FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE
Stream- Artificial Intelligence & Machine Learning
(OPEN ELECTIVE-III)
(COMMON for CIVIL, ECE, EEE & MECH)
SYLLABUS FOR B.E V SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code:**U22OE520CS**
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

COURSE OBJECTIVE	COURSE OUTCOMES *On completion of the course, students will be able to*	
Understand issues and techniques involved in the creation of intelligent systems.	1	Solve searching problems using A*.
	2	Develop an algorithm for playing games.
	3	Represent the knowledge using propositional logic and predicate logic
	4	Understand the Expert Systems
	5	Construct Neural Network to solve problems

UNIT I:
Introduction: Intelligent Systems, Foundation of AI, Sub areas of AI, Applications.
Problem Solving – State – Space Search and Control Strategies: Introduction, General Problem Solving, Characteristics of problem, Exhaustive Searches, Heuristic Search Techniques, Iterative – Deepening A*.

UNIT II:
Problem Reduction & Game Playing: Game Playing, Bounded Look – Ahead Strategy and use of Evaluation Function, MINIMAX procedure, Alpha-Beta Pruning.

UNIT III:
Logic Concepts : Introduction, Propositional Calculus, Propositional Logic, Natural Deduction System, Axiomatic System, Semantic Tableau System in Propositional Logic, resolution Refutation in Propositional Logic, Predicate Logic.

UNIT IV:
Expert System and Applications: Introduction, Phases in Building Expert Systems, Expert System Architecture, Expert System versus Traditional Systems, Truth Maintenance Systems, Application of Expert Systems.

UNIT V:
Artificial Neural Networks: Introduction Artificial Neural Networks, Single – Layer Feed Forward Networks, Multi – Layer Feed Forward Networks.

Learning Resources:
1. Saroj Kaushik, "Artificial Intelligence", Cengage Learning, 2011.
2. Russell, Norvig," Artificial Intelligence, A Modern Approach ", Pearson Education, Second Edition, 2004.
3. Elaine Rich, Kevin Knight, Shivshankar B. Nair, "Artificial Intelligence", Tata McGraw Hill, Third Edition 2009.Stuart Russell, Peter Norvig, Artificial Intelligence – A Modern Approach, Third Edition (2019), Pearson
4. Nils J. Nilsson, Artificial Intelligence: A New Synthesis, (1998),Elsevier

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 1 Hour 30 Minutes