ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Program Outcomes :

1. Engineering Knowledge

2. Problem Analysis

3. Design / Development of Solutions

4. Conduct Investigations of Complex Problems

5. Modern Tool Usage; 6.The Engineer and Society

7. Environment and Sustainability

8. Ethics

9. Individual and Teamwork

10. Communication

11. Project Management and Finance

12. Life-long Learning

Program Specific Outcomes:

PSO 1: Adapt, Contribute Innovate ideas in the field of Artificial Intelligence and Machine Learning

PSO2: Enrich the abilities to qualify for Employment, Higher studies and Research in various domains of Artificial Intelligence and Machine Learning such as Data Science, Computer Vision, Natural Language Processing with ethical values.

PSO3: Acquire practical proficiency with niche technologies and open source platforms and become Entrepreneur in the domain of Artificial Intelligence and Machine Learning

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Sem: 3ʳᵈ CO's (18scheme)

DATA STRUCTURES AND APPLICATIONS (18CS32)

CO1: Use different types of data structures, operations and algorithms
CO2: Use stack, Queue, Recursion in problem solving
CO3: Use of linked list and there applications
CO4: Use of Trees and its applications
CO5: Use of Graphs and various sorting, searching and harshing algorithms. Managing and organizing of files

ANALOG AND DIGITAL ELECTRONICS (18CS33)

CO1: Explain the basic organization of a computer system.
CO2: Demonstrate functioning of different sub systems, such as processor, Input/output,and memory.
CO3: Illustrate hardwired control and micro programmed control, pipelining, embedded and other computing systems.
CO4: Design and analyse simple arithmetic and logical units.

COMPUTER ORGANIZATION (18CS34)

CO1: Explain the basic organization of a computer system
CO2: Demonstrate functioning of different sub systems, such as processor, Input/output,and memory
CO3: Illustrate concepts of speed and performance consideration of memory system
CO4: Design and analyse simple arithmetic and logical units
CO5: Examine hardwired control and micro programmed control, pipelining, embedded and other computing systems

SOFTWARE ENGINEERING (18CS35)

CO1: Design a software engineering process and practices, demonstrate various process models and to develop the SRS document for project.
CO2: Use object oriented approach in software design and development
CO3: Usage of different system models, fundamentals of system design and implementation.
CO4: Distinguish different testing strategies and software evaluation process.
CO5: Identify usage of different techniques for project planning and software quality management.

DISCRETE MATHEMATICAL STRUCTURES (18CS36)

CO1: Use propositional and predicate logic in knowledge representation and truth verification.
CO2: Demonstrate the application of discrete structures in different fields of computer science.
CO3: Solve problems using recurrence relations and generating functions.

CO4: Application of different mathematical proofs techniques in proving theorems in the courses.
CO5: Compare graphs, trees and their applications.

ANALOG AND DIGITAL ELECTRONICS LABORATORY (18CSL37)

CO1: Use appropriate design equations / methods to design the given circuit.
CO2: Examine and verify the design of both analog and digital circuits using simulators.
CO3: Make us of electronic components, ICs, instruments and tools for design and testing of circuits for the given the appropriate inputs.
CO4:Compile a laboratory journal which includes; aim, tool/instruments/software/components used, design equations used and designs, schematics, program listing, procedure followed, relevant theory, results as graphs and tables, interpreting and concluding the findings.

DATA STRUCTURES LABORATORY (18CSL38)

CO1: Asymptotic performance of algorithms
CO2: Linear data structure and their applications such as stacks, queues and lists
CO3: Non linear data structure and their applications such as trees and graphs
CO4: Sorting and searching algorithms

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Sem: 4ᵗʰ   CO's (18scheme)

DESIGN AND ANALYSIS OF ALGORITHMS (18CS42)

CO1: Describe and analyze the computational complexity
CO2: Estimate the computational complexity and design the algorithm for Divide and Conquer.
CO3: Estimate the computational complexity and design the algorithm for Greedy Methods
CO4: Estimate the computational complexity and design the algorithm for Dynamic programming
CO5: Estimate the computational complexity and design the algorithm for Backtracking.

OPERATING SYSTEMS (18CS43)

CO1: Demonstrate need for OS and different types of OS
CO2: Apply suitable techniques for management of different resources
CO3: Use processor, memory, storage and file system commands
CO4: Realize the different concepts of OS in platform of usage through case studies

MICROCONTROLLER AND EMBEDDED SYSTEMS (18CS44)

CO1: Describe the architectural features and instructions of ARM microcontroller
CO2: Develop application for programming skills using ARM microcontroller
CO3: Interface external hardware devices such as stepper Motor, DC Motor, DAC with ARM microcontroller.
CO4: Able to explain about Embedded systems, Characteristics details and implementation
CO5: Illustrate the need of real time operating system for embedded system applications

OBJECT ORIENTED CONCEPTS (18CS45)

CO1: Explain the object-oriented concepts and JAVA.
CO2: Develop computer programs to solve real world problems in Java.
CO3: Develop simple GUI interfaces for a computer program to interact with users, and to understand the event-based GUI handling principles using swings.

DATA COMMUNICATION (18CS46)

CO1: Explain the various components of data communication.
CO2: Understand and analyze the different types of Transmission media demonstrate data transmission and data conversion.
CO3: Explain the fundamentals of digital communication and switching.
CO3: Compare and contrast data link layer protocols.
CO4: Summarize IEEE 802.xx standards

DESIGN AND ANALYSIS OF ALGORITHMS LABORATORY (18CSL47)

CO1: Design algorithms using appropriate design techniques (brute-force, greedy, dynamic Programming, etc.)

CO2: Implement a variety of algorithms such assorting, graph related, combinatorial, etc., in a high level language.

CO3: Analyze and compare the performance of algorithms using language features.
    CO4: Apply and implement learned algorithm design techniques and data structuresto solve real-world problems.

MICROCONTROLLER AND EMBEDDED SYSTEMS LABORATORY (18CSL48)

CO1: Develop and test program using ARM7TDMI/LPC2148

CO2: Conduct the following experiments on an ARM7TDMI/LPC2148 evaluation board using evaluation version of Embedded 'C' &Keil Uvision-4 tool/compiler.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

SEM: 5th CO's (18scheme)

Management and Entrepreneurship for IT Industry (18CS51)

CO1: Define management, organization, entrepreneur, planning, staffing, ERP and outline their importance in Entrepreneurship
CO2: Utilize the resources available effectively through ERP
CO3: Make use of IPRs and institutional support in entrepreneurship

Python Programming (18AI52)

CO1: Demonstrate proficiency in handling of loops and creation of functions.
CO2: Identify the methods to create and manipulate lists, tuples and dictionaries
CO3: Discover the commonly used operations involving regular expressions and file system.
CO4: Interpret the concepts of Object-Oriented Programming as used in Python.
CO5: Determine the need for scraping websites and working with CSV, JSON and other file formats.

Database Management System (18CS53)

CO1: Identify, analyze and define database objects,
CO2: Enforce integrity constraints on a database using RDBMS.
CO3: Use Structured Query Language (SQL) for database manipulation.
CO4: Design and build simple database systems and to Develop application to interact with databases.
CO5: Apply Transaction Processing, Concurrency Control and Database Recovery in database Applications

Automata Theory Computability (18CS54)

CO1: Understand the core concepts in Automata Theory and Theory of Computation.
CO2: Design different automation models of Computation and conversion between the models.
CO3: Design Grammars and Automata for different types of languages
CO4: Understand working principles of Turing Machine.
CO5: Classify a problem with respect to different models of Computation.

Principles of Artificial Intelligence (18AI55)

CO1: Apply the knowledge of Artificial Intelligence to write simple algorithm for agents.
CO2: Apply the AI knowledge to solve problem on search algorithm.
CO3: Develop knowledge base sentences using propositional logic and first order logic.
CO4: Apply first order logic to solve knowledge engineering process.

MATHEMATICS FOR MACHINE LEARNING (18AI56):

CO1: The students will be able to improve the skills and knowledge in linear algebra to get more out of machine learning.
CO2: Understand the vector calculus required to build many common ML technique.
CO3: Learn the probability and distribution to build ML applications.
CO4: Learn the basic theoretical properties of optimization problems for applications in ML.

Artificial Intelligence Laboratory (18AIL57)

CO1: Implement and demonstrate AI algorithms

CO2: Evaluate different algorithms

DBMS Laboratory with mini project (18CSL58)
CO1: Create, Update and query on the database.

CO2: Demonstrate the working of different concepts of DBMS

CO3: Implement, analyze and evaluate the project developed for an application.

Sem: 6th   CO's (18scheme)

Machine Learning (18AI61)

CO1: Choose the learning techniques with basic concept knowledge.

CO2: Understand Data cleaning, Classification techniques and performance analysis of the ML techniques

CO3: Understand and apply ML algorithms for appropriate applications

CO4: Understand and apply decision trees and Random Forest techniques.

CO5: Apply Bayesian techniques and derive learning rules effectively.

Digital Image Processing (18AI62)

CO1: Understand, Ascertain and describe the basics of image processing concepts

through mathematical interpretation.

CO2: Apply image processing techniques in both the spatial and frequency (Fourier) domains.

CO3: Demonstrate image restoration process and its respective filters required.

CO4: Understand and Apply image processing techniques in color images, different shapes with the support of mathematical functions

CO5: Design image analysis techniques in the form of image segmentation and to evaluate the Methodologies for segmentation.

Java for Mobile Applications (18AI63)

CO1: Interpret the need for advanced Java concepts like enumerations, collections and strings in developing modular and efficient programs.

CO2: Understand various application components in android.

CO3: Design efficient user interface using different layouts.

CO4: Develop application with persistent data storage using SQLite.

Web Programming (18AI643)

CO1: Adapt HTML and CSS syntax and semantics to build web pages.

CO2: Construct and visually format tables and forms using HTML and CSS
CO3: Develop Client-Side Scripts using JavaScript and Server-Side Scripts using PHP to generate   and display the contents dynamically.

CO4: Appraise the principles of object oriented development using PHP

CO5: Inspect JavaScript frameworks like jQuery and Backbone which facilitates developer to focus on core features.

Machine Learning Laboratory(18AIL66)

CO1: Implement and Evaluate Supervised Machine Learning algorithms in Python

CO2: Implement and Evaluate Unsupervised Machine Learning algorithms in Python

Digital Image Processing Laboratory with mini project (18AIL67)

CO1: Image Segmentation algorithm development
CO2: Image filtering in spatial and frequency domain.
CO3: Morphological operations in analyzing image structures

Mobile Application Development Laboratory (18AIL68)

CO1: Develop application with persistent data storage using SQLite.
CO2: Implement adaptive, responsive user interfaces that work across a wide range of devices.
CO3: Infer long running tasks and background work in Android applications.
CO4: Demonstrate methods in storing, sharing and retrieving data in Android applications.
CO5: Infer the role of permissions and security for Android applications.

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Sem: 7th CO's (2018 Scheme)

Advanced Artificial Intelligence (18AI71)

CO1: Demonstrate the fundamentals of Intelligent Agents.

CO2: Illustrate the reasoning on Uncertain Knowledge.

CO3: Explore the explanation based learning in solving AI problems.

CO4: Demonstrate the applications of Rough sets and Evolutionary Computing algorithms.

Internet Of Things(18AI731)

CO1: Interpret the impact and challenges posed by IoT networks leading to new architectural models.

CO2: Compare and contrast the deployment of smart objects and the technologies to connect them to network.

CO3: Appraise the role of IoT protocols for efficient network communication.

CO4: Elaborate the need for Data Analytics and Security in IoT.

CO5: Illustrate different sensor technologies for sensing real world entities and identify the applications of IoT in Industry.

Introduction to Big Data Analytics (18CS751)

CO1: Explain the importance of data and data analysis.

CO2: Interpret the probabilistic models for data.

CO3: Define hypothesis, uncertainty principle.

CO4: Evaluate regression analysis.

Fuzzy Logic and Application (18AI741)

CO1: Provide basic elements of fuzzy sets.

CO2: Differentiate between fuzzy set and classical set theory.

CO3: Apply fuzzy membership functions to solve value assignment problems.

CO4: Explain approximate methods of fuzzy arithmetic and extension principle.

CO5: Discuss the applications of fuzzy rule based systems.

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Advanced Machine Learning (18AI72)

CO1: Apply effectively ML algorithmsto solve real world problems.

CO2: Apply Instant based techniques and derive effectively learning rules to real world problems.

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Sem: 8th CO's (2018 Scheme)

Neural Networks and Deep Learning (18AI81)

CO1: Identify the deep learning algorithms which are more appropriate for various types of learning tasks in various domains. Apply suitable probability distribution models for the given scenario.

CO2: Implement deep learning algorithms and solve real-world problems.

CO3: Execute performance metrics of Deep Learning Techniques.

System Modelling and Simulation (18AI821)

CO1: Explain the system concept and apply functional modelling method to model the activities of a static system.

CO2: Describe the behaviour of a dynamic system and create an analogous model for a dynamic system.

CO3: Simulate the operation of a dynamic system and make improvement according to the simulation results.