

SYLLABUS

CS6659

ARTIFICIAL INTELLIGENCE

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UNIT I	INTRODUCTION TO AI AND PRODUCTION SYSTEMS	9
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Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics -Specialized production system- Problem solving methods - Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breath first, Constraints satisfaction - Related algorithms, Measure of performance and analysis of search algorithms.

UNIT II	REPRESENTATION OF KNOWLEDGE	9
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Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

UNIT III	KNOWLEDGE INFERENCE	9
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Knowledge representation -Production based system, Frame based system. Inference - Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory.

UNIT IV	PLANNING AND MACHINE LEARNING	9
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Basic plan generation systems - Strips -Advanced plan generation systems – K strips -Strategic explanations -Why, Why not and how explanations. Learning- Machine learning, adaptive Learning.

UNIT V	EXPERT SYSTEMS	9
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Expert systems - Architecture of expert systems, Roles of expert systems - Knowledge Acquisition – Meta knowledge, Heuristics. Typical expert systems - MYCIN, DART, XOON, Expert systems shells.

TOTAL: 45 PERIODS

TEXT BOOKS:

1. Kevin Night and Elaine Rich, Nair B., “Artificial Intelligence (SIE)”, Mc Graw Hill- 2008. (Units- I,II,IV & V)
2. Dan W. Patterson, “Introduction to AI and ES”, Pearson Education, 2007. (Unit-III).

REFERENCES:

1. Peter Jackson, “Introduction to Expert Systems”, 3rd Edition, Pearson Education, 2007.
2. Stuart Russel and Peter Norvig “AI – A Modern Approach”, 2nd Edition, Pearson Education 2007.
3. Deepak Khemani “Artificial Intelligence”, Tata Mc Graw Hill Education 2013.
4. <http://nptel.ac.in>

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