



SRI KRISHNA INSTITUTE OF TECHNOLOGY

(Accredited by NAAC, Approved by A.I.C.T.E. New Delhi, Recognised by Govt. of Karnataka & Affiliated to V.T U., Belgaum)
#29, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bangalore- 560090

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



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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.



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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 use 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



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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



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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 as sorting, 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 structures to 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.



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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.



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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



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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



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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.