



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc.), 6th Semester
Branch: Information Technology
Subject Name: Introduction to Artificial Intelligence
Subject Code: 1160501

Type of subject: Core

Prerequisite: Data Structure.

Rationale: The field of AI and its techniques are being used in many areas which directly affect human life. Various techniques for encoding knowledge in computer systems such as Predicate Logic, Production rules, Semantic networks application in real world problems.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks	Practical			
						ESE (E)	PA(M)	ESE (V)
3	0	0	3	50	0	0	0	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE-End Semester Examination; PA- Progressive Assessment

Contents:

Sr. No.	Content	Hrs	Weightage (%)
1	Introduction to Artificial Intelligence: What is Artificial Intelligence, History of Artificial Intelligence, Types of Artificial Intelligence, Application of Artificial Intelligence, how AI Work, Strong AI Vs Weak AI, Advantages does and Disadvantages of AI, Example of AI, Future of AI.	08	20
2	Introduction to Intelligent Agent: What is Agent, PEAS representation model, Types of AI agents, Agent Environment in AI, Turing Test in AI	08	15
3	Introduction to Search Algorithms: What is search algorithms, Property of search algorithm, Uniformed Search(Breadth-first Search, Depth-first Search Depth-limited Search), informed search algorithm(Best-first search, A*search)	10	25
4	Hill Climbing algorithm in AI: Concept of Hill Climbing Algorithm, Features of Hill Climbing Algorithm, State Space diagram of Hill Climbing, Simple Hill Climbing Algorithm.	08	20
5	Knowledge-based agent(KBA) in Artificial Intelligence: Concepts of KBA, Architecture of KBA, Level and Approaches of KBA, Knowledge representation in AI, AI technique for knowledge representation, Propositional logic in AI, Fuzzy logic in AI	08	20
	TOTAL	42	100



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Reference Books:

1. Artificial Intelligence by Elaine Rich, Kevin Knight & Shivashankar Nair.
2. Principles of AI & ES Development by David W Rolston.
3. Artificial Intelligence, An Engineering Approach by Robert J Scialkaff

Suggested Specification table with Marks (Theory): (For BVOC only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	10	15	05	05	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate
C: Create and above Levels (Revised Bloom's Taxonomy)

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	To understand the basic concepts of Artificial Intelligence and its type.	20
CO-2	A comprehensive understanding of key concepts and models related to intelligent.	15
CO-3	Learner will gain a comprehensive understanding of search algorithms, their properties.	25
CO-4	Learner will develop an understanding of various algorithms, its characteristics.	20
CO-5	Understanding of Knowledge-Based Systems, including their architecture.	20

List of Open-Source Software/learning website:

Students must refer to the following sites to enhance their learning ability.

Web Resources: -

1. <https://www.geeksforgeeks.org>
2. <https://www.tutorialspoint.com>
3. <https://www.javatpoint.com>
4. <http://www.journals.elsevier.com/artificial-intelligence/>
5. <https://www.technologyreview.com/s/534871/our-fear-of-artificial-intelligence>