IDEAL INSTITUTE OF TECHNOLOGY

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

Vidyut Nagar, KAKINADA - 533 003. (A.P.)

Department of COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

Course Outcomes (COs)

At the end of the course the student will be able to:

Regulation	Year-Semester	Subject	Course Outcomes	
	I- I	COMMUNICATIVE ENGLISH	CO1	Facilitate effective listening skills for better comprehension of academic lectures and English spoken by native speakers
			CO2	Focus on appropriate reading strategies for comprehension of various academic texts and authentic materials
			CO3	Help improve speaking skills through participation in activities such as role plays, discussions and structured talks/oral presentations
			CO4	Impart effective strategies for good writing and demonstrate the same in summarizing, writing well organized essays, record and report useful information
			CO5	Provide knowledge of grammatical structures and vocabulary and encourage their appropriate use in speech and writing
		M-I	CO1	utilize mean value theorems to real life problems (L3)
			CO2	solve the differential equations related to various engineering fields (L3)
			CO3	Familiarize with functions of several variables which is useful in optimization (L3)
			CO4	Apply double integration techniques in evaluating areas bounded by region (L3)
			CO5	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2- dimensional and 3-dimensional coordinate systems. (L5)
		APPLIED CHEMISTRY	CO1	Analyze the different types of composite plastic materials and interpret the mechanism of conduction in conducting polymers.
			CO2	Utilize the theory of construction of electrodes, batteries and fuel cells in redesigning new engineering products and categorize the reasons for corrosion and study methods to control corrosion
			CO3	Synthesize nanomaterials for modern advances of engineering technology. Summarize the preparation of semiconductors; analyze the applications of liquid crystals and superconductors.
			CO4	Analyze the principles of different analytical instruments and their applications. • Design models for energy by different natural sources.
			CO5	Obtain the knowledge of computational chemistry and molecular machines
		PROBLEM FOR	CO1	To write algorithms and to draw flowcharts for solving problems
			CO2	To convert flowcharts/algorithms to C Programs, compile and debug programs
			CO3	To use different operators, data types and write programs that use two-way/ multi-way selection

	PROBLEM SOLVING USING C	CO4	To select the best loop construct for a given problem
		CO5	To design and implement programs to analyze the different pointer applications
		CO6	To decompose a problem into functions and to develop modular reusable code
		CO7	To apply File I/O operation
I- II	M-II	CO1	develop the use of matrix algebra techniques that is needed by engineers for practical applications (L6)
		CO2	solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel (L3)
		CO3	evaluate the approximate roots of polynomial and transcendental equations by different algorithms (L5)
		CO4	apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals (L3)
		CO5	apply numerical integral techniques to different Engineering problems (L3)
		CO6	apply different algorithms for approximating the solutions of ordinary differential equations with initial conditions to its analytical computations (L3)
	APPLIED PHYSICS	CO1	Explain the need of coherent sources and the conditions for sustained interference (L2). Identify the applications of interference in engineering (L3). Analyze the differences between interference and diffraction with applications (L4). Illustrate the concept of polarization of light and its applications (L2). Classify ordinary refracted light and extraordinary refracted rays by their states of polarization (L2)
		CO2	Explain various types of emission of radiation (L2). Identify the role of laser in engineering applications (L3). Describe the construction and working principles of various types of lasers (L1). Explain the working principle of optical fibers (L2). Classify optical fibers based on refractive index profile and mode of propagation (L2). Identify the applications of optical fibers in medical, communication and other fields (L2). Apply the fiber optic concepts in various fields (L3).
		CO3	Describe the dual nature of matter (L1). Explain the significance of wave function (L2). Identify the role of Schrodinger's time independent wave equation in studying particle in one¬ dimensional infinite potential well (L3). Identify the role of classical and quantum free electron theory in the study of electrical conductivity (L3). Classify the energy bands of solids (L2).
		CO4	Explain the concept of dielectric constant and polarization in dielectric materials (L2). Summarize various types of polarization of dielectrics (L2). Interpret Lorentz field and Claussius-Mosotti relation in dielectrics (L2). Classify the magnetic materials based on susceptibility and their temperature dependence (L2). Explain the applications of dielectric and magnetic materials (L2). Apply the concept of magnetism to magnetic devices (L3)
		CO5	Outline the properties of charge carriers in semiconductors (L2). Identify the type of semiconductor using Hall effect (L2). Identify applications of semiconductors in electronic devices (L2). Classify superconductors based on Meissner's effect (L2). Explain Meissner's effect, BCS theory & Josephson effect in superconductors (L2

R20			CO1	An ability to define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.
		DIGITAL LOGIC DESIGN	CO2	An ability to understand the different switching algebra theorems and apply them for logic functions
			CO3	An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions
			CO4	Students will be able to design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays.
			CO5	Students will be able to design various sequential circuits starting from flip-flop to registers and counters.
		PYTHON PROGRAMMING	CO1	Develop essential programming skills in computer programming concepts like data types, containers
			CO2	Apply the basics of programming in the Python language
			CO3	Solve coding tasks related conditional execution, loops
			CO4	Solve coding tasks related to the fundamental notions and techniques used in object┐oriented programming
		DATA STRUCTURES	CO1	Summarize the properties, interfaces, and behaviors of basic abstract data types
			CO2	Discuss the computational efficiency of the principal algorithms for sorting & searching
			CO3	Use arrays, records, linked structures, stacks, queues, trees, and Graphs in writing programs
			CO4	Demonstrate different methods for traversing trees
	II - I	MFCS	CO1	Demonstrate skills in solving mathematical problems
			CO2	Comprehend mathematical principles and logic
			CO3	Demonstrate knowledge of mathematical modeling and proficiency in using mathematical software
			CO4	Manipulate and analyze data numerically and/or graphically using appropriate Software
			CO5	Communicate effectively mathematical ideas/results verbally or in writing
		M-III	CO1	Interpret the physical meaning of different operators such as gradient, curl and divergence (L5)
			CO2	Solve the differential equations related to various engineering fields (L3)
			CO3	Familiarize with functions of several variables which is useful in optimization (L3)
			CO4	Apply double integration techniques in evaluating areas bounded by region (L3)
			CO5	Students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2- dimensional and 3-dimensional coordinate systems. (L5)
		INTRODUCTION TO AL &ML	CO1	Enumerate the history and foundations of Artificial Intelligence
			CO2	Apply the basic principles of AI in problem solving
			CO3	Choose the appropriate representation of Knowledge
			CO4	Enumerate the fundamentals of data science and NumPy .
			CO5	Summarize and compute descriptive statistics using pandas

		OBJECT ORIENTED PROGRAMMING WITH JAVA	CO1	Able to realize the concept of Object Oriented Programming & Java Programming Constructs
			CO2	Able to describe the basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords
			CO3	Apply the concept of exception handling and Input/ Output operations
			CO4	Able to design the applications of Java & Java applet
			CO5	Able to Analyze & Design the concept of Event Handling and Abstract Window Toolkit
		DATABASE MANAGEMENT SYSTEM	CO1	Describe a relational database and object-oriented database
			CO2	Create, maintain and manipulate a relational database using SQL
			CO3	Describe ER model and normalization for database design
			CO4	Examine issues in data storage and query processing and can formulate appropriate solutions
			CO5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage
	II- II			
		PROBABILITY AND STATISTICS	CO1	Classify the concepts of data science and its importance
			CO2	Interpret the association of characteristics and through correlation and regression tools
			CO3	Make use of the concepts of probability and their applications
			CO4	Apply discrete and continuous probability distributions
			CO5	Design the components of a classical hypothesis test
			C06	Infer the statistical inferential methods based on small and large sampling tests
		COMPUTER ORGANIZATION	CO1	Develop a detailed understanding of computer systems
			CO2	Cite different number systems, binary addition and subtraction, standard, floating-point, and micro operations
			CO3	Develop a detailed understanding of architecture and functionality of central processing unit
			CO4	Exemplify in a better way the I/O and memory organization
			CO5	Illustrate concepts of parallel processing, pipelining and inter processor communication
		DATA WARE HOUSING AND DATA MINING	CO1	Summarize the architecture of data warehouse
			CO2	Apply different preprocessing methods, Similarity, Dissimilarity measures for any given raw data
			CO3	Construct a decision tree and resolve the problem of model overfitting
			CO4	Compare Apriori and FP-growth association rule mining algorithms for frequent itemset generation
			CO5	Apply suitable clustering algorithm for the given data set
		FLAT	CO1	Classify machines by their power to recognize languages
			CO2	Summarize language classes & grammars relationship among them with the help of Chomsky hierarchy
			CO3	Employ finite state machines to solve problems in computing
			CO4	Illustrate deterministic and non-deterministic machines
			CO5	Quote the hierarchy of problems arising in the computer science
			CO1	The Learner is equipped with the knowledge of estimating the Demand and demand elasticities for a product
			CO2	The knowledge of understanding of the Input-Output-Cost relationships and estimation of the least cost combination of inputs

		MEFA	CO3	The pupil is also ready to understand the nature of different markets and Price Output determination under various market conditions and also to have the knowledge of different Business Units
			CO4	The Learner is able to prepare Financial Statements and the usage of various Accounting tools for Analysis
			CO5	The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making