric circuit connections.	
5	Use soldering and brazing techniques.	

Course Name: IT Workshop		**Course Code:** 20A05202
1	Disassemble and Assemble a Personal Computer and prepare the computer ready to use.	
2	Prepare the Documents using Word processors and Prepare spread sheets for calculations using excel and also the documents using LAteX.	
3	Prepare Slide presentations using the presentation tool.	
4	Interconnect two or more computers for information sharing.	
5	Access the Internet and Browse it to obtain the required information	

Course Name: Chemistry Lab		**Course Code:** 20A51101P
1	Determine the cell constant and conductance of solutions.	
2	Prepare advanced polymer Bakelite materials.	
3	Measure the strength of an acid present in secondary batteries.	
4	Analyse the IR of some organic compounds.	

Course Name: C-Programming & Data Structures Lab		**Course Code:** 20A05201T
1	Demonstrate basic concepts of C programming language.	
2	Develop C programs using functions, arrays, structures and pointers.	
3	Illustrate the concepts Stacks and Queues.	
4	Design operations on Linked lists.	
5	Apply various Binary tree traversal techniques.	
6	Develop searching and sorting methods.	

Course Name: Basic Electrical & Electronics Engineering Lab		**Course Code:** 20A02101P
1	Understand Kirchoff's Laws & Superposition theorem.	
2	Analyze the various characteristics on DC Machines by conducting various tests.	
3	Analyze I – V Characteristics of PV Cell	
4	Apply the knowledge to perform various tests on 1-phase transformer	
5	Learn the characteristics of basic electronic devices like PN junction diode, Zener diode & BJT.	
6	Analyze the application of diode as rectifiers, clippers and clampers and other circuits.	
7	Design simple electronic circuits and verify its functioning.	

Year & Sem: II-I **Regulation:** R19

Course Name: Mathematical Foundations Of Computer Science		**Course Code:** 19A54303
1	Evaluate elementary mathematical arguments and identify fallacious reasoning.	
2	Understand the properties of Compatibility, Equivalence and Partial Ordering relations, Lattices and Has see Diagrams.	
3	Understand the general properties of Algebric Systems, Semi Groups, Monoids and Groups.	
4	Design solutions for problems using breadth first and depth first search techniques.	
5	Apply the concepts of functions to identify the Isomorphic Graphs.	

Course Name: Digital Logic Design	**Course Code:** 19A05301

1	Analyze the number systems and codes.
2	Decide the Boolean expressions using Minimization methods.
3	Design the sequential and combinational circuits.
4	Apply state reduction methods to solve sequential circuits.
5	Describe various types of memories.

Course Name: Design Thinking	**Course Code:** 19A99304
1	Generate and develop different design ideas.
2	Appreciate the innovation and benefits of design thinking.
3	Experience the design thinking process in IT and agile software development.
4	Understand design techniques related to variety of software services

Course Name: Database Management Systems	**Course Code:** 19A05302T
1	Design a database for a real world information system.
2	Define transactions which preserve the integrity of the database.
3	Generate tables for a database.
4	Organize the data to prevent redundancy.
5	Pose queries to retrieve the information from database.

Course Name: Object Oriented Programming Through Java	**Course Code:** 19A05303T
1	To solve real world problems using OOP techniques.
2	To apply code reusability through inheritance, packages and interfaces
3	To solve problems using java collection framework and I/O classes.
4	To develop applets for web applications.
5	To build GUIs and handle events generated by user interactions.
6	To use the JDBC API to access database

Course Name: Python Programming		**Course Code:** 19A05304T
1	Apply the features of Python language in various real applications.	
2	Select appropriate data structure of Python for solving a problem.	
3	Design object oriented programs using Python for solving real-world problems.	
4	Apply modularity to programs.	

Course Name: Database Management Systems Laboratory		**Course Code:** 19A05302P
1	Design database for any real world problem	
2	Implement PL/SQL programs	
3	Define SQL queries	
4	Decide the constraints	
5	Investigate for data inconsistency	

Course Name: Object Oriented Programming Through Java Lab		**Course Code:** 19A05303P
1	Recognize the Java programming environment.	
2	Develop efficient programs using multithreading.	
3	Design reliable programs using Java exception handling features.	
4	Extend the programming functionality supported by Java.	
5	Select appropriate programming construct to solve a problem.	

Course Name: Python Programming Laboratory		**Course Code:** 19A05304P
1	Design solutions to mathematical problems.	
2	Organize the data for solving the problem.	
3	Develop Python programs for numerical and text based problems.	
4	Select appropriate programming construct for solving the problem.	
5	Illustrate object oriented concepts.	

Course Name: Environmental Science	**Course Code:** 19A99301

1	Grasp multidisciplinary nature of environmental studies and various renewable and nonrenewable resources.
2	Understand flow and bio-geo- chemical cycles and ecological pyramids.
3	Understand various causes of pollution and solid waste management and related preventive measures.
4	About the rainwater harvesting, watershed management, ozone layer depletion and waste land reclamation.
5	Casus of population explosion, value education and welfare programmes.

Year & Sem: III-I **Regulation:** R15

Course Name: Operating Systems	**Course Code:** 15A05501
1	Understand the significance of different operating systems and services.
2	Implement Threads, Process Synchronization and CPU Scheduling.
3	Compare and Contrast paging and contiguous blocks in memory allocation.
4	Implement Deadlock handling techniques.
5	Understand I/O systems, protection and security.

Course Name: Computer Networks	**Course Code:** 15A05502
1	Understand Internet standards, Internet administration, TCP/IP and OSI Network models.
2	Select the most appropriate transmission media and switching technique as per the requirements of an organizational structure.
3	Apply techniques for error detection and correction to detect and correct error bits during data transmission.
4	Illustrate the functionality of Network layer through Routing algorithms, Congestion control algorithms and Quality of service.
5	Exemplify the Addressing mechanisms and protocols used in internetworking layer.

Course Name: Object Oriented Analysis and Design	**Course Code:** 15A05503
1	Analyse, design, document the requirements through use case driven approach
2	Identify, analyse, and model structural and behavioural concepts of the system.
3	Develop,explore the conceptual model into various scenarios and applications.
4	Apply the concepts of architectural design for deploying the code for software.

Course Name: Principles of Programming Languages	**Course Code:** 15A05504
1	Explain Programming language Qualities, language definition and different Programming language Run-Time Structures.
2	Discuss about the data structuring concepts like data aggregates, type systems and their implementation models.
3	Discriminate Event-driven computation and Concurrent Computation.
4	Explain about concepts in support of Modularity and Generic units.
5	Understand the concepts of Object Oriented Programming languages.
6	Differentiate Functional, Logic and Rule based Languages.

Course Name: Software Testing	**Course Code:** 15A05505
1	Explain the elements present in the Control flow graph.
2	Differentiate between Nice and Ugly domains with an example.
3	Apply Node reduction procedure on a given graph of n nodes.
4	Apply Graph matrix node reduction procedure with an example.
5	Compute a Decision table on a give set of conditions and actions.
6	Create a Graph matrix on a given set of nodes in a graph.
7	Demonstrate the working of WinRunner testing tool

Course Name: Introduction to Big Data	**Course Code:** 15A05506
1	Understand the concepts of Distributed Programming, Advanced Java Programming, and Client Server Programming using Java.
2	Identify the difficulties in developing distributed programs.
3	Explain the architecture and Internals of Hadoop Distributed File Systems.
4	Illustrate basics of MapReduce programs using Java, setup Cluster and running MapReduce example programs.
5	Understand MapReduce program working, tuning MapReduce jobs, logs produced by MapReduce and debug MapReduce jobs.
6	Apply K-Means Clustering Algorithm on big data and use libraries of Mahout.

Course Name: Object Oriented Analysis and Design & Software Testing Laboratory	**Course Code:** 15A05509
1	Draw the eight diagrams in the UML for given problem.

2	Detect errors in a given C programs.
3	Design Test cases for a given application.
4	Design a Test plan document for a given application.
5	Demonstrate the working of WinRunner.

Course Name: Operating Systems Laboratory		**Course Code:** 15A05510
1	Apply FCFS, SJF, Round Robin and Priority CPU Scheduling algorithms on the given data.	
2	Implement Page Replacement algorithms LRU and LFU.	
3	Apply Bankers algorithm for Deadlock avoidance and prevention.	
4	Implement Sequential, Indexed and Linked allocation strategies on the given data.	
5	Implement file allocation strategies including Sequential, Indexed, and Linked allocation.	

Course Name: Social Values & Ethics		**Course Code:** 15A99501
1	Summarize basic concepts of society and channels of youth moments for national building.	
2	Explore the activities of NSS on citizenship youth and crime, social harmony and national integration.	
3	Identify different environmental issues like disaster management and defining the need of civil and self defense.	
4	Differentiate the gender sensitization and initiating the govt schemes and NGOs.	
5	Exemplify the importance of physical education and Yoga.	

Year & Sem: IV-I **Regulation:** R15

Course Name: Management Science	**Course Code:** 15A52601
1	Able to apply the concepts & principles of management in real life industry.
2	Able to design & develop organization chart & structure for an enterprise.
3	Able to apply PPC techniques, Quality Control, Work-study principles in real life industry.
4	Able to maintain Materials departments, & Determine EOQ.
5	Able to identify Marketing Mix Strategies for an enterprise.

Course Name: Grid & Cloud Computing	**Course Code:** 15A05701
1	Identify the appropriate cloud services and cloud types for a given application.
2	Implement the grid services with OGSA/OGSI.
3	Apply the principles of virtualization to network, storage and server.
4	Understand the Authentication, Confidentiality and Privacy issues in Cloud Computing.
5	Understand the concepts of Map-Reduce Programming Models for big data analysis.

Course Name: Information Security		**Course Code:** 15A05702
1	Describe the principles and practices of Cryptography.	
2	Illustrate Classical Encryption Techniques and Block Ciphers on given data.	
3	Apply number theory concepts to implement Public Key Cryptography.	
4	Describe Hash Functions, Message Authentication codes and Digital Signatures Schemes in User Authentication.	
5	Explain Key Management and Exchange, Remote User Authentication Schemes.	
6	Define E-Mail and Web Security concepts.	

Course Name: Mobile Application Development		**Course Code:** 15A05703
1	Explain fundamentals of Android ,Android operating system and android programming	
2	Develop android programs to illustrate components, layouts and views in creating resources and media	
3	Evaluate credibility of source of information using debugging procedure	
4	Use modern tools including android studio and eclipse	
5	Engage in independent and lifelong learning in the context of technological changes.	
6	Explain fundamentals of Android ,Android operating system and android programming	

Course Name: Software Architecture		**Course Code:** 15A05704
1	Describe the importance and fundamentals of software architecture for large scale software systems.	
2	Interpret the software architectural styles, design patterns, and frameworks.	
3	Summarize the software architecture using various documentation approaches and organize quality attributes.	
4	Exemplify the use of architectural documentation.	
5	Implement ATAM, CBAM to achieve different types of quality goals.	

Course Name: Software Project Management		**Course Code:** 15A05707
1	Apply the principles of Project Management for cost development of software system for business solutions	
2	Analyze strategies to achieve the concurrency among stakeholders during Project life cycle known by individual and team.	
3	Discuss work flows of the process, process planning, automation, project organization responsibilities.	
4	Demonstrate effective project execution and control techniques that result in successful projects.	
5	Investigate complex business problems to propose software project-based solutions	

Course Name: Grid & Cloud Computing Laboratory		**Course Code:** 15A05710
1	Implement grid computing programs using Gridsim.	
2	Develop web service and grid service using Globus toolkit.	
3	Compute a word document, spreadsheet and ppt using SaaS.	
4	Implement applications on cloud and grid.	

Course Name: Mobile Application Development Laboratory		**Course Code:** 15A05711
1	Install the SDK Components of Android	
2	Develop Android Applications	
3	Design application using layouts, menus and action bars	
4	Develop an application to play video and audio clips	

HOD **PRINCIPAL**