

Course Title	Artificial Intelligence
Course Code	DI-326
Credit Hours	3
Category	Technical Elective
Prerequisite	Data Structures and Algorithms
Co-Requisite	None
Follow-up	None
Course Description	<p>Introduction: Basic component of AI, Identifying AI systems, branches of AI, etc. types of problems addressed. Searching Strategies: exhaustive & heuristic search techniques, informed searching, uninformed searching, local searching. Game playing. Genetic algorithms. Constraint. satisfaction problems. Symbolic AI & Logic programming: The physical symbol system hypothesis. Knowledge representation & search in the context of logic programming. Reasoning in logic programming: unification, horn clause logic, and resolution, Prolog as example logic programming formalism. Knowledge Representation Schemas: Logic, propositional logic, first order logic, frames, semantic nets, scripts; problems in knowledge representation. Expert systems. Machine Learning: Introduction, unsupervised learning, supervised learning, reinforcement learning, decision trees, Bayesian classification, artificial neural networks, Selected Topics in AI: Fuzzy logic, natural language processing, computer vision.</p>
Text Book(s)	1. Stuart Russell and Peter Norvig, Artificial Intelligence. A Modern Approach, 4th edition, Prentice Hall, Inc., 2020.
Reference Material	<ol style="list-style-type: none"> 1. Luger, G.F. and Stubblefield, W.A., 2009. AI algorithms, data structures, and idioms in Prolog, Lisp, and Java. Pearson Addison-Wesley. 2. George F. Luger, Artificial Intelligence - Structures and Strategies for Complex Problem Solving, 6th Edition, Pearson, 2008, ISBN-13: 978-0321545893. 3. Hart, P.E., Stork, D.G. and Duda, R.O., Pattern classification. John Willey & Sons, 2001. 4. Ivan Bratko, Prolog: Programming for Artificial Intelligence, 4th Edition, Pearson, 2011, ISBN-13: 978-0321417466. 5. P. Winston, Artificial Intelligence, 3rd Edition, Pearson, 1992, ISBN-13: 978-0201533774.