SRM UNIVERSITY

School of Mechanical Engineering

Course Plan

Subject Code: ME 2314
Subject Name: Fundamentals of Artificial Intelligence for Robotics

Class : M.Tech. (Robotics)
Semester: II
Faculty Name: M.R. Stalin John

S.No.	Date	Period	Topics to be Covered	Ref. Books
1		3	Introduction of Artificial Intelligence and Expert System, Definition of AI, Emulation of Human Cognitive Process	R1, CH1
2		1 and 2	History , Intelligent Agents- The Concepts of Rationality	R1, CH1
3		3	Intelligent Agents- The Nature of Environments, The Structure of Agents	R1, CH1
4		1 and 2	Problem Solving Agents: Problem Definition, formulating Problems, Searching for Solutions, Measuring Problem	R1, CH2
5		3	Problem Solving Agents: Solving Performance with Examples	R1, CH2
6		1 and 2	Problem Solving Agents: Solving Performance with Examples, Search Strategies: Uninformed or Blinded Search, Breadth First Search, Uniform Cost Search	R1, CH2
7		3	Search Strategies: Depth First Search, Depth Limited Search	R1, CH2
8		1 and 2	Search Strategies: Bi-directional Search, Comparing Uniformed Search Strategies, Heuristic Information, Hill Climbing Methods	R1, CH2
9		3	Informed Search Strategies: Best-First Search	R1, CH2
10		1 and 2	Informed Search Strategies: Branch-and-Bound Search, Optimal Search and A* and Iterative Deepening A*	R1, CH2
11		3	Robotics: Introduction, Cell Decomposition Methods	R1, CH25
12		1 and 2	Robotic Perception: Localization, Mapping Planning to Move – Configuration Space, Skeletonization Methods	R1, CH25
13		3	Planning Uncertain Movements – Robust Methods	R1, CH25
14		1 and 2	Moving – Dynamics and Control, Potential Field Control, Reactive Control	R1, CH25

S.No.	Date	Period	Topics to be Covered	Ref. Books
15		3	Robotics Software Architecture, Applications	R1, CH25
16		1 and 2	Introduction to Programming Language of AI and Its Advantages, Introduction to Lisp and Its Syntax	R2, CH1
17		3	Explanation of Lisp Syntax and Its Numeric Function, Difference Between Lisp and Prolog	R2, CH1
18		1 and 2	Explanation of Lisp Syntax – Input Statements, Output Statements and Declaration of Local Variables, Interaction and Recursion Functions, Property List and Arrays	R2, CH1
19		3	Explanation of Lisp Syntax – formalized Symbolic Logic, Properties of WERS	R2, CH1
20		1 and 2	Non deductive inference methods- Inconsistencies and Uncertainties of Truth Maintenance System and Default Reasoning	R2, CH1
21		3	Expert System- Introduction, Difference Between Expert System and Conventional Programs	R3, CH1
22		1 and 2	Basic Activities of Expert System- Interpretation, Prediction, Diagnosis, Design, Planning, Monitoring, Debugging, Repair, Instruction, Control , Acquisition Module Frames.	R3, CH1
23		3	Basic Aspect of Expert System- Knowledge Base, Production Rules	R3, CH1
24		1 and 2	Basic Aspect of Expert System- Semantic Net	R3, CH1
25		3	Basic Aspect of Expert System- Inference Engine- Backward Chaining and forward Chaining. Explanatory Interface.	R3, CH1

R – Reference Book , CH - Chapter

Total Hrs : 37

REFERENCES

1. Russell (Stuart), 'Artificial Intelligence Modern Approach', Pearson Education series in AI, 3rd Edition, 2002.
2. Dan.W.Patterson, 'Introduction to Artificial Intelligence and Expert Systems', PHI Ltd, 2001.
3. Donald.A.Waterman, 'A guide to Expert Systems', Addison Wesley Publishing Company, 1985.

Staff Signature

28/11/2017

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