Artificial Intelligence and Machine Learning

Course Outcome

Second Year (Artificial Intelligence and Machine Learning)

Course Code: **218541**	
Name of Course: **Discrete Mathematics**	
CO1	Formulate and apply formal proof techniques and solve the problems with logical reasoning.
CO2	Analyze and evaluate the combinatorial problems by using probability theory.
CO3	Apply the concepts of graph theory to devise mathematical models.
CO4	Analyze types of relations and functions to provide solution to computational problems.
CO5	Identify techniques of number theory and its application.
CO6	Identify fundamental algebraic structures.

Course Code: **218542**	
Name of Course: **Data Structure & Algorithms**	
CO1	Perform basic analysis of algorithms with respect to time and space complexity.
CO2	Select appropriate searching and/or sorting techniques in the application development.
CO3	Implement abstract data type (ADT) and data structures for given application.
CO4	Design algorithms based on techniques like brute -force, divide and conquer, greedy, etc.
CO5	Apply implement learned algorithm design techniques and data structures to solve problems.
CO6	Design different hashing functions and use files organizations.

Course Code: **218543**	
Name of Course: **Computer Networks**	
CO1	Understand data/signal transmission over communication media.
CO2	Understand basics of computer networking and compare functions of OSI and TCP/IP model using concepts of communication theory.
CO3	Analyze data link layer services, different access techniques, and Ethernet standards.
CO4	Understand the network layer services, apply skills of subnetting, supernetting and routing mechanisms.
CO5	Illustrate services and protocols used at transport layer.
CO6	Understand and learn the different application layer protocols.

Course Code: **218544**	
Name of Course: **Object Oriented Programming**	
CO1	Differentiate various programming paradigms.
CO2	Identify classes, objects, methods, and handle object creation, initialization, and Destruction to model real-world problems.
CO3	Identify relationship among objects using inheritance and polymorphism principles.
CO4	Handle different types of exceptions and perform generic programming.
CO5	Use of files for persistent data storage for real world application.
CO6	Apply appropriate design patterns to provide object-oriented solutions.

Course Code: **218545**	
Name of Course: **Software Engineering**	
CO1	Classify various software application domains.
CO2	Analyze software requirements by using various modeling techniques.
CO3	Translate the requirement models into design models.
CO4	Apply planning and estimation to any project.
CO5	Use quality attributes and testing principles in software development life cycle.
CO6	Discuss recent trends in Software engineering by using CASE and agile tools.

Course Code: **207003**	
Name of Course: **Applied Mathematics**	
CO1	Solve Linear differential equations, essential in modelling and design of computer-based systems.
CO2	Apply concept of Fourier transform and Z-transform and its applications to continuous and discrete systems and image processing.
CO3	Apply Statistical methods like correlation& regression analysis and probability theory for data analysis and predictions in machine learning.
CO4	Solve Algebraic &Transcendental equations and System of linear equations using numerical techniques.
CO5	Obtain Interpolating polynomials, numerical differentiation and integration, numerical solutions of ordinary differential equations used in modern scientific computing.

Course Code: **218552**	
Name of Course: **Operating Systems**	
CO1	Describe the role of Modern Operating Systems and make use of shell commands to build shell scripts.
CO2	Describe the concept of thread and process management, compare different process scheduling algorithms, and justify what algorithm to use in given scenario.
CO3	Explain synchronization and deadlock; analyze classical IPC problems, also infer the existence of deadlock in the system.
CO4	Apply the concepts of various memory management techniques.
CO5	Make use of concept of I/O management and File system.
CO6	Understand the concepts of different system softwares.

Course Code: **218553**	
Name of Course: **Fundamentals of Artificial Intelligence and Machine Learning**	
CO1	Evaluate Artificial Intelligence (AI) methods and describe their foundations.
CO2	Analyze and illustrate how search algorithms play vital role in problem solving, inference, perception, knowledge representation and learning.

CO3	Demonstrate knowledge of reasoning and knowledge representation for solving real world problems
CO4	Recognize the characteristics of machine learning that makes it useful to real-world problems
CO5	Apply the different supervised learning methods of support vector machine and tree based models.
CO6	Use different linear methods for regression and classification with their optimization through different regularization techniques.

Course Code: **218554**	
Name of Course: **Database Management System**	
CO1	Apply fundamental elements of database management systems.
CO2	Design ER-models to represent simple database application scenarios.
CO3	Formulate SQL queries on data for relational databases.
CO4	Improve the database design by normalization & to incorporate query processing.
CO5	Apply ACID properties for transaction management and concurrency control.
CO6	Analyze various database architectures and technologies.

Course Code: **218555**	
Name of Course: **Computer Graphics**	
CO1	Apply mathematical and logical aspects for developing elementary graphics operations like scan conversion of points, lines, circle, and apply it for problem solving.
CO2	Employ techniques of geometrical transforms to produce, position and manipulate Objects in 2 dimensional and 3-dimensional space respectively.
CO3	Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D images on 2D output device.
CO4	Apply concepts of rendering, shading, animation, curves and fractals using computer graphics tools in design, development and testing of 2D, 3D modeling applications.
CO5	Perceive the concepts of virtual reality.