**MID SEM Syllabus**

**Unit 1. Introduction to Artificial Intelligence and Machine learning**

History of Artificial Intelligence, What is AI? Emergence of AI, Cognitive Science & AI. The Origins of Machine Learning, Uses and Abuses of Machine Learning, How do Machines Learn? - Abstraction and Knowledge Representation, Generalization, Assessing the Success of Learning, Steps to Apply Machine Learning to Data, Choosing a Machine Learning Algorithm - Thinking about the Input Data, Thinking about Types of Machine Learning Algorithms, Matching Data to an Appropriate Algorithm

**Unit 2. Logical Approach to AI, Regression Models and Association Rules in ML**

Basics of Propositional Logic: Syntax, Semantics, Tautologies and Logical Implication, Introduction to Simple Linear Regression, Simple Linear Regression Model Building, Estimation of Sum of Squared Error, Interpretation of Simple Linear Regression Coefficients, Validation of Simple Linear Regression Model, Multiple Linear Regression, Partial Correlation and Regression Model Building, Logistic Regression Model and its mathematical derivation, Market Basket Analysis, Apriori Algorithm, FP Growth Algorithm.

**Unit 3. Classification Algorithms**

Introduction to Classification Algorithms, k-Nearest Neighbor Algorithm, Decision Trees, Naive Bayesian Classifier,