

Course Code	UDS21101T	Course Name	INTRODUCTION TO ARTIFICIAL INTELLIGENCE	Course Category	C	Professional Core Course	L	T	P	C
							4	0	0	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Computer Applications	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to,	Learning	Program Learning Outcomes (PLO)
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CLR-1 :	Understand the concept of Artificial Intelligence	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2 :	Learn the basic Mathematics and Statistics concepts used in AI	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Fundamental Knowledge	Application of Concepts	Link with Related	Procedural Knowledge	Skills in Specialization	Ability to Utilize Knowledge	Skills in Modeling	Analyze, Interpret Data	Investigative Skills	Problem Solving Skills	Communication Skills	Analytical Skills	ICT Skills	Professional Behavior	Life Long Learning
CLR-3 :	Understand the effectiveness of machine learning				H	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLR-4 :	Identify the AI implementation framework				L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLR-5 :	Apply AI concepts to solve business problems				L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLR-6 :	Solve the problem related to real world application				L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
					L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:																		
CLO-1 :	Understand the Academic and Industry perspectives of AI	2	85	80	H	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLO-2 :	Learn the concepts of Mathematics used in AI	3	85	80	L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLO-3 :	Able to understand the basics of Machine Learning	3	85	80	L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLO-4 :	Grasp the Social Awareness of AI	3	85	80	L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLO-5 :	Defend the need for AI in providing solution to business problems	3	85	80	L	H	H	H	H	H	-	M	M	L	-	H	-	M	H
CLO-6 :	Appreciate the application of AI in real world problem solving	3	85	80	L	H	H	H	H	H	-	M	M	L	-	H	-	M	H

Note: All our curriculum, study materials, assignments, quizzes, lab works, and learning resources are personalized and dynamically generated using machine learning models based on the learner's learning ability. Users can review our learning curriculum only through our intelligent learning management platform (iLMSP), and our learning resources and lab infrastructures are available only in the digital form on our cloud infrastructures.

Duration (hour)	12	12	12	12	12
S-1	Unit 1: AI Defined - Academic Perspective and Industry Perspective Overview of Intelligence	AI transform your business for ever	Business Intelligence	Machine Learning Architecture	Regulating AI in society
SLO-2	Components of Intelligence	Defining the Digital Transformation Scenario	Data Science vs Business Intelligence	Machine Learning Libraries	Data-driven policy making
S-2	SLO-1	Artificial Intelligence- Industry Definition	Starting point of Digital Transformation	Data Science Business Challenges and Business Needs	Machine Learning Technologies
					Policymaking in 30 years from now



	SLO-2	Artificial Intelligence-Academic Definition	Defining your Journey to Artificial Intelligence	Data Science Business Benefits	Machine Learning Implementation Framework	Boundaries for AI
S-3	SLO-1	<b>Unit 2: Present and Futuristic State of AI</b> Use of Technologies in different sectors of Business	<b>Unit 5: Role of Mathematics and Statistics in AI</b> Linear Algebra Overview	Data Science Implementation Framework	<b>Unit 8: Intelligent Automation</b> Intelligent Automation Overview	<b>Unit 10: AI Readiness and Assessment</b> Organization AI-Readiness
	SLO-2	Present State of AI	Matrix Overview	Data Science Implementation Technologies	Role of Intelligent Automation	AI Readiness tools available
S-4	SLO-1	Future State of AI	Application of Matrix in AI	Data Science Implementation - Healthcare Use Case	Intelligent Automation in Decision Making	Understanding where you in the AI Journey
	SLO-2	Effect of human behaviour by the use of Artificial Intelligence	Vector Overview	Data Science Applications	Artificial Intelligence and Intelligent Automation Overview	AI Readiness Framework
S-5	SLO-1	Control measure for complex AI systems	Application of vectors in AI	<b>Unit 7: Introduction to Machine Learning</b>	Artificial Intelligence and Intelligent Automation Differences	Six Areas of Focus
	SLO-2	Safety Concerns with the Advent of Artificial Intelligence	Scalar Overview	Machine Learning Overview	Intelligent Automation in Real World	<b>Unit 11: AI Implementation Framework</b> AI Framework Overview
S-6	SLO-1	<b>Unit 3: Real World Applications of AI</b> Way AI is Changing the World	Application of Scalar in AI	Machine Learning Types	Intelligent Automation Applications	AI Implementation Framework for an Enterprise
	SLO-2	Transforming Government	Introduction to Statistics	Role of Machine learning in real world applications	Working of Intelligent Automation	AI Implementation Strategy
S-7	SLO-1	Bridging Language Divides	Statistical data analysis	Applications of Machine Learning	Benefits of Intelligent Automation	AI Implementation Framework Development
	SLO-2	Creating State of Art	Diagrammatic representation	Machine Learning Techniques	Instruction Driven Automation Overview	Problem Statement
S-8	SLO-1	Real world use cases in different Sectors	Sampling & its types	Supervised Machine Learning	Instruction Driven Automation Applications	Model Selection
	SLO-2	Working of AI in Different Sectors	Measures of Central Tendency	Unsupervised Machine Learning	Working of Instruction Driven Automation	Technology Architecture
S-9	SLO-1	AI in Health	Measures of Dispersion	Reinforcement Learning	Intelligent Automation Platforms	Model Engineering
	SLO-2	AI in Consumer	Correlation and covariance	Difference B/w Supervised and Unsupervised ML	<b>Unit 9: Social Awareness of AI, AI on Government and Public Policy</b> Economic Impact of AI	Model Training/Testing/Retraining/Retesting/Acceptance



S-10	SLO-1	AI in Energy	Different Types of Distributions	Difference B/w Supervised and Reinforcement ML	AI for Public Good	<b>Unit 12: AI Business Case Development</b> AI Driving Factors
	SLO-2	AI in Oil and Gas	Estimate Confident Intervals	Difference B/w Unsupervised and Reinforcement ML	AI, Ethics and Regulation	AI Business Challenges
S-11	SLO-1	<b>Unit 4: Digital Transformation of AI</b> Digital Transformation Overview	<b>Unit 6: Role of Data Science</b> Data Science Overview	Deep Learning overview	Social Challenges of AI	AI Business Needs
	SLO-2	Role of AI in Digital Transformation	Data Analytics Overview	NLP Overview	Juristic Challenges of AI	AI Proposed Solution
S-12	SLO-1	Digital Transformation Tehniques	Data Science vs Data Analytics	CV Overview	Artificial Intelligence and the Future of Public Policy	AI Business Engagement
	SLO-2	4 main areas of Digital Transformation	Data Science vs Business Analytics	RPA Overview	Digitization and Public Policy	Measurable Business Values and ROI

Learning Resources	1. <a href="https://deepsphereai.litmos.com/">https://deepsphereai.litmos.com/</a> 2. Stuart Russell, Peter Norvig, "Artificial Intelligence – A Modern Approach", 3rd Edition, Pearson Education / Prentice Hall of India, 2010. 3. Joseph C. Giarratano, Gary D. Riley, "Expert Systems : Principles and Programming", 4th Edition, 2015. 4. Nils J. Nilsson, "Artificial Intelligence: A new Synthesis", Harcourt Asia Pvt. Ltd., 2000. CURRICULUM AND SYLLABUS B.TECH. – DATA SCIENCE 79 5. Prateek Joshi, "Artificial Intelligence with Python", Packt Publishing, 2017. 6. <a href="https://www.pdfdrive.net/artificial-intelligence-a-modern-approach-3rd-editione32618455.html">https://www.pdfdrive.net/artificial-intelligence-a-modern-approach-3rd-editione32618455.html</a> Machine Learning. Tom Mitchell. First Edition, McGraw- Hill, 1997
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Learning Assessment											
	Bloom's Level of Thinking	Continuous Learning Assessment (50% weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (10%)		CLA – 3 (20%)		CLA – 4 (10%) #			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember	30%	-	30%	-	30%	-	30%	-	30%	-
	Understand										
Level 2	Apply	40%	-	40%	-	40%	-	40%	-	40%	-
	Analyze										
Level 3	Evaluate	30%	-	30%	-	30%	-	30%	-	30%	-
	Create										
	Total	100 %		100 %		100 %		100 %		100 %	

# CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
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