SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous)
Narsapur, West Godavari District, A.P. 534280
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20CS6T03	Machine Learning	B.Tech / VI	CSE	5	2024-25	18-11-2024

COURSE OUTCOMES

1	Observe the concepts and types of models in machine learning K2
2	Identify to reduce the dimension of the dataset using machine learning techniques K2
3	Apply to implement a classification model for any real scenario K3
4	Develop an unsupervised learning application using clustering techniques. K3
5	Predict methods of ensemble models by applications of ensemble learning. K3

Unit	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
UNIT-I: INTRODUCTION TO MACHINE LEARNING						
I	CO1: Observe the concepts and types of models in machine learning .K2	1.1	What is machine learning	T1	1	Chalk & talk
		1.2	Problems Machine Learning Can Solve examples	T1	1	PPT
		1.3	Framework for developing Machine Learning Models	T1	1	PPT
		1.4	Examples of Machine Learning Applications	T1	1	PPT
		1.5	Learning Associations	T1	1	PPT
		1.6	Classification	T1,R1	1	PPT
		1.6.1	Problems on classification	T1	1	Flipped Learning
		1.7	Regression	T1,R1	1	PPT
		1.7.1	Regression problems	T1	1	Chalk & talk
		1.8	Unsupervised Learning	T1,R1	1	PPT
		1.9	Reinforcement Learning	T1	1	PPT
				Total	**12**	
UNIT-II: DIMENSIONALITY REDUCTION						
II	CO2: Identify to reduce the	2.1	Introduction	T1,R1	1	PPT
		2.2	Feature Selection	T1,R1	1	PPT
		2.2.1	Supervised techniques	T1,R1	1	

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				Total	**12**	
UNIT-II: DIMENSIONALITY REDUCTION						
II	CO2: Identify to reduce the	2.1	Introduction	T1,R1	1	PPT
		2.2	Feature Selection	T1,R1	1	PPT
		2.2.1	Supervised techniques	T1,R1	1	

	dimension of the dataset using machine learning techniques K2	2.3	Forward selection	T1,R1	1	PPT
		2.3.1	Examples	T1,R1	1	Quiz
		2.4	Bidirectional Elimination	T1,R1	1	PPT
		2.5	L1 and L2 regularization	T1,R1	1	Chalk & talk
		2.6	Linear Discriminant Analysis	T1,R1	1	PPT
		2.7	Basics of t-SNE	T1,R1	1	PPT
		2.8	Information value	T1,R1	1	PPT
		2.9	Weight of evidence	T1,R1	1	PPT
Total					12	
UNIT-III: CLASSIFICATION						
III	CO3: Observe the concepts and types of models in machine learning .K2	3.1	What is Classification	T1,R1	1	Chalk & talk
		3.2	General Approach to Classification	T1,R1	1	PPT
		3.3	Multi-class classification	T1,R1	1	Chalk & talk
		3.4	multi-label classification	T1,R1	1	PPT
		3.5	Binary Classification	T1,R1	1	PPT
		3.5	Logistic Regression	T1,R1	1	PPT
		3.6	Decision Trees	T1,R1	1	PPT
		3.7	k-Nearest Neighbor Algorithm	T1,R1	1	Active Learning
		3.8	Naive Bayesian Classifier	T1,R1	1	PPT
		3.9	SVM classifier	T1,R1	1	PPT
Total					11	
UNIT-IV: CLUSTERING						
IV	Develop an unsupervised learning application using clustering techniques. K3	4.1	Basic Clustering Methods	T1,R1	1	PPT
		4.2	Partitional Clustering	T1,R1	1	PPT
		4.3	Hierarchical Clustering	T1,R1	1	PPT
		4.4	K- Means Clustering	T1,R1	1	PPT
		4.5	Expectation-Maximization (EM) Algorithm	T1,R1	1	PPT
		4.6	Gaussian Mixtures Clustering	T1,R1	1	Chalk & talk
		4.7	**INTRODUCTION TO NEURAL NETWORKS**	T1,R1	1	Chalk & talk
		4.8	Neural Network representations	T1,R1	1	Flipped Learning
		4.9	Appropriate Problems for Neural Network Learning	T1,R1	1	PPT
		4.10	Perceptrons	T1,R1	1	PPT

		4.11	Multilayer Networks	T1,R1	1	PPT
		4.11.1	Example network	T1,R1	1	PPT
		4.12	Backpropagation Algorithm	T1,R1	1	PPT
		4.13	Remarks on Back Propagation Algorithm	T1,R1	1	PPT
	Content beyond Syllabus	Heath care analysis using CNN			1	PPT
				Total	**15**	
UNIT-V: ENSEMBLE METHODS						
V	CO5: : Predict methods of ensemble models by applications of ensemble learning. K3	5.1	Introduction	T1,R1	1	Chalk & talk
		5.2	What is Ensembling methods	T1,R1	1	PPT
		5.3	Why Ensembling methods	T1,R1	1	Collaborative Learning
		5.4	Applications of Ensemble methods	T1,R1	1	PPT
		5.5	Boosting	T1,R1	1	PPT
		5.6	Bagging	T1,R1	1	PPT
		5.7	Combinational Methods	T1,R1	1	PPT
		5.8	Benefits of combination	T1,R1	1	PPT
		5.9	Averaging	T1,R1	1	PPT
		5.10	Voting	T1,R1	1	PPT
				Total	**10**	
				CUMULATIVE PROPOSED PERIODS	**60**	

Text Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Tom M. Mitchell, "Machine Learning", Indian Edition, MGH, 2017.
2	Ethem Alpaydin, "Introduction to Machine Learning", 3rd edition, PHI,2014.
3	Ian Goodfellow, Yoshua Bengio and Aaron Courville, "Deep Learning", MIT Press, 2016.

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Rogers S and Girolami M, "A first course in Machine Learning", CRC Press, 2011.
2	Applied Machine Learning, M. Gopal, McGraw Hill Education, 2019.
3	Zhi-Hua Zhou, "Ensemble Methods: Foundations and Algorithms", CRC Press, 2012.

Web Details

1	https://www.coursera.org/course/ml
2	https://nptel.ac.in/courses/106/106/106106184/

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		Name	Signature with Date
i.	Faculty I	Dr.P.Srinivasulu	
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iii.	Faculty III	Dr. T Murali Mohan	
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HOD

Principal