INTRODUCTION TO MACHINE LEARNING
(OPEN ELECTIVE-V)
(for other Branches)

Instruction: 3 Hrs / week	**SEE Marks** :60	**Course Code**: OE620IT
Credits : 3	**CIE Marks**: 40	**Duration of SEE** :3Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	**At the end of the course student will be able to:**
Introducethe fundamental concepts and approaches in Artificial intelligence and Machine Learning field to effectively apply techniques to the real-worldproblems.	1. Demonstrate knowledge of the Artificial intelligence and machine learning literature. 2. Apply an appropriate algorithm for a given problem. 3. Apply machine learning techniques in the design of computer systems. 4. Prove basic results in the theory of learning 5. Explain the relative strengths and weaknesses of different machine learning methods and approaches.

UNIT-I:
Introduction to AIML: Foundations of AI, Sub areas of AI, Applications.Introduction to learning, Types of Learning: Supervised Learning, Unsupervised Learning, Reinforcement Learning.
Supervised learning: ML Tasks, Experience and Metrics, Linear Regression, Logistic Regression.

UNIT-II:
Supervised Non-parametric learning: Introduction to Decision Trees, K-Nearest Neighbor, Feature Selection.
Supervised Parametric learning: Support Vector Machine, Kernel function and Kernel SVM.

UNIT-III:
Supervised Parametric learning (Neural networks): Perceptron, Multilayer Neural Network, Backpropagation.

UNIT-IV:
Supervised Parametric Bayesian learning: MAP, Maximum likelihood, Naive Bayes Classification.

UNIT-V:
Unsupervised leaning: Clustering, K-means Clustering,

Learning Resources:
1. Tom Mitchell, Machine Learning,First Edition, McGraw-Hill, 1997
2. Christopher Bishop. Pattern Recognition and Machine Learning. Second Edition.
3. EthemAlpaydin , Introduction to Machine Learning, Second Edition
4. T. Hastie, R. Tibshirani, J. Friedman. The Elements of Statistical Learning, 2e, 2008.
5. http://nptel.ac.in/courses/106106139/