

**VASAVI COLLEGE OF ENGINEERING (Autonomous)**

ACCREDITED BY NAAC WITH 'A++' GRADE

IBRAHIMBAGH, HYDERABAD – 500 031

**Department of Computer Science & Engineering****FUNDAMENTALS OF MACHINE LEARNING**

Stream- Artificial Intelligence &amp; Machine Learning

**(OPEN ELECTIVE-IV)**

(COMMON for CIVIL, ECE, EEE &amp; MECH)

**SYLLABUS FOR B.E VI SEMESTER**

L:T:P (Hrs./week): 3:0:0	SEE Marks : 60	Course Code: <b>U23OE620CS</b>
Credits : 3	CIE Marks : 40	Duration of SEE : 3 Hours

<b>COURSE OBJECTIVE</b>			<b>COURSE OUTCOMES</b>		
To formulate machine learning problems corresponding to an application.			<i>On completion of the course, students will be able to</i>		
			<ol style="list-style-type: none"> <li>1. Explain the basics machine learning.</li> <li>2. Prepare the data for learning</li> <li>3. Select the feature and transform it .</li> <li>4. Classify the data using classification models</li> <li>5. Solve problems using Unsupervised learning models</li> </ol>		

CO	CO-PO and CO-PSO mapping												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12			
CO1	2		2	1									1		2
CO2	2	2	2	2	2								1		3
CO3	3	2	3	2	2								2		3
CO4	3	2	2	2	1								2		3
CO5	3	2			2								2		3

**UNIT I:**

**Introduction to Machine Learning:** Introduction, types of Human learning, types of learning, Problems not to be solved by Machine learning , applications of machine learning , Issues in machine learning,

**UNIT II:**

**Preparing to Model :** Introduction, Machine Learning Activities, Basic Data types in machine learning , Exploring Structures of Data.

*T. Shikha*

**UNIT III:**

**Basics of Feature Engineering: Introduction**, feature transformation: feature Construction .

**UNIT IV:**

**Supervised Learning – Classification:** Introduction, Example of supervised learning, classification model, classification learning steps, common classification algorithms: KNN and Decision Tree, **Regression :** Introduction , Simple Linear regression.

**UNIT V:**

**Unsupervised Learning –** Introduction, Unsupervised vs supervised learning, Application of Unsupervised Learning , types of Clustering techniques, Partitioning methods, k-medoids.

**Learning Resources:**

1. Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, -Machine Learning, Pearson Education
2. Tom Mitchell, —Machine Learning||, McGraw-Hill Science, First edition.
3. Christopher Bishop, —Pattern Recognition and Machine learning||, Springer(2006).
4. Stephen Marsland,||Machine Learning –an algorithmic perspective||, CRC Press.
5. Daniela witten, Trevor Hastie Robert Tibshirani and Gareth James, —An introduction to statistical Learning with applications in R, Springer 2013
6. [https://onlinecourses.nptel.ac.in/noc18\\_cs26/preview](https://onlinecourses.nptel.ac.in/noc18_cs26/preview)
7. <https://www.coursera.org/learn/machine-learning>

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	<input type="text" value="2"/>	Max. Marks for each Internal Test	:	<input type="text" value="30"/>
2	No. of Assignments	:	<input type="text" value="3"/>	Max. Marks for each Assignment	:	<input type="text" value="5"/>
3	No. of Quizzes	:	<input type="text" value="3"/>	Max. Marks for each Quiz Test	:	<input type="text" value="5"/>

Duration of Internal Tests : 1 Hour 30 Minutes