**ARTIFICIAL INTELLIGENCE PVP20**

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| **Course Code** | **20CS4501D** | **Year** | III | **Semester** | I |
| **Course Category** | PEC | **Branch** | **CSE** | **Course Type** | **Elective****(Theory)** |
| **Credits** | 3 | **L – T – P** | 3-0-0 | **Prerequisites** | Linear algebra, data structures and algorithms, and probability |
| **Continuous Evaluation:** | 30 | **Semester****End Evaluation:** | 70 | **Total Marks:** | 100 |

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| **Course Outcomes** |
| Upon successful completion of the course, the student will be able to: |
| **CO1** | Understand the basic concepts of Artificial Intelligence. | L2 |
| **CO2** | Apply the principles of AI in solutions that require problem solving, knowledge representation. | L3 |
| **CO3** | Apply Learning for solving AI problems. | L3 |
| **CO4** | Analyze a given problem and apply AI Techniques. | L4 |

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| **Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of****correlations (3:Substantial, 2: Moderate, 1:Slight)** |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| **CO1** | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CO2** | 2 |  |  |  |  |  |  |  | 1 | 1 |  |  |  |  |
| **CO3** |  |  |  |  |  |  |  |  |  |  |  |  | 2 |  |
| **CO4** |  | 2 |  |  |  | 1 |  |  | 1 | 1 |  | 1 |  |  |

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| **Artificial Intelligence(AI)** |
| **Unit No.** | **Contents** | **Mapped CO** |
| **I** | **Introduction to AI:**Definition of AIFoundations of AIApplications of AI*Intelligent agents*Agents and EnvironmentsStructure of agentsExamples of agents | **CO1,CO4** |
| **II** | **Problem Solving Techniques:**Solving Problems by SearchingProblem Solving AgentsSearching for Solutions*Uninformed Search Strategies*Breadth first search Depth first Search*Informed (Heuristic) Search Strategies*Hill climbingA\* AlgorithmAlpha-Beta PruningConstraint Satisfaction Problem | **CO1,CO2,CO4** |
| **III** | **Knowledge Representation***Logical Agents*Knowledge Based Agents LogicPropositional logicFirst order logicSyntax and Semantics in First order Logic*Inference in first order logic*propositional vs. First order inferenceUnification and LiftingForward chainingBackward chainingResolution | **CO1,CO2,CO4** |
|  **IV** | **Planning:** The Planning problem Planning with state space searchPlanning graphsPlanning with propositional logicAnalysis of planning approachesHierarchical planningConditional planning,Continuous and Multi Agent planning | **CO1,CO3,CO4** |
| **V** | **Learning:** Learning from ExamplesKnowledge in LearningLearning probabilistic Models Reinforcement Learning | **CO1,CO3,CO4** |

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| **Learning Resources** |
| **Text Books** |
| 1. “Artificial Intelligence – A Modern Approach”, S. Russel and P. Norvig, 3rd Edition, Pearson Education.
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| **Reference Books** |
| 1. A Classical Approach To Artificial Intelligence, Munesh Chandra Trivedi,

Khanna Publishing House , Second edition, 1. ARTIFICIAL INTELLIGENCE, Kevin Knight (Author), Elaine Rich (Author), Shivashankar B. Nair (Author), McGraw Hill Education; 3rd edition.
2. Artificial Intelligence, SarojKaushik, Cengage Learning India; 1st edition.
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| **E-Resources & other digital material** |
| 1. https://nptel.ac.in/courses/106105078
2. https://www.coursera.org/learn/introduction-to-ai
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