## CS4092D MACHINE LEARNING LABORATORY

**Conduction & Evaluation Plan**

**Note: Accuracy of results should be shown in terms of Precision, Recall, F1 Score.**

| Module Number | Programs to be conducted | Max Marks |
|---|---|---|
| 1 | Perform linear regression with multiple variables Using Gradient Decent Algorithm (do from Scratch) | 10 |
| 2 | 1. Download data sets Iris & Vowel from UCI machine learning repository.<br>2. Perform Clustering (K-means Algorithm) (do from Scratch) | 10 |
| 3 | Genetic Algorithms to optimize a mathematical function (do from Scratch) | 10 |
| 4 | 1. Download data sets Dermatology & Sonar from UCI machine learning repository.<br>2. Data Preprocessing: (1) Feature selection (Ranking of feature using variance, Information Gain (IG) attribute evaluation, (2) Feature Forward method & Feature Backwards method (3) Feature extraction using Principle Component Analysis (PCA) | 10 |
| 5 | Classification task using classifiers (logistic regression, Decision Tree, Support Vector Machine (SVM), Random Forest) and comparative study | 10 |
| 6 | Text Data Preprocessing [text data WebKB (World Wide Knowledge Base) is collected by Craven in 1998] | 10 |
| 7 | Image Classification using CNN (choose your own dataset), Train Models on Google Colab – 12GB free GPU | 20 |
| 8 | Overall Final Evaluation | 20 |
| **Total** | | **100** |