

SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
SEETHARAMAPURAM, NARSAPUR-534280 W.G.DT. AP
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TEACHING PLAN

Course Code	Course Title	Year/Sem	Branch	Contact hr/week	Academic Year
20MC3T01	Machine Learning with Python	II/III	MCA	6	2025-2026

Course Objectives:

From the Course the student will learn:

1. To learn patterns and concepts from data without being explicitly programmed in various IOT nodes.
2. To design and analyze various machine learning algorithms and techniques with modern outlook focusing on recent advances.
3. Explore supervised and unsupervised learning paradigms of machine learning.
4. To explore Deep learning technique and various feature extraction strategies.

Course Outcomes (CO's): At the end of the course, student will be able to:

1. Illustrate and comprehend the basics of Machine Learning with Python.
2. Demonstrate the algorithms of Supervised Learning and be able to differentiate linear and logistic regressions.
3. Demonstrate the algorithms of Unsupervised Learning and be able to understand the clustering algorithms.
4. Evaluate the concepts of binning, pipeline Interfaces with examples.
5. Apply the sentiment analysis for various case studies.

Week No	Outcome	Blooms Level	Topic / Activity		Text Books	Contact Hours	Delivery Method
UNIT-I							
1,2	Illustrate and comprehend the basics of Machine Learning with Python	K2	1.1	Introduction to Machine Learning	T1	1	Chalk & Board, PPT , Interactive Whiteboarding
			1.2	basic terminology	T1	1	
			1.3	Types of Machine Learning	T1	1	
			1.4	Applications OF Machine Learning	T1	1	
			1.5	Installing Python and packages from the Python Package Index	T1	2	
			1.6	Introduction to NumPy, SciPy, matplotlib	T1	1	
			1.7	scikit- learn	T1	1	
			1.8	tiny application of Machine Learning	T1	1	
UNIT-II							
3, 4	Demonstrate the algorithms of Supervised Learning and be able to differentiate linear and logistic regressions	K2	2.1	Introduction to Supervised Learning	T1	1	Chalk & Board, PPT , Interactive Whiteboarding
			2.2	Types of Supervised Learning	T1	2	
			2.3	k-Nearest Neighbours	T1	1	
			2.4	Linear Models	T1	1	
			2.5	Naive Bayes Classifiers	T1	2	
			2.6	Decision Trees	T1	1	
			2.7	Ensembles of Decision Trees	T1	1	
			2.8	Kernelized Support Vector Machines	T1	2	
			2.9	Uncertainty Estimates from Classifiers	T1	1	
UNIT-III							
5, 6	Demonstrate the algorithms of Unsupervised Learning		3.1	Introduction to Un Supervised Learning	T1	1	Chalk & Board, PPT , Interactive Whiteboarding
			3.2	Types of Unsupervised Learning	T1	1	
			3.3	challenges	T1	1	
			3.4	Preprocessing and scaling	T1	1	
			3.5	Dimensionality Reduction	T1	1	
			Mid I Exam				
			3.6	Feature Extraction	T1	1	
			3.7	Manifold Learning	T1	2	
			3.8	K-Means Clustering	T1	1	
			3.9	Agglomerative Clustering	T1	1	

	and be able to understand the clustering algorithms	K2	3.10	DBSCAN	T1	1	
			3.11	Comparing and Evaluating Clustering Algorithms	T1	2	
UNIT-IV							
7, 8	Evaluate the concepts of binning, pipeline Interfaces with examples	K5	4.1	Representing Data and Engineering Features	T1	1	Chalk & Board, PPT , Interactive Whiteboarding
			4.2	Categorical Variables	T1	1	
			4.3	Binning	T1	1	
			4.4	Discretization	T1	1	
			4.5	Linear Models	T1	1	
			4.6	Trees	T1	1	
			4.7	Interactions and Polynomials	T1	1	
			4.8	Univariate Nonlinear Transformations	T1	2	
			4.9	Automatic Feature Selection	T1	1	
			4.10	Parameter Selection with Preprocessing	T1	2	
			4.11	Building Pipelines	T1	1	
			4.12	The General Pipeline Interface	T1	1	
UNIT-V							
9, 10	Apply the sentiment analysis for various case studies	K3	5.1	Working with Text Data	T1	1	Chalk & Board, PPT , Interactive Whiteboarding
			5.2	Types of Data Represented as Strings	T1	2	
			5.3	Sentiment Analysis of Movie Reviews	T1	1	
			5.4	Representing Text Data as a Bag of Words	T1	1	
			5.5	Stop Words	T1	1	
			5.6	Rescaling the Data with tf-idf	T1	2	
			5.7	Investigating Model Coefficients	T1	1	
			5.8	Approaching a Machine Learning Problem	T1	2	
			5.9	Testing Production Systems	T1	1	
			5.10	Ranking, Recommender Systems and Other kinds of Learning	T1	2	
Mid II Exam							
Total No. of Classes					62		

Recommended Text Books for Reading:

Author(s)	Title	Publisher	Edition	Year
Andreas C. Müller & Sarah Guido	<i>Introduction to Machine Learning with Python: A Guide for Data Scientists</i>	O'Reilly Publications	4rd Edition	2019
Sebastian Raschka & Vahid Mirjalili	<i>Python Machine Learning</i>	-	3rd Edition	2019
Tom M. Mitchell	<i>Machine Learning</i>	McGraw-Hill Publications	-	2017

Reference Text Books:

Author	Title	Publisher	Edition	Year
Tom M. Mitchell	<i>Machine Learning</i>	McGraw-Hill Publication	-	2017


Faculty


Head of the Department


Principle