



COMPUTER ENGINEERING



POSITIVE QUADRANT
TECHNOLOGIES
SERVING INFORMATION WORLDWIDE

SEM VI

ARTIFICIAL INTELLIGENCE

Programming & development

Course Curriculum



ARTIFICIAL INTELLIGENCE SEM VI

Module 1 : Introduction to Artificial Intelligence

- Introduction
- History of Artificial Intelligence
- Intelligent Systems
 - Categorization of Intelligent System
 - Components of AI Program
 - Foundations of AI
 - Sub-areas of AI
 - Applications of AI
 - Current trends in AI

Module 2: Intelligent Agents

- Agents and Environments
- The concept of rationality
- The nature of environment
- The structure of Agents
- Types of Agents
- Learning Agent
- Solving problem by Searching
 - Problem Solving Agent
 - Formulating Problems
 - Example Problems



Module 3: Problem Solving

- Uninformed Search Methods
 - Breadth First Search (BFS)
 - Depth First Search (DFS)
 - Depth Limited Search
 - Depth First Iterative Deepening (DFID)
- Informed Search Methods
 - Greedy best first Search
 - A* Search



- Memory bounded heuristic Search
- Local Search Algorithms and Optimization Problems
 - Hill climbing search Simulated annealing
 - Genetic algorithms
- Adversarial Search
 - Game Playing
 - Min-Max Search
 - Alpha Beta Pruning

Module 4: Knowledge and Reasoning

- Knowledge based Agents
- Brief Overview of propositional logic
- First Order Logic
 - Syntax and Semantic
 - Inference in FOL
 - Forward chaining
 - backward Chaining
- Knowledge Engineering in First-Order Logic
- Unification
- Resolution
- Uncertain Knowledge and Reasoning
 - Uncertainty
 - Representing knowledge in an uncertain domain
 - The semantics of belief network
 - Simple Inference in belief network

Module 5: Planning and Learning

- The planning problem
- Planning with state space search
- Partial order planning
- Hierarchical planning
- Conditional Planning
- Learning
 - Forms of Learning
 - Theory of Learning
 - PAC learning
 - Introduction to statistical learning (Introduction only)



- Introduction to reinforcement learning
 - Learning from Rewards
 - Passive Reinforcement Learning
 - Active reinforcement Learning

Module 6: AI Applications

- Introduction to NLP- Language models
 - Grammars
 - Parsing
- Robotics
 - Robots
 - Robot hardware
 - Problems Robotics can solve
- AI applications
 - Healthcare
 - Retail
 - Banking

