Centre for Artificial Intelligence

B. Tech. in Artificial Intelligence and Machine Learning (AI & ML) Admitted Batch -2025

COURSE STRUCTURE

I SEMESTER	II SEMESTER	III SEMESTER	IV SEMESTER	V SEMESTER	VI SEMESTER	VII SEMESTER	VIII SEMESTER
Foundations of Machine Learning	Modern Computer Architectures	Probability & Random process	Calculus & Optimization techniques	Optimization Techniques in Machine Learning	Deep Learning	Departmental Elective (DE-3)	Departmental Elective (DE-5)
Internet & Web Technologies	Object Oriented Programming	Design and Analysis of Algorithms	Theory of Computation	Cloud Computing & Big Data	Image Processing & Computer Vision	Departmental Elective (DE-4)	Open Category Course (OC-3)
Digital Logic Design	Discrete Structures	Computer Networks	Network & Web Security	Soft Computing Techniques	Departmental Elective (DE-2)	Open Category Course (OC-2)	Industry Internship/ Research Internship/ Innovation & Start-up
Problem Solving & Programming	Data Structures	Database Management System	Machine Learning	Departmental Elective (DE-1)	Open Category Course (OC-1)	Specialization Course (SPC-3)	Professional Development
Linear Algebra	Basic Electrical & Electronics Engineering	Operating System	Software Engineering	Reinforcement Learning	Natural Language Processing	Creative Problem Solving	Honours or Minor Degree (Optional)
Problem Solving & Programming Lab	Data Structures Lab	Design Analysis and Algorithm Lab	Machine Learning Lab	Optimization Techniques in Machine Learning Lab	Deep Learning Lab	Honours or Minor Degree (Optional)	
Internet & Web Technologies Lab	Object Oriented Programming Lab	Problem Solving through Python Programming	Java programming Lab	Cloud Computing & Big Data Lab	Image Processing & Computer Vision Lab		
Novel Engaging Course	Basic Electrical & Electronics Engineering Lab	Novel Engaging Course	Competitive Programming lab	Cornerstone Project	Capstone Project		
Language Lab	Novel Engaging Course	Macro Project-I	Novel Engaging Course	Supply Chain Management	Disaster Management		
Micro Project-I	Micro Project-II	Cyber Security	Macro Project-II	Honours or Minor Degree (Optional)	Honours or Minor Degree (Optional)		
Universal Human Values & Professional Ethics (UHVPE)	Sustainability & Environmental Science	Skill Internship Program-II	Project Management, Economics & Financing	Semester Proficiency	Semester Proficiency		
Mandatory Workshop on Report Writing & ICCV	Mandatory Workshop on IKS & Career Planning	Mandatory Workshop on Mastering Competitive Success	Mandatory Workshop on Research & IPR	Mandatory Workshop on Internships & Excel	Mandatory Workshop on Placements & Interview		
Skill Internship Program-I	Semester Proficiency	Semester Proficiency	Honours or Minor Degree (Optional)	Professional Skills & Competencies - I	Professional Certification & Professional Skills & Competencies - II		

Legend:

Color	Category
(Green)	Departmental Core Courses
(Cyan)	Basic Science Courses
(Magenta)	Engineering Science Courses
(Olive)	Mandatory Audit Courses

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Departmental Elective Courses	
B. Tech. in (Artificial Intelligence and Machine Learning)	
High Performance Computing	Software Conceptual Design
Generative AI	Responsible and Safe AI System
Pattern Recognition	Deep Learning for Computer Vision
Ethics in Engineering Practice	Cyber Security and Privacy
Introduction to Quantum Computing	Applied Accelerated AI
Cryptography and Network Security	Big Data Computing
Augmented and Virtual Reality	Multi-Core Computer Architecture
Distributed Optimization and Machine Learning	Python for Data Science
Data Mining & Pattern Warehousing	Computational Complexity
Embedded Systems	Artificial Intelligence for Economics
Advanced Computer Architecture	Reinforcement Learning
Natural Language Processing	Ethics in Engineering Practice
Introduction to Internet of Things	Big Data Computing
Open Category Courses	
Ethics and Technology	Human-Computer Interaction (HCI)
Design Thinking and Innovation	Linguistics and Natural Language Processing
Software Testing	Entrepreneurship and Innovation
Complex Systems and Network Theory	Creative Writing and Communication
Intellectual Property Rights and Cyber Law	Game Theory and Strategic Decision Making