

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications					Branch/Spec.	Computer Application																																																				
Semester	II					Version	1.0.0.0																																																				
Effective from Academic Year			2026-27			Effective for the batch Admitted in		June 2026																																																			
Subject Code	P12E5IAM		Subject Name			Introduction of AI and Machine Learning Foundations																																																					
Teaching scheme						Examination scheme (Marks)																																																					
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CIA	SEE	Total																																																		
	L	TU	P	TW																																																							
Credit	2	0	2	0	4	Theory	40	60	100																																																		
Hours	2	0	4	0	6	Practical	20	30	50																																																		
Objective:																																																											
To develop fundamental understanding and practical skills in Artificial Intelligence and Machine Learning techniques for solving data-driven problems.																																																											
Prerequisite:																																																											
Basic knowledge of Python and analytical skills.																																																											
Course Outcomes:																																																											
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CO1	2	2	1	2	-	-	1	3																																																			
CO2	3	3	3	3	-	-	1	2																																																			
CO3	3	3	2	3	-	-	1	2																																																			
CO4	3	3	2	3	-	-	1	2																																																			

Content:		
Unit	SECTION – I	Hrs
1	Foundation of AI: Introduction to AI, history and evolution, AI vs ML vs DL, types of AI, Goals and characteristics of AI, Applications and Future of AI. Overview of Machine Learning: Introduction to Machine Learning, Introduction to Analytics and Machine Learning, Types of Machine Learning: Supervised Learning, Unsupervised Learning, Reinforcement Learning, Framework for developing Machine Learning Models, Applications of Machine Learning, Python libraries suitable for Machine Learning,	08
2	Regression Analysis: Supervised Learning Algorithms with applications in Predictive Analytics, building a Simple Regression Model, Making predictions and Measuring Accuracy, Developing a multiple linear regression model using Python, Performance measures for regression.	07
SECTION – II		
3	Classification: Decision Trees: Classification and Regression Trees, Splitting Criteria, building a Decision Tree Classifier using Gini Criteria, Measuring Test Accuracy, Displaying the tree, Understanding Gini Impurity, Entropy Criteria, Max depth, Benefits of Decision Tree; Evaluation Measures: Confusion matrix, accuracy. Error rate, Type-I error, Type-2 error, Sensitivity, Specificity, Precision, ROC curve, AUC, Introduction to Binary Logistic Regression, Interpretation of Logistic Regression Parameters, Implementation of Logistic Regression.	08
4	Clustering: Introduction to Clustering, Distance and Dissimilarity measures used in Clustering, Euclidean distance, Standardized Euclidean distance, Manhattan distance, Minkowski distance, Jaccard Similarity Coefficient, Cosine similarity, Gower’s Similarity Coefficient, Quality and Optimal number of clusters, K-Means clustering and Hierarchical clustering.	07
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Text/Reference Books:		
1	Kumar, U.D et al., “Machine Learning Using Python”, Wiley India.	
2	Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, “Machine Learning” , Pearson India.	
3	Andrew Wolf, “MACHINE LEARNING SIMPLIFIED: A GENTLE INTRODUCTION TO SUPERVISED LEARNING”, THEMLSBOOK.COM	
Web References / MOOC / Certification Course		
1	https://www.coursera.org/learn/machine-learning-with-python	
2	https://www.classcentral.com/course/machine-learning-with-python-11714	
3	https://nptel.ac.in/courses/106105152 https://nptel.ac.in/courses/106106198	
4	https://www.geeksforgeeks.org/machine-learning/	
5	https://www.coursera.org/learn/machine-learning-with-python	
Question Paper Scheme:		
	University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6.	

	SECTION – I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks SECTION - II Q.4 –8 Marks Q.5 –11 Marks Q.6 –11 Marks