

## Applied Machine Learning

### PRE-REQUISITE(S)

MDS501 Programming for Data Science

### CREDIT HOURS

4

### SYNOPSIS

This module provides a foundation to principles of machine learning by exploring major approaches and

algorithms, feature engineering and model evaluation methods. The module covers different algorithms and

techniques in developing machine learning systems for real-world problems focusing on prescriptive analytics.

### LEARNING OUTCOMES

- Explain machine learning concepts, data pre-processing and feature selection with regard to prescriptive analytic domain (C5, PLO1, MQF1)

- Justify the merits and limitations of machine learning algorithms using appropriate performance

measures based on specific real-world contexts and requirements (C5, PLO2, MQF2)

- Design comprehensive machine learning model(s) using libraries and toolkits to derive practical

solutions in solving real-world problems (P7, PLO3, MQF3a)

### TOPICS

Topic 1 Fundamentals of Machine Learning Concepts

Topic 2 Feature Preprocessing

Topic 3 Machine Learning Architecture

Topic 4 Supervised Learning Models

Topic 5 Unsupervised Learning Models

Topic 6 Deep Learning

Topic 7 Model Assessment and Deployment

## Topic 8 Machine Learning Applications

### **ASSESSMENT DETAILS**

Test 15%

Assignment 40%

Project 45%

### **PRESCRIBED TEXT**

Tripathi, A. (2017). Practical Machine Learning Cookbook. Packt Publishing.

Raschka, S., & Mirjalili, V. (2017). Python Machine Learning - Second Edition: Vol. 2nd ed. Packt Publishing.

Karim, M. R. (2018). TensorFlow: Powerful Predictive Analytics with TensorFlow: Predict valuable insights of your data with TensorFlow. Packt Publishing Ltd.