Course Outcomes for the Academic Year 2021 – 22

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VIGNAN'S INSTITUTE OF ENGINEERING FOR WOMEN

Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: English	Regulation: R 20

Sno	Course Outcome	Description
1	C101.1	Apply reading strategies for skimming and scanning and construct paragraphs through mechanics of writing. (K3)
2	C101.2	Ask and answer questions through functional English; discuss in groups and develop conversational and communication skills. (K2)
3	C101.3	Interpret texts for comprehension; and write letters, E-mails and CV's through principles of written communication.(K3)
4	C101.4	Utilize verbal and graphic devices to transfer information; and produce writing for various purposes. (K3)
5	C101.5	Build sentences using proper grammatical structures and correct word forms; and practice presentations for academic and technical purposes. (K3)

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Mathematics – I	Regulation: R 20

Sno	Course Outcome	Description
1	C102.1	Determine the convergence of an infinite series and utilize mean value theorems to real life Problems (K3).
2	C102.2	Understand, classify and solve analytically a wide range of first order ordinary differential equations along with the applications of differential equations in engineering problems (K2 & K3).
3	C102.3	Solve analytically the higher order ordinary differential equations with constant coefficients of various types and apply in their studies (K3).
4	C102.4	Apply the knowledge of Mean value theorems, Maxima and Minima of functions of several variables which is useful in optimization (K3).
5	C102.5	Apply double integration and triple integration techniques in evaluating areas bounded by curves and volumes of the solids(K3).

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Applied Physics	Regulation: R 20

Sno	Course Outcome	Description
1	C103.1	Explain wave behavior of light, including interference and diffraction mathematically and conceptually.
2	C103.2	Explain operational principles and construction of Lasers. Understand the properties of optical fiber that affect the performance of a communication system.
3	C103.3	Apply the knowledge of quantum views for understanding the formation of energy bands in solids and their classifications.
4	C103.4	Describe relationship between specific properties and applications of dielectric and magnetic materials.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Programming for problem solving using C	Regulation: R 20

Sno	Course Outcome	Description
1	C104.1	**Describe** various types of computer systems, computing environments and discuss about various basic aspects of C programming
2	C104.2	**Develop** the programs that use two-way/ multi-way selection and loop construct for a givenproblem.
3	C104.3	**Apply** the structures, union, strings and array operations in a specific need.
4	C104.4	**Illustrate** about pointers, dynamic memory allocation and know the significance of Pre-processor.
5	C104.5	**Make use of** functions and file Operations for a given applications
5	C103.5	Understand the physics of electrical conductivity in semiconductors and superconductors for various applications.

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Computer Engineering Workshop	Regulation: R 20

Sno	Course Outcome	Description
1	C105.1	Assemble and disassemble components of a PC
2	C105.2	Construct a fully functional virtual machine; Summarize various Linux operating system commands.
3	C105.3	Recognize characters & extract text from scanned images, Create audio files and podcasts

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: English Language and Communication Skills Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C106.1	Show the knowledge in listening and speaking English sounds and employing English stress and intonation as per the accepted standard (K3)
2	C106.2	Employ suitable listening and reading skills for improved communication abilities. (K3)

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Applied Physics Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C107.1	Evaluate the process and outcomes of an experiment quantitatively and qualitatively
2	C107.2	Demonstrate the process and outcomes of an experiment
3	C107.3	Discuss an experiment collaboratively and ethically

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Programming for Problem Solving Using C Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C108.1	Extend the knowledge for C programming development for basic applications
2	C108.2	Examine the control flow and Selection and Iterative Statements
3	C108.3	Utilize the concepts of C arrays and strings for program development
4	C108.4	Construct C programs using structures, unions, pointers and memory allocation functions
5	C108.5	Practice the Modular Programming Skills to solve complex problems and also interpret the operations on files

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Mathematics - II	Regulation: R 20

Sno	Course Outcome	Description
1	C109.1	Solve system of linear algebraic equations using matrices(**K3**)
2	C109.2	Make use of matrix algebra techniques that is needed by engineers for practical applications(**K3**)
3	C109.3	Compute the approximate roots of polynomial and transcendental equations using different algorithms(**K3**)
4	C109.4	Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals(**K3**)
5	C109.5	Apply different algorithms for approximating the solutions of ordinary differential equations(**K3**)

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Applied Chemistry	Regulation: R 20

Sno	Course Outcome	Description
1	C110.1	Distinguish various forms of polymers and Illustrate different methods forming plastic materials
2	C110.2	Develop various energy storing devices and Apply different techniques to prevent corrosion
3	C110.3	Utilize disparate advanced materials
4	C110.4	Choose different analytical instruments in identifying various organic compounds and Develop diverse renewable energy sources
5	C110.5	Identify diverse molecular machines and computational chemistry methods

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Computer Organization	Regulation: R 20

Sno	Course Outcome	Description
1	C111.1	Relate and manipulate representations of numbers stored in digital computers.
2	C111.2	Analyze various combinational and sequential circuits.
3	C111.3	Demonstrate different instruction types.
4	C111.4	Calculate the effective address of an operand by addressing modes.
5	C111.5	Recall the internal organization of computers, CPU, memory unit and Input/Outputs and the relations between its main components.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Python Programming	Regulation: R 20

Sno	Course Outcome	Description
1	C112.1	Discuss the basic essential programming skills of Python Programming(K2)
2	C112.2	Apply the knowledge of problem-solving skills on strings and its methods(K3)
3	C112.3	Solve coding tasks related to data structures in python and build the functions, modules, and packages(K3)
4	C112.4	Demonstrate the file operations and features of object – oriented programming in python (K3)
5	C112.5	Develop GUI applications in Python and list types of exceptions(K3)

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Data Structures	Regulation: R 20

Sno	Course Outcome	Description
1	C113.1	Demonstrate the behavior of Data Structures, Abstract, Data types, Searching, Sorting and determine the complexity analysis (K3)
2	C113.2	Apply the concept of various linked lists and examine the advantages and disadvantages (K3)
3	C113.3	Examine the concepts of queues and Stacks along with their operations (K3)
4	C113.4	Investigate the usage of stacks (K3)
5	C113.5	Simulate the hierarchal data structures called trees (K3)

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Applied Chemistry Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C114.1	Calculate the amount of solute in the given sample solutions using classical titration methods (Expt. No. 1,2,3,4,5,16)
2	C114.2	Examine the nature and concentration of substances present in real life samples (Expt. No. 6,12,13,14,15, 17)
3	C114.3	Make use of various instruments to calculate the strength of the given samples (Expt. No. 7,8,9,10,11)

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Python Programming Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C115.1	**Develop** python programs using control flow statements.
2	C115.2	**Examine** the proficiency in handling of strings and Lists.
3	C115.3	**Develop** programs using data structures like dictionaries, tuples and sets using built-in functions, modules and packages
4	C115.4	**Develop** programs using the file operations and features of object-oriented programming in python
5	C115.5	**Develop** GUI applications in Python and list types of exceptions

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Data Structures Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C116.1	Demonstrate the various Object Oriented Programming concepts such as Constructors, Destructors, Functions and Operators(**K3**)
2	C116.2	To Practice Inheritance, Templates and Exception Handling (**K3**)
3	C116.3	Experiment with the Single Linked List operations such as Insertion, Deletion, Searching and Sorting(**K3**)
4	C116.4	Discriminate between Stack and Queue Linear Data Structures (**K4**).
5	C116.5	To Analyze the hierarchical Data Structures like Binary Search Trees for solving the real-time problems (**K4**).

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester :II	Course: Environmental Studies	Regulation: R 20

Sno	Course Outcome	Description
1	C117.1	Identify the basic concepts of Eco-system and its function in the Environment.
2	C117.2	List the natural resources and their importance for the sustenance of life and learn to conserve the natural resources.
3	C117.3	Apply conservation practices to protect the Bio-diversity.
4	C117.4	Illustrate the control of pollution with waste management practices.
5	C117.5	State Environmental legislations of India and the first global initiatives towards sustainable development.
6	C117.6	Prepare Environmental Assessment Procedure, the stages involved in EIA and the Environmental audit.

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Mathematics – III	Regulation: R 20

Sno	Course Outcome	Description
1	C201.1	Apply the Concepts of Vector Differentiation and Vector Integration in Applications of Engineering field
2	C201.2	Determine Laplace Transform and inverse Laplace Transforms of various functions and solve the linear ODE.
3	C201.3	Compute the Fourier series of periodic signals, apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms .
4	C201.4	Identify and solve different types of linear and nonlinear first order partial differential equations.
5	C201.5	Solve distinct cases of higher order partial differential equations and use to solve engineering problems.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Object Oriented Programming through C++	Regulation: R 20

Sno	Course Outcome	Description
1	C202.1	Illustrate the key primitives used in object oriented programming with exemplification using C++
2	C202.2	Discuss fundamental practices like operators, control structures, functions and recursion in C++ programming
3	C202.3	Ilustrate classes, objects with Access specifiers and usage of membership functions in object oriented programming
4	C202.4	Operate on constructors and destructors, type conversion using static and local member functions
5	C202.5	Discuss on Inheritance, polymorphism with access specifiers and virtual functions in C++ Programming.

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Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: II Semester: I	Course: Operating System	Regulation: R 20
Sno	**Course Outcome**	**Description**		
1	C203.1	Identify the most essential services and system calls provided by an operating system to user.		
2	C203.2	Analyze process and its scheduling, evaluation criteria for selecting a CPU scheduling algorithm and threads by their communication models.		
3	C203.3	Interpret various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques.		
4	C203.4	Examine several approaches to mitigating the issue of deadlock in operating systems and identify the concepts of I/O management, file system implementation.		
5	C203.5	Identify Security and Protection Mechanism in Operating Systems like UNIX/Linux and Windows		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: II Semester: I	Course: Software Engineering	Regulation: R 20
Sno	**Course Outcome**	**Description**		
1	C204.1	Demonstrate the principles and practices of software engineering and various process models.		
2	C204.2	Understand the knowledge on agile software methods.		
3	C204.3	Collect the Requirements of system process.		
4	C204.4	Develop software design using various designing models and its principles.		
5	C204.5	Apply various testing approaches for verification & validation.		

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Mathematical Foundations of Computer Science	Regulation: R 20

Sno	Course Outcome	Description
1	C205.1	Apply principles of mathematical logic to statement calculus and Predicate calculus
2	C205.2	Discuss various types of relations , functions, Lattice and algebraic structures
3	C205.3	Use counting techniques to solve combinatorial Problems
4	C205.4	Solve recurrence relations by method of substitution, characteristic roots, Generating functions
5	C205.5	Able to model and solve the real world problems using graph theory

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Object Oriented Programming through C++ Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C206.1	Apply the concepts of object-oriented programming
2	C206.2	Illustrate the process of data file manipulations using C++
3	C206.3	Apply virtual and pure virtual function & complex programming situations
4	C206.4	Demonstrate the concept of function overloading, operator overloading, virtual functions and polymorphism.
5	C206.5	Demonstrate the concept of function overloading, operator overloading, virtual functions and polymorphism.

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Operating Systems Lab	Regulation: R 20

Sno	Course Outcome	Descriptio n
1	C207.1	Build programs for CPU scheduling and multiprogramming of tasks in modern operating system.
2	C207.2	Construct algorithms for deadlock avoidance, page replacement and file allocation strategies.
3	C207.3	Develop general purpose commands in Linux environment.
4	C207.4	Build C programs for file management systems using system calls. Develop processes and threads that communicate using shared memory and p threads library in unix.
5	C207.5	Build programs for CPU scheduling and multiprogramming of tasks in modern operating system.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Software Engineering Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C208.1	Construct the Software Requirement Specification Document, design document
2	C208.2	Develop function oriented and object oriented software design using tools like rational rose
3	C208.3	Use modern engineering tools necessary for software project management, estimations, time management and software reuse.
4	C208.4	Produce test cases for software testing.
5	C208.5	Construct the Software Requirement Specification Document, design document

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Skill Oriented Course – I Applications of Python-Numpy	Regulation: R 20

Sno	Course Outcome	Description
1	C209.1	Explain how data is collected, managed and stored for processing
2	C209.2	Understand the workings of various numerical techniques, different descriptive measures of Statistics, correlation and regression to solve the engineering problems
3	C209.3	Understand how to apply some linear algebra operations to n-dimensional arrays

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Constitution of India	Regulation: R 20

Sno	Course Outcome	Description
1	C210.1	Understand historical background of the constitution making and its importance for building a democratic India.
2	C210.2	Understand the functioning of three wings of the government ie., executive, Legislative and judiciary.
3	C210.3	Understand the value of the fundamental rights and duties for becoming good citizen of India.
4	C210.4	Analyze the decentralization of power between central, state and local self government.
5	C210.5	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Probability and Statistics	Regulation: R 20

Sno	Course Outcome	Description
1	C211.1	Classify the concepts of data science and its importance. (K2)
2	C211.2	Interpret the association of characteristics through correlation and regression methods.(K3)
3	C211.3	Use discrete and continuous probability distributions to solve problems. (K3)
4	C211.4	Identify the types of sampling methods for different data samples.(K3)
5	C211.5	Test suitable sample statistical tests in testing hypothesis data.(K4)

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Database Management Systems	Regulation: R 20

Sno	Course Outcome	Description
1	C212.1	Discuss characteristics involved in the design and implementation of a database system.
2	C212.2	Create basic SQL queries by using relational model concepts.
3	C212.3	Develop logical database design using E-R diagrams
4	C212.4	Apply the normalization techniques to remove the anomalies in the database design.
5	C212.5	Apply concurrency and recovery techniques to protect the data in database.

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Formal Languages and Automata Theory	Regulation: R 20

Sno	Course Outcome	Description
1	C213.1	Illustrate deterministic and non-deterministic machines
2	C213.2	Construct language classes & grammars relationship among them with the help of Chomsky hierarchy
3	C213.3	Demonstrate different Normal Forms and simplify the CFG
4	C213.4	Illustrate Finite Automata with Stack
5	C213.5	Demonstrate Turing Machines and classify the computability in Automata Theory.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Java Programming	Regulation: R 20

Sno	Course Outcome	Description
1	C214.1	Interpret the concepts of Object Oriented Programming and the Java Programming Constructs
2	C214.2	Demonstrate the concepts of Object Orientation like Objects, Classes, Methods, Constructors alongside the usage of various keywords
3	C214.3	Apply the concepts of Array operations, Inheritance and Interfaces to solve the real-world problems
4	C214.4	Examine the usage of Packages and Exception handling to build The Java Applications
5	C214.5	Analyze the methods of String handling, Survey THE techniques of Multithreading and Connect the front-end WITH the back-end through Java Database Connectivity

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Managerial Economics and Financial Accountancy	Regulation: R 20

Sno	Course Outcome	Description
1	C215.1	Demonstrate managerial economics & elasticity of demand(K2)
2	C215.2	Generalize production function and cost concepts(K2)
3	C215.3	Explain market structures and industrial organizations (K2)
4	C215.4	Determine financial performance of a company(K3)
5	C215.5	Apply capital budgeting techniques in Investment proposals(K3)

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Database Management Systems Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C216.1	Practice the basics of SQL and construct queries using SQL.
2	C216.2	Demonstrating the aggregate and conversion functions using clauses.
3	C216.3	Develop various loops, CASES, Transaction Statement using PL/SQL programs
4	C216.4	Apply stored procedures, stored functions, cursors, packages, Triggers on database using PL/SQL programs.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: R programming Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C217.1	Access online resources for R and import new function packages into the R workspace.
2	C217.2	Import, review, manipulate and summarize data-sets in R.
3	C217.3	Explore data-sets to create testable hypotheses and identify appropriate statistical tests.
4	C217.4	Perform appropriate statistical tests using R.
5	C217.5	Create and edit visualizations with R.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Java Programming Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C218.1	Make use of Primitive Data Types, Expressions, Classes and Methods to conduct investigations on various problems
2	C218.2	Simulate Inheritance, Exception Handling Mechanism and Runtime Polymorphism to design solutions for complex problems

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Skill Oriented Course – II - Applications of Python – Pandas	Regulation: R 20

Sno	Course Outcome	Description
1	C219.1	Use Pandas to create and manipulate data structures like Series and Data Frames.
2	C219.2	Develop of the major Web application tier- Client side development
3	C219.3	Test the cross-browser applications through JavaScript
4	C219.4	Develop JavaScript applications that transition between states
5	C219.5	Evaluate the Data Frame structures for cleaning and processing and manipulating files

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Data Warehousing and Data Mining	Regulation: R 19

Sno	Course Outcome	Description
1	C301.1	Make use of OLAP tools perform business analysis in data warehouse system
2	C301.2	Interpret about pre-processing steps and visualization techniques for data analysis
3	C301.3	Demonstrate frequent pattern and association rule mining techniques on data sets
4	C301.4	Identify the appropriate classification techniques for data analysis in data mining
5	C301.5	Apply appropriate clustering methods on objects to form clusters.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Computer Networks	Regulation: R 19

Sno	Course Outcome	Description
1	C302.1	Analyze computer network basics, network architecture, TCP/IP and OSI reference models.
2	C302.2	Understand various techniques and modes of transmission
3	C302.3	Infer data link protocols, multi-channel access protocols and IEEE 802 standards for LAN
4	C302.4	Construct routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme
5	C302.5	observe the elements and protocols of transport layer and Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Compiler Design	Regulation: R 19

Sno	Course Outcome	Description
1	C303.1	Classify various phases in the design of a compiler
2	C303.2	Construct the parse tree using top-down and bottom-up parsing techniques.
3	C303.3	Use syntax directed translation schemes and implement Intermediate-Code Generation techniques
4	C303.4	Identify tools to construct the Machine Independent code
5	C303.5	Apply code optimization techniques to improve the performance of a program.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Artificial Intelligence	Regulation: R 19

Sno	Course Outcome	Description
1	C304.1	Classify various phases in the design of a compiler
2	C304.2	Construct the parse tree using top-down and bottom-up parsing techniques.
3	C304.3	Use syntax directed translation schemes and implement Intermediate-Code Generation techniques
4	C304.4	Identify tools to construct the Machine Independent code
5	C304.5	Apply code optimization techniques to improve the performance of a program.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Professional Elective – I Software Testing Methodologies	Regulation: R 19

Sno	Course Outcome	Description
1	C305.1	Illustrate the Software Testing Terminology and Methodology alongside Verification and Validation activities
2	C305.2	Simulate the Black Box and White Box Testing techniques to produce solutions for the real-time problems
3	C305.3	Apply appropriate Static Testing, Validation activities and Regression testing approaches
4	C305.4	Analyze the problems by selecting suitable software test suite and Inspect the quality of the software product
5	C305.5	List the various automation and testing tools and examine different kinds of systems using these tools (K4)

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Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: III Semester: I	Course: Computer Networks Lab	Regulation: R 19
Sno	**Course Outcome**	**Description**		
1	C306.1	Demonstrate various techniques for Encoding, decoding and Digital data communication.		
2	C306.2	Analyze various keying techniques, digital data communication techniques and its standards.		
3	C306.3	Experiment with various error detection and flow control techniques.		
4	C306.4	Explain the various concepts of network topologies, components and categories of networks.		
5	C306.5	Experiment with various network layer protocols.		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: III Semester: I	Course: AI Tools & Techniques Lab	Regulation: R 19
Sno	**Course Outcome**	**Description**		
1	C307.1	Solve basic AI based problems using Prolog		
2	C307.2	Categorize real-world problems as state space problems, optimization problems or constraint satisfaction problems. And develop AI Algorithms		
3	C307.3	Apply AI techniques to real-world problems to develop intelligent systems		
4	C307.4	Use LISP Programming to implement AI Algorithms and demonstrate AI Tools		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: III Semester: I	Course: Data Mining Lab	Regulation: R 19
Sno	**Course Outcome**	**Description**		
1	C308.1	Examine data from different sources and perform data manipulation operations on data.		
2	C308.2	Demonstrate the Statistical operations on dataset using R.		
3	C308.3	Develop the clusters using R-Studio.		
4	C308.4	Apply various R packages to Visualize the decision data trees.		

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Employability Skills – II	Regulation: R 19

Sno	Course Outcome	Description
1	C309.1	**Apply** core competencies to succeed in professional and personal life
2	C309.2	**Make use of** presentation skills effectively to present with appropriate body language
3	C309.3	**Employ** relevant corporate etiquette with positive attitude
4	C309.4	**Demonstrate** effective strategies for emotional intelligence and stress management
5	C309.5	**Identify** appropriate interview skills and succeed in interviews

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Web Technologies	Regulation: R 19

Sno	Course Outcome	Description
1	C310.1	Elucidate the foundations and issues of distributed systems
2	C310.2	Illustrate the various synchronization issues and global state for distributed systems
3	C310.3	Illustrate the Mutual Exclusion and Deadlock detection algorithms in distributed systems
4	C310.4	Describe the agreement protocols and fault tolerance mechanisms in distributed systems
5	C310.5	Describe the features of peer-to-peer and distributed shared memory systems

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Distributed Systems	Regulation: R 19

Sno	Course Outcome	Description
1	C311.1	Elucidate the foundations and issues of distributed systems
2	C311.2	Illustrate the various synchronization issues and global state for distributed systems
3	C311.3	Illustrate the Mutual Exclusion and Deadlock detection algorithms in distributed systems
4	C311.4	Describe the agreement protocols and fault tolerance mechanisms in distributed systems
5	C311.5	Describe the features of peer-to-peer and distributed shared memory systems

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Design and Analysis of Algorithms	Regulation: R 19

Sno	Course Outcome	Description
1	C312.1	Describe asymptotic notation used for denoting performance of algorithms
2	C312.2	Demonstrate searching and sorting methods using divide-and-conquer paradigm.
3	C312.3	Apply dynamic programming to solve shortest path for the graph
4	C312.4	Solve 8-queen, graph coloring and Hamiltonian cycles applications using back-tracking approach
5	C312.5	Demonstrate an understanding of NP- Completeness theory and lower bound theory

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Professional Elective – II (NPTEL/ SWAYAM) Renewable energy sources	Regulation: R 19

Sno	Course Outcome	Description
1	C313.1	Summarize solar radiation data, extraterrestrial radiation and radiation on earth surface.
2	C313.2	Identify the proper solar photo voltaic system by using photovoltaic systems.
3	C313.3	Illustrate maximum power point techniques in wind energy system.
4	C313.4	Examine the basic principle and kinetic energy equation of hydro, tidal and wave power plants.
5	C313.5	Illustrate the basic principle and working of biomass, fuel cell and geothermal systems.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Open Elective – I	Regulation: R 19

Sno	Course Outcome	Description
1	C314.1	Summarize solar radiation data, extraterrestrial radiation and radiation on earth surface.
2	C314.2	Identify the proper solar photo voltaic system by using photovoltaic systems.
3	C314.3	Illustrate maximum power point techniques in wind energy system.
4	C314.4	Examine the basic principle and kinetic energy equation of hydro, tidal and wave power plants.
5	C314.5	Illustrate the basic principle and working of biomass, fuel cell and geothermal systems.

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Managerial Economics and Financial Accountancy	Regulation: R 19

Sno	Course Outcome	Description
1	C315.1	Generalize managerial economics & demand forecasting
2	C315.2	Illustrate production function and cost concepts
3	C315.3	Estimate market structures and pricing policies
4	C315.4	Discuss types of business organization and business cycle
5	C315.5	Determine financial performance of a company, Illustrate capital budgeting techniques

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Web Technologies Lab	Regulation: R 19

Sno	Course Outcome	Description
1	C316.1	Develop Web pages using HTML.
2	C316.2	Develop dynamic Web Applications using Java Script
3	C316.3	Use DTD, XSD for Validating XML pages and apply styles using XSL.
4	C316.4	Develop dynamic Web Applications using AJAX
5	C316.5	Develop dynamic Web Applications using PHP & MySql

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Cryptography and Network Security	Regulation: R 16

Sno	Course Outcome	Description
1	C401.1	Discuss the various security attacks, mechanisms, services and learn the mathematics of cryptography.
2	C401.2	Discriminate the various symmetric block ciphers and understand the basic Mathematics of Symmetric Key Cryptography.
3	C401.3	Distinguish the uses of Asymmetric Key Cryptography and learn the Mathematics of Asymmetric Key Cryptography.
4	C401.4	Discuss the various authentication methods in real world scenario.
5	C401.5	Illustrate the network security designs using available secure solutions (such as PGP, SSL, IPSec, etc) in Application and Transport layer.
6	C401.6	Determine the IP security, web security threats and intrusion detection techniques in Network layer.

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Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: IV Semester: I	Course: Software Architecture & Design Patterns	Regulation: R 16
Sno	**Course Outcome**	**Description**		
1	C402.1	Observe the difference between software system and software architecture, explain patterns and identify the quality attributes of architecture.		
2	C402.2	Analyze the design and decisions of software architecture and evolution of software architecture by various models		
3	C402.3	Construct the software design using creational patterns		
4	C402.4	Develop the software design for real world problems using structural patterns.		
5	C402.5	Construct behavioral patterns for testing the quality of system in software design.		
6	C402.6	Analyze the various system quality attributes using case studies.		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: IV Semester: I	Course: Web Technologies	Regulation: R 16
Sno	**Course Outcome**	**Description**		
1	C403.1	Use javascript at the backend for creating web pages.		
2	C403.2	Write simple client-side scripts using AJAX.		
3	C403.3	Develop web applications using PHP.		
4	C403.4	Evolve Dynamic web pages using PERL Script.		
5	C403.5	Develop Dynamic web pages using RUBY.		
6	C403.6	Analyze Architectural Modeling using Component and Deployment diagrams with a sample Case Study.		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: IV Semester: I	Course: Managerial Economics and Financial Analysis	Regulation: R 16
Sno	**Course Outcome**	**Description**		
1	C404.1	Generalize managerial economics & demand forecasting		
2	C404.2	Illustrate production function and cost concepts		
3	C404.3	Estimate market structures and pricing policies		
4	C404.4	Discuss types of business organization and business cycle		
5	C404.5	Determine financial performance of a company		
6	C404.6	Illustrate capital budgeting techniques		

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Elective – I . Big Data Analytics	Regulation: R 16

Sno	Course Outcome	Description
1	C405.1	Apply the data structures in java to implement map reduce paradigm.
2	C405.2	Demonstrate various architectural concepts of Hadoop system.
3	C405.3	Develop different applications for BigData using MapReduce framework to help environment and society.
4	C405.4	Illustrate various I/O methods using MapReduce in hadoop.
5	C405.5	Demonstrate programming tool PIG in hadoop ecosystem to process BigData.
6	C405.6	Articulate programming tool HIVE in hadoop ecosystem for data analysis.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Elective – II Cloud Computing	Regulation: R 16

Sno	Course Outcome	Description
1	C406.1	Interpret the architecture and infrastructure models of cloud computing.
2	C406.2	Understand the virtualization concepts of virtual machines and data centers.
3	C406.3	Infer the design concepts of cloud ready applications
4	C406.4	Compare different cloud center's implementation.
5	C406.5	Understand the concepts of cloud scaling and disaster recovery
6	C406.6	Interpret the security and risk issues in cloud computing.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Software Architecture & Design Patterns Lab	Regulation: R 16

Sno	Course Outcome	Description
1	C407.1	Apply the concepts of class diagram and create the Weather mapping system Application
2	C407.2	Analyze the different views in the implementation of Weather mapping system Application
3	C407.3	Create the UML Class diagram of real-time application like Library management System
4	C407.4	Create the UML diagrams for the different patterns with a real-time application

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Web Technologies Lab	Regulation: R 16

Sno	Course Outcome	Description
1	C408.1	Develop Web pages using HTML.
2	C408.2	Use DTD, XSD for Validating XML pages and apply styles using XSL.
3	C408.3	Write simple programs using RUBY programming Language.
4	C408.4	Connect databases using PERL programming Language.
5	C409.5	Apply the knowledge of PHP programming to develop dynamic Web Pages.
6	C408.6	Test user's sessions using HTTP protocol.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Distributed Systems	Regulation: R 16

Sno	Course Outcome	Description
1	C409.1	Describe the important characteristics of distributed systems and the salient architectural features of distributed systems.
2	C409.2	Define the features and applications of important standard protocols that are used in distributed systems.
3	C409.3	Illustrate about the working methods like remote procedure call remote method invocation using distributed objects.
4	C409.4	Analyze the creation of process and threads in distributed systems.
5	C409.5	Develop the file system services and various algorithms used in coordination of distributed systems.
6	C409.6	Elaborate the distributed systems transactions and its recovery strategies and replication methods.

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Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: IV Semester: II	Course: : Management Science	Regulation: R 16
Sno	**Course Outcome**	**Description**		
1	C410.1	Explain the management concepts		
2	C410.2	Construct statistical quality control charts in operational management		
3	C410.3	Illustrate Human resource management & marketing management in an organization		
4	C410.4	Solve the Project Evaluation Review , Critical Path Method, probability & project crashing problems		
5	C410.5	Discuss vision, mission & goals of the organization		
6	C410.6	Generalize business process outsourcing, six sigma in management practice		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: IV Semester: II	Course: Machine Learning	Regulation: R 16
Sno	**Course Outcome**	**Description**		
1	C411.1	Interpret the tasks and problems that can be solved with machine learning.		
2	C411.2	Interpret the methods for learning inductive concepts and logical expressions from examples.		
3	C411.3	Interpret and learn various tree models and rule models of machine learning		
4	C411.4	Explain various linear models and distance based which are strong geometric intuition of machine learning		
5	C411.5	Distinguish probabilistic models and analyze feature measurement with various ensemble methods of machine learning.		
6	C411.6	Explain dimensional reduction of features and problems of neural network learning.		

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Elective – III Concurrent and Parallel Programming	Regulation: R 16

Sno	Course Outcome	Description
1	C412.1	Analyze and document the difference between sequential systems and concurrent systems.
2	C412.2	Solve problems requiring both semaphores and inter process communication as part of the solution.
3	C412.3	Design and implement concurrent and parallel algorithms.
4	C412.4	Demonstrate a critical understanding of multi processor and multi core architectures for parallel programming.
5	C412.5	Analyze the difference between various parallel programming languages.
6	C412.6	Use parallelization mechanisms C++ AMP and OpenCL in heterogeneous computing.

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Seminar	Regulation: R 16

Sno	Course Outcome	Description
1	C413.1	Review research papers for understanding current trends to identify new directions of various cutting edge technologies. (K2)
2	C413.2	Develop effective communication skills by giving an oral presentation. (K3)
3	C413.3	Summarize technical report using various visualization tools. (K5)

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Project	Regulation: R 16

Sno	Course Outcome	Description
1	C414.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems
2	C414.2	Gain the knowledge of software engineering practices, so as to participate and manage large software engineering projects in future
3	C414.3	Demonstrate effectively the engineering principles used in their project individually and as a team as per the norms of engineering practice with proper documentation skills and professionalism.
4	C414.4	Structure System integration, deployment skills and future work to promote life-long learning in the context of technological adaptation.

Head of the Department

Principal

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: English	Regulation: R 20

Sno	Course Outcome	Description
1	C101.1	Apply reading strategies for skimming and scanning and construct paragraphs through mechanics of writing. (K3)
2	C101.2	Ask and answer questions through functional English; discuss in groups and develop conversational and communication skills.(K2)
3	C101.3	Interpret texts for comprehension; and write letters, E-mails and CV's through principles of written communication.(K3)
4	C101.4	Utilize verbal and graphic devices to transfer information; and produce writing for various purposes.(K3)
5	C101.5	Build sentences using proper grammatical structures and correct word forms; and practice presentations for academic and technical purposes (K3)

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Mathematics – I	Regulation: R 20

Sno	Course Outcome	Description
1	C102.1	Determine the convergence of an infinite series and utilize mean value theorems to real life Problems (K3).
2	C102.2	Understand, classify and solve analytically a wide range of first order ordinary differential equations along with the applications of differential equations in engineering problems (K2 & K3).
3	C102.3	Solve analytically the higher order ordinary differential equations with constant coefficients of various types and apply in their studies (K3).
4	C102.4	Apply the knowledge of Mean value theorems, Maxima and Minima of functions of several variables which is useful in optimization (K3).
5	C102.5	Apply double integration and triple integration techniques in evaluating areas bounded by curves and volumes of the solids(K3).

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Applied Chemistry	Regulation: R 20

Sno	Course Outcome	Description
1	C103.1	Distinguish various forms of polymers and Illustrate different methods forming plastic materials
2	C103.2	Develop various energy storing devices and Apply different techniques to prevent corrosion
3	C103.3	Utilize disparate advanced materials
4	C103.4	Choose different analytical instruments in identifying various organic compounds and Develop diverse renewable energy sources
5	C103.5	Identify diverse molecular machines and computational chemistry methods

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Programming for problem solving using C	Regulation: R 20

Sno	Course Outcome	Description
1	C104.1	**Describe** various types of computer systems, computing environments and discuss about various basic aspects of C programming
2	C104.2	**Develop** the programs that use two-way/ multi-way selection and loop construct for a givenproblem.
3	C104.3	**Apply** the structures, union, strings and array operations in a specific need.
4	C104.4	**Illustrate** about pointers, dynamic memory allocation and know the significance of Pre-processor.
5	C104.5	**Make use of** functions and file Operations for a given applications

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Engineering Drawing	Regulation: R 20

Sno	Course Outcome	Description
1	C105.1	Identify the use of various drawing instruments and to construct various types of polygons, curves and scales.
2	C105.2	Represent the projections of points, lines and line inclined to both the planes and its traces.
3	C105.3	Sketch the projections of various types of plane surfaces in different positions with respect to reference planes.
4	C105.4	Develop the projections of various types of solids in different positions with respect to reference planes.
5	C105.5	Construct the 3D objects in 2D planes and vice versa and make use of Auto Cad to create the 2D and 3D objects.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: English Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C106.1	Show the knowledge in listening and speaking English sounds and employing English stress and intonation as per the accepted standard (K3)
2	C106.2	Employ suitable listening and reading skills for improved communication abilities. (K3)

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Applied Chemistry Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C107.1	Calculate the amount of solute in the given sample solutions using classical titration methods (Expt. No. 1,2,3,4,5,16)
2	C107.2	Examine the nature and concentration of substances present in real life samples (Expt. No. 6,12,13,14,15, 17)
3	C107.3	Make use of various instruments to calculate the strength of the given samples (Expt. No. 7,8,9,10,11)

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Programming for Problem Solving Using C Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C108.1	Extend the knowledge for C programming development for basic applications
2	C108.2	Examine the control flow and Selection and Iterative Statements
3	C108.3	Utilize the concepts of C arrays and strings for program development
4	C108.4	Construct C programs using structures, unions, pointers and memory allocation functions
5	C108.5	Practice the Modular Programming Skills to solve complex problems and also interpret the operations on files

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Mathematics - II	Regulation: R 20

Sno	Course Outcome	Description
1	C109.1	Solve system of linear algebraic equations using matrices**(K3)**
2	C109.2	Make use of matrix algebra techniques that is needed by engineers for practical applications**(K3)**
3	C109.3	Compute the approximate roots of polynomial and transcendental equations using different algorithms**(K3)**
4	C109.4	Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals**(K3)**
5	C109.5	Apply different algorithms for approximating the solutions of ordinary differential equations**(K3)**

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Applied Physics	Regulation: R 20

Sno	Course Outcome	Description
1	C110.1	Explain wave behavior of light, including interference and diffraction mathematically and conceptually.
2	C110.2	Explain operational principles and construction of Lasers. Understand the properties of optical fiber that affect the performance of a communication system.
3	C110.3	Apply the knowledge of quantum views for understanding the formation of energy bands in solids and their classifications.
4	C110.4	Describe relationship between specific properties and applications of dielectric and magnetic materials.
5	C110.5	Understand the physics of electrical conductivity in semiconductors and superconductors for various applications.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Object Oriented Programming through Java	Regulation: R 20

Sno	Course Outcome	Description
1	C111.1	Describe Classes and Object in Object Oriented Programming.(K2)
2	C111.2	Implement the concept of Inheritance and Polymorphism.(K3)
3	C111.3	Implement various windows based /GUI based applications.(K3)
4	C111.4	Demonstrate various IO streams in java.(K2)
5	C111.5	Implement multi tasking using Multi Threading. (K2)

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Network Analysis	Regulation: R 20

Sno	Course Outcome	Description
1	C112.1	To understand the basic concepts of network elements.
2	C112.2	To analyze the behaviour of RLC circutis under AC and DC excitations.
3	C112.3	To develop the knowledge on single phase AC circuits and to identify the operation of coupled circuits.
4	C112.4	To solve Network theorems and to understand the concept of Resonance.
5	C112.5	To understand two-port network parameters.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Basic Electrical Engineering	Regulation: R 20

Sno	Course Outcome	Description
1	C113.1	Determine the operation of DC generator and the characteristics of DC generators and Motors
2	C113.2	Develop equivalent circuit and calculate performance of transformers
3	C113.3	Determine the operation of synchronous generators and motors.
4	C113.4	Describe speed – torque characteristics of induction motor and starting methods of induction motor.
5	C113.5	Explain the operation of various special machines

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Electronics Workshop	Regulation: R 20

Sno	Course Outcome	Description
1	C114.1	Identify the Active & Passive Electronic Components
2	C114.2	List out Laboratory Equipment And their Operation
3	C114.3	Test the Electronic Components And Soldering

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Basic Electrical Engineering Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C115.1	Compute the efficiency of dc shunt machine as a motor and generator
2	C115.2	Analyse the regulation of single-phase transformer
3	C115.3	Determine the performance characteristics of three phase induction motor
4	C115.4	Compute the regulation of the alternator by using synchronous impedance method
5	C115.5	Examine the speed characteristics of Dc Shunt Motor

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Applied Physics Lab	Regulation: R 20

Sno	Course Outcome	Description
1	C116.1	Evaluate the process and outcomes of an experiment quantitatively and qualitatively
2	C116.2	Demonstrate the process and outcomes of an experiment
3	C116.3	Discuss an experiment collaboratively and ethically

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Environmental Science	Regulation:R20

S.no	Course Outcomes	Description
1	C117.1	Identify the basic concepts of Eco-system and its function in the Environment.
2	C117.2	List the natural resources and their importance for the sustenance of life and learn to conserve the natural resources.
3	C117.3	Apply conservation practices to protect the Bio-diversity.
4	C117.4	Illustrate the control of pollution with waste management practices.
5	C117.5	State Environmental legislations of India and the first global initiatives towards sustainable development.
6	C117.6	Prepare Environmental Assessment Procedure, the stages involved in EIA and the Environmental audit.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electronic Devices and Circuits	Regulation: R 20

S.no	Course Outcomes	Description
1	C201.1	Distinguish the properties and characteristics of various semiconductor devices.
2	C201.2	Compute various rectifier circuits based on their parameters.
3	C201.3	Illustrate the behavior of transistor in different configurations.
4	C201.4	Determine the stability factors for biasing circuits.
5	C201.5	Analyze the performance of an amplifier using h-parameter

Department : Department of Electronics and Communication Engineering		
Academic Year: 2021-22 Year: II Semester: I	Course: Switching Theory and Logic Design	Regulation:R20

S.no	Course Outcomes	Description
1	C202.1	Distinguish the number systems, boolean theorems and logical operations
2	C202.2	Analyze minimization techniques and combinational logic circuits
3	C202.3	Determine various combinational logic circuits and applications
4	C202.4	Apply knowledge of flip-flops in designing of Registers and counters
5	C202.5	Produce innovative designs by modifying the traditional design techniques

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Signals and Systems	Regulation:R20

S.no	Course Outcomes	Description
1	C203.1	Describe the characteristics of various signals using orthogonal basis and vector space.
2	C203.2	Select Fourier series and Fourier Transform to analyze periodic and aperiodic signals.
3	C203.3	Explain the response characteristics of linear systems using convolution function
4	C203.4	Choose the sampling frequency to reconstruct the sampled signal without aliasing effect and discuss the characteristics of LTI system using correlation function
5	C203.5	Examine the region of convergence with Laplace and Z- Transforms to various classes of signals

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Random Variables and Stochastic Processes	Regulation:R20

S.no	Course Outcomes	Description
1	C204.1	Differentiate various distribution and density functions.
2	C204.2	Examine the operations on random variables.
3	C204.3	List out the properties of multiple random variables.
4	C204.4	Illustrate the time and frequency domain characteristics of random signal.
5	C204.5	Estimate the nature of the response for an LTI systems under noise inputs.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Mathematics-III	Regulation:R20

S.no	Course Outcomes	Description
1	C205.1	Apply the Concepts of Vector Differentiation and Vector Integration in Applications of Engineering field
2	C205.2	Determine Laplace Transform and inverse Laplace Transforms of various functions and solve the linear ODE.
3	C205.3	Compute the Fourier series of periodic signals, apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms .
4	C205.4	Identify and solve different types of linear and nonlinear first order partial differential equations.
5	C205.5	Solve distinct cases of higher order partial differential equations and use to solve engineering problems.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: OOPS through Java Lab	Regulation:R20

S.no	Course Outcomes	Description
1	C206.1	Generalize the various concepts and principles of structured and object-oriented programming languages (K2)
2	C206.2	Identify classes, objects, members of a class and the relationships among them needed for a specific problem(K3)
3	C206.3	Develop interfaces using AWT and handle different kinds of events. (K3)
4	C206.4	Discuss file accessing mechanisms concepts in JAVA (K3).
5	C206.5	Discuss multi-threading concepts and Make use of exception handling in java(K3).

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electronic Devices and Circuits – Lab	Regulation:R20

S.no	Course Outcomes	Description
1	C207.1	Calculate the electrical characteristics of any waveform using CRO and function generator
2	C207.2	Analyze the characteristics of various semiconductor devices.
3	C207.3	Estimate the frequency responses of BJT, FET amplifiers.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Switching Theory and Logic Design – Lab	Regulation:R20

S.no	Course Outcomes	Description
1	C208.1	Describe different logic gates and number systems
2	C208.2	Design different combinational circuits
3	C208.3	Analyze various Sequential circuits

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Python Programming	Regulation:R20

S.no	Course Outcomes	Description
1	C209.1	Discuss the basic essential programming skills of Python Programming(K2)
2	C209.2	Applythe knowledge of problem-solving skills on strings and its methods(K3)
3	C209.3	Solve coding tasks related to data structures in pythonand build the functions, modules, and packages(K3)
4	C209.4	Demonstrate the file operations and features of object – oriented programming in python (K3)
5	C209.5	Develop GUI applications in Python and list types of exceptions(K3)

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Electronic Circuit Analysis	Regulation:R20

S.no	Course Outcomes	Description
1	C210.1	Apply the concepts of hybrid-pi for the analysis of CE and CC amplifiers.
2	C210.2	Simplify the multistage circuits using h-parameters.
3	C210.3	Examine the type of feedback in a given amplifier circuit.
4	C210.4	Establish the conditions for oscillations for any oscillator.
5	C210.5	Analyze various power amplifiers and frequency tuners.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Digital IC Design	Regulation:R20

S.no	Course Outcomes	Description
1.	C211.1	Write the IEEE Standard 1076 Hardware Description Language (VHDL).
2.	C211.2	Model complex digital systems at several levels of abstractions, behavioral, structural, and rapid system prototyping.
3.	C211.3	Analyze and design basic digital circuits with combinatorial and sequential logic circuits using VHDL.
4.	C211.4	Analyze basic combinational digital circuits using CMOS, nMOS, Pseudo nMOS, Passtransistor and Transmission gate logic
5.	C211.5	Analyze basic sequential digital circuits using CMOS, Passtransistor and Transmission gate logic

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Analog Communications	Regulation:R20

S.no	Course Outcomes	Description
1.	C212.1	Outline the basics of communication systems and generation & detection of AM waves.
2.	C212.2	Distinguish different AM modulation schemes
3.	C212.3	Discuss different FM modulator and demodulators
4.	C212.4	Analyze the various functional blocks of radio transmitters and receivers
5.	C212.5	Analyze the performance of analog modulation schemes in presence of noise and acquire knowledge on analog pulse modulation schemes

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Linear Control Systems	Regulation:R20

S.no	Course Outcomes	Description
1.	C213.1	Examine mathematical modelling of mechanical systems.
2.	C213.2	Analyze the transfer functions of a system using Block-diagrams and Signal flow graphs
3.	C213.3	Explain the stability of a system using various techniques
4.	C213.4	Express the stability of a closed-loop system in frequency domain.
5.	C213.5	Select state space analysis to model a system.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Management and Organizational Behavior	Regulation:R20

S.no	Course Outcomes	Description
1.	C214.1	describe the management concepts
2.	C214.2	illustrate Human resource management & marketing management in a organization
3.	C214.3	discuss vision, mission & goals of the organization
4.	C214.4	demonstrate Perceptual process of individual
5.	C214.5	generalize the types of organizational conflicts

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Electronic Circuit Analysis Lab – I	Regulation:R20

S.no	Course Outcomes	Description
1.	C215.1	Sketch the frequency response of different amplifier circuit.
2.	C215.2	Determine the frequency of oscillations for various oscillators.
3.	C215.3	Simulate various analog circuits with the help of MultiSim.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Analog Communications Lab	Regulation:R20

S.no	Course Outcomes	Description
1.	C216.1	Determine the various parameters for CW modulated and demodulated signals.
2.	C216.2	Examine modulation and demodulation techniques through Matlab coding.
3.	C216.3	Build different operational blocks for modulation in Matlab Simulink

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Digital IC Design Lab	Regulation:R20

S.no	Course Outcomes	Description
1.	C217.1	Write a VHDL code for the digital circuits using xilinx vivado design environment.
2.	C217.2	Devlop a VHDL code for basic combinational and sequentail circuits.
3.	C217.3	Model counters, shift registers using VHDL coding

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Soft Skills	Regulation:R20

S.no	Course Outcomes	Description
1.	C218.1	**Articulate** appropriately at Group Discussions and Interviews
2.	C218.2	**Apply** suitable listening skills
3.	C218.3	**Write** context specific resumes relevant to the job opportunities
4.	C218.4	**Develop** proper signs of non-verbal communication
5.	C218.5	**Illustrate** effective written communication skills in letters and technical reports
6.	C218.6	**Demonstrate** right attitude, personality traits for the professional world

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Linear Integrated Circuits and Applications	Regulation:R19

S.no	Course Outcomes	Description
1.	C301.1	Examine operating point and gain of various differential amplifier.
2.	C301.2	Discuss various linear and non-linear applications of OP-AMP.
3.	C301.3	Analyze the designing of amplifier and active filters using an OP-AMP.
4.	C301.4	Produce different waveforms using 555 Timer.
5.	C301.5	Examine the design aspects of switching circuits for different applications using OP-AMP.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Microprocessor and Microcontrollers	Regulation:R19

S.no	Course Outcomes	Description
1.	C302.1	Identify features and operation of 8086 microprocessor.
2.	C302.2	Test instructions of 8086 microprocessor with an assembly language programming
3.	C302.3	Analyze various 8086 microprocessor interfacing circuits
4.	C302.4	Illustrate 8051 microcontroller and interfacing of microcontroller
5.	C302.5	Distinguish RISC and CISC processors and function of Cortex-M3 processor.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Digital Communications	Regulation:R19

S.no	Course Outcomes	Description
1.	C303.1	Illustrate the baseband and pass band transmission techniques.
2.	C303.2	Classify various digital modulation techniques
3.	C303.3	Calulate the probability of error for various digital modulation techniques.
4.	C303.4	Examine the mutual information and entropy of digital signals and Distinguish different source coding techniques based on their parameters.
5.	C303.5	Estimate the errors and correct through different techniques.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Electronic Measurements & Instrumentations	Regulation:R19

S.no	Course Outcomes	Description
1.	C304.1	Apply the principles and characteristics of various instruments and classify the usage based on the requirements.
2.	C304.2	Analyze and describe the different signal generators and analyzers.
3.	C304.3	Examine the different signal characteristics using Oscilloscopes
4.	C304.4	Calculate the magnitudes of different electronic components using various bridge circuits
5.	C304.5	Demonstrate various types of transducers for measuring different parameters

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Digital System Design	Regulation:R19

S.no	Course Outcomes	Description
1.	C305.1	Describe the architecture of FPGAs, tools used in modeling of digital design
2.	C305.2	Apply verilog HDL programming structure for digital circuits
3.	C305.3	Model complex digital systems at several levels of abstractions
4.	C305.4	Develop a verilog programs for different sequential circuits
5.	C305.5	Analyze a realtime applications such as Vending machines and USB using verilog HDL

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Linear integrated Circuits and Applications – Lab	Regulation:R19

S.no	Course Outcomes	Description
1.	C306.1	Demonstrate various linear and non linear applications of OP AMP.
2.	C306.2	Distinguish different multivibrators and signal generators using IC555.
3.	C306.3	Examine the load regulation characteristics of various voltage regulators.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Digital communications Lab	Regulation:R19

S.no	Course Outcomes	Description
1.	C307.1	Examine the performance of base band and pass band transmission of digital signals.
2.	C307.2	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance system.
3.	C307.3	Analyze different techniques in modern digital communications, in particular error Detection and correction techniques.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Microprocessor and Micro controllers Lab	Regulation:R19

S.no	Course Outcomes	Description
1.	C308.1	Importance of assembly language program and interfacing
2.	C308.2	Interpret 8051 microcontroller programming and interfacing
3.	C308.3	Convince ARM is the most successful processor

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Mini Project with Hardware Development	Regulation:R19

S.no	Course Outcomes	Description
1.	C309.1	Students will be able to practice acquired knowledge within the chosen area of technology for project development.
2.	C309.2	Work as an individual or in a team in development of technical projects
3.	C309.3	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Wired and Wireless Transmission Devices	Regulation:R19

S.no	Course Outcomes	Description
1.	C310.1	Explain the electrical characteristics of rectangular waveguide using Electromagnetic field analysis.
2.	C310.2	K3Illustrate the basic concepts of antenna parameters.
3.	C310.3	K2Express an array antenna system from defined specifications.
4.	C310.4	K4Distinguish the design Concepts of different types of antennas (VHF, UHF).
5.	C310.5	K4Analyze various propagation modes in radio communication and to identify the atmosphere and terrestrial effects on wave propagation.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: VLSI Design	Regulation:R19

S.no	Course Outcomes	Description
1.	C311.1	Summarize the fabrication process of various MOS technologies and to solve problems related to electrical behavior of MOS circuits.
2.	C311.2	Analyze scalable VLSI circuits keeping in view of various issues like delays, large capacitive loads ,fan in ,second order effects and etc.
3.	C311.3	Analyze the behavior of amplifier circuits with various loads.
4.	C311.4	Design various CMOS logic circuits for design of Combinational logic circuits.
5.	C311.5	Analyze the behavior of static and dynamic logic circuits.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Digital Signal Processing	Regulation:R19

S.no	Course Outcomes	Description
1.	C312.1	Discuss discrete-time signals and systems to compute LTI system response
2.	C312.2	Use Discrete Fourier Transform and Fast Fourier Transform to analyse discrete-time sequence
3.	C312.3	Outline the steps to design and construct the structure of IIR digital filters
4.	C312.4	Evaluate the filter coefficients and construct the structure of FIR digital filters
5.	C312.5	Explain the architecture of Programmable DSP processors

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Cellular Mobile Communications	Regulation:R19

S.no	Course Outcomes	Description
1.	C313.1	Identify the limitations of conventional mobile telephone systems and discuss the concepts of cellular system
2.	C313.2	Compare co-channel and non co-channel interference.
3.	C313.3	Deduce the frequency management, channel assignment strategies and antennas in cellular systems.
4.	C313.4	Illustrate various types of handoffs.
5.	C313.5	Differentiate architecture of various cellular systems.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : III Semester: II	Course: Open Elective (OE 1)	Regulation:R19

S.No	Course Outcomes	Description
1	C314.1	understand basics of MEMS & its applications
2	C314.2	analyze basic principle of sensors and actuators used in micro systems
3	C314.3	analyze different scaling procedures and materials used.
4	C314.4	understand the micro fabrication process
5	C314.5	classify different RF and microwave switches

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Internet of Things	Regulation:R19

S.no	Course Outcomes	Description
1.	C315.1	Understand fundamentals of internet of Things and Hardwae and Software Components
2.	C315.2	Describe the Hardware Components and instruction sets
3.	C315.3	Discuss the Communication Protocols used to establishing a Connection
4.	C315.4	Analyze Remotely Monitor data and Control devices

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: VLSI Lab	Regulation:R19

S.no	Course Outcomes	Description
1.	C316.1	Implement of the different combinational and squetial circuit using FPGA kits.
2.	C316.2	Determine the functional verification for various combinational and sequential circuits.
3.	C316.3	Simulate various combinational and sequential circuits with the help of Mentor Graphics.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Digital Signal Processing Lab	Regulation:R19

S.no	Course Outcomes	Description
1.	C317.1	Demonstrate various operations performed on discrete time signals.
2.	C317.2	Distinguish the frequency response characteristics of IIR and FIR filters.
3.	C317.3	Inspect sampling theorem and FFT Algorithm

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Intellectual Property Rights (IPR) & patents	Regulation:R19

S.no	Course Outcomes	Description
1.	C318.1	Discuss the different types of intellectual property rights (K2)
2.	C318.2	Generalize the concept of copyright (K2)
3.	C318.3	Identify various requirements for application process of patent rights (K3)
4.	C318.4	Explain post registration process in trade mark (K3)
5.	C318.5	Describe the different confidential matters in trade secret (K2)
6.	C318.5	summarize the cyber crime activities (K2)

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Radar Systems	Regulation:R16

S.no	Course Outcomes	Description
1.	C401.1	Discuss the performance of microwave radar systems
2.	C401.2	Differentiate various continuous radar systems
3.	C401.3	Distinguish the performance of MTI and pulse doppler radar systems.
4.	C401.4	Explain the functionality of simple tracking radar systems.
5.	C401.5	Analyze the radar receiver characteristics in presence of noise.
6.	C401.6	List the types of phased array antennas and various subsections in radar receivers

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Digital Image Processing	Regulation:R16

S.no	Course Outcomes	Description
1.	C402.1	List out various transforms used in image processing.
2.	C402.2	Compare spatial and frequency domain filters to enhance an image.
3.	C402.3	Discuss image restoration operations/techniques on images.
4.	C402.4	Demonstrate wavelet based image processing and Image compression.
5.	C402.5	Explain morphological algorithms and Image segmentation techniques.
6.	C402.6	Illustrate various color models and Distinguish full and pseudo color image processing.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Computer Networks	Regulation:R16

S.no	Course Outcomes	Description
1.	C403.1	Illustrate various network topologies and OSI and TCP/IP models of a network.
2.	C403.2	Discuss different multiplexing techniques and switching networks.
3.	C403.3	Illustrate different error correction and detection codes in the layers.
4.	C403.4	Discuss MAC Layer protocols with their operations in the network
5.	C403.5	Explain different algorithms and operations in the network layer.
6.	C403.6	Discuss UDP and TCP protocols and their operations in the network.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Optical Communications	Regulation:R16

S.no	Course Outcomes	Description
1.	C404.1	Illustrate basic functionality parameters of optical fiber communication system
2.	C404.2	Explain various glass fiber materials to minimize the fiber losses
3.	C404.3	List out different optical fiber connectors and splicing techniques used to join optical cables
4.	C404.4	Determine different optical sources and detectors used in fiber materials
5.	C404.5	Deduce the power calculations and efficiencies between source to fiber devices
6.	C404.6	Determine the losses in optical links using rise time budget and link loss budget analysis

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: TV Engineering	Regulation:R16

S.no	Course Outcomes	Description
1.	C405.1	Demonstrate the building blocks used in television systems.
2.	C405.2	Determine the working principles of monochrome television communication systems.
3.	C405.3	Explain the receiver sound system and decoding of colour signal.
4.	C405.4	Discuss about the history of HD TV and compression techniques.
5.	C405.5	Illustrate the ideology of Digital TV and its various standards.
6.	C405.6	Correlate latest trends and standards in television system.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Embedded Systems	Regulation:R16

S.no	Course Outcomes	Description
1.	C406.1	Discuss the basics of general computing and embedded systems with specific applications.
2.	C406.2	Explain embedded hardware consists of processor, memory devices and I/O devices.
3.	C406.3	Demonstrate embedded firmware design approaches.
4.	C406.4	Analyze the unique characteristics of real time operating systems.
5.	C406.5	Illustrate development environment of embedded system with specific tools.
6.	C406.6	Explain the debugging tools and testing design in embedded systems.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Micro Wave Engineering & Optical Lab	Regulation:R16

S.no	Course Outcomes	Description
1.	C407.1	Explain the basic microwave bench set up and basic concepts of velocity modulation.
2.	C407.2	Determine the basic microwave parameters using a Microwave test bench
3.	C407.3	Evaluate the bending losses for fiber optical cable

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Digital Signal Processing Lab	Regulation:R16

S.no	Course Outcomes	Description
1.	C408.1	Write a program to perform discrete time signal operations using DSK 6713 DSP Processor and MATLAB
2.	C408.2	Make use of DSK 613 DSP processor and MATLAB to perform operations on discrete time signals
3.	C408.3	Distinguish the frequency response characteristics of FIR and IIR filters using MATLAB

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Cellular Mobile Communications	Regulation:R16

S.no	Course Outcomes	Description
1.	C409.1	Explain the operation of cellular systems with basic elements
2.	C409.2	Evaluate the wireless channels impairments like fading and interference levels under directional and omni directional antenna systems
3.	C409.3	Describe the frequency management and channel assignment strategies
4.	C409.4	Distinguish the antennas used at cell site and mobile unit that minimizes the interference
5.	C409.5	Evaluate the dropped call rates under handoff and interference conditions
6.	C409.6	Explain the architectures of GSM and UMTS

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Department : Department of Electronics and Communication Engineering				
Academic Year: 2021-22		Year: IV Semester: II	Course: Electronic Measurements and Instrumentation	Regulation:R16
S.no	**Course Outcomes**	**Description**		
1.	C410.1	Apply the principles and characteristics of various instruments and classify the usage based on the requirements.		
2.	C410.2	Analyze and describe the different signal generators and analyzers.		
3.	C410.3	Examine the different signal characteristics using Oscilloscopes		
4.	C410.4	Calculate the magnitudes of different electronic components using various bridge circuits?		
5.	C410.5	Demonstrate various types of transducers for measuring different parameters		
6.	C410.6	Differentiate various physical parameters and their measurements		

Department : Department of Electronics and Communication Engineering				
Academic Year: 2021-22		Year: IV Semester: II	Course: Satellite Communications	Regulation:R16
S.no	**Course Outcomes**	**Description**		
1.	C411.1	Discuss the basic concepts of satellite communications and different parameters needed to place satellite in orbit.		
2.	C411.2	Explain various satellite subsystems and its functionality.		
3.	C411.3	Illustrate the concept of satellite link design and calculation of C/N Ratio.		
4.	C411.4	Discuss various multiple-access techniques for Satellite communications, and their advantages and disadvantages.		
5.	C411.5	Illustrate the design a Transmitter and receiver modules of a earth station.		
6.	C411.6	Discuss the concept of satellite navigation, architecture and applications of GPS		

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Digital IC Design	Regulation:R16

S.no	Course Outcomes	Description
1.	C412.1	Apply the concept of MOSFET current equations and region of operations in the study of inverters.
2.	C412.2	Analyze various combinational logic circuit design using conventional CMOS and traansmission gate logic.
3.	C412.3	Analyze sequential logic circuits using NAND and NOR based implementations.
4.	C412.4	Examine dynamic logic circuits using various circuit implementations.
5.	C412.5	Discuss various issues and solutions in interconnect design.
6.	C412.6	Illustrate the functionality of various semiconductor memories.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Seminar	Regulation:R16

S.no	Course Outcomes	Description
1.	C413.1	Identify, understand and discuss current technologies and real world issues.
2.	C413.2	Apply principles of ethics and respect in interaction with others.
3.	C413.3	Use multiple thinking strategies to examine real world issues,explore creative avenues of expression, solve engineering problems and make consequential decisions.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Project	Regulation:R16

S.no	Course Outcomes	Description
1.	C414.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems.
2.	C414.2	Test the existing data, communicate and conduct research on complex problems using modern tools.
3.	C414.3	Validate the obtained results on contemporary issues related to society and environment.
4.	C414.4	Determine effectively the engineering principles used in their project individually and as a team as per the norms of engineering practice.
5.	C414.5	Structure future work to promote life-long learning in the context of technological adaptation.

Head of the Department

Principal

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Communicative English	Regulation: R20

S.no	Course Outcomes	Description
1.	C101.1	Apply reading strategies for skimming and scanning and construct paragraphs through mechanics of writing. (K3)
2.	C101.2	Ask and answer questions through functional English; discuss in groups and develop conversational and communication skills.(K2)
3.	C101.3	Interpret texts for comprehension; and write letters, E-mails and CV's through principles of written communication.(K3)
4.	C101.4	Utilize verbal and graphic devices to transfer information; and produce writing for various **purposes.(K3)**
5.	C101.5	Build sentences using proper grammatical structures and correct word forms; and practice presentations for academic and technical purposes (K3)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Mathematics – I	Regulation: R20

S.no	Course Outcomes	Description
1.	C102.1	Determine the convergence of an infinite series and utilize mean value theorems to real life Problems (K3).
2.	C102.2	Understand, classify and solve analytically a wide range of first order ordinary differential equations along with the applications of differential equations in engineering problems (K2 & K3).
3.	C102.3	Solve analytically the higher order ordinary differential equations with constant coefficients of various types and apply in their studies (K3).
4.	C102.4	Apply the knowledge of Mean value theorems, Maxima and Minima of functions of several variables which is useful in optimization (K3).
5.	C102.5	Apply double integration and triple integration techniques in evaluating areas bounded by curves and volumes of the solids(K3).

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Mathematics – II	Regulation: R20

S.no	Course Outcomes	Description
1.	C103.1	Solve system of linear algebraic equations using matrices**(K3)**
2.	C103.2	Make use of matrix algebra techniques that is needed by engineers for practical applications**(K3)**
3.	C103.3	Compute the approximate roots of polynomial and transcendental equations using different algorithms**(K3)**
4.	C103.4	Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals**(K3)**
5.	C103.5	Apply different algorithms for approximating the solutions of ordinary differential equations**(K3)**

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Programming for Problem Solving Using C	Regulation: R20

S.no	Course Outcomes	Description
1.	C104.1	**Describe** various types of computer systems, computing environments and discuss about various basic aspects of C programming
2.	C104.2	**Develop** the programs that use two-way/ multi-way selection and loop construct for a given problem.
3.	C104.3	**Apply** the structures, union, strings and array operations in a specific need.
4.	C104.4	**Illustrate** about pointers, dynamic memory allocation and know the significance of Pre-processor.
5.	C104.5	**Make use of** functions and file Operations for a given applications

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Engineering Drawing & Design	Regulation: R20

S.no	Course Outcomes	Description
1.	C105.1	Identify the use of various drawing instruments and to construct various types of polygons, curves and scales.
2.	C105.2	Represent the projections of points, lines and line inclined to both the planes and its traces.
3.	C105.3	Sketch the projections of various types of plane surfaces in different positions with respect to reference planes.
4.	C105.4	Develop the projections of various types of solids in different positions with respect to reference planes.
5.	C105.5	Construct the 3D objects in 2D planes and vice versa and make use of Auto Cad to create the 2D and 3D objects.

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Communicative English Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C106.1	Show the knowledge in listening and speaking English sounds and employing English stress and intonation as per the accepted standard (K3)
2.	C106.2	Employ suitable listening and reading skills for improved communication abilities. (K3)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Electrical Engineering Workshop	Regulation: R20

S.no	Course Outcomes	Description
1.	C107.1	Classify different types of cables/wires, switches, fuses, MCCB, ELCB, resistors, capacitors, electrical tools and symbols with their ratings. (K2)
2.	C107.2	Calculate voltage, current, power and power factor in a circuit. (K3)
3.	C107.3	Explain the limitations, tolerances, safety aspects of electrical systems and wiring. (K3)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: I	Course: Programming for Problem Solving Using C Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C108.1	Extend the knowledge for C programming development for basic applications
2.	C108.2	Examine the control flow and Selection and Iterative Statements
3.	C108.3	Utilize the concepts of C arrays and strings for program development
4.	C108.4	Construct C programs using structures, unions, pointers and memory allocation functions
5.	C108.5	Practice the Modular Programming Skills to solve complex problems and also interpret the operations on files

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Mathematics – III	Regulation: R20

S.no	Course Outcomes	Description
1.	C109.1	Apply the Concepts of Vector Differentiation and Vector Integration in Applications of Engineering field
2.	C109.2	Determine Laplace Transform and inverse Laplace Transforms of various functions and solve the linear ODE.
3.	C109.3	Compute the Fourier series of periodic signals, apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms .
4.	C109.4	Identify and solve different types of linear and nonlinear first order partial differential equations.
5.	C109.5	Solve distinct cases of higher order partial differential equations and use to solve engineering problems.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Applied Physics	Regulation: R20

S.no	Course Outcomes	Description
1.	C110.1	Explain wave behavior of light, including interference and diffraction mathematically and conceptually.
2.	C110.2	Explain operational principles and construction of Lasers. Understand the properties of optical fiber that affect the performance of a communication system.
3.	C110.3	Apply the knowledge of quantum views for understanding the formation of energy bands in solids and their classifications.
4.	C110.4	Describe relationship between specific properties and applications of dielectric and magnetic materials.
5.	C110.5	Understand the physics of electrical conductivity in semiconductors and superconductors for various applications.

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Data Structures Through C	Regulation: R20

S.no	Course Outcomes	Description
1.	C111.1	Demonstrate the behavior of Data Structures, Abstract, Data types, Searching, Sorting and determine the complexity analysis (K3)
2.	C111.2	Apply the concept of various linked lists and examine the advantages and disadvantages (K3)
3.	C111.3	Examine the concepts of queues and Stacks along with their operations (K3)
4.	C111.4	Investigate the usage of stacks (K3)
5.	C111.5	Simulate the hierarchal data structures called trees (K3)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Electrical Circuit Analysis – I	Regulation: R20

S.no	Course Outcomes	Description
1.	C112.1	Apply the knowledge of basic circuital law and simplify the network using reduction techniques
2.	C112.2	Discuss the concept of magnetic coupled circuits.
3.	C112.3	Identify the behavior of RLC networks for sinusoidal excitations
4.	C112.4	Discuss the locus diagram of RL,RC,RLC
5.	C112.5	Discuss the network theorems for analysis of electrical networks.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Basic Civil and Mechanical Engineering	Regulation: R20

S.no	Course Outcomes	Description
1.	C113.1	Apply concepts of Rosette analysis for strain measurements.
2.	C113.2	Analyse the characteristics of common building materials.
3.	C113.3	Compare the working Characteristics of Internal Combustion engines.
4.	C113.4	Compare the differences between boiler mountings and accessories.

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Applied Physics Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C114.1	Evaluate the process and outcomes of an experiment quantitatively and qualitatively
2.	C114.2	Demonstrate the process and outcomes of an experiment
3.	C114.3	Discuss an experiment collaboratively and ethically

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Basic Civil and Mechanical Engineering Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C115.1	Solve to arrive at finding constant speed and variable speed on IC engines and interpret their performance.
2.	C115.2	Estimate energy distribution by conducting heat balance test on IC engines.
3.	C115.3	Explain procedure for standadization of Experiments.
4.	C115.5	Determine Flow discharge measuring device used in pipes channels and tanks.
5.	C115.5	Determine Fluid and Flow properties.
6.	C115.6	Solve for drag Coefficients.
7.	C115.7	Test for the Performance of Pumps and turbines.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Data Structures through C Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C116.1	Demonstrate the various Object Oriented Programming concepts such as Constructors, Destructors, Functions and Operators(**K3**)
2.	C116.2	To Practice Inheritance, Templates and Exception Handling (**K3**)
3.	C116.3	Experiment with the Single Linked List operations such as Insertion, Deletion, Searching and Sorting(**K3**)
4.	C116.4	Discriminate between Stack and Queue Linear Data Structures (**K4**).
5.	C1116.5	To Analyze the hierarchical Data Structures like Binary Search Trees for solving the real-time problems (**K4**).

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: I Semester: II	Course: Constitution of India	Regulation: R20

S.no	Course Outcomes	Description
1.	C117.1	Understand historical background of the constitution making and its importance for building a democratic India.
2.	C117.2	Understand the functioning of three wings of the government i.e., executive, legislative and judiciary.
3.	C117.3	Understand the value of the fundamental rights and duties for becoming good citizen of India.
4.	C117.4	Analyze the decentralization of power between central, state and local self government
5.	C117.5	Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Mathematics – IV	Regulation: R20

S.no	Course Outcomes	Description
1.	C201.1	Use Cauchy-Riemann equations to find analytic functions , harmonic conjugates and evaluation of integrals over closed contours.
2.	C201.2	Apply the concept of residues to evaluate Improper integrals and Definite integrals involving Trigonometric functions .
3.	C201.3	Use discrete and continuous probability distributions to solve problems.
4.	C201.4	Identify the types of sampling methods for different data samples.
5.	C201.5	Test suitable sample statistical tests in testing hypothesis data.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electronic Devices and Circuits	Regulation:R20

S.no	Course Outcomes	Description
1.	C202.1	Understand the concepts of Semiconductor Technology
2.	C202.2	Appraise the construction & operation of electronic device
3.	C202.3	Develop the biasing circuits using the electronic device
4.	C202.4	Model the amplifier circuits transistor circuits
5.	C202.5	Analyze the characteristics of the devices

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electrical Circuit Analysis – II	Regulation: R20

S.no	Course Outcomes	Description
1.	C203.1	Analyze three- phase circuits under balanced and unbalanced condition.
2.	C203.2	Estimate transient response of networks with DC excitation.
3.	C203.3	Estimate transient response of networks with AC excitation.
4.	C203.4	Determine the different types of two port network parameters.
5.	C203.5	Design different filters for the electrical network under different conditions.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: DC Machines and Transformers	Regulation: R20

S.no	Course Outcomes	Description
1.	C204.1	Understand the concepts of Electromechanical energy conversion and DC Generator
2.	C204.2	Understand the construction, principle of operation and performance of DC machines.
3.	C204.3	Understand the performance of DC motors and single phase Transformer.
4.	C204.4	Learn the concepts of Regulation, Losses and efficiency of Single Phase Transformers.
5.	C204.5	Apply the concepts of Parallel operation of Transformers and Tap changing methods.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electro Magnetic Fields	Regulation: R20

S.no	Course Outcomes	Description
1.	C205.1	Understand the concepts of Semiconductor Technology
2.	C205.2	Appraise the construction & operation of electronic device
3.	C205.3	Develop the biasing circuits using the electronic device
4.	C205.4	Model the amplifier circuits transistor circuits
5.	C205.5	Analyze the characteristics of the devices

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electrical Circuits Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C206.1	Examine Various Theorems and Two port Networks
2.	C206.2	Determine and Self and Mutual Inductances
3.	C206.3	Determine the locus diagrams and waveforms for leading and lagging networks

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: DC Machines and Transformers Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C207.1	Determine the magnetization characteristics of DC shunt Generator and obtain its critical values.
2.	C207.2	Predict the characteristics of DC shunt machines and obtain its operating efficiency
3.	C207.3	Predict the characteristics of transformer and obtain its operating efficiency

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Electronic and Devices and Circuits Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C208.1	Demonstrate various electronic components and equipment
2.	C208.2	Deduce the characteristics of semiconductor devices
3.	C208.3	Estimate the frequency responses of BJT, FET amplifiers

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Skill oriented course – Design of Electrical Circuits using Engineering Software Tools	Regulation: R20

S.no	Course Outcomes	Description
1.	C209.1	write the MATLAB programs to simulate the electrical circuit problems
2.	C209.2	simulate various circuits for electrical parameters
3.	C209.3	simulate various wave form for determination of wave form parameters
4.	C209.4	simulate RLC series and parallel resonance circuits for resonant parameters
5.	C209.5	simulate magnetic circuits for determination of self and mutual inductances

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: I	Course: Professional Ethics & Human Values	Regulation: R20

S.no	Course Outcomes	Description
1.	C210.1	Discuss the ethical concepts in organization (K2)
2.	C210.2	Demonstrate human rights and dignity (K2)
3.	C210.3	Explain Kohlberg's theory and Gilligan's argument (K3)
4.	C210.4	Distinguish delayed risk and immediate risk (K3)
5.	C210.5	Determine professional and individual rights (K2)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Python Programming	Regulation: R20

S.no	Course Outcomes	Description
1.	C211.1	Build basic programs using fundamental programming constructs like variables, conditional logic, looping, and functions.
2.	C211.2	Illustrates the use lists, tuples and dictionaries in Python programs.
3.	C211.3	Describe the use of package in python modules for reusability.
4.	C211.4	Write the object –oriented programs with Python classes.
5.	C211.5	Prepare GUI applications in Python.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Digital Electronics	Regulation: R20

S.no	Course Outcomes	Description
1.	C212.1	Describe various number systems, error detecting , correcting binary codes and logic operations.
2.	C212.2	Apply Boolean laws, k-map & Tabular methods to minimize switching functions.
3.	C212.3	Design the combinational circuits and Programmable Logic Devices.
4.	C212.4	Design the sequential logic circuits for Counters and Flip-Flops (FF).
5.	C212.5	Analyze clocked sequential circuits using state diagrams

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Power System – I	Regulation: R20

S.no	Course Outcomes	Description
1.	C213.1	Identify the different components of thermal power plants
2.	C213.2	Illustrate the different components of nuclear power plants
3.	C213.3	Illustrate the different components of an air and gas insulated substations
4.	C213.4	Identify single core and multi core cables with different insulating materials
5.	C213.5	Analyze the different economic factors of power generation and tariffs

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Induction and Synchronous Machines	Regulation: R20

S.no	Course Outcomes	Description
1.	C214.1	Illustarate the operation and performance of three phase induction motor
2.	C214.2	Analyze the torque-speed relation, performance of induction motor and induction generator.
3.	C214.3	Illustarate the operation and Implement the starting of single phase induction motors.
4.	C214.4	Analyze the winding design and predetermine the regulation of synchronous generators.
5.	C214.5	Illustarate the hunting phenomenon and implement methods of staring and correction of power factor with synchronous motor.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Managerial Economics & Financial Analysis	Regulation: R20

S.no	Course Outcomes	Description
1.	C215.1	Generalize managerial economics & demand forecasting
2.	C215.2	Illustrate multi-variable production function and MRTS
3.	C215.3	Explain P/O determination of various market structures
4.	C215.4	Illustrate funds flow statement and cash flow statement
5.	C215.5	Illustrate Discounting cash flow techniques

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Python Programming Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C216.1	**Develop** the Object-Oriented programs with python classes.
2.	C216.2	Write functions and pass arguments in python.
3.	C216.3	Simulate the commonly used operations involving file systems.
4.	C216.54	Apply exception handling in python applications for error handling.
5.	C216.5	Demonstrate methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Induction and Synchronous Machines Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C217.1	Analyze the speed control and performance of single phase and three phase of induction motor
2.	C217.2	Examine the regulation of three–phase alternator by various methods
3.	C217.3	Determine the Xd/ Xq ratio of alternator and asses the performance of Three - phase synchronous motor

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Digital Electronics Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C218.1	Learn the basics of gates, filp-flops and counters
2.	C218.2	Construct basic combinational circuits and verify their functionalities
3.	C218.3	Apply the design procedures to design basic sequential circuits
4.	C218.4	To understand the basic digital circuits and to verify their operation
5.	C218.5	Apply Boolean laws to simplify the digital circuits

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: II Semester: II	Course: Skill oriented course – IoT Applications of Electrical Engineering	Regulation: R20

S.no	Course Outcomes	Description
1.	C219.1	Apply various technologies of Internet of Things to real time applications and communication technologies used in the Internet of Things
2.	C219.2	Connect the devices using web and internet in the IoT environment
3.	C219.3	Implement IoT to study Smart Home, Smart city, etc

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Power Systems – II	Regulation: R19

S.no	Course Outcomes	Description
1.	C301.1	Calculate inductance and capacitance of transmission lines.
2.	C301.2	Analyze short and medium,long length transmission lines, their models and performance computation.
3.	C301.3	Analyze the effect of travelling waves in transmission lines.
4.	C301.4	Distinguish the factors affecting the performance of transmission lines and power factor improvement methods.
5.	C301.5	Identify sag and tension computation of transmission lines as well as to study the overhead insulators.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Power Electronics	Regulation: R19

S.no	Course Outcomes	Description
1.	C302.1	Analyze the operation of various power electronic devices anddesign firing circuits for SCR
2.	C302.2	Analyze the operation of single phase full–wave converters and analyze harmonics in the input current
3.	C302.3	Analyze the operation of three phase full–wave converters, dual converters, single phase-Cycloconverter and ac voltage regulator
4.	C302.4	Explainthe operation of different types of dc–dc converters
5.	C302.5	Explain the operation of DC-AC converters in different modes of operation.

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Linear IC Applications	Regulation: R19

S.no	Course Outcomes	Description
1.	C303.1	Determine various parameters of an operational amplifier.
2.	C303.2	Analyze linear and non linear applications of Op-Amp
3.	C303.3	Analyze the designing of active filters using an Op-amp.
4.	C303.4	Explain the working of multivibrators using Specific application IC 555 and general purpose OP AMP
5.	C303.5	Explain the working principles of DATA converters (ADC &DAC).

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Digital Signal Processing	Regulation: R19

S.no	Course Outcomes	Description
1.	C304.1	Explain concepts of discrete signals and system, digital Signal Processing and Z-transforms.
2.	C304.2	Apply Discrete Fourier Series & Fourier Transforms on different discrete signals.
3.	C304.3	Design an Infinite Impulse Response (IIR) filter using Butter worth, Chebyshey methods and digitalization.
4.	C304.4	Design an Finite Impulse Response (FIR) filter using Window techniques and Frequency sampling methods
5.	C304.5	Explain Concepts of Multirate signal processing

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Microprocessors and Microcontrollers	Regulation: R19

S.no	Course Outcomes	Description
1.	C305.1	understand the evaluation and features of 8086 Microprocessor and advanced processors
2.	C305.2	understand the addressing modes of Microprocessors and basic peripherals interfacing.
3.	C305.3	Analyze various 8086 microprocessor interfacing circuits
4.	C305.4	Illustrate 8051 microcontroller and interfacing of microcontroller
5.	C305.5	Illustrate PIC Architecture and test the instructions with C Programming

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Department : Department of Electrical and Electronics Engineering				
Academic Year: 2021-22		Year: III Semester: I	Course: Electrical Machinery Laboratory	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C306.1	Analyze the speed control and performance of single phase and three phase of induction motor		
2.	C306.2	Examine the regulation of three–phase alternator by various methods		
3.	C306.3	Determine the Xd/ Xq ratio of alternator and asses the performance of Three - phase synchronous motor		

Department : Department of Electrical and Electronics Engineering				
Academic Year: 2021-22		Year: III Semester: I	Course: Control Systems Laboratory	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C307.1	Analyze the performance and working Magnetic amplifier, D.C and A.C. servo motors and synchros		
2.	C307.2	Control the temperature using PID controller and to test the controllability and observability		
3.	C307.3	Design P,PI,PD and PID controllers and lag, lead and lag–lead compensators		

Department : Department of Electrical and Electronics Engineering				
Academic Year: 2021-22		Year: III Semester: I	Course: Electrical Measurements & Instrumentals Laboratory	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C308.1	Determine the electrical parameters voltage, current, power, energy and electrical characteristics of resistance, inductance and capacitance		
2.	CF308.2	Predict the characteristics of transducers		
3.	C308.3	Predict the strains, frequency and phase difference		

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: I	Course: Socially Relevant Projects	Regulation: R19

S.no	Course Outcomes	Description
1.	C309.1	Observe the skills of Demonstrating the learning achievements in the field of technology and imbibe the knowledge of effective classroom speaking and presentation.
2.	C309.2	Apply knowledge in building their career in particular fields and face any type of interviews, viva-voice, and aptitude tests.
3.	C309.3	Elaborate their communication skills and interactiveness.
4.	C309.4	Rephrase the uses and application of Electrical machines, Power systems and power electronics domains
5.	C309.5	Classify the knowledge about the various principles of Electrical and Electronics with the barriers which effects in a professional set up.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Electric Drives	Regulation: R19

S.no	Course Outcomes	Description
1.	C310.1	Appraise the fundamentals of electric drive and different electric braking methods
2.	C310.2	Analyze the operation of three phase converter-controlled dc motors and four quadrant operation of dc motors using dual converters
3.	C310.3	Examine the converter control of dc motors in various quadrants
4.	C310.4	Demonstrate the concept of speed control of induction motor by using AC voltage controllers and voltage source inverters
5.	C310.5	Analyze the principles of static rotor resistance control and various slip power recovery schemes and examine the speed control mechanism of synchronous motors

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Power System Analysis	Regulation: R19

S.no	Course Outcomes	Description
1.	C311.1	Formulate of Y_{BUS} using direct inspection & singular transformation techniques. Develop the P.U reactance diagram of a given power sysetm.
2.	C311.2	Application of numerical methods for the power flow studies.
3.	C311.3	Formation of Z_{BUS} for a given power system using Z_{BUS} algorithm. Analyze symmetrical faults in a power system.
4.	C311.4	Analysis of unsymmetrical faults using symmetrical component theory.
5.	C311.5	Analysis of power system stability using power angle characteristics and equal area criterion.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Data Structures	Regulation: R19

S.no	Course Outcomes	Description
1.	C312.1	Demonstrate the behavior of Data Structures, Abstract, Data types, Searching, Sorting and determine the complexity analysis (K3)
2.	C312.2	Apply the concept of various linked lists and examine the advantages and disadvantages (K3)
3.	C312.3	Examine the concepts of queues and Stacks along with their operations (K3)
4.	C312.4	Investigate the usage of stacks (K3)
5.	C312.5	Simulate the hierarchal data structures called trees (K3)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Digital Control Systems	Regulation: R19

S.no	Course Outcomes	Description
1.	C313.1	Explain the advantages of discrete time control systems and the "know how" of various associated accessories.
2.	C313.2	Explain the z– transformations and their role in the mathematical analysis of different systems
3.	C313.3	Analyze the stability criterion for digital systems and methods adopted for testing the same are explained.
4.	C313,4	Apply the conventional and state–space methods of design
5.	C313.5	Explain the advantages of discrete time control systems and the "know how" of various associated accessories.

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Elective – I DICA	Regulation: R19

S.no	Course Outcomes	Description
1.	C314.1	Synthesise: Design:--Demonstrate the concepts of CMOS behavior and different logic families and design various logic circuits using CMOS. (K6)
2.	C314.2	Application:Develop:-- Illustrate the elements of VHDL and develop the VHDL programs for internal circuits for Integrated circuits .(K3)
3.	C314.3	Application: Model:--outline design considerations for Integrated circuits of all combinational circuits like adder, subtractor, multipliers, multiplexers, encoders, decoders and model them using VHDL. (K3)
4.	C314.4	Application: Model:--outline design considerations for Integrated circuits of all sequential circuits like registers, counters, flip flops, model them using VHDL. (K3)
5.	C314.5	Analysis: Synchronous and Asynchronous Sequential Circuit basic design model state diagram analysis (K2)

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Open Elective – I C++	Regulation: R19

S.no	Course Outcomes	Description
1.	C315.1	Identify importance of object oriented programming and Outline the essential features and elements of C++ supporting object oriented programming
2.	C315.2	Build C++ classes using appropriate encapsulation and design principles.
3.	C315.3	Apply operator overloading for redefining operators in the derived classes using inheritance.
4.	C315.4	Apply virtual and pure virtual functions to solve complex programming problems.
5.	C315.5	Develop Object Oriented Programs using templates and exceptional handling concepts.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Power Electronics Laboratory	Regulation: R19

S.no	Course Outcomes	Description
1.	C316.1	Analyze the performance of single–phase and three–phase full–wave bridge converters with both resistive and inductive loads
2.	C316.2	Understand the operation of single phase AC voltage regulator with resistive and inductive loads
3.	C316.3	Understand the working of Buck converter, Boost converter, single–phase square wave inverter and PWM inverter

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Microprocessors & Microcontrollers Laboratory	Regulation: R19

S.no	Course Outcomes	Description
1.	C317.1	Importance of assembly language program and interfacing
2.	C317.2	Interpret 8051 microcontroller programming and interfacing
3.	C317.3	Interpret PIC18 microcontroller programming and distinguish with 8051

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: III Semester: II	Course: Employability Skills	Regulation: R19

S.no	Course Outcomes	Description
1.	C318.1	**Apply** core competencies to succeed in professional and personal life
2.	C318.2	**Make use of** presentation skills effectively to present with appropriate body language
3.	C318.3	**Employ** relevant corporate etiquette with positive attitude
4.	C318.4	**Demonstrate** effective strategies for emotional intelligence and stress management
5.	C318.5	**Identify** appropriate interview skills and succeed in interviews

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Utilization of Electrical Energy	Regulation: R16

S.no	Course Outcomes	Description
1.	C401.1	Identify a suitable motor for electric drives and industrial applications
2.	C401.2	Identify most appropriate heating or welding techniques for suitable applications
3.	C401.3	Explain various level of luminosity produced by different illuminating sources
4.	C401.4	Estimate the illumination levels produced by various sources and design different lighting systems.
5.	C401.5	Determine the speed/time characteristics of different types of traction motors
6.	C401.6	Estimate energy consumption levels at various modes of operation of motors

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Linear IC Applications	Regulation: R16

S.no	Course Outcomes	Description
1.	C402.1	Explain the DC & AC characteristics of Operational Amplifier and its effect on output and their compensation techniques.
2.	C402.2	Determine various parameters of an operational amplifier.
3.	C402.3	Analyze linear and non linear applications of Op-Amp
4.	C402.4	Analyze the designing of active filters using an Op-amp.
5.	C402.5	Explain the working of multivibrators using Specific application IC 555 and general purpose OP AMP
6.	C402.6	Explain the working principles of DATA converters (ADC &DAC).

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Power System Operations & Control	Regulation: R16

S.no	Course Outcomes	Description
1.	C403.1	Compute optimal scheduling of generators.
2.	C403.2	Discuss about thermal and hydro power plants operation in meeting the load demand optimally.
3.	C403.3	Solve the unit commitment problem.
4.	C403.4	Develop block diagram of single area load frequency control.
5.	C403.5	Develop block diagram of two area load frequency control.
6.	C403.6	Generalize reactive power control and compensation for transmission line

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Switchgear and Protection	Regulation: R16

S.no	Course Outcomes	Description
1.	C404.1	Explain the principles of arc interruption for application to high voltage circuit breakers of air, oil, vacuum, SF6 gas type
2.	C404.2	Explain the working principle and constructional features of different types of electromagnetic protective relays.
3.	C404.3	Classify various protective schemes used for Generators and Transformers.
4.	C404.4	Classify various protective schemes used for feeders and bus bars.
5.	C404.5	Classify different static relays and operations of different types of static relays.
6.	C404.6	Classify different types of over voltages in a power system and principles of different protective schemes for insulation co– ordination.

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Electrical Machine Modeling and Analysis	Regulation: R16

S.no	Course Outcomes	Description
1.	C405a.1	Develop modeling of dc machine
2.	C405a.2	Apply mathematical modeling concepts to 3-phase Induction machines
3.	C405a.3	analyze Park's and Clark's Transformation
4.	C405a.4	Design the control strategies based on dynamic modeling of 3-ph Induction machines
5.	C405a.5	Design the control strategies based on dynamic modeling of 3-ph Synchronous machines
6.	C405a.6	Analyze BLDC Machine and switched reluctance machine based on mathematical modeling of BLDCM and SRM

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Instrumentation	Regulation: R16

S.no	Course Outcomes	Description
1.	C405b.1	Represent various types of signals.
2.	C405b.2	Determine the usage of various types of Transducers.
3.	C405b.3	Measure various parameters such as strain, velocity, temperature, pressure etc.
4.	C405b.4	Explain the working principle of various types of digital voltmeters.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Special Electrical Machines	Regulation: R16

S.no	Course Outcomes	Description
1.	C406.1	Describe the operation and characteristics of permanent magnet dc motor.
2.	C406.2	Explain the performance and control of stepper motors, and their applications
3.	C406.3	Explain theory of operation and control of switched reluctance motor
4.	C406.4	Distinguish between brush dc motor and brush less dc motor.

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5.	C406.5	Explain the theory of operation of sine wave permanent magnet brushless motor and their applications
6.	C406.6	Explain the significance of electrical motors for traction drives.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Electrical Simulation laboratory	Regulation: R16

S.no	Course Outcomes	Description
1.	C407.1	Simulate integrator circuit, differentiator circuit, Buck converter, full convertor and PWM inverter.
2.	C407.2	Simulate transmission line by incorporating line, load and transformer models.
3.	C407.3	Analyze transient performance of RLC circuit.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: I	Course: Power Systems & Simulation Laboratory	Regulation: R16

S.no	Course Outcomes	Description
1.	C408.1	Analyze Sequence Impedances of Alternator and Transformer
2.	C408.2	Examine the Tong tester and Dielectric Strength of Oil
3.	C408.3	Determine energy management systems functions economically at load dispatch center.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Digital Control Systems	Regulation: R16

S.no	Course Outcomes	Description
1.	C409.1	Explain the advantages of discrete time control systems and the "know how" of various associated accessories.
2.	C409.2	Explain the z– transformations and their role in the mathematical analysis of different systems
3.	C409.3	Analyze the stability criterion for digital systems and methods adopted for testing the same are explained.
4.	C409.4	Apply the conventional and state–space methods of design

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: HVDC Transmission	Regulation: R16

S.no	Course Outcomes	Description
1.	C410.1	Compare of AC and DC transmission, explain types of HVDC transmission levels and basic concepts
2.	C410.2	Analyze the operation of converters
3.	C410.3	Explain the concept of HVDC link control
4.	C410.4	Explain control concept of reactive power control and AC/DC load flow.
5.	C410.5	Explain converter faults protection and harmonic effects
6.	C410.6	Design of low pass and high pass filter

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Electrical Distribution Systems	Regulation: R16

S.no	Course Outcomes	Description
1.	C411.1	Explain the various factors of distribution system.
2.	C411.2	Explain the substation and feeders of Distribution system
3.	C411.3	Analyze the voltage drop and power loss
4.	C411.4	Understand the protection and its coordination
5.	C411.5	Apply the effect of compensation on power factor improvement
6.	C411.6	Analyze the effect of voltage, current distribution system performance.

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Flexible Alternating Current Transmission Systems	Regulation: R16

S.no	Course Outcomes	Description
1.	C412.1	Illustrate power flow control in transmission lines by using FACTS controllers
2.	C412.2	Explain operation and control of voltage source converter
3.	C412.3	Observe compensation methods to improve stability and reduce power oscillations in the transmission lines.
4.	C412.4	Explain the method of shunt compensation by using static VAR compensators.
5.	C412.5	Discuss methods of compensations by using series compensators.
6.	C412.6	Describe operation of modern power electronic controllers (Unified Power Quality Conditioner and Interline Power Flow Controller).

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Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Seminar	Regulation: R16

S.no	Course Outcomes	Description
1.	C413.1	Communicate effectively about work both orally and in writing Journals/technical reports.
2.	C413.2	Build confidence and improve communication and presentation skills
3.	C413.3	Summarize the ideas through literature survey about new innovations and present them.
4.	C413.4	Organize the technical documents, oral presentations related to the work completed
5.	C413.5	Utilize the technical resource

Department : Department of Electrical and Electronics Engineering			
Academic Year: 2021-22	Year: IV Semester: II	Course: Project	Regulation: R16

S.no	Course Outcomes	Description
1.	C414.1	Observe the skills of Demonstrating the learning achievements in the field of technology and imbibe the knowledge of effective classroom speaking and presentation.
2.	C414.2	Apply knowledge in building their career in particular fields and face any type of interviews, viva-voice, and aptitude tests.
3.	C414.3	Elaborate their communication skills and interactiveness.
4.	C414.4	Rephrase the uses and application of Electrical machines, Power systems and power electronics domains
5.	C414.5	Classify the knowledge about the various principles of Electrical and Electronics with the barriers which effects in a professional set up.

Head of the Department

Principal

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Department of Information Technology

Department : Department of Information Technology				
Academic Year: 2021-22		Year : I Semester : I	Course: English	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C101.1	Apply reading strategies for skimming and scanning and construct paragraphs through mechanics of writing. (K3)		
2.	C101.2	Ask and answer questions through functional English; discuss in groups and develop conversational and communication skills.(K2)		
3.	C101.3	Interpret texts for comprehension; and write letters, E-mails and CV's through principles of written communication.(K3)		
4.	C101.4	Utilize verbal and graphic devices to transfer information; and produce writing for various **purposes.(K3)**		
5.	C101.5	Build sentences using proper grammatical structures and correct word forms; and practice presentations for academic and technical purposes (K3)		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : I Semester : I	Course:Mathematics-1	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C102.1	Determine the convergence of an infinite series and utilize mean value theorems to real life Problems (K3).		
2.	C102.2	Understand, classify and solve analytically a wide range of first order ordinary differential equations along with the applications of differential equations in engineering problems (K2 & K3).		
3.	C102.3	Solve analytically the higher order ordinary differential equations with constant coefficients of various types and apply in their studies (K3).		
4.	C102.4	Apply the knowledge of Mean value theorems, Maxima and Minima of functions of several variables which is useful in optimization (K3).		
5.	C102.5	Apply double integration and triple integration techniques in evaluating areas bounded by curves and volumes of the solids(K3).		

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : I	Course: Applied Physics	Regulation: R20

S.no	Course Outcomes	Description
1.	C103.1	Explain wave behavior of light, including interference and diffraction mathematically and conceptually.
2.	C103.2	Explain operational principles and construction of Lasers. Understand the properties of optical fiber that affect the performance of a communication system.
3.	C103.3	Apply the knowledge of quantum views for understanding the formation of energy bands in solids and their classifications.
4.	C103.4	Describe relationship between specific properties and applications of dielectric and magnetic materials.
5.	C103.5	Understand the physics of electrical conductivity in semiconductors and superconductors for various applications.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : I	Course: Programming for problem solving using C	Regulation: R20

S.no	Course Outcomes	Description
1.	C104.1	**Describe** various types of computer systems, computing environments and discuss about various basic aspects of C programming
2.	C104.2	**Develop** the programs that use two-way/ multi-way selection and loop construct for a givenproblem.
3.	C104.3	**Apply** the structures, union, strings and array operations in a specific need.
4.	C104.4	**Illustrate** about pointers, dynamic memory allocation and know the significance of Pre-processor.
5.	C104.5	**Make use of** functions and file Operations for a given applications

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : I	Course: Computer Engineering Workshop	Regulation: R20

S.no	Course Outcomes	Description
1.	C105.1	Identify, assemble and update the components of a computer Configure, evaluate and select hardware platforms for the implementation
2.	C105.2	Execution of computer applications, services and systems Make use of tools for converting pdf to word and vice versa.
3.	C105.3	: Develop presentation, documents and small applications using productivity tools such as word processor, presentation tools, spreadsheets, HTML, Latex.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : I	Course: English Language and Communication Skills Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C106.1	Show the knowledge in listening and speaking English sounds and employing English stress and intonation as per the accepted standard (K3)
2.	C106.2	Employ suitable listening and reading skills for improved communication abilities. (K3)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : I	Course: Applied Physics Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C107.1	Evaluate the process and outcomes of an experiment quantitatively and qualitatively
2.	C107.2	Demonstrate the process and outcomes of an experiment
3.	C107.3	Discuss an experiment collaboratively and ethically

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : I	Course: Programming for Problem Solving Using C Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C108.1	Extend the knowledge for C programming development for basic applications
2.	C108.2	Examine the control flow and Selection and Iterative Statements
3.	C108.3	Utilize the concepts of C arrays and strings for program development
4.	C108.4	Construct C programs using structures, unions, pointers and memory allocation functions
5.	C108.5	Practice the Modular Programming Skills to solve complex problems and also interpret the operations on files

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Mathematics – II	Regulation: R20

S.no	Course Outcomes	Description
1.	C109.1	Solve system of linear algebraic equations using matrices**(K3)**
2.	C109.2	Make use of matrix algebra techniques that is needed by engineers for practical applications**(K3)**
3.	C109.3	Compute the approximate roots of polynomial and transcendental equations using different algorithms**(K3)**
4.	C109.4	Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals**(K3)**
5.	C109.5	Apply different algorithms for approximating the solutions of ordinary differential equations**(K3)**

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Applied Chemistry	Regulation: R20

S.no	Course Outcomes	Description
1.	C110.1	Distinguish various forms of polymers and Illustrate different methods forming plastic materials
2.	C110.2	Develop various energy storing devices and Apply different techniques to prevent corrosion
3.	C110.3	Utilize disparate advanced materials
4.	C110.4	Choose different analytical instruments in identifying various organic compounds and Develop diverse renewable energy sources
5.	C110.5	Identify diverse molecular machines and computational chemistry methods

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Computer Organization	Regulation: R20

S.no	Course Outcomes	Description
1.	C111.1	Relate and manipulate representations of numbers stored in digital computers.
2.	C111.2	Analyze various combinational and sequential circuits.
3.	C111.3	Demonstrate different instruction types.
4.	C111.4	Calculate the effective address of an operand by addressing modes.
5.	C111.5	Recall the internal organization of computers, CPU, memory unit and Input/Outputs and the relations between its main components

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Python Programming	Regulation: R20

S.no	Course Outcomes	Description
1.	C112.1	Discuss the basic essential programming skills of Python Programming(K2)
2.	C112.2	Applythe knowledge of problem-solving skills on strings and its methods(K3)
3.	C112.3	Solve coding tasks related to data structures in pythonand build the functions, modules, and packages(K3)
4.	C112.4	Demonstrate the file operations and features of object – oriented programming in python (K3)
5.	C112.5	Develop GUI applications in Python and list types of exceptions(K3)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Data Structures	Regulation: R20

S.no	Course Outcomes	Description
1.	C113.1	Demonstrate the behavior of Data Structures, Abstract, Data types, Searching, Sorting and determine the complexity analysis (K3)
2.	C113.2	Apply the concept of various linked lists and examine the advantages and disadvantages (K3)
3.	C113.3	Examine the concepts of queues and Stacks along with their operations (K3)
4.	C113.4	Investigate the usage of stacks (K3)
5.	C113.5	Simulate the hierarchal data structures called trees (K3)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Applied Chemistry Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C114.1	Calculate the amount of solute in the given sample solutions using classical titration methods (Expt. No. 1,2,3,4,5,16)
2.	C114.2	Examine the nature and concentration of substances present in real life samples (Expt. No. 6,12,13,14,15, 17)
3.	C114.3	Make use of various instruments to calculate the strength of the given samples (Expt. No. 7,8,9,10,11)

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Python Programming Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C115.1	**Develop** python programs using control flow statements.
2.	C115.2	**Examine** the proficiency in handling of strings and Lists.
3.	C115.3	**Develop** programs using data structures like dictionaries, tuples and sets using built-in functions, modules and packages
4.	C115.4	**Develop** programs using the file operations and features of object-oriented programming in python
5.	C115.5	**Develop** GUI applications in Python and list types of exceptions

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Data Structures Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C116.1	Demonstrate the various Object Oriented Programming concepts such as Constructors, Destructors, Functions and Operators(**K3**)
2.	C116.2	To Practice Inheritance, Templates and Exception Handling (**K3**)
3.	C116.3	Experiment with the Single Linked List operations such as Insertion, Deletion, Searching and Sorting(**K3**)
4.	C116.4	Discriminate between Stack and Queue Linear Data Structures (**K4**).
5.	C116.5	To Analyze the hierarchical Data Structures like Binary Search Trees for solving the real-time problems (**K4**).

Department : Department of Information Technology			
Academic Year: 2021-22	Year : I Semester : II	Course: Environment Science	Regulation: R20

S.no	Course Outcomes	Description
1.	C117.1	Identify the basic concepts of Eco-system and its function in the Environment.
2.	C117.2	List the natural resources and their importance for the sustenance of life and learn to conserve the natural resources.
3.	C117.3	Apply conservation practices to protect the Bio-diversity.
4.	C117.4	Illustrate the control of pollution with waste management practices.
5.	C117.5	State Environmental legislations of India and the first global initiatives towards sustainable development.

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Mathematics – III	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C201.1	Apply the Concepts of Vector Differentiation and Vector Integration in Applications of Engineering field		
2.	C201.2	Determine Laplace Transform and inverse Laplace Transforms of various functions and solve the linear ODE.		
3.	C201.3	Compute the Fourier series of periodic signals, apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms .		
4.	C201.4	Identify and solve different types of linear and nonlinear first order partial differential equations.		
5.	C201.5	Solve distinct cases of higher order partial differential equations and use to solve engineering problems.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Object Oriented Programming Through C++	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C202.1	Classify object oriented programming and procedural programming and outline the key concepts of OOP (K2)		
2.	C202.2	Make use of C++ Programming constructs and classes, objects, function overloading and constructors (K3)		
3.	C202.3	Develop Object Oriented Programming using operator overloading, type conversion and Simplify the code using inheritance with code reusability (K3)		
4.	C202.4	Experiment with the pointer concepts, polymorphism and virtual functions (K3)		
5.	C202.5	Utilize templates for generic programming and Examine the raised exceptions using exception handling and Outline the STL programming model, Make Use of the various containers and associated algorithms (K3)		

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Operating Systems	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C203.1	Illustarte the different types of system calls and its services that are implemented in various operating systems. (K2)		
2.	C203.2	Experiment with different scheduling algorithm and synchronization mechanism for various processes that are created within the system. (K3)		
3.	C203.3	Examine various memory management techniques to improve the efficiency of CPU utilization. (K4)		
4.	C203.4	Experiment with the deadlock prevention and avoidance algorithms to overcome synchronization problem in operating systems. (K4)		
5.	C203.5	Deduce the basic concepts of file management system and the way these files are stored in the memory using disk scheduling techniques. (K4)		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Database Management Systems	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C204.1	Describe a relational database and object-oriented database		
2.	C204.2	Create, maintain and manipulate a relational database using SQL		
3.	C204.3	Describe ER model and normalization for database design		
4.	C204.4	Examine issues in data storage and query processing and can formulate appropriate solutions		
5.	C204.5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Discrete Mathematics and Graph Theory	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C205.1	Apply principles of mathematical logic to statement calculus and Predicate calculus(K3)		
2.	C205.2	Discuss various types of relations , functions ,Lattice and algebraic structures(K2)		
3.	C205.3	Use counting techniques to solve combinatorial problems(K3)		
4.	C205.4	Solve the recurrence relations by Method of substitution ,characteristic roots, Generating functions(K3)		
5.	C205.5	Able to model and solve the real world problems using Graph theory		

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : I	Course: Object Oriented Programming Through C++ Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C206.1	Explain g++ compiler and translate basic c programs into C++ programs
2.	C206.2	Develop programs using different operators like scope access, new, delete and utilize different function concepts like inline, friend, function overloading and operator overloading
3.	C206.3	Construct programs on classes,objects,constructors and Make use of access specifiers in classes
4.	C206.4	Utilize inheritance and polymorphism features to implement code reusability
5.	C206.5	"Apply exception handling concepts to handle runtime errors and Make use of templates ,STL concepts to implement generic programming"

Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : I	Course: Operating Systems Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C207.1	To use Unix utilities and perform basic shell control of the utilities(K2)
2.	C207.2	To use the Unix file system and file access control(K2)
3.	C207.3	To use of an operating system to develop software(K2)
4.	C207.4	Students will be able to use Linux environment efficiently(K2)
5.	C207.5	Solve problems using bash for shell scripting(K3)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : I	Course: Database Management Systems Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C208.1	Utilize SQL to execute queries for creating database and performing data manipulation operations
2.	C208.2	Apply Queries using Advanced Concepts of SQL
3.	C208.3	Examine integrity constraints to build efficient databases
4.	C208.4	Build PL/SQL programs including stored procedures, functions, cursors and triggers
5.	C208.5	Build Queries Using SQL SERVER and other Databases(K3)

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Skill oriented Course – I 1) Animations – 2D Animation 2) Distributed Technologies – NoSQL	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C209.1	learn various tools of digital 2-D animation. (K3)		
2.	C209.2	understand production pipeline to create 2-D animation		
3.	C209.3	analyze special effects in animation to bring interest and awe in the scenes and backgrounds.		
4.	C209.4	apply the tools to create 2D animation for films and videos		
5.	C209.5	Apply various operations on server less database SQLite.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : I	Course: Constitution of India	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C210.1	Discuss Fundamental Rights and Duties, Directive Principles of State Policy. (k2)		
2.	C210.2	Explain the The Supreme Court and High Court: Powers andFunctions;		
3.	C210.3	Illustrate State Government and its Administration Governor - Role and Position		
4.	C210.4	Describe District's Administration Head - Role and Importance(k2)		
5.	C210.5	Generalize Election Commission- Role (k2)		

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : II	Course: Statistics with R	Regulation: R20

S.no	Course Outcomes	Description
1.	C211.1	Explain the need for learning a programming language for analyzing the statistical data (U)
2.	C211.2	Use online resources for R and import new packages into the R workspace (A)
3.	C211.3	Import, review, manipulate and summarize data-sets in R (A)
4.	C211.4	Analyze statistical tests using R, create, edit visualizations and integrate the graphs into statistical analysis (AN)
5.	C211.5	Practice various math and statistical functions in R (A)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : II	Course: Principles of Software Engineering	Regulation: R20

S.no	Course Outcomes	Description
1.	C212.1	Discuss software engineering principles and techniques (K2)
2.	C212.2	Outline efficient, reliable, robust and cost-effective software solutions (K2)
3.	C212.3	Transform an Object-Oriented Design into high quality, executable code
4.	C212.4	Compare conventional and agile software methods (K2)
5.	C212.5	Show Skills to design, implement, and execute test cases at the Unit and Integration level

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : II	Course: Automata Theory and Compiler Design	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C213.1	Outline the fundamental concepts in automata theory and formal languages. Explain context-free grammars, properties of languages, grammars and automata with rigorously formal mathematical method		
2.	C213.2	Illustrate the fundamental of language translator and compiler design. Design algorithm for parser		
3.	C213.3	Illustrate the fundamentals of Semantic Analysis and context Sensitive features		
4.	C213.4	Demonstrate code optimization technique and fundamental of runtime environment. Illustrate the concept of storage management.		
5.	C213.5	Explain the concept of intermediate code generation technique. Write a program for the execution of DAG to generate the code.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : II	Course: Java Programming	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C214.1	Summarize the concept of Object Oriented Programming & Java Programming.		
2.	C214.2	Describe the basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords. (K2)		
3.	C214.3	Apply the concepts of Arrays, Inheritance and interfaces.		
4.	C214.4	Apply the concepts of Packages and Exception handling techniques.		
5.	C214.5	Demonstrate the concepts of String handling, Multi threading and JDBC.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : II	Course: Managerial Economics and Financial Accountancy	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C215.1	Demonstrate managerial economics & elasticity of demand(K2)		
2.	C215.2	Generalize production function and cost concepts(K2)		
3.	C215.3	Explain market structures and industrial organizations (K2)		
4.	C215.4	Determine financial performance of a company(K3)		
5.	C215.5	Apply capital budgeting techniques in Investment proposals(K3)		

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : II	Course: UML Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C216.1	Know the syntax of different UML diagrams(K2)
2.	C216.2	Create use case documents that capture requirements for a software system(K3)
3.	C216.3	Create class diagrams that model both the domain model and design model of a software system(K3)
4.	C216.4	Create interaction diagrams that model the dynamic aspects of a software system(K3)
5.	C216.5	Write code that builds a software system(K3,Develop simple applications(K3)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : II	Course: FOSS Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C217.1	Experiment with linux commands to get acquainted with LINUX environment.
2.	C217.2	Apply the appropriate UNIX commands to write a shell program.
3.	C217.3	Devise application based Shell scripts .
4.	C217.4	Simulate Linux Utilities using Kernel routines.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : II Semester : II	Course: Java Programming Lab	Regulation: R20

S.no	Course Outcomes	Description
1.	C218.1	Evaluate default values of all primitive data type, operations, expression, control flow and Strings.(K3)
2.	C218.2	Determine class, objects, methods, inheritance, Exception, Runtime polymorphism,
3.	C218.3	Illustrating simple inheritance, multi-level inheritance, Exception handling mechanism (K3)
4.	C218.4	Construct Threads, Event Handling, implement packages, developing applets.(K3)
5.	C218.5	User defined exception handling mechanism.(K3)

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : II Semester : II	Course: Skill oriented Course – II 1) Animations – 3D Animation 2) Distributed Technologies – MongoDB	Regulation: R20
S.no	**Course Outcomes**	**Description**		
1.	C219.1	Install, configure and setup the drivers to use MongoDB with your programming language of choice (K2)		
2.	C219.2	Gain an in-depth understanding of main features of MongoDB and their use cases (K2)		
3.	C219.3	Retrieve data in the database using advanced querying (K3)		
4.	C219.4	Build new types of applications for mobile, cloud, e-commerce and and social technologies (K3)		
5.	C219.5	To apply tools to create effective 3D modelling texturing and lighting		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: Advanced Data Structures	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C301.1	**Illustrate** various hashing techniques and sorting techniques.		
2.	C301.2	**Demonstrate** priority queues and Advanced Heap algorithms.		
3.	C301.3	**Demonstrate** various Advanced and Efficient Binary Search Trees.		
4.	C301.4	**Implement** various Multi-way Search trees.		
5.	C301.5	**Demonstrate** various operations in Digital Search Trees.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: Computer Networks	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C302.1	Study the basic taxonomy and technology of the computer networking and enumerate the layers of OSI Model and TCP/IP model.		
2.	C302.2	To understand the concept and process of Physical layer		
3.	C302.3	Study data link layer concepts design issues and protocols		
4.	C302.4	Examine the use of various routing protocols and random access approaches for transferring the data over the network.		
5.	C302.5	Articulate about the various protocols and various IEEE standards		

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: Compiler Design	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C303.1	Illustrate the fundamental of language translator and compiler design.		
2.	C303.2	Design algorithm for parser		
3.	C303.3	Illustrate the fundamentals of Semantic Analysis and context Sensitive features		
4.	C303.4	Demonstrate code optimization technique and fundamental of runtime environment. Illustrate the concept of storage management.		
5.	C303.5	Explain the concept of intermediate code generation technique. Write a program for the execution of DAG to generate the code.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: Artificial Intelligence	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C304.1	Outline problems that are amenable to solution by AI methods, and which AI methods may be suited to solving a given problem		
2.	C304.2	Apply the language/framework of different AI methods for a given problem		
3.	C304.3	Implement basic AI algorithms		
4.	C304.4	Apply the fuzzy sets and fuzzy logics concepts for developing an AI System		
5.	C304.5	Design and carry out an empirical evaluation of different algorithms on problem formalization and state the conclusions that the evaluation supports		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: R Programming	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C305.1	Demonstration and implement of basic R programming framework and data structures.(K2)		
2.	C305.2	Identify and implement appropriate control structures to solve a particular programming problem and also import new function packages into the R workspace.(K3)		
3.	C305.3	Examine numerical statistics used in introductory statistics, manipulate and summarize data-sets in R.(K3)		
4.	C305.4	Build simple plots by using introductory statistics for data visualization.(K3)		
5.	C305.5	Make use of appropriate statistical tests using R and Create and edit visualizations with regression models and Outline the usage of linear and non-linear models in R.(K3)		

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: Design and Analysis of Algorithms	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C306.1	Describe asymptotic notation used for denoting performance of algorithms		
2.	C306.2	List and describe various algorithmic approaches		
3.	C306.3	Analyze the performance of a given algorithm and denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms		
4.	C306.4	olve problems using divide and conquer, greedy, dynamic programming, backtracking and branch and bound algorithmic approaches		
5.	C306.5	Apply graph search algorithms to real world problems,Demonstrate an understanding of NP- Completeness theory and lower bound theory		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: Computer Networks & Compiler Designer Lab	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C307.1	Illustrate various protocols using TCP / UDP		
2.	C307.2	Examine the performance of different transport layer protocols.		
3.	C307.3	Analyse the performance of various network protocols.		
4.	C307.4	Compare various routing algorithms.		
5.	C307.5	List error correction codes and parsers.		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : I	Course: AI Tools & Techniques Lab	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C308.1	Identify problems that are amenable to solution by AI methods		
2.	C308.2	Identify appropriate AI methods to solve a given problem		
3.	C308.3	Use language/framework of different AI methods for solving problems		
4.	C308.4	Implement basic AI algorithms		
5.	C308.5	Design and carry out an empirical evaluation of different algorithms on problem formalization, and state the conclusions that the evaluation supports		

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : III Semester : I	Course: Employability Skills – II	Regulation: R19

S.no	Course Outcomes	Description
1.	*C309.1*	**Apply** core competencies to succeed in professional and personal life
2.	C309.2	**Make use of** presentation skills effectively to present with appropriate body language
3.	C309.3	**Employ** relevant corporate etiquette with positive attitude
4.	C309.4	**Demonstrate** effective strategies for emotional intelligence and stress management
5.	C309.5	**Identify** appropriate interview skills and succeed in interviews

Department : Department of Information Technology			
Academic Year: 2021-22	Year : III Semester : II	Course: Data warehousing and Data Mining	Regulation: R19

S.no	Course Outcomes	Description
1.	310.1	Outline the need for data mining
2.	310.2	Build the data using preprocessing techniques for effective data mining
3.	310.3	Discuss different classification techniques using decision tree(
4.	310.4	Distinguish different mining algorithms
5.	310.5	Distinguish different clustering algorithms

Department : Department of Information Technology			
Academic Year: 2021-22	Year : III Semester : II	Course: Open Elective – I (Inter Disciplinary) Renewable Energy Sources & Systems	Regulation: R19

S.no	Course Outcomes	Description
1.	C311.1	Summarize solar radiation data, extraterrestrial radiation and radiation on earth surface.
2.	C312.2	Identify the proper solar photo voltaic system by using photovoltaic systems
3.	C313.3	Illustrate maximum power point techniques in wind energy system.
4.	C313.4	Examine the basic principle and kinetic energy equation of hydro, tidal and wave power plants.
5.	C313.5	Illustrate the basic principle and working of biomass, fuel cell and geothermal systems.

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : III Semester : II	Course: Web Technologies	Regulation: R19

S.no	Course Outcomes	Description
1.	C312.1	Illustrate the basic concepts of HTML and CSS & apply those concepts to design static web.
2.	C312.2	Identify and create various concepts related to dynamic web pages and validate them using JavaScript
3.	C312.3	Understand the Outline concepts of Extensible markup language & AJAX
4.	C312.4	Develop web Applications using Scripting Languages & Frameworks
5.	C312.5	Create and deploy secure, usable database driven web applications using PHP and RUBY

Department : Department of Information Technology			
Academic Year: 2021-22	Year : III Semester : II	Course: Professional Elective II (NPTEL / SWAYAM) Introduction To Industry 4.0 And Industrial Internet Of Things	Regulation: R19

S.no	Course Outcomes	Description
1.	C313.1	**Discuss** the drivers and enablers of Industry 4.0 (K2)
2.	C313.2	**Apply** the smartness in Smart Factories, Smart cities, smart products and smart services (K3)
3.	C313.3	Able to **Identify** the various systems used in a manufacturing plant and their role in an Industry 4.0 world (K2)
4.	C313.4	**Illustrate** the power of Cloud Computing in a networked economy (K3)
5.	C313.5	**Describe** the opportunities, challenges brought about by Industry 4.0 and how organizations and individuals should prepare to reap the benefits

Department : Department of Information Technology			
Academic Year: 2021-22	Year : III Semester : II	Course: Managerial Economics and Financial Accountancy	Regulation: R19

S.no	Course Outcomes	Description
1.	C314.1	Demonstrate managerial economics & elasticity of demand(K2)
2.	C314.2	Generalize production function and cost concepts(K2)
3.	C314.3	Explain market structures and industrial organizations (K2)
4.	C314.4	Determine financial performance of a company(K3)
5.	C314.5	Apply capital budgeting techniques in Investment proposals(K3)

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : II	Course: Web Technology Lab	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C315.1	Analyse the problem and program using the languages like HTML, CSS, XML.		
2.	C315.2	Analyse and Review java script, PHP and protocols in the working of web and web Applications.		
3.	C315.3.	Apply web application technologies, internet tools, E-commerce and other web services.		
4.	C315.4	Develop and analyse dynamic web application using PHP & MySQL.		
5.	C315.5	Install & Use Frameworks		

Department : Department of Information Technology				
Academic Year: 2021-22		Year : III Semester : II	Course: Data Mining Lab	Regulation: R19
S.no	**Course Outcomes**	**Description**		
1.	C316.1	Extend the functionality of R by using add-on packages		
2.	C316.2	Examine data from files and other sources and perform various data manipulation tasks on them		
3.	C316.3	Code statistical functions in R		
4.	C316.4	Use R Graphics and Tables to visualize results of various statistical operations on data		
5.	C316.5	Apply the knowledge of R gained to data Analytics for real life applications		

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Cryptography and Network Security	Regulation: R16

S.no	Course Outcomes	Description
1.	C401.1	Discuss the various security attacks, mechanisms, services and hacking techniques
2.	C401.2	Analyze the strengths and weakness of various symmetric algorithms
3.	C401.3	Classify and analyzing the strengths and weaknesses of various encryption algorithms
4.	C401.4	Distinguish basic principles of public key cryptography and analyzing the strengths and weaknesses of various asymmetric encryption algorithms
5.	C401.5	Discuss various authentication methods in real world scenario
6.	C401.6	Illustrate the network security designs using available secure solutions (such as PGP,SSL, IPSec, etc)

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Mobile Computing	Regulation: R16

S.no	Course Outcomes	Description
1.	C402.1	Illustrate the basic concepts, techniques, protocols related to GSM and GPRS architecture to perform requirements analysis.
2.	C402.2	Interpret the basic concepts, principles and limitations in mobile computing and the concept of Wireless LANs, PAN, Mobile Networks, and Sensor Networks.
3.	C402.3	Illustrate Mobile IP, packet delivery and Dynamic Host Configuration Protocols.
4.	C402.4	Apply knowledge of TCP/IP extensions for mobile and wireless networking and discuss various Database Hoarding & Caching Techniques and classify Data Delivery Mechanisms.
5.	C402.5	Discriminate data delivery mechanisms, data dissemination and data Synchronization on mobile computing systems
6.	C402.6	Examine the Adhoc networks concepts and its routing protocols.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Data Ware Housing and Business Intelligence	Regulation: R16

S.no	Course Outcomes	Description
1.	C403.1	Relate the need for having a data warehouse in addition to the traditional operational database systems
2.	C403.2	Prepare the data using preprocessing techniques so as to apply the mining tasks effectively
3.	C403.3	Examine the key components in typical data ware house architecture
4.	C403.4	Examine various mining algorithms
5.	C403.5	Analyze different mining algorithms

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6.	C403.6	Distinguish different mining algorithms

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Managerial Economics and Financial Analysis	Regulation: R16

S.no	Course Outcomes	Description
1.	C404.1	Generalize managerial economics & demand forecasting
2.	C404.2	Illustrate production function and cost concepts
3.	C404.3	Estimate market structures and pricing policies
4.	C404.4	Discuss types of business organization and business cycle
5.	C404.5	Determine financial performance of a company
6.	C404.6	Illustrate capital budgeting techniques

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Big Data Analytics	Regulation: R16

S.no	Course Outcomes	Description
1.	C405.1	Discuss the data structures to analyze large datasets
2.	C405.2	Demonstrate the concepts of Hadoop, GFS and HDFS architectures
3.	C405.3	Prepare MapReduce code for different applications of BigData
4.	C405.4	Use Readable and Writable Interfaces in MapReduce
5.	C405.5	Differentiate the BigData processing using MapReduce and Pig
6.	C405.6	Analyze use of Hive to retrieve data from large datasets.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Software Project Management	Regulation: R16

S.no	Course Outcomes	Description
1.	C406.1	Relate organizational needs to the most effective software development model.
2.	C406.2	Summarize the basic concepts and issues of software project management.
3.	C406.3	Examine planning the software projects.
4.	C406.4	Analyze the project plans that address real – world management challenges.
5.	C406.5	Describe the skills for tracking and controlling software deliverables.
6.	C406.6	Express activities necessary to successfully complete and close the software projects.

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : I	Course: Mobile Computing Lab	Regulation: R16

S.no	Course Outcomes	Description
1.	C407.1	Apply essential Android Programming concepts. Build native applications using GUI component by J2ME and MIDP Application.K3
2.	C407.2	Develop a connection between a server Socket and J2ME emulator, authenticate the user using J2ME application.
3.	C407.3	Demonstrate the life cycle, manifest of Android applications using inbuilt program)
4.	C407.4	Develop various Android applications related to layouts & rich uses interactive interfaces
5.	C407.5	Model new applications to hand held devices

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : II	Course: Distributed Systems	Regulation: R16

S.no	Course Outcomes	Description
1.	C409.1	Demonstrate the important characteristics and the silent architectural features of distributed systems
2.	C409.2	Develop practical oriented approach on inter-process communication in a distributed environment.
3.	C409.3	Discuss about communication among distributed objects, object models and design issues for Remote Invocation utilizing Java RMI case study.
4.	C409.4	Illustrate the process of creating the new threads and processes in operating system and different layers of operating system.
5.	C409.5	Determine the features and applications of important standard protocols that are used in distributed systems.
6.	C409.6	Identify the way distributed system transactions and it replication strategies are implemented using concurrency control technique.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : II	Course: Management Science	Regulation: R16

S.no	Course Outcomes	Description
1.	C410.1	Describe the management concepts
2.	C410.2	Construct statistical quality control charts in operational management
3.	C410.3	Explain Human resource management & marketing management in an organization
4.	C410.4	Solve the Project Evaluation Review , Critical Path Method, probability & project crashing problems
5.	C410.5	Discuss vision, mission & goals of the organization
6.	C410.6	Explain business process outsourcing, six sigma in management practice

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : II	Course: Management Information System	Regulation: R16

S.no	Course Outcomes	Description
1.	C411.1	Relate the basic concepts and technologies used in the field of management information systems
2.	C411.2	Compare the processes of developing and implementing information systems.
3.	C411.3	Outline the role of the ethical, social, and security issues of information systems.
4.	C411.4	Illustrate the role of information systems in organizations, the strategic management processes, with the implications for the management.
5.	C411.5	Examine how various information systems like DBMS work together to accomplish the information objectives of an organization.
6.	C411.6	Inspect the professional ethical codes of conduct that are appropriate to industry and organizational environments.

Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : II	Course: Course Elective – III	Regulation: R16

S.no	Course Outcomes	Description
1.	C412.1	Express the importance of Software Quality Assurance System.
2.	C412.2	Describe the various components of Software project lifecycle.
3.	C412.3	Summarize various Software Quality Infrastructure components.
4.	C412.4	Rewrite the components of software quality management.
5.	C412.5	Classify the different standards of ISO 9001 for SQA.
6.	C412.6	Demonstrate the Software quality assurance along with its role.

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Department : Department of Information Technology			
Academic Year: 2021-22	Year : IV Semester : II	Course: Seminar	Regulation: R16

S.no	Course Outcomes	Description
1.	C413.1	Research papers for understanding of a new field, in the absence of a textbook, to summarize and review them
2.	C413.2	Identify promising new directions of various new emerging IT technologies.
3.	C413.3	Use skills in preparing detailed report describing the project and results.
4.	C413.4	Express effectively by making an oral presentation before an evaluation committee.

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Department : Department of Information Technology				
Academic Year: 2021-22		Year : IV Semester : II	Course: Project	Regulation: R16
S.no	**Course Outcomes**	**Description**		
1.	C414.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems		
2.	C414.2	Gain the knowledge of software engineering practices, so as to participate and manage large software engineering projects in future		
3.	C414.3	Demonstrate effectively the engineering principles used in their project individually and as a team as per the norms of engineering practice with proper documentation skills and professionalism.		
4.	C414.4	Structure System integration, deployment skills and future work to promote life-long learning in the context of technological adaptation.		

Head of the Department

Principal

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DEPARTMENT OF MECHANICAL ENGINEERING

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Calculus & Differential Equations-M-I	Regulation:R-20

S.no	Course Outcomes	Description
1.	C101.1	Determine the convergence of an infinite series and utilize mean value theorems to real life Problems **(K3).**
2.	C101.2	Understand, classify and solve analytically a wide range of first order ordinary differential equations along with the applications of differential equations in engineering problems **(K2 & K3).**
3.	C101.3	Solve analytically the higher order ordinary differential equations with constant coefficients of various types and apply in their studies **(K3).**
4.	C101.4	Apply the knowledge of Mean value theorems, Maxima and Minima of functions of several variables which is useful in optimization **(K3).**
5.	C101.5	Apply double integration and triple integration techniques in evaluating areas bounded by curves and volumes of the solids **(K3).**

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Engineering Physics	Regulation:R-20

S.no	Course Outcomes	Description
1.	C102.1	Explain wave behavior of light, including interference and diffraction mathematically and conceptually.
2.	C102.2	Explain operational principles and construction of Lasers Understand the properties of optical fiber that affect the performance of a communication system.
3.	C102.3	Describe relationship between specific properties and applications of dielectric and magnetic materials. Apply the knowledge of quantum views for understanding the formation of energy bands in solids and their classifications.
4.	C102.4	Describe relationship between specific properties and applications of dielectric and magnetic materials.
5.	C102.5	Understand the physics of electrical conductivity in semiconductors and superconductors for various applications.

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : I Semester: I	Course: Programming for Problem Solving Using C	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C103.1	**Describe** various types of computer systems, computing environments and discuss about various basic aspects of C programming		
2.	C103.2	**Develop** the programs that use two-way/ multi-way selection and loop construct for a givenproblem.		
3.	C103.3	**Apply** the structures, union, strings and array operations in a specific need.		
4.	C103.4	**Illustrate** about pointers, dynamic memory allocation and know the significance of Pre-processor.		
5.	C103.5	**Make use of** functions and file Operations for a given applications		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : I Semester: I	Course: English	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C104.1	Apply reading strategies for skimming and scanning and construct paragraphs through mechanics of writing. (K3)		
2.	C104.2	Ask and answer questions through functional English; discuss in groups and develop conversational and communication skills.(K2)		
3.	C104.3	Interpret texts for comprehension; and write letters, E-mails and CV's through principles of written communication.(K3)		
4.	C104.4	Utilize verbal and graphic devices to transfer information; and produce writing for various purposes.(K3)		
5.	C104.5	Build sentences using proper grammatical structures and correct word forms; and practice presentations for academic and technical purposes (K3)		

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Engineering Drawing	Regulation:R-20

SNo	Course Outcomes	Description
1.	C105.1	Identify the use of various drawing instruments and to construct various types of polygons, curves and scales.
2.	C105.2	Represent the projections of points, lines and line inclined to both the planes and its traces.
3.	C105.3	Sketch the projections of various types of plane surfaces in different positions with respect to reference planes.
4.	C105.4	Develop the projections of various types of solids in different positions with respect to reference planes.
5.	C105.5	Construct the 3D objects in 2D planes and vice versa and make use of Auto Cad to create the 2D and 3D objects.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Engineering Physics Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C106.1	Evaluate the process and outcomes of an experiment quantitatively and qualitatively
2.	C106.2	Demonstrate the process and outcomes of an experiment
3.	C106.3	Discuss an experiment collaboratively and ethically

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Programming for Problem Solving Using C Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C107.1	Extend the knowledge for C programming development for basic applications
2.	C107.2	Examine the control flow and Selection and Iterative Statements
3.	C107.3	Utilize the concepts of C arrays and strings for program development
4.	C107.4	Construct C programs using structures, unions, pointers and memory allocation functions
5.	C107.5	Practice the Modular Programming Skills to solve complex problems and also interpret the operations on files

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : I Semester: I	Course: English Language Lab	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C108.1	Show the knowledge in listening and speaking English sounds and employing English stress and intonation as per the accepted standard (K3)		
2.	C108.2	Employ suitable listening and reading skills for improved communication abilities. (K3)		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : I Semester: I	Course: Environmental Science	Regulation: R-20
S.no	**Course Outcomes**	**Description**		
1.	C109.1	Identify the basic concepts of Eco-system and its function in the Environment.		
2.	C109.2	List the natural resources and their importance for the sustenance of life and learn to conserve the natural resources.		
3.	C109.3	Apply conservation practices to protect the Bio-diversity.		
4.	C109.4	Illustrate the control of pollution with waste management practices.		
5.	C109.5	State Environmental legislations of India and the first global initiatives towards sustainable development.		
6.	C109.6	Prepare Environmental Assessment Procedure, the stages involved in EIA and the Environmental audit.		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : I Semester: II	Course: Linear Algebra & Numerical Methods -M2	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C110.1	Solve system of linear algebraic equations using matrices**(K3)**		
2.	C110.2	Make use of matrix algebra techniques that is needed by engineers for practical applications**(K3)**		
3.	C110.3	Compute the approximate roots of polynomial and transcendental equations using different algorithms**(K3)**		
4.	C110.4	Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals**(K3)**		
5.	C110.5	Apply different algorithms for approximating the solutions of ordinary differential equations**(K3)**		

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: II	Course: Engineering Chemistry	Regulation:R-20

S.no	Course Outcomes	Description
1.	C111.1	Distinguish various forms of polymers and Illustrate different methods forming plastic materials
2.	C111.2	Develop various energy storing devices and Apply different techniques to prevent corrosion
3.	C111.3	Utilize disparate advanced materials
4.	C111.4	Calculate the efficiency of different kinds of industrial fuels
5.	C111.5	Identify the nature of water and suitable treatment methods

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: II	Course: Engineering Mechanics	Regulation:R-20

S.no	Course Outcomes	Description
1.	C112.1	**Discuss** about various system of forces and its laws to resolve magnitude of forces, moment under the influence of friction
2.	C112.2	**Apply** the equations of equilibrium on various rigid bodies like rollers, trusses etc., to find reaction forces using free body diagrams.
3.	C112.3	**Analyze** the centroid and centre of gravity of simple and composite sections using method of integration and moment, calculate area and mass moment of inertia of composite sections and solids using parallel axis theorem
4.	C112.4	**Apply** rectilinear and curvilinear equations to solve various problems on kinematics and kinetics.
5.	C112.5	**Apply** the equations of rigid body to solve various parameters such as velocity, displacement and time using work-energy and Impulse momentum equations.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: II	Course: Basic Electrical & Electronics Engineering	Regulation:R-20

S.no	Course Outcomes	Description
1.	C113.1	Analyze the various electrical networks
2.	C113.2	Demonstrate the operation of DC generators,3-point starter and conduct the Swinburne's Test
3.	C113.3	Analyze the performance of Single Phase transformer
4.	C113.4	Illustrate the operation of 3-phase alternator and 3-phase induction motors

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: II	Course: Workshop Practice Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C114.1	Ability to design different prototypes in the carpentry trade such as T- Lap Joint and Dovetail Joint
2.	C114.2	Ability to design different prototypes in the trade of fitting such as Vee fit and Square fit.
3.	C114.3	Ability to make various basic prototypes in the trade of black smithy such as S-hook and round rod to square.
4.	C114.4	Ability to create various basic house wiring circuits such as parallel/series connection of three bulbs and stair case wiring.
5.	C114.5	Ability to make various basic prototypes in the trade of tin smithy such as open scoop and square box without lid.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: II	Course: Engineering Chemistry Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C115.1	Calculate the amount of solute in the given sample solutions using classical titration methods (Expt. No. 1,2,3,4,5,16)
2.	C115.2	Examine the nature and concentration of substances present in real life samples (Expt. No. 6,12,13,14,15, 17)
3.	C115.3	Make use of various instruments to calculate the strength of the given samples (Expt. No. 7,8,9,10,11)

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : I Semester: II	Course: Basic Electrical & Electronics Engineering Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C116.1	Compute the efficiency of dc shunt machine as a motor and generator
2.	C116.2	Analyse the regulation of single-phase transformer
3.	C116.3	Determine the performance characteristics of three phase induction motor
4.	C116.4	Compute the regulation of the alternator by using synchronous impedance method
5.	C116.5	Examine the speed characteristics of Dc Shunt Motor

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : I Semester: II	Course:: Constitution of India	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C117.1	Discuss Fundamental Rights and Duties, Directive Principles of State Policy. (k2)		
2.	C117.2	Explain the The Supreme Court and High Court: Powers andFunctions;		
3.	C117.3	Illustrate State Government and its Administration Governor - Role and Position		
4.	C117.4	Describe District's Administration Head - Role and Importance(k2)		
5.	C117.5	Generalize Election Commission- Role (k2)		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : II Semester: I	Course: Vector Calculus, Fourier Transforms and PDE (M-III)	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C201.1	Apply the Concepts of Vector Differentiation and Vector Integration in Applications of Engineering field		
2.	C201.2	Determine Laplace Transform and inverse Laplace Transforms of various functions and solve the linear ODE.		
3.	C201.3	Compute the Fourier series of periodic signals, apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms .		
4.	C201.4	Identify and solve different types of linear and nonlinear first order partial differential equations.		
5.	C201.5	Solve distinct cases of higher order partial differential equations and use to solve engineering problems.		

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : II Semester: I	Course: Mechanics of Solids	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C202.1	Solve the problems of stress, strain and elastic modulus of a given material effectively.		
2.	C202.2	Illustrate and find the point of contra flexure and draw the SF and BM diagrams for any given loads for a particular beam.		
3.	C202.3	Determine the shear stress distribution along a beam of varying cross sections like rectangular, circular, I-section and T-section.		
4.	C202.4	Calculate the deflection of various beams under different loads.		
5.	C202.5	Estimate the hoop's and longitudinal stresses developed in any thin or thick cylinders.		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : II Semester: I	Course: Fluid Mechanics & Hydraulic Machines	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C203.1	Discuss working principles and properties of different manometers		
2.	C203.2	Apply the concept of continuity equation and fluid kinematics		
3.	C203.3	Calculate the equations for momentum and energy equations of boundary layer		
4.	C203.4	Calculate the equations of impulse momentum equation for various bodies and Evaluate the working principles of various hydraulic turbines.		
5.	C203.5	Identify the importance, function and performance of various types of pumps and Evaluate the performance characteristics of various hydraulic turbines.		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : II Semester: I	Course: Production Technology	Regulation:R-20
S.no	**Course Outcomes**	**Description**		
1.	C204.1	Distinguish different types of patterns and can learn about different materials used for patterns.		
2.	C204.2	Analyze the design procedures for casting, riser and can learn different methods of melting		
3.	C204.3	Explain classification of conventional welding and their processes along with advanced welding processes and their Applications		
4.	C204.4	Examine about different bulk forming processes, forging and rolling.		
5.	C204.5	Identify different processes used for sheet metal forming.		

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: I	Course: Kinematics of Machinery	Regulation:R-20

S.no	Course Outcomes	Description
1.	C205.1	Discuss the nature and role of the kinematics of machinery, the mechanisms and machines.
2.	C205.2	Demonstrate the lower pair mechanisms and steering gear mechanisms
3.	C205.3	Calculate the velocity and acceleration of mechanisms
4.	C205.4	Discuss the motion of different types of followers and Belt drives.
5.	C205.5	Classify the gears, tooth profiles, their efficiency and gear train mechanisms

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: I	Course: Computer Aided Engineering Drawing Practice	Regulation:R-20

S.no	Course Outcomes	Description
1.	C206.1	draw the projections of solids
2.	C206.2	draw the section of solids and developments of solids
3.	C206.3	interprestation of Prespestive views
4.	C206.4	draw the 2D figures by unsing computer a ided drawing and modeling pakage
5.	C206.5	understand the paper-space environment thoroughly.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: I	Course: Fluid Mechanics & Hydraulic Machines Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C207.1	Understanding basic physics of fluids
2.	C207.2	Gaining Knowledge to calculate and design engineering applications involved in Fluid
3.	C207.3	Understanding of analyzing flow systems in terms of mass, momentum, and energy balance

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Department : Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: I	Course: Production Technology Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C208.1	study of Design and making of pattern and sand testing properties
2.	C208.2	undersatnd of Mould preparation and gas cutting techiniques
3.	C208.3	Study of TIG/MIG Welding and Resistance Spot Welding

Department : Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: I	Course: Drafting and Modeling Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C209.1	use the modelling software packages for developing 2D real time problems
2.	C209.2	use the modelling software packages for developing 3D real time problems
3.	C209.3	use the modelling software packages for assemblage of different parts for real time problems.

Department : Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: I	Course: Essence of Indian Traditional Knowledge	Regulation:R-20

S.no	Course Outcomes	Description
1.	C210.1	Solve the problems of stress, strain and elastic modulus of a given material effectively.
2.	C210.2	Illustrate and find the point of contra flexure and draw the SF and BM diagrams for any given loads for a particular beam.
3.	C210.3	Determine the shear stress distribution along a beam of varying cross sections like rectangular, circular, I-section and T-section.
4.	C210.4	Calculate the deflection of various beams under different loads.
5.	C210.5	Estimate the hoop's and longitudinal stresses developed in any thin or thick cylinders.

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Materials & Metallurgy	Regulation:R-20

S.no	Course Outcomes	Description
1.	C211.1	Use Cauchy-Riemann equations to find analytic functions , harmonic conjugates and evaluation of integrals over closed contours.
2.	C211.2	Apply the concept of residues to evaluate Improper integrals and Definite integrals involving Trigonometric functions .
3.	C211.3	Use discrete and continuous probability distributions to solve problems.
4.	C211.4	Identify the types of sampling methods for different data samples.
5.	C211.5	Test suitable sample statistical tests in testing hypothesis data.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Complex Variables and Statistical Methods	Regulation:R-20

S.no	Course Outcomes	Description
1.	C212.1	Use Cauchy-Riemann equations to find analytic functions, harmonic conjugates and evaluation of integrals over closed contours.
2.	C212.2	Apply the concept of residues to evaluate Improper integrals and Definite integrals involving Trigonometric functions .
3.	C212.3	Use discrete and continuous probability distributions to solve problems.
4.	C212.4	Identify the types of sampling methods for different data samples.
5.	C212.5	Test suitable sample statistical tests in testing hypothesis data.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Dynamics of Machinery	Regulation:R-20

S.no	Course Outcomes	Description
1.	C213.1	Compute frictional losses, torque transmission of mechanical systems
2.	C213.2	Examine dynamic force analysis of mechanisms and design of flywheel
3.	C213.3	Explain stabilization of sea vehicles, air craft's and automobile vehicles. Students should able to explain different types of governors.
4.	C213.4	Evaluate balancing of rotating and reciprocating masses by using analytical and graphical methods.
5.	C213.5	Determine the natural frequencies of continuous systems starting from the general equation of displacement.

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Thermal Engineering – I	Regulation:R-20

S.no	Course Outcomes	Description
1.	C214.1	Deduce the actual cycle from fuel-air cycle and air- standard cycle for all practical applications
2.	C214.2	Explain working principle and various components of IC engine
3.	C214.3	Explain combustion phenomenon of CI and SI engines and their impact on engine variables.
4.	C214.4	Analyze the performance of an IC engine based on the performance parameters
5.	C214.5	Explain the cycles and systems of a gas turbine and determine the efficiency of gas turbine and also the applications and working principle of rockets and jet propulsion.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Industrial Engineering and Management	Regulation:R-20

S.no	Course Outcomes	Description
1.	C215.1	Differentiate between production management and industrial engineering
2.	C215.2	Identify the factors influencing plant location and the production layout types
3.	C215.3	Distinguish the types of production
4.	C215.4	Use the statistical quality control techniques for quality
5.	C215.5	Discuss the concepts of human resource management

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Mechanics of Solids and Metallurgy Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C216.1	Apply methods to determine Mechanical properties and Elastic Constants
2.	C216.2	Appraise the students with the use of testing machines
3.	C216.3	Characterize the microstructures of different ferrous and non ferrous metals
4.	C216.4	Characterize the microstructures of different ferrous and non ferrous metals
5.	C216.5	Use equipments to determine mechanical properties of materials to acquire the knowledge in Material Testing

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Machine Drawing Practice	Regulation:R-20

S.no	Course Outcomes	Description
1.	C217.1	Draw and represent standard dimensions of different mechanical fasteners and joints and Couplings.
2.	C217.2	Draw different types of bearings showing different components
3.	C217.3	Assemble components of a machine part and draw the sectional assembly drawing showing the dimensions of all the components of the assembly as per bill of materials
4.	C217.4	Select and represent fits and geometrical form of different mating parts in assembly drawings
5.	C217.5	To prepare manufacturing drawings indicating fits, tolerances, surface finish and surface treatment requirements

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course:: Theory of Machines Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C218.1	Evaluate the couple effect of Gyroscopic, cam & follower displacement along with screw jack.
2.	C218.2	Determine the frequency of undamped free and damped forced vibration of an equivalent spring mass system.
3.	C218.3	Understand about controlling force of hartnell Governer, whirling effect of shaft and different types of gears

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : II Semester: II	Course: Python Programming Lab	Regulation:R-20

S.no	Course Outcomes	Description
1.	C219.1	Solve the different methods for linear, non-linear and differential equations and Learn the PYTHON Programming languag
2.	C219.2	Familiar with the strings and matrices in PYTHON
3.	C219.3	Write the Program scripts and functions in PYTHON to solve the methods

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: I	Course: Dynamics of Machinery	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C301.1	Explain stabilization of sea vehicles, air crafts and automobile vehicles.		
2.	C301.2	compute frictional losses, torque transmission of mechanical systems		
3.	C301.3	examine dynamic force analysis of mechanisms and design of flywheel		
4.	C301.4	explain different types of governors.		
5.	C301.5	evaluate balancing of rotating and reciprocating masses by using analytical and graphical methods.		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: I	Course: Design of Machine Numbers – II	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C302.1	Solve various problems on sliding and rolling contact bearings		
2.	C302.2	Calculate stresses acting on various parts of IC engine using data book		
3.	C302.3	Able to calculate stresses developed in curved beams such as Rectangular, circular, trapezoidal, T-sections		
4.	C302.4	Determine the stresses acting on power screws, belts, ropes and chain drives.		
5.	C302.5	Examine various problems on spur and helical gears according to their factor of safety.		

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: Mechanical Measurements & Metrology	Regulation:R-19

S.no	Course Outcomes	Description
1.	C303.1	Describe the construction and working principles of measuring instruments for measurement of displacement and speed and select appropriate instrument for a given application.
2.	C303.2	Describe the construction and working principles of measuring instruments for strain, force, Torque, power, acceleration and Vibration and select appropriate instrument for a given application.
3.	C303.3	Explain shaft basis system and hole basis systems for fits and represent tolerances for a given fit as per the shaft basis system and hole basis system and design limit gauges based on the tolerances for quality check in mass production.
4.	C303.4	Explain methods for linear, angle and flatness measurements and select a suitable method and its relevant instrument for a given application.
5.	C303.5	To measure the threads, gear tooth profiles, surface roughness and flatness using appropriate instruments and analyze the data

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: Managerial Economics and Financial Accountancy	Regulation:R-19

S.no	Course Outcomes	Description
1.	C304.1	Demonstrate managerial economics & elasticity of demand
2.	C304.2	Generalize production function and cost concepts
3.	C304.3	Explain market structures and industrial organizations
4.	C304.4	Determine financial performance of a company
5.	C304.5	Apply capital budgeting techniques in Investment proposals

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: IC Engines & Gas Turbines	Regulation:R-19

S.no	Course Outcomes	Description
1.	C305.1	Deduce the actual cycle from fuel-air cycle and air- standard cycle for all practical applications.
2.	C305.2	Explain working principle and various components of IC engine
3.	C305.3	Explain combustion phenomenon of CI and SI engines and their impact on engine variables.
4.	C305.4	Analyze the performance of an IC engine based on the performance parameters.
5.	C305.5	Explain the cycles and systems of a gas turbine and determine the efficiency of gas turbine.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: Thermal Engineering Lab	Regulation:R-19

S.no	Course Outcomes	Description
1.	C306.1	Experiment with IC Engine performance along with port timing and valve tiiming diagrams.
2.	C306.2	Evaluate the Frictional power and Economical Speed on IC Engines
3.	C306.3	Understand the concept of boilers, mountings and accessories.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: Theory of Machines Lab	Regulation:R-19

S.no	Course Outcomes	Description
1.	C307.1	Evaluate the couple effect of Gyroscopic, cam & follower displacement along with screw jack.
2.	C307.2	Determine the frequency of undamped free and damped forced vibration of an equivalent spring mass system.
3.	C307.3	Understand about controlling force of hartnell Governer, whirling effect of shaft and different types of gears

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: Mechanical Measurements & Metrology Lab	Regulation:R-19

S.no	Course Outcomes	Description
1.	C308.1	Evaluate the couple effect of Gyroscopic, cam & follower displacement along with screw jack.
2.	C308.2	Measurement using Mechanical comparator,Optical Projector,Autocollimator.
3.	C308.3	Calibration of pressure gauge,transducer for temperature measurement,f LVDT transducer for displacement measurement

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: I	Course: Socially Relevant Project	Regulation:R-19

S.no	Course Outcomes	Description
1.	C309.1	Able To know socially relevant Problem
2.	C309.2	Able to work on social relevant problem
3.	C309.3	At the end to produce a project document

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : III Semester: II	Course: Operations Research	Regulation:R-19

S.no	Course Outcomes	Description
1.	C310.1	The students are able to Formulate the resource management problems and identify appropriate methods to solve them
2.	C310.2	The students are able to Apply LPP, transportation and assignment models to optimize the industrial resources
3.	C310.3	The students are able to Solve decision theory problems through the application of game theory
4.	C310.4	The students are able to Apply the replacement and queuing models to increase the efficiency of the system
5.	C310.5	The students are able to Model the project management problems through CPM and PERT

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: Heat Transfer	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C311.1	At the end of the course the student will be able to distinguish different modes of heat transfer.		
2.	C311.2	At the end of the course the student will be able to deduce heat conduction for fins and transient state heat conduction equation		
3.	C311.3	At the end of the course the student will be able to analyse the concept of non-dimensional numbers and non-dimensionalisation and forced convection.		
4.	C311.4	At the end of the course pupil will be able to apply the phenomenon of convection in free and heat exchangers.		
5.	C311.5	At the end of the course the student will be able to apply the concept of radiation for numericals, boiling and condensation.		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: CAD/CAM	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C312.1	Explain various data base structures for graphics modeling and 3D transformation.		
2.	C312.2	Discuss geometric construction models, surface representation methods and solid modelling.		
3.	C312.3	write CNC part programming and Computer aided part programming		
4.	C312.4	List computer aided process planning types and tool management systems.		
5.	C312.5	estimate inspection methods used in computer aided quality control and also classify the types of manufacturing systems		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: Elective	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C313.1	Classify modern machining processes		
2.	C313.2	Distinguish importance of abrasive jet machining processes among other processes.		
3.	C313.3	Explain electro and chemical machining processes		
4.	C313.4	Demonstrate thermal metal removal processes.		
5.	C313.5	Explain EBM and LBM processes along with applications and plasma arc machining		

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: Elective – II-Mechatronics	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C314.1	Operate various sensors and transducers		
2.	C314.2	Categorize various hydraulic and pneumatic actuating systems.		
3.	C314.3	Correlate PLC's versus computers		
4.	C314.4	Evaluate DSP's		
5.	C314.5	Design mechatronics systems.		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: Simulation of Mechanical Systems Lab	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C315.1	Stimulation of mass spring damper by using MATLAB		
2.	C315.2	Simulation simple mechanical systems		
3.	C315.3	simulation of link mechanisam and steering mechanisms		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: Heat transfer Lab	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C316.1	Evaluate the amount of heat exchange for plane,cylindrical and spherical Geometries		
2.	C316.2	Compare the performance of Extended surfaces		
3.	C316.3	Compare the performance of Heat Exchangers		
4.	C316.4	Evaluate the amount of heat exchange for plane,cylindrical and spherical Geometries		
5.	C316.5	Compare the performance of Extended surfaces		

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Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: CAD/CAM Lab	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C317.1	Use the tools ANSYS or FLUENT in solving real time problems		
2.	C317.2	Determine the deflections and stresses in 2D and 3D		
3.	C317.3	Write NC codes and CNC programming in industries		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : III Semester: II	Course: Summer Internship	Regulation:R-19
S.no	**Course Outcomes**	**Description**		
1.	C318.1	Test the theoritical learning in practical situations		
2.	C318.2	Apply various soft skills such as positive attitude,time management		
3.	C318.3	Critical thinking and problem solving skills by analysing underlying issues		

Department : Department of Mechanical Engineering				
Academic Year: 2021-22		Year : IV Semester: I	Course: Mechatronics	Regulation:R-16
S.no	Course Outcomes	Description		
1.	C401.1	Operate various sensors and transducers		
2.	C401.2	Apply various solid state electronic devices		
3.	C401.3	Categorize various hydraulic and pneumatic actuating systems.		
4.	C401.4	Correlate PLC's versus computers		
5.	C401.5	Evaluate DSP's		
6.	C401.6	Design mechatronics systems.		

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: CAD/CAM	Regulation:R-16

S.no	Course Outcomes	Description
1.	C402.1	Explain various data base structures for graphics modeling and 3D transformation.
2.	C402.2	Discuss geometric construction models, surface representation methods and solid modelling.
3.	C402.3	Write CNC part programming and Computer aided part programming
4.	C402.4	List computer aided process planning types and tool management systems.
5.	C402.5	Estimate inspection methods used in computer aided quality control.
6.	C402.6	Classify types of manufacturing systems and material handling systems.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: Finite Element Methods	Regulation:R-16

S.no	Course Outcomes	Description
1.	C403.1	Give an outline of finite element analysis procedure and how the finite element method expands beyond the structural domain, for problems involving dynamics, heat transfer, and fluid flow.
2.	C403.2	Explain the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements, 3–D element.
3.	C403.3	Extract the concepts behind variational methods and weighted residual methods in FEM.
4.	C403.4	Elucidate element characteristic equation procedure and generation of global stiffness equation will be applied.
5.	C403.5	Give the differences between 1-D, and 2-D finite element analysis procedure.
6.	C403.6	Understand dynamic conditions to solve problems

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: Power Plant Engineering	Regulation:R-16

S.no	Course Outcomes	Description
1.	C404.1	Understand process of working of Thermal power plants, Combustion equipment.
2.	C404.2	Identify different Fuel and Ash Handling Units.
3.	C404.3	Explain the principle of working of the Nuclear Power Plant, Gas Turbine power plant, Hydel power plant and Diesel Power plant.
4.	C404.4	Calculate the economics of various types of Power Plants.
5.	C404.5	Distinguish different power plants used in hybrid power plants
6.	C404.6	Explain about pollution caused by different power plants.

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: Additive Manufacturing	Regulation:R-16

S.no	Course Outcomes	Description
1.	C405.1	Understand Stereo Lithography Apparatus method and Solid Ground Curing method
2.	C405.2	Identify various Solid Based Prototyping processes and their applications
3.	C405.3	Classify various Powder Based Prototyping processes and applications
4.	C405.4	Classify various Rapid prototyping tools
5.	C405.5	Discuss various Rapid Prototyping formats and software's
6.	C405.6	Evaluate various applications of RP system in engineering and medical field.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: Advanced Materials	Regulation:R-16

S.no	Course Outcomes	Description
1.	C406.1	Classify various composites and reinforcements
2.	C406.2	Identify different polymer composites and their applications
3.	C406.3	Distinguish various manufacturing techniques of composites
4.	C406.4	Make use of the Hooke's Law and apply the same to engineering elastic constants of an orthotropic lamina
5.	C406.5	Classify the functionally graded materials and Shape Memory alloys
6.	C406.6	Compare nano materials with bulk materials in terms of their properties and applications

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: CAD / CAM Lab	Regulation:R-16

S.no	Course Outcomes	Description
1.	C407.1	Use the tools ANSYS or FLUENT in solving real time problems
2.	C407.2	Determine the deflections and stresses in 2D and 3D
3.	C407.3	Write NC codes and CNC programming in industries

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: I	Course: Mechatronics Lab	Regulation:R-16

S.no	Course Outcomes	Description
1.	C408.1	Gain knowledge on how to use tools like MATLAB
2.	C408.2	Operate modules using PLC trainer
3.	C408.3	Write programming and run in PLC trainer

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: II	Course: Production Planning and Control	Regulation:R-16

S.no	Course Outcomes	Description
1.	C409.1	Apply the systems concept for the design of production and service systems
2.	C409.2	Make forecasts in the manufacturing and service sectors using selected quantitative and qualitative techniques.
3.	C409.3	Apply the principles and techniques for planning and control of the production and service systems to optimize/make best use of resources.
4.	C409.4	Understand the importance and function of inventory and to Solve inventory control and planning issues using either deterministic or stochastic modeling.
5.	C409.5	Explain the various parts of the operations and production management processes and their interaction with other business functions (strategy, engineering, finance, marketing, HRM, project management and innovation)
6.	C409.6	Demonstrate operation scheduling methods in variety shop environment.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: II	Course: Unconventional Machining Processes	Regulation:R-16

S.no	Course Outcomes	Description
1.	C410.1	Classify modern machining processes
2.	C410.2	Explain electro and chemical machining processes
3.	C410.3	Demonstrate thermal metal removal processes.
4.	C410.4	Explain EBM and LBM processes along with applications
5.	C410.5	Analyze process parameters of plasma machining processes
6.	C410.6	Distinguish importance of abrasive jet machining processes among other processes.

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: II	Course: Automobile Engineering	Regulation:R-16

S.no	Course Outcomes	Description
1.	C411.1	Determine basic concepts of automobile construction systems
2.	C411.2	Examine the transmission system and various drives used in automobiles.
3.	C411.3	Categorize the basic control systems such as steering and brakes.
4.	C411.4	Predict the essential maintenance of basic Electrical and suspension systems.
5.	C411.5	Recommend advanced automobile essentials like ABS, airbags and EBD.
6.	C411.6	Report the remedial measures for hazardous pollution and perform overhauling of the automobile components.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: II	Course: Non destructive Evaluation	Regulation:R-16

S.no	Course Outcomes	Description
1.	C412.1	Classify different types of NDE techniques and learn the basic of Radiography testing methods
2.	C412.2	Apply the concepts of various NDE techniques using ultrasonics
3.	C412.3	Examine the concepts of liquid penetrant tested specimens.
4.	C412.4	Analyze the magnetic particles testing method and test the specimens in MPT.
5.	C412.5	Select the suitable method for testing different parts
6.	C412.6	Evaluate the non destructive testing methods and recommend the testing method.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: II	Course: Seminar	Regulation:R-16

S.no	Course Outcomes	Description
1.	C413.1	Identify, understand and discuss current technologies and real world issues.
2.	C413.2	Apply principles of ethics and respect in interaction with others.
3.	C413.3	Use multiple thinking strategies to examine real world issues,explore creative avenues of expression, solve engineering problems and make consequential decisions.

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year : IV Semester: II	Course: Project	Regulation:R-20

S.no	Course Outcomes	Description
1.	C414.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems.
2.	C414.2	Test the existing data, communicate and conduct research on complex problems using modern tools.
3.	C414.3	Validate the obtained results on contemporary issues related to society and environment.
4.	C414.4	Determine effectively the engineering principles used in their project individually and as a team as per the norms of engineering practice.
5.	C414.5	Structure future work to promote life-long learning in the context of technological adaptation.

Head of the Department

Principal

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DEPARTMENT OF MASTER OF BUSINESS ADMINISTRATION

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Management and Organizational Behaviour	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C101.1	Describe functions and Importance of Management theories (k2)		
2.	C101.2	Explain Organization Structures and Effective Controlling Techniques (k2)		
3.	C101.3	Discuss organizational Behaviour and Perceptual learning process		
4.	C101.4	Determine theories of Motivation and Collaborative process in work groups(k3)		
5.	C101.5	Discuss Problem Solving techniques in Organizational Conflict (k2)		
6.	C101.6	Explain Organizational change in creating an Ethical Organization		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Managerial Economics	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C102.1	Describe fundamental concepts of managerial economics (k2)		
2.	C102.2	Illustrate Elasticies of Demand and its Measurements (k2)		
3.	C102.3	Explain Cost Concepts and Production Function Analysis (k2)		
4.	C102.4	Determine Price Out-Put determination of Competition (k3)		
5.	C102.5	Explain Various Methods of Pricing (k2)		
6.	C102.6	Discuss the measures to Control Inflation and Deflation (k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Accounting for Managers	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C103.1	Generalize Accounting Concepts and Accounting Cycle (k2)		
2.	C103.2	Interpret analysis and importance of Financial Statements (k2)		
3.	C103.3	Classify Cost and Cost Sheet and their Methods (K2)		
4.	C103.4	Explain Different types of Budgets and their Preparation (k3)		
5.	C103.5	Explain need and Importance of Management Accounting (k3)		
6.	C103.6	Discuss the concept of Break -Even Analysis and their process (k2)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Quantitative Analysis for Business Decisions	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C104.1	Discover the no of different ways of arranging and selecting objects with the help of permutations and combinations(K2)		
2.	C104.2	Use a probability distributions to help a company frame its possible future values in terms of likely sales level(K3)		
3.	C104.3	Apply techniques and frame works to solve a range of decisions that managers commonly confront(K3)		
4.	C104.4	Use uncertainty ,risk concepts and insights to make more effective decisions(k3)		
5.	C104.5	Apply hypothesis testing to common business problems(k3)		
6.	C104.6	Compare more than two groups at the same time to decide whether a relationship exists between them by using of analysis of variance(k4)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Legal & Business Environment	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C105.1	Explain concept and nature of business environment and the role of NITI Aayog for overall economic development of India(K2)		
2.	C105.2	Identify easily the nature of Political, Economic factors that effects on Business(k2)		
3.	C105.3	Discuss importance of Law in Business with respective to Indian Contracts Act 1872, Intellectual Property rights and Negotiable Instruments Act 1881(k2)		
4.	C105.4	Determine importance of Law in Business with respective to Intellectual Property rights and Negotiable Instruments Act 1881(k3)		
5.	C105.5	Explain the knowledge of Incorporation of a Company and know the Partnership Act and Information Technology Act(k3)		
6.	C105.6	classify different acts like-Sale of Goods Act, Consumer Protection Act, Environment Protection Act and Foreign Management Act (FEMA)(K4)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Business Communication &Soft Skills	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C106.1	Apply the knowledge of basics of business communication to deal with the organization inside and out side		
2.	C106.2	Change the inter &intra personal		
3.	C106.3	Develop non-verbal communication required for the business environment across different cultures		
4.	C106.4	Identify different structures and patterns for different business writings including cv's , memos, circulars & proposals & reports		
5.	C106.5	Write resume's/cv's effectively for the career environment		
6.	C106.6	Prepare strategies for effective presentations in the business environment.		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Rural Innovation Projects	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C107.1	Identify various Types of Rural Resources (k2)		
2.	C107.2	Classify Land Based on Utility and soil Structure and their importance (k2)		
3.	C107.3	Discuss Human Resource Dimensions of Rural Development (k2)		
4.	C107.4	Explain Food Security and Public Distribution system (k2)		
5.	C107.5	Discuss Rural Development Policies during Different plan Periods (k3)		
6.	C107.6	Demonstrate Rural development Programs in the area of Agricultural Sector (k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: IT Lab	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C108.1	Develop excel and manipulate with its features and components(k3)		
2.	C108.2	compute various excel functions(k3)		
3.	C108.3	Demonstrate account type and setting up company in tally(k3)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: I	Course: Business Communication &Soft Skills Lab	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C109.1	Demonstrate proficiency in listening & speaking skills for formal and informal conversations, group discussions and self presentations. (K3)		
2.	C109.2	Show leadership traits in goal setting, time management and event scheduling through channels of organization communication and Identify appropriate body language to the required formal context (K3)		
3.	C109.3	Illustrate writing skills for different communicative contexts of resume, reports, memos, covering letters and emails and Prepare effective presentations for different professional contexts (K3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : 1 Semester: II	Course: Financial Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C201.1	Describe Evaluation of Financial Management and Major decisions of financial manager.(K2)		
2.	C201.2	Determine Sources of finance and Weighted Average Cost of Capital.(K3)		
3.	C201.3	Identify Techniques of Time Value of Money(K3)		
4.	C201.4	Illustrate Discounting and Non Discounting Methods.(K3)		
5.	C201.5	Discuss Major forms of dividends (K3)		
6.	C201.6	Calculate Estimating Working Capital requirement(K3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : 1 Semester: II	Course: Human Resource Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C202.1	Explain evolution of HRM and global perspective challenges(K2)		
2.	C202.2	Discuss Recruitment and Selections methods(K2)		
3.	C202.3	Determine performance appraisal methods(K3)		
4.	C202.4	Demonstrate Incentives rewards compensation mechanisms.(K3)		
5.	C202.5	Describe Wage payment Plans(K2)		
6.	C202.6	Examine Trade Unions ,Grievances and disputes resolution mechanisms(K3)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : 1 Semester: II	Course: Marketing Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C203.1	Explain concepts of marketing management(k2)		
2.	C203.2	Identify market segmentation and its types(k2)		
3.	C203.3	Discuss methods of pricing and adopting pricing strategies(k2)		
4.	C203.4	Determine sales force compensation and sales force size(k3)		
5.	C203.5	Explain marketing communication process and communication mix(k3)		
6.	C203.6	classify marketing performance control techniques		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : 1 Semester: II	Course: Operations Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C204.1	Explain nature and scope of production and operations management(k2)		
2.	C204.2	Classify product layout characteristics and its advantages and disadvantages(k2)		
3.	C204.3	Describe methods of forecasting and capacity requirement planning(k2)		
4.	C204.4	Determine method study and its techniques(k3)		
5.	C204.5	Illustrate job design process(k3)		
6.	C204.6	List the statistical quality control techniques (k4)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : 1 Semester: II	Course: Business Research Methods	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C205.1	Explain Research and types of research(k2)		
2.	C205.2	Discuss measurement and scaling techniques(k2)		
3.	C205.3	Illustrate preparation and presentation of research report(k3)		
4.	C205.4	Calculate parametric and non parametric tests(k3)		
5.	C205.5	Explain Bi variate analysis for comparing two proportions(k3)		
6.	C205.6	Illustrate ANOVA for complex experimental designs		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : I Semester: II	Course: Project Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C206.1	Discuss basic concept of project management(k2)		
2.	C206.2	Explain process of conducting marketing survey(k2)		
3.	C206.3	Illustrate program evalution and review technique in project management(k3)		
4.	C206.4	Describe capital investment appraisal techniques(k3)		
5.	C206.5	Discuss process of estimation of capital cost and operating cost(k3)		
6.	C206.6	Explain prerequisites for successful project implementation(k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : 1 Semester: II	Course: R Programming	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C207.1	Demonstrate R software to implement data types,frames,lists,matrices and arrays(k3)		
2.	C207.2	Develop R programming for control statements(k3)		
3.	C207.3	Compute R Programming Functions for statistical distributions,Sorting,set operations and Reading and writing files(k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Strategic Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C301.1	Generalize Concepts in Strategic management (k2)		
2.	C301.2	Identify Various strategies and Competitive Advantages in Diversified companies(k2)		
3.	C301.3	Establish Strategic frame work for analyzing Competition (k3)		
4.	C301.4	Develop operationalizing and Institutionalizing Strategy (k3)		
5.	C301.5	Explain Qualitative & Quantitative Benchmarking to Evaluate Performance(k4)		
6.	C301.6	Illustrate the Problems in Measuring Performance (k4)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Operations Research	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C302.1	Discuss the importance of operations research in business(k2)		
2.	C302.2	Explain transportation and assighnment models(k3)		
3.	C302.3	Illustrate integer programming,branch and bound method in dynamic programming(k3)		
4.	C302.4	Apply two person zero-sum games in game theory(k3)		
5.	C302.5	Explain replacement model for single replacement and group replacement(k3)		
6.	C302.6	Determine optimum cost and optimum duration with the help of project crashing techniques(k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Investment Analysis And Portfolio Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE301-FIN.1	Differentiate Investment and Speculation in Security Markets (k2)		
2.	CE301-FIN.2	Discuss meaning and types of Security Risks (k2)		
3.	CE301-FIN.3	Explain Economy,Industry ,Company and Technical Analysis (k3)		
4.	CE301-FIN.4	Determine Various forms of Market Efficiency (k3)		
5.	CE301-FIN.5	Classify Portfolio Models (k4)		
6.	CE301-FIN.6	Evaluation of Portflolio Models (k4)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Leadership and Change Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE301-HR.1	Discuss Organisational Leadership and their Factors of Leadership (k2)		
2.	CE301-HR.2	Describe Motivational Leadership theories and their Performance (k2)		
3.	CE301-HR.3	Explain Leadership Skills and Principles of Team Buliding (k3)		
4.	CE301-HR.4	Identify Interpersonal Leadership Skills (k3)		
5.	CE301-HR.5	Illustrate nature and Types of Change Management (k3)		
6.	CE301-HR.6	Outline Review of Basic flow of Diagrammatic techniques (k4)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Managing Banks and Financial Institutions	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE302-FIN.1	Describe the concept of Financial System in India (k2)		
2.	CE302-FIN.2	Explain Structure and Functions of RBI and Commercial Banks (k2)		
3.	CE302-FIN.3	Illustrate Risk Managements in Banks (k3)		
4.	CE302-FIN.4	Determine Credit Risk Model (k3)		
5.	CE302-FIN.5	Differentiate Various Financial Institutions LIC-GIC-UTI (K4)		
6.	CE302-FIN.6	Classify Financial Instruments and Institutions (k4)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Performance Evaluation and Compensation Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE302-HR.1	Explain the Process for Managing Performance (k2)		
2.	CE302-HR.2	Describe Need and Importance of Strategic Performance Planning (k2)		
3.	CE302-HR.3	Determine Objectives , Principles and Process of monitoring (k3)		
4.	CE302-HR.4	Discuss Role of Compensation and Rewaed in Modern Organization (k3)		
5.	CE302-HR.5	Examine New Trends in Compensation management at National and International level (k3)		
6.	CE302-HR.6	Explain history and types of Compensation system (k4)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Financial Markets and Services	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE303-FIN.1	Describe the concept of Financial System in India (k2)		
2.	CE303-FIN.2	Discuss growth of financial services in India(k2)		
3.	CE303-FIN.3	Illustrate legal aspects and Guidelines for venture capital(k3)		
4.	CE303-FIN.4	Determine Credit Risk Model (k3)		
5.	CE303-FIN.5	Explain working of public and private mutual funds in India(K3)		
6.	CE303-FIN.6	Illustrate microfinance models(k3)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Human Capital Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE304-HR.1	Describe growth of Labour Market in India (k2)		
2.	CE304-HR.2	Distinguish Monetary and Non-Monetary Models (k2)		
3.	CE304-HR.3	Explain Value based models (k2)		
4.	CE304-HR.4	Discuss Workers participation in Management (k3)		
5.	CE304-HR.5	Determine Nature and Types of Employees Engagement (k3)		
6.	CE304-HR.6	Explain different types of Social Security in India (k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Taxation	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE305-FIN.1	Describe the concept of Tax policies in India (k2)		
2.	CE305-FIN.2	Discuss the concept of Gross total income and Rebates and Reliefs(k2)		
3.	CE305-FIN.3	computation of partnership firm book profit and set off carry forward losses(k3)		
4.	CE305-FIN.4	Explain procedure of MAT and Tax provision (k3)		
5.	CE305-FIN.5	Explain Tax Audit and Accounting(K3)		
6.	CE305-FIN.6	Illustrate Tax reporting and Disclosure in Financial statements(k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: I	Course: Manpower Planning, Recruitment, and Selection	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE305-HR.1	Demonstrate the Process of Human Resorce Planning (k2)		
2.	CE305-HR.2	Generalize the man power planning system in Business Environment (k2)		
3.	CE305-HR.3	Describe job Evaluation methods and process (k3)		
4.	CE305-HR.4	Illustrate Recruitment and selection need process (k3)		
5.	CE305-HR.5	Discuss Selection and barriers to effective selection making process (k3)		
6.	CE305-HR.6	Explain Training and Development policies and Strategies (k4)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Supply Chain Management & Analytics	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C401.1	Describe the concept of different views of supply chain(k2)		
2.	C401.2	Illustrate about Strategic Network Planning(k2)		
3.	C401.3	Compute Set covering Problems Set Partitioning Problems and linking algorithms(k3)		
4.	C401.4	Distinguish CRM vs SCM(k3)		
5.	C401.5	Explain the role of computer/ IT in supply chain management(k3)		
6.	C401.6	Discuss Inventory management in supply chain(k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Innovation & Entrepreneurship	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	C402.1	Classify the theories of entrepreneurship(k2)		
2.	C402.2	Describe the role of SIDBI in project management(k2)		
3.	C402.3	Explain financial and managerial problems(k3)		
4.	C402.4	Discuss role of women entrepreneur(k3)		
5.	C402.5	Distinguish professionalism and family entrepreneurs(k3)		
6.	C402.6	Develop business strategy ,New product strategy(k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Financial Derivatives	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE401-FIN.1	Describe groth of financial derivatives in India(k2)		
2.	CE401-FIN.2	Distinguish forward contract and future contract(k2)		
3.	CE401-FIN.3	Explain types of options in option market(k3)		
4.	CE401-FIN.4	Calculate option price with the help of Black Scholes Option pricing model(k3)		
5.	CE401-FIN.5	Discuss the Binomial option pricing model(k3)		
6.	CE401-FIN.6	Explain economic functions of SWAP TRANSACTIONS		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Labor Welfare and Employability Laws	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE401-HR.1	Explain the Impact of ILO on labour welfare in India.(K2)		
2.	CE401-HR.2	Discuss the Welfare Officers' Role, Status and Function.(K2)		
3.	CE401-HR.3	Illustrate Factories act 1948(K3)		
4.	CE401-HR.4	Describe A.P.Shops and Establishment Act (K2)		
5.	CE401-HR.5	Demonstrate Industrial Relations and Legislation.(K3)		
6.	CE401-HR.6	Outline Trade Unions Act 1926		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Global Financial Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE402-FIN.1	Describe functions and Importance of financial Management theories (k2)		
2.	CE402-FIN.2	Explain Forex Derivatives – Swaps, futures and Options and Forward Contracts (k2)		
3.	CE402-FIN.3	Discuss Euro Bonds and Process of Issue of GDRs and ADRs. (k2)		
4.	CE402-FIN.4	Determine Multinational Capital Budgeting; International Acquisition and Valuations(k3)		
5.	CE402-FIN.5	Discuss Problem International Accounting and Reporting (k2)		
6.	CE402-FIN.6	Explain Adjusting for Risk in Foreign Investment. (k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: International HRM	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE402-HR.1	Discuss HR challenges at IHRM (K2)		
2.	CE402-HR.2	Explain the international assignment and legal content of Global HRM (K2)		
3.	CE402-HR.3	Descibe Cross-Cultural Theories(K2)		
4.	CE402-HR.4	Demonstrate types of Cross-Culture Communication (K3)		
5.	CE402-HR.5	Explain global compensation implications on Indian system (K2)		
6.	CE402-HR.6	Discuss the challenges of HRD at global level (K2)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Financial Risk Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE403-FIN.1	Discuss Internal and External Risk reporting Process in Financial Institutions(K2)		
2.	CE403-FIN.2	Explain Risk management tools used for efficient risk managment(K2)		
3.	CE403-FIN.3	Illustrate importance and types of derivatives(K3)		
4.	CE403-FIN.4	Describe Pay off profiles of Forward Contract(K3)		
5.	CE403-FIN.5	Explain Pricing of Interest rate Swaps at Origination and Valuing of Interest Swaps after Origination(K3)		
6.	CE403-FIN.6	Discuss options on Stock Indices and Currencies(K2)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Employee Relations and Engagement	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE403-HR.1	Explain origin and Background of Industrial Relations (k2)		
2.	CE403-HR.2	Discuss Trade union Act 1926 (k2)		
3.	CE403-HR.3	Describe Grievance handling Machinery and Causes of Grievance (k2)		
4.	CE403-HR.4	Determine prevention and Settlement of Industrial Dispute act 1947 (k3)		
5.	CE403-HR.5	Ilustrate Cases and Consequences of Industrial disputes in India (k3)		
6.	CE403-HR.6	Explain factors and Driers of Employee Engagement (k3)		

Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Strategic Financial Management	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE404-FIN.1	Discuss Managerial Implications of Shareholder Value Creation. (K2)		
2.	CE404-FIN.2	Explain Financial Strategy for Capital Structure: Leverage Effect and Shareholders' Risk (K2)		
3.	CE404-FIN.3	Illustrate Risk Adjusted Net Present Value (K3)		
4.	CE404-FIN.4	Describe Merger and Dilution Effect on Business Control.(K3)		
5.	CE404-FIN.5	Explain Takeover Regulations of SEBI &Restructuring Strategy (K3)		
6.	CE404-FIN.6	Discuss Decision Tree Approach for Investment Decisions (K2)		

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Department : Department of Master of Business Administration				
Academic Year: 2021-22		Year : II Semester: II	Course: Strategic HRM	Regulation:R-19
S.No	**Course Outcomes**	**Description**		
1.	CE405-HR.1	Explain theoretical perspectives on SHRM approaches (K2)		
2.	CE405-HR.2	Discuss Strategic HR planning model (K2)		
3.	CE405-HR.3	Explain Strategic implementation as a social issue (k2)		
4.	CE405-HR.4	Discuss Reward and Performance management strategies (K2)		
5.	CE405-HR.5	Describe Strategic HRD planning (K3)		
6.	CE405-HR.6	Illustrate HR as a Profit centre and HR outsourcing strategy (K3)		

Head of the Department

Principal

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DEPARTMENT OF ELECTRIONICS AND COMMUNICATION ENGINEERING
M. TECH PROGRAM: VLSI & EMBEDDED SYSTEM

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: RTL Simulation and Synthesis with PLDs	Regulation:R-19

S.No	Course Outcomes	Description
1.	C101.1	Develop the Verilog HDL to design combinational and sequential digital circuits
2.	C101.2	Analyze Finite State Machines and comprehend concepts of clock related issues
3.	C101.3	Outline the concepts of ASIC design flow
4.	C101.4	Examine the static timing analysis and clock issues in digital circuits
5.	C101.5	Explain the functionality of the digital designs using PLDs.

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Microcontrollers and Programmable Digital Signal Processors	Regulation:R-19

S.No	Course Outcomes	Description
1.	C102.1	Classify ARM processor core based SoC with several features/peripherals based on requirements of embedded applications
2.	C102.2	Identify and characterize various interrupt controllers
3.	C102.3	Develop small applications by utilizing the ARM processor core and DSP processor based platform
4.	C102.4	Discuss about various interrupt handling mechanisms in ARM processors
5.	C102.5	Illustrate of logical applications using programmable DSP processors

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Digital Signal and Image Processing	Regulation:R-19

S.No	Course Outcomes	Description
1.	C103.1	Categorize various transforms available for the analysis of discrete-time signals and systems.
2.	C103.2	Determine the filter coefficients of IIR & FIR digital filters for the given specifications.
3.	C103.3	Analyze the quantization effects and outline the fundamentals of digital image processing using various transforms.
4.	C103.4	Apply spatial & frequency domain filters for image enhancement & restoration.
5.	C103.5	Discuss the techniques for image segmentation & compression
6.	C103.6	Explain the basics of color image processing.

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: CAD of Digital System	Regulation:R-19

S.No	Course Outcomes	Description
1.	C104.1	Illustrate VLSI methodologies, layout design rules and fabrication process
2.	C104.2	Examine Data structures & basic algorithms and solve tractable & intractable problems
3.	C104.3	Analyze different algorithms related to Partitioning, Floor Planning, Placement and Routing
4.	C104.4	Illustrate simulation, logic synthesis and verification
5.	C104.5	Analyze different MCM technologies and Develop VHDL for different digital circuits.
6.	C104.6	Illustrate VLSI methodologies, layout design rules and fabrication process

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Research methodology and IPR	Regulation:R-19

S.No	Course Outcomes	Description
1.	C105.1	Categorize sources of research problem
2.	C105.2	Determine paper developing a research proposal
3.	C105.3	Analyze intellectual property rights
4.	C105.4	Apply licensing and transfer of technology
5.	C105.5	Explain new development in IPR rights
6.	C105.6	Categorize sources of research problem

Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: RTL Simulation and Synthesis with PLDs Lab	Regulation:R-19

S.No	Course Outcomes	Description
1.	C106.1	Develop a Verilog programs for different combinational circuits.
2.	C106.2	Analyze a real – time application such as vending machines using Verilog HDL
3.	C106.3	Solve and implement problems in signal and communication systems using RTL design tools

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Department : Department of Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: I	Course: Microcontrollers and Programmable Digital Signal Processors Lab	Regulation:R-19

S.No	Course Outcomes	Description
1.	C107.1	Develop a Embedded C Programs for Cortex-M3 development boards
2.	C107.2	Develop a Embedded C timer Program for Cortex-M3 development boards
3.	C107.3	Develop C Code for various digital signals using CCS in DSK 6713 kit

Department : Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: II	Subject: Analog and Digital CMOS VLSI Design	Regulation:R19

S.No	Course Outcomes	Description
1.	C201.1	Analyze the depth of designing a Digital IC
2.	C201.2	Classify the static and dynamic behavior of CMOS
3.	C201.3	Differentiate types of sequential circuits
4.	C201.4	Construct digital circuit with HDL, simulate, synthesis and prototype in PLD.
5.	C201.5	Categorize chip level issues and need of testability

Department : Electronics and Communication Engineering			
Academic Year: 2021-22	Year : I Semester: II	Subject: Real Time Operating Systems	Regulation:R19

S.No	Course Outcomes	Description
1.	C202.1	Understand the history of OS, RTOS, characteristics of RTOS
2.	C202.2	Classify the device I/O management, Exceptions, interrupts and event handling.
3.	C202.3	Analyze the real time clocks, Programmable timers, timer interrupt service routines
4.	C202.4	Illustrate the memory management in RTOS.
5.	C202.5	Classify different design problems

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Department : Electronics and Communication Engineering				
Academic Year: 2021-22		Year : I Semester: II	Subject: SoC Design	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C203.1	understanding about the fundamental SoC design architectures		
2.	C203.2	Illustrate the NISC Architecture design and its instruction sets		
3.	C203.3	Analyzing behavior of Transistor/FPGA circuit simulation		
4.	C203.4	Identify impact of SoC on Application power		
5.	C203.5	Examining of faults		

Department : Electronics and Communication Engineering				
Academic Year: 2021-22		Year : I Semester: II	Subject: Communication Buses and Interfaces	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C204.1	Differentiate Low speed Serial buses for various applications		
2.	C204.2	Demonstrate Low speed serial buses Configuration		
3.	C204.3	Interpret Architecture of - ISO 11898		
4.	C204.4	Analyze USB Descriptors		
5.	C204.5	Design high speed SFPDP Protocol		

Department : Electronics and Communication Engineering				
Academic Year: 2021-22		Year : I Semester: II	Subject: Analog and Digital CMOS VLSI Design Lab	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C205.1	Analyze VI Characteristics NMOS and PMOS Devices		
2.	C205.2	Exploit Voltage transfer characteristics of CMOS inverter		
3.	C205.3	Calculate small signal voltage gain of CS amplifier		

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Department : Electronics and Communication Engineering				
Academic Year: 2021-22		Year : I Semester: II	Subject: Real Time Operating Systems Lab	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C206.1	Apply concepts of Real-Time systems and modeling		
2.	C206.2	Develop and document Task scheduling, resource management using ARM-926		
3.	C206.3	Implement the interfacing of display and ADC/DAC ports		

Department : Electronics and Communication Engineering				
Academic Year: 2021-22		Year : I Semester: II	Subject: Mini Project	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C207.1	Practice acquired knowledge within the chosen area of technology for project development		
2.	C207.2	Develop as an individual or in a team in development of technical projects		
3.	C207.3	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach		

Department : Electronics and Communication Engineering				
Academic Year: 2022-23		Year : II Semester: III	Subject: IOT and its Applications	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C301.1	Describe the application areas of IOT		
2.	C301.2	Analyze basic protocols in wireless sensor network		
3.	C301.3	Design IoT applications in different domain and be able to analyze their performance		
4.	C301.4	Summarize building blocks of Internet of Things and characteristics		
5.	C301.5	Justify the revolution of Internet in Mobile Devices, Cloud & Sensor Networks		

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Department : Electronics and Communication Engineering				
Academic Year: 2022-23		Year : II Semester: III	Subject: Cost Management Of Engineering Projects	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C302.1	Discuss the concept of strategic cost management– target costing and the cost drive concept		
2.	C302.2	Describe the decision-making; relevant cost, differential cost, incremental cost and opportunity cost, objectives of a costing system		
3.	C302.3	Justify the meaning and different types of project management and project execution, detailed engineering activities		
4.	C302.4	Identify the project contracts, cost behaviour and profit planning types and contents, Bar charts and Network diagram		
5.	C302.5	Analyze the quantitative techniques for cost management like PERT/CPM		

Department : Electronics and Communication Engineering				
Academic Year: 2022-23		Year : II Semester: III	Subject: Industrial project	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C303.1	Analyzing the budget, timelines and defining a scope		
2.	C303.2	Identifying the requirements in Meeting the goals of cost, quality and delivery		
3.	C303.3	Applying the knowledge on the management of the changing client expectations and demands		

Department : Electronics and Communication Engineering				
Academic Year: 2022-23		Year : II Semester: IV	Subject: Project	Regulation:R19
S.No	**Course Outcomes**	**Description**		
1.	C401.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems		
2.	C401.2	Test the existing data, communicate and conduct research on complex problems using modern tools.		
3.	C401.3	Validate the obtained results on contemporary issues related to society and environment.		

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING M. TECH
PROGRAM: COMPUTER SCIENCE ENGINEERING

Department : Computer Science & Engineering			
Academic Year: 2021-22	Year : I Semester: I	Subject: Mathematical Foundations of Computer Science	Regulation:R19

S.No	Course Outcomes	Description
1.	C101.1	Apply the basic rules and theorems of probability theory
2.	C101.2	Determine the expectation and variance of a random variable from its distribution
3.	C101.3	Analyze of sampling, means, proportions, variances
4.	C101.4	Discuss the formulate and test hypotheses
5.	C101.5	Design various ciphers using number theory

Department : Computer Science & Engineering			
Academic Year: 2021-22	Year : I Semester: I	Subject: Advanced Data Structures & Algorithms	Regulation:R19

S.No	Course Outcomes	Description
1.	C102.1	Analyze the algorithm correctness
2.	C102.2	Describe variety of advanced abstract data type (ADT)
3.	C102.3	Demonstrate various searching, sorting and hash techniques
4.	C102.4	Design and implement variety of data structures
5.	C102.5	Write ADT trees and priority queues

Department : Computer Science & Engineering			
Academic Year: 2021-22	Year : I Semester: I	Subject: Advanced Operating Systems	Regulation:R19

S.No	Course Outcomes	Description
1.	C103.1	Illustrate on the fundamental concepts of distributed operating systems
2.	C103.2	Analyze the deadlock detection algorithms and agreement protocols
3.	C102.3	Use of algorithms for implementing DSM and its scheduling
4.	C102.4	Apply protection and security in distributed operating systems
5.	C102.5	Explain concurrency control mechanisms in distributed database systems

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Department : Computer Science & Engineering			
Academic Year: 2021-22	Year : I Semester: I	Subject: Advanced Computer Networks	Regulation:R19

S.No	Course Outcomes	Description
1.	C104.1	Illustrate reference models with layers, protocols and interfaces
2.	C104.2	Explain the routing algorithms, Sub netting and Addressing of IP V4and IPV6
3.	C104.3	Analyze the basic protocols of computer networks
4.	C104.4	Describe the concepts Wireless LANS, WIMAX, IEEE 802.11
5.	C104.5	Discuss the emerging trends in networks-MANETS and WSN

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Research Methodology and IPR	Regulation: R 19

S.No	Course Outcome	Description
1.	C105.1	Discuss the Sources of research problem
2.	C105.2	Describe Effective literature studies approaches
3.	C105.3	Analyze the basic protocols of computer networks
4.	C105.4	Explain the Patent System and New developments in IPR
5.	C105.5	Determine Procedure for grants of patents, Patenting under PCT

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Advanced Data Structures & Algorithms Lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C106.1	Identify classes, objects, members of a class
2.	C106.2	Examine algorithms performance using Prior analysis
3.	C106.3	Apply to solve the complex problems using advanced data structures

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Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: I Semester : I	Course: Advanced Computing Lab	Regulation: R 19
S.No	**Course Outcome**	**Description**		
1.	C107.1	Estimate various sensors like temperature, humidity, smoke, light, etc.		
2.	C107.2	Examine the use of IoT technology in Industrial Applications.		
3.	C107.3	Evaluate Creating & Running Applications using JSP libraries		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: I Semester : II	Course: Machine learning	Regulation: R 19
S.No	**Course Outcome**	**Description**		
1.	C201.1	Apply Domain Knowledge for Productive use of Machine Learning		
2.	C201.2	Demonstrate on Supervised and Computational Learning		
3.	C201.3	Analyze on Statistics in learning techniques and Logistic Regression		
4.	C201.4	Illustrate on Support Vector Machines and Perceptron Algorithm		
5.	C201.5	Discuss Multilayer Perceptron Networks		

Department : Department of Computer Science and Engineering				
Academic Year: 2021-22		Year: I Semester : II	Course: MEAN Stack Technologies	Regulation: R 19
S.No	**Course Outcome**	**Description**		
1.	C202.1	Identify the Basic Concepts of Web & Markup Languages		
2.	C202.2	Develop web Applications using Scripting Languages & Frameworks		
3.	C202.3	Make use of Express JS and Node JS frameworks		
4.	C202.4	Illustrate the uses of web services concepts like restful, react js		
5.	C202.5	Classify Deployment Techniques & Working with cloud platform		

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Advanced Databases and Mining	Regulation: R 19

S.No	Course Outcome	Description
1.	C203.1	Analyze the normalization techniques.
2.	C203.2	Make use of genetic algorithms to combinatorial optimization problems
3.	C203.3	Distinguish artificial intelligence techniques
4.	C203.4	Apply the principles of self-adopting and self organizing neuro fuzzy inference
5.	C203.5	Evaluate the Applications Of Computational Intelligence

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Cloud Computing	Regulation: R 19

S.No	Course Outcome	Description
1.	C204.1	Explain the various challenge of Cloud Computing
2.	C204.2	Examine the economics, financial, and technological implications for selecting cloud computing for own organization
3.	C204.3	Evaluate own organizations' needs for capacity building
4.	C204.4	Illustrate Virtualization for Data-Center Automation
5.	C204.5	Demonstrate Cloud Application Development and Amazon Web Services

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Machine Learning with python lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C205.1	Develop the machine learning algorithms
2.	C205.2	Examine the various Learning algorithms
3.	C205.3	Evaluate the data sets of Machine Learning algorithms

Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: MEAN Stack Technologies Lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C206.1	Identify the Basic Concepts of Web & Markup Languages
2.	C206.2	Examine the web Applications using Scripting Languages
3.	C206.3	Classify the real World IoT Design Constraints

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Department : Department of Computer Science and Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Mini Project with Seminar	Regulation: R 19

S.No	Course Outcome	Description
1.	C207.1	Practice acquired knowledge within the chosen software for project development
2.	C207.2	Develop as an individual or in a team in development of technical projects
3.	C207.3	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach

Department : Department of Computer Science and Engineering			
Academic Year: 2022-23	Year: II Semester : III	Course: Deep Learning	Regulation: R 19

S.No	Course Outcome	Description
1.	C301.1	Examine the basic concepts fundamental learning techniques and layers
2.	C301.2	Discuss the Neural Network training, various random models
3.	C301.3	Explain different types of deep learning network models
4.	C301.4	Classify the Probabilistic Neural Networks
5.	C301.5	Categorize various tools on Deep Learning techniques

Department : Department of Computer Science and Engineering			
Academic Year: 2022-23	Year: II Semester : III	Course: Industrial project	Regulation: R 19

S.No	Course Outcome	Description
1.	C302.1	Analyzing the budget, timelines and defining a scope
2.	C302.2	Identifying the requirements in Meeting the goals of cost, quality and delivery
3.	C302.3	Applying the knowledge on the management of the changing client expectations and demands

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Department : Department of Computer Science and Engineering			
Academic Year: 2022-23	Year: II Semester : IV	Course: Project	Regulation: R 19

S.No	Course Outcome	Description
1.	C401.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems
2.	C401.2	Test the existing data, communicate and conduct research on complex problems using modern tools.
3.	C401.3	Validate the obtained results on contemporary issues related to society and environment.

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING M. TECH PROGRAM: POWER AND INDUSTRIAL DRIVES

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Electrical Machine Modelling Analysis	Regulation: R 19

S.No	Course Outcome	Description
1.	C101.1	Analyze the characteristics of different types of DC motors to design suitable controllers for different applications
2.	C101.2	Apply the knowledge of reference frame theory for AC machines to model the induction and Synchronous machines
3.	C101.3	Evaluate the steady state and transient behavior of induction and synchronous machines to propose the suitability of drives for different industrial applications
4.	C101.4	Explain the behavior of induction machines using voltage and torque equations
5.	C101.5	Discuss the state space model in induction motor with flux linkages as variables

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Analysis of Power Electronic Converters	Regulation: R 19

S.No	Course Outcome	Description
1.	C102.1	Describe and analyze the operation of AC-DC converters
2.	C102.2	Analyze the operation of power factor correction converters
3.	C102.3	Explain the operation of three phase inverters with PWM control
4.	C102.4	Discuss the principles of operation of multi- level inverters and their applications
5.	C102.5	Illustrate the assess multilevel inverters and resonant pulse converters

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Modern Control Theory	Regulation: R 19

S.No	Course Outcome	Description
1.	C103.1	Solve the state equations of dynamic systems, analyze controllability and observability.
2.	C103.2	Design a state feedback controller; design an observer
3.	C103.3	Analyze the non-linear systems through describing functions
4.	C103.4	Determine the stability of a given system to generate a Lyapunov function
5.	C103.5	Examine the optimal feedback gain matrix

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Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Renewable Energy Technologies	Regulation: R 19

S.No	Course Outcome	Description
1.	C104.1	Understand various general aspects of renewable energy systems
2.	C104.2	Analyze and design induction generator for power generation from wind
3.	C104.3	Design MPPT controller for solar power utilization
4.	C104.4	Utilize fuel cell systems for power generation
5.	C104.5	Estimate the use of conventional energy sources to produce electrical energy

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course:	Regulation: R 19

S.No	Course Outcome	Description
1.	C105.1	Explain the research problem and research process
2.	C105.2	Understand proper research ethics
3.	C105.3	Conclude a research paper and well structured scientific presentations
4.	C105.4	Illustrate various IPR components and process of filing an IPR
5.	C105.5	Discuss the knowledge on patent and rights

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Power Electronics Simulation lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C106.1	Understand the operation of DC-DC converters
2.	C106.2	Examine the operation of AC-DC converters, AC voltage regulators, DC-AC converters by simulation
3.	C106.3	Estimate and simulate any problem related to Power Electronics and allied fields using appropriate soft wares

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Power Converters Lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C107.1	Examine the converter and inverters in real time applications
2.	C107.2	Analyze the AC-AC, DC-AC converters and also converter fed to AC&DC drives
3.	C107.3	Evaluate the various power electronic converter topologies and their speed

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Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Switched Mode Power Conversion	Regulation: R 19

S.No	Course Outcome	Description
1.	C201.1	Analyze operation and control of non-isolated and isolated switch mode converters
2.	C201.2	Design of non-isolated and isolated switch mode converters
3.	C201.3	Discuss the operation and control of resonant converters.
4.	C201.4	Discriminate the Feedback design of switch mode converters.
5.	C201.5	Explain the switch mode converters using small-signal analysis.

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Power Electronic Control of Electrical Drives	Regulation: R 19

S.No	Course Outcome	Description
1.	C202.1	Understand the concepts of scalar and vector control methods for drive systems.
2.	C202.2	Analyze and design controllers and converters for induction motor, PMSM and BLDC drives.
3.	C202.3	Explain the control techniques for induction motor and PMSM
4.	C202.4	Discuss the control techniques and converters for SRM drives
5.	C202.5	List out the current controllers and flux controllers.

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Digital Control Systems	Regulation: R 19

S.No	Course Outcome	Description
1.	C203.1	Analyze digital control systems using Z-transforms and Inverse Z-Transforms.
2.	C203.2	Evaluate the state transition matrix and solve state equation for discrete model for continuous time systems, investigate the controllability and observability.
3.	C203.3	Determine the stability; design state feedback controller.
4.	C203.4	Design an observer
5.	C203.5	Solve a given optimal control problem.

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Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Applications of Power Converters	Regulation: R 19

S.No	Course Outcome	Description
1.	C204.1	Analyze power electronic application requirements
2.	C204.2	Identify suitable power converter from the available configurations
3.	C204.3	Develop improved power converters for any stringent application requirements
4.	C204.4	Design of Bi-directional converters for charge/discharge applications
5.	C204.5	Apply advanced modulation techniques for analyzing and designing power converters.

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Electric Drives Simulation Laboratory	Regulation: R 19

S.No	Course Outcome	Description
1.	C205.1	Understand the operation of Simulate PMSM motor by using d-q model.
2.	C205.2	Examine the operation of Simulate the multi-level inverter fed induction motor drive.
3.	C205.3	Study of PWM controlled inverter fed PMSM drive.

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Electric Drives Laboratory	Regulation: R 19

S.No	Course Outcome	Description
1.	C206.1	Study of armature controlled separately excited DC drive with 3-ϕ full converter
2.	C206.2	Understand the Study of performance characteristics of a 3-ϕ induction motor using V/f control.
3.	C206.3	Discuss the speed control methods of DC & AC drives.

Department : Department of Electrical and Electronics engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Mini Project	Regulation: R 19

S.No	Course Outcome	Description
1.	C207.1	Practice acquired knowledge within the chosen software for project development
2.	C207.2	Develop as an individual or in a team in development of technical projects
3.	C207.3	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach

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Department : Department of Electrical and Electronics engineering			
Academic Year: 2022-23	Year: II Semester : III	Course: Digital Signal Processing Controlled Drives	Regulation: R 19

S.No	Course Outcome	Description
1.	C301.1	Analyze the DSP platform with sensors such as hall-effect voltage sensors
2.	C301.2	Explain hall-effect current sensors, shaft encoder for data acquisition for motor drive applications
3.	C301.3	Write the Scale and normalize the data to suit the requirements of the drive system
4.	C301.4	Discuss the architectural features of the DSP platform to design and implement
5.	C301.5	Use algorithms for the realization of controllers, Pulse Width Modulators and observers

Department : Department of Electrical and Electronics engineering			
Academic Year: 2022-23	Year: II Semester : III	Course: Course: Energy Audit, Conservation & Management	Regulation: R 19

S.No	Course Outcome	Description
1.	C302.1	Explain the principle of energy audit and their economic aspects
2.	C302.2	Design the good lighting system for energy efficient motors
3.	C302.3	Understand the advantages to improve the power factor
4.	C302.4	Evaluate the depreciation of equipment
5.	C302.5	Determine pay back periods for energy saving equipment

Department : Department of Electrical and Electronics engineering			
Academic Year: 2022-23	Year: II Semester : IV	Course: Project	Regulation: R 19

S.No	Course Outcome	Description
1.	C401.1	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems
2.	C401.2	Test the existing data, communicate and conduct research on complex problems using modern tools.
3.	C401.3	Validate the obtained results on contemporary issues related to society and environment.

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DEPARTMENT OF MECHANICAL ENGINEERING M. TECH PROGRAM: CAD/CAM

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Geometric Modeling	Regulation: R 19

S.No	Course Outcome	Description
1.	C101.1	Analyze cubic spline curve and Hermite cubic spline curve
2.	C101.2	Illustrate B-Spline curves also finding out derivatives
3.	C101.3	Explain B-Spline curves, knot vectors
4.	C101.4	Differentiate Bi-cubic surfaceand Biezer surfaces
5.	C101.5	Evaluate different solid modeling techniques

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Computer aided Manufacturing	Regulation: R 19

S.No	Course Outcome	Description
1.	C102.1	Distinguish NC programming APT programming and automatic tool path generation
2.	C102.2	Debate on how tools are handled in high productive multi-purpose machines
3.	C102.3	Explain use various types of post processors, DAPP post processor
4.	C102.4	Different types of micro-controllers and their hardware
5.	C102.5	Defend various types of computer aided process planning methods

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Mechanical Vibrations	Regulation: R 19

S.No	Course Outcome	Description
1.	C103.1	Analyze vibrations of single degree of freedom
2.	C103.2	Summarize response to no periodic excitations
3.	C103.3	Illustrate Multi degree freedom systems
4.	C103.4	apply vibrations like oscillations in transverse vibrations
5.	C103.5	List transverse vibrations

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Mechatronics	Regulation: R 19

S.No	Course Outcome	Description
1.	C104.1	Differentiate mechatronics systems also basic hardware of mechatronics system
2.	C104.2	Evaluate different diodes and BJT, FET, DIAC, TRIAC
3.	C104.3	Evaluate about pneumatic and hydraulic drive systems
4.	C104.4	Design of digital logic control, PLCs
5.	C104.5	Identify different system interfacing and data acquisition techniques.

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Advanced CAD lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C105.1	Formulate FEM models
2.	C105.2	Prepare FE models to obtain different parameters
3.	C105.3	Calculate stresses, strains and displacements

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Advanced Manufacturing lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C106.1	Examine casting process, calculation of temperatures
2.	C106.2	Outline Forming processes and calculate different parameters
3.	C106.3	Examine Welding, powder metallurgy problems

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : I	Course: Research methodologies and IPR	Regulation: R 19

S.No	Course Outcome	Description
1.	C107.1	Identify meaning of Research problem, deciding research problem
2.	C107.2	Choose proper literature and follow research ethics
3.	C107.3	Claiming rights and development of IPR

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Theory of elasticity and plasticity	Regulation: R 19

S.No	Course Outcome	Description
1.	C201.1	Analysis about stress-strain relationship, Differential equations of equilibrium and plane stress-plane strain conditions
2.	C201.2	Apply 2-Dimensional problems in rectangular and polar co-ordinates
3.	C201.3	Derive methods of solving 3D stress-strain equations
4.	C201.4	Calculating torsion of prismatic bars using Saint-Venant's batching
5.	C201.5	Evaluate theory of plastic flow, plastic potential, Plastic potential and strain hardening

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Advanced Manufacturing Process	Regulation: R 19

S.No	Course Outcome	Description
1.	C202.1	Analysis of cleaning and surface coatings
2.	C202.2	Outline different types of ceramic manufacturing processing processes
3.	C202.3	Distinguish crystal growth, lithography and bond and packaging
4.	C202.4	distinguish between EDM, ECM, AJM, WJM and other advanced manufacturing processes
5.	C202.5	Demonstration of the concept of rapid prototyping involving several methodologies

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Advanced Finite Element Method	Regulation: R 19

S.No	Course Outcome	Description
1.	C203.1	formulate the finite elemental problem using different methodologies.
2.	C203.2	Design finite elements of one dimensional like bar, beam and frames to find displacements, stresses.
3.	C203.3	solve the 2D problems like 2D trusses and obtain stresses
4.	C203.4	Interpret the solutions to partial differential equations using numerical integration process
5.	C203.5	Utilise finite elements method and solve structural analysis

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Visakhapatnam

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Material Characterisation Techniques	Regulation: R 19

S.No	Course Outcome	Description
1.	C204.1	Distinguish the principles like diffraction, interference and neutron diffraction
2.	C204.2	Analyze various microscopy techniques like optical, scanning electron type and Atomic force microscopy
3.	C204.3	Illustrate thermal analysis techniques like DTA, TGA and DTG
4.	C204.4	Evaluate magnetisation using different instruments
5.	C204.5	Understand electron and light characterisation techniques fourier transform infrared spectroscopy and photoelectron spectroscopy

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Non Destructive Evaluation	Regulation: R 19

S.No	Course Outcome	Description
1.	C204.1	Utilise different surface quality assessment methods to find defects
2.	C204.2	Choose proper X-ray radiography and other processing methods and equipment
3.	C204.3	Analyze ultrasonic testing methods and different types of scans to study defects
4.	C204.4	Distinguish various principles of operation of holography
5.	C204.5	list various advantages of NDE techniques

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Material characterization Lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C205.1	Utilizing different microscopy techniques
2.	C205.2	Calculation of micro hardness , tensile and flexular strengths of materials
3.	C205.3	Evaluation of tribological properties

Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Simulation of manufacturing systems lab	Regulation: R 19

S.No	Course Outcome	Description
1.	C206.1	Estimation of Solidification temperatures in casting and forming processes
2.	C206.2	Build sheet metal operations
3.	C206.3	Illustrate TIG, MIG welding processes

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Department : Department of Mechanical Engineering			
Academic Year: 2021-22	Year: I Semester : II	Course: Mini project with seminar	Regulation: R 19

S.No	Course Outcome	Description
1.	C207.1	Identifying and framing project title
2.	C207.2	Design iterations till satisfied functionality is obtained
3.	C207.3	Develop seminar/presentation skills

Department : Department of Mechanical Engineering			
Academic Year: 2022-23	Year: II Semester : III	Course: Non Destructive Evaluation	Regulation: R 19

S.No	Course Outcome	Description
1.	C301.1	Utilise different surface quality assessment methods to find defects
2.	C301.2	Choose proper Xray radiography and other processing methods and equipment
3.	C301.3	Analyze ultrasonic testing methods and different types of scans to studydefects
4.	C301.4	Distinguish various principles of operation of holography
5.	C301.5	list various advantages of NDE techniques

Department : Department of Mechanical Engineering			
Academic Year: 2022-23	Year: II Semester : III	Course: Nano Technology	Regulation: R 19

S.No	Course Outcome	Description
1.	C302.1	Understand properties of material at nano scale and to identify various types of equipment those can be built using nanotechnology advantages.
2.	C302.2	Decide various types of manufacturing methods of nanoparticles
3.	C302.3	Critique various nano characterization techniques and AFM and SEM probes.
4.	C302.4	Explain various types of nano semiconductor synthesis processes
5.	C302.5	Develop C nanoparticles using various methods and study about its advantages

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Department : Department of Mechanical Engineering				
Academic Year: 2022-23		Year: II Semester : III	Course: Project/Dissertation Phase-I	Regulation: R 19
S.No	**Course Outcome**	**Description**		
1.	C303.1	Deciding data design and manufacturing data for fulfilling project needs		
2.	C303.2	Recommend action plan to execute project in given time		
3.	C302.3	Develop the required model or prototype to meet required functionalities		

Department : Department of Mechanical Engineering				
Academic Year: 2022-23		Year: II Semester : IV	Course: Project/Dissertation Phase-II	Regulation: R 19
S.No	**Course Outcome**	**Description**		
1.	C401.1	Design and develop final product with post processing works		
2.	C401.2	Improving the product quality each time of the production cycle		
3.	C401.3	Solve the society and industry problems by the obtained knowledge		

Head of the Department

Principal

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