

Fr. Conceicao Rodrigues College Of Engineering
Department of Artificial Intelligence and Data Science Engineering

T.E. (AI DS) (semester VI) (2022-2023)
Course Outcomes & Assessment Plan

Subject: Machine Learning Lab(CSL604)

Credits-1

Lab Objectives:

1. To introduce platforms such as Anaconda, COLAB suitable to Machine learning
2. To implement various Regression techniques
3. To develop Neural Network based learning models
4. To implement Clustering techniques

Teaching Scheme

Course Code	Course Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical/Oral	Tut	Credits
CSC604	Machine Learning	03	--	--	03	--	---	03
CSL604	Machine Learning Lab	--	02	--	--	01	--	01

Examination Scheme

Course Code	Course Name	Theory Marks				Term Work	Practical & Oral	Total
		Internal Assessment			End Sem Exam			
		Test1	Test2	Avg				
CSC604	Machine Learning	20	20	20	80 (3hr)	--	---	100
CSL604	Machine Learning Lab					25	25	50

Course Outcomes: [Target 2.5]

After successful completion of the course students will be able to:

CSL604.1 : Comprehend basics of Machine Learning.

CSL604.2 : Apply suitable Machine learning models for a given problem.

CSL604.3 : Implement Neural Network based models.

CSL604.4 : Apply Dimensionality Reduction techniques.

Mapping of CO and PO/PSO

Relationship of course outcomes with program outcomes: Indicate 1 (low importance), 2 (Moderate Importance) or 3 (High Importance) in respective mapping cell.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
CSL604.1	3				3								3
CSL604.2	3	3	3	2	3				2	2	2	2	3
CSL604.3	3	3	3	2	3				2	2	2	2	3
CSL604.4	3	3	3	2	3				2				3
TOTAL	12	9	9	6	12				6	4	4	4	12
CO-PO MATRIX	3	3	3	2	3				2	2	2	2	3

CO ASSESSMENT TOOLS

	Direct Methods (80%)					Indirect Methods (20%)
CSL604.1	Lab 1-2 (20%)	Assign 1 (40%)	UE -TH (20%)	UE-O (10%)		(100%)
CSL604.2	Lab 3-4-5 (30%)	(30%)	UE -TH (20%)	UE-O (10%)	MP (10%)	(100%)
CSL604.3	Lab 6-7-8-9-10 (20%)	Lab 6-7-8-9-10 (30%)	UE -TH (20%)	UE-O (10%)	MP	(100%)
CSL604.4	Lab 11 (20%)	(40%)	UE -TH (20%)	UE-O (20%)		(100%)

Content Beyond Syllabus:

1. Research Paper study/implementation in Mini Project in groups

Syllabus/Lab Plan : SEM VII-ML-Lab CSL604**Prerequisite:** C Programming Language**Term :** 09th Jan – 22 Apr 2023 (UT1 : 27 Feb - 2 Mar) (UT2 : 17Apr -20 Apr)

No.	Experiment Name	CO Map	Batch A	Batch B	Batch C	Batch D
	Implementation of ML Algorithms					
1	Introduction to platforms such as Anaconda, COLAB	CO1	16 Jan			
2	Study of Machine Learning Libraries and tools (Python library, tensorflow, keras,...)	LC01				
3	Linear Regression.	LC02	23 Jan			
4	Logistic Regression	LC02	30 Jan			
5	Support Vector Machines	LC02	6 Feb			
6	Hebbian Learning	LC03	20 Feb			
7	Expectation -Maximization algorithm	LC03	27 Feb			
8	McCulloch Pitts Model.	LC03	6 Mar			
9	Single Layer Perceptron Learning algorithm	LC03	13Mar			
10	Error Backpropagation Perceptron Training Algorithm	LC03	20 Mar			
11	Principal Component Analysis	LC04	27 Mar			
12	Mini Project - Applications of above algorithms as a case study (E.g. Hand Writing Recognition using MNIST data set, classification using IRIS data set, etc)	LC02-3-4				
	Topic Submission		16 Jan			
	Progress review		13 Feb			
	Presentation and Demo		13 Mar			
	Mini Project Report submission		27 Mar			

Total Experiments : (minimum 10 + Mini Project)

ASSIGNMENT PLAN

01	12 Jan	LCO2-3	Study 3 Research Papers – computer vision/NLP/Reinforcement learning (submit Summary with pdfs)
02	1 Feb	All depends	Topic of Study.
03	10 Feb	LCO2-3	One ML/DL task.

Useful Links:

1. <https://www.learndatasci.com/out/edx-columbia-machine-learning/>
2. <https://www.learndatasci.com/out/oreilly-hands-machine-learning-scikit-learn-keras-and-tensorflow-2nd-edition/>
3. <https://www.learndatasci.com/out/google-machine-learning-crash-course/>
4. <https://www.learndatasci.com/out/edx-columbia-machine-learning/>

Term Work:

Term work should consist of 10 experiments.

Journal must include at least 2 assignments.

The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.

Total 25 Marks (Experiments: 15-marks, Attendance Theory & Practical: 05-marks, Assignments: 05-marks)

Oral & Practical exam Based on the entire syllabus of CSL604 and CSC604

Rubrics-Experiment

Class : T.E. AI & DS

Semester : V

Practical No:	
Title:	
Date of Performance:	
Roll No:	
Name of the Student:	

Evaluation:

Indicator	Very Poor	Poor	Average	Good	Excellent
Timeline (02)	More than three sessions late (0)	More than two sessions late (0)	Two sessions late (0.5)	One session late (1)	Early or on time (2)
Efforts (02)	N/A	N/A	N/A	Partially Completed (1)	Completed (2)
Model Training and Interpretation of performance(04)	N/A	Model is trained with some performance (01)	Model is trained using standard parameters and interpreted performance partially (02)	Model is trained using standard parameters and interpreted performance (03)	Model is trained using adjusted parameters and Interpreted performance done on Accuracy/Confusion matrix etc. (04)
Oral Assessment (02)	N/A	N/A	N/A	Partially Understood (2)	Understood Concept (2)

Signature

Rubrics for Mini Project

Class : T.E. AI & DS

Semester : V

Practical No:	
Title:	
Date of Performance:	
Roll No:	
Name of the Student:	

Indicator	Very Poor	Poor	Average	Good	Excellent
Timeline: Maintains project deadline (2)	Project not done (0)	More than two session late (0.5)	Two sessions late (1)	One session late (1.5)	Early or on time (2)
Completeness: Complete all parts of project (2)	N/A	< 40% complete (0.5)	~ 60% complete (1)	~ 80% complete(1.5)	100% complete(2)
Model Training and Interpretation of performance (4)	N/A	Model is trained with some performance (01)	Model is trained using standard parameters and interpreted performance partially (02)	Model is trained using standard parameters and interpreted performance (03)	Model is trained using adjusted parameters and Interpreted performance done on Accuracy/Confusion matrix etc. (04)
Presentation (2)	Not submitted report (0)	Poorly written and poorly kept report(0.5)	Report with major mistakes(1)	Report with less than 3-4 mistakes (1.5)	Well written accurate report(2)

Signature

Department of AI & DS Engineering

**TE(AI&DS) Sem VII
Machine Learning (CSC604)
Academic Year (2022-2023)**

Identification of Advanced and Slow Learners during Lab Performance

Classification: Tool (Lab Performance)	Identification method	Name of students	Suggestions of Mini Projects Topics/ Observations of Unit Test Marks
Strong students	Performance in lab experiments On time submissions.		
Weak Students	Unit Test 1 Marks and Lab Performance		

Strong Students Identified and Action taken:

Strong/ Weak Students Identified and Action taken:
