

Artificial Intelligence & Machine Learning

Objective of the Course:	• Acquire advanced Data Analysis skills. • Stay Industry relevant and grow in your career. • Create AI/ML solutions for various business problems. • Build and deploy production grade AI/ML applications. • Apply AI/ML methods, techniques and tools immediate
Pre-requisite:	Any computer science student having basic knowledge of computer.
Expected Outcomes of the Course:	• Learn about the History of AI • Learn about 4 types of Artificial Intelligence systems • Know what are the characteristics of Artificial Intelligence • Discover the future possibilities of AI technology • Discover 3 Paradigms of AI: Fuzzy Logic, Neural Networks and Genetic Algorithms
Course Nature : (Theory / Practical / Field based)	Theory
Eligibility Criteria	Any Computer Science Student

Course Syllabus (In Detail):	Unit 1:Introduction to Artificial Intelligence 1. What to Expect from AI. 2. History of AI from 40s - 90s. 3. History of AI in the 90s 4. History of AI in NASA & DARPA(2000s). 5. The Present State of AI. Unit 2: Searching in AI 1. State Space Search. 2. Domain Independent Algorithms. 3. Deterministic Search. 4. DFS and BFS. 5. Comparing DFS and BFS. 6. Depth First Iterative Deepening. 7. Heuristic Search. 8. Heuristic Functions and the Search Landscape. 9. Solution Space Search. 10. The Traveling Salesman Problem. Unit 3: Expert systems 1. Introduction Basic concepts 2. Structure of expert systems 3. The human element in expert systems 4. How expert systems works 5. Problem areas addressed by expert systems 6. Expert systems success factors 7. Types of expert systems Unit 4: Neural Network 1. Introduction 2. Perceptron 3. Single Layer perceptron 4. Multilayer network 5. Backpropagation 6. Introduction to deep neural network.
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Reference Books	1. S. Russel and P. Norvig, “Artificial Intelligence – A Modern Approach”, Second Edition, Pearson Education 2. G. Luger, “Artificial Intelligence: Structures and Strategies for complex problem solving”, Fourth Edition, Pearson Education. 3. J. Nilsson, “Artificial Intelligence: A new Synthesis”, Elsevier Publishers. 4. B.Yegnanarayana, Artificial Neural Networks, Prentice Hall of India. 5. Satish Kumar, Neural Networks – A Classroom Approach, Tata McGraw-Hill. 6. S.Haykin, Neural Networks – A Comprehensive Foundation, Prentice Hall.
Exam Pattern: (MCQ / Written / Practical / Blended)	MCQ