

**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

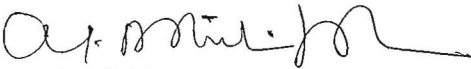
S.No.	Date	Period	Topics to be Covered	Ref. Books
15		3	Robotics Software Architecture, Applications	R1, CH25
16		1 and 2	Introduction to Programming Language of AI and Its Advantages, Introduction to Lisp and Its Syntax	R2, CH1
17		3	Explanation of Lisp Syntax and Its Numeric Function, Difference Between 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

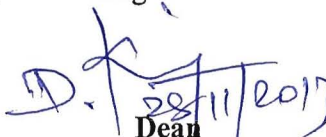
R – Reference Book , CH - Chapter

**Total Hrs : 37**

#### REFERENCES

1. Russell (Stuart), 'Artificial Intelligence Modern Approach', Pearson Education series in AI, 3<sup>rd</sup> 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  
Dean  
(Mechanical)