

DEPARTMENT OF COMPUTER SCIENCE & DESIGN

COURSE MODULE OF THE SUBJECT TAUGHT FOR THE SESSION 2025-26 (ODD SEM)

Faculty Name: Mrs. Divya N			Academic Year: 2025 - 2026				
Department: Computer Science &Design Engineering							
Course Code	Course Title	Core / Elective	Prerequisite	Contact Hours			Total Hrs/
				L	T	P	Sessions
BCS515B	ARTIFICIAL INTELLIGENCE	Elective	Basic Computer Science, Mathematics ,Logical and analytical thinking	3	0	0	40
Course Objectives	1. Learn the basic principles and theories underlying artificial intelligence, including machine learning, neural networks, natural language processing, and robotics. 2. Apply AI techniques to solve real-world problems, including search algorithms, optimization, and decision-making processes. 3. Understand the ethical, legal, and societal implications of AI, including topics such as bias, fairness, accountability, and the impact of AI on the workforce and privacy.						
Topics Covered as per Syllabus							
Module-1							
Module-1 (8 hours) Introduction: What Is AI? , The State of The Art. Intelligent Agents: Agents and environment, Concept of Rationality, The nature of environment, The structure of agents. Chapter 1 - 1.1, 1.4 Chapter 2 - 2.1, 2.2, 2.3, 2.4							
Module-2							
Module-2 (8 hours) Problem-solving: Problem-solving agents, Example problems, Searching for Solutions Uninformed Search Strategies Chapter 3 - 3.1, 3.2, 3.3, 3.4							
Module-3							
Module-3 (8 hours) Problem-solving: Informed Search Strategies, Heuristic functions Logical Agents: Knowledge–based agents, The Wumpus world, Logic, Propositional logic, Reasoning patterns in Propositional Logic Chapter 3 - 3.5, 7.6 Chapter 7 - 7.1, 7.2, 7.3, 7.4.							
Module-4							
Module-4 (8 hours) First Order Logic: Representation Revisited, Syntax and Semantics of First Order logic, Using First Order logic, Knowledge Engineering In First-Order Logic Inference in First Order Logic: Propositional Versus First Order Inference, Unification, Forward Chaining Chapter 8- 8.1, 8.2, 8.3, 8.4 Chapter 9- 9.1, 9.2, 9.3							

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Module-5

Module-5 (8 hours)

Inference in First Order Logic: Backward Chaining, Resolution Classical Planning: Definition of Classical Planning, Algorithms for Planning as State-Space Search, Planning Graphs

Chapter 9-9.4, 9.5 Chapter 10- 10.1,10.2,10.3

Textbooks:

- Stuart J. Russell and Peter Norvig, Artificial Intelligence, 3rd Edition, Pearson, 2015

Reference Books

1. Elaine Rich, Kevin Knight, Artificial Intelligence, 3rd edition, Tata McGraw Hill, 2013
2. George F Luger, Artificial Intelligence Structure and strategies for complex, Pearson Education, 5th Edition, 2011
3. Nils J. Nilsson, Principles of Artificial Intelligence, Elsevier, 1980
4. Saroj Kaushik, Artificial Intelligence, Cengage learning, 2014.

Course outcomes: The students should be able to:

- Explain the architecture and components of intelligent agents, including their interaction with the AI environment.
- Apply problem-solving agents and various search strategies to solve a given problem.
- Illustrate logical reasoning and knowledge representation using propositional and first-order logic.
- Demonstrate proficiency in representing knowledge and solving problems using first-order logic.
- Describe classical planning in the context of artificial intelligence, including its goals, constraints, and applications in problem-solving

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

- For the Assignment component of the CIE, there are 25 marks and for the Internal Assessment Test component, there are 25 marks.
- The first test will be administered after 40-50% of the syllabus has been covered, and the second test will be administered after 85-90% of the syllabus has been covered
- Any two assignment methods mentioned in the 22OB2.4, if an assignment is project-based then only one assignment for the course shall be planned. The teacher should not conduct two assignments at the end of the semester if two assignments are planned.
- For the course, CIE marks will be based on a scaled-down sum of two tests and other methods of

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assessment.

Internal Assessment Test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

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Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the course (duration 03 hours).

1. The question paper will have ten questions. Each question is set for 20 marks.
2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module.
3. The students have to answer 5 full questions, selecting one full question from each module.
4. Marks scored shall be proportionally reduced to 50 marks.

Course Code:	BCS515B	TITLE: Artificial Intelligence						Faculty Name:		Mrs. DIVYA N		
List of Course Outcomes	Program Outcomes											Total
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	
CO-1	2	2	2	-	-	-	-	-	-	-	-	6
CO-2	3	3	3	-	-	-	-	-	-	-	-	9
CO-3	3	3	3	-	-	-	-	-	-	-	-	9
CO-4	2	2	2	-	-	-	-	-	-	-	-	6
CO-5	2	2	2	-	-	-	-	-	-	-	-	6
Total	12	12	12	-	-	-	-	-	-	-	-	36

Note: 3 = Strong Contribution, 2 = Average Contribution, 1 = Weak Contribution, - = No Contribution