

Practical Plan

Branch: Computer Engineering
Semester: VIII

Year: 2022-23

Course Title: Applied Data Science lab (CSDL8023)	SEE: 2 Hours – Practical
Total Contact Hours: 20 Hours	
Practical Plan Author: Prof. Ashwini Pansare	Date: 16th January 2023
Checked By: Prof. Merly Thomas	Date:

Prerequisites: knowledge of Python

Course Outcomes (CO):

On successful completion of course learner will be able to:

CSDL8023.1 Apply various stages of the data science lifecycle for the selected case study.

CSDL8023.2 Demonstrate data preparation, exploration and visualization techniques.

CSDL8023.3 Implement and evaluate different supervised and unsupervised techniques.

<i>Sr. No.</i>	<i>Title</i>	<i>Mapped Co's</i>
1	Apply data visualization techniques to a selected case study.	CSL8023.1 CSL8023.2
2	Explore the descriptive and inferential statistics on the dataset.	CSL8023.1 CSL8023.2
3	Apply data cleaning/ Data Imputation techniques on the dataset.	CSL8023.1 CSL8023.2
4	Implement and explore performance evaluation metrics for data models(supervised/unsupervised)	CSL8023.3
5	Build a Neural Network Model for a given problem statement.	CSL8023.1 CSL8023.3
6	Use SMOTE technique to generate synthetic data. (To solve the problem of class imbalance).	CSL8023.2
7	Implement Outlier detection using IQR, Z-score, LOF and DBSCAN method.	CSL8023.2
8	Perform Time series forecasting using RNN model (GRU or LSTM)	CSL8023.1 CSL8023.3

CO-PO Mapping: (BL – Blooms Taxonomy, C – Competency, PI – Performance Indicator)

CO	BL	C	PI	PO	Mapping
CSDL8023.1	2	2.4	2.4.2	PO2	2
		5.2	5.2.1	PO5	1
CSDL8023.2	2, 3	4.3	4.3.1	PO4	3
			4.3.3		3
		5.1	5.1.2	PO5	1
		5.3	5.3.2		2
		6.1	6.1.1	PO6	1
CSDL8023.3	2,4	3.2	3.2.1	PO3	1
			3.2.3		2
		5.3	5.3.1	PO5	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CSDL8023.1		2			1							
CSDL8023.2				3	2	1						
CSDL8023.3			2		2							

CO-PSO Mapping:

CO	BL	C	PI	PO	Mapping
CSDL8023.1	2,3	1.4	1.4.1	PSO1	1
CSDL8023.2	2,4	1.3	1.3.3	PSO1	1
CSDL8023.3	4,6	1.4	1.4.2	PSO1	1

	PSO1	PSO2
CSDL8023.1	-	-
CSDL8023.2	1	-
CSDL8023.3	1	-

CO Measurement Weightages for Tools:

Course Outcomes	Direct Methods (80%)			Indirect Method (20%)
	Lab Performance	Assignments/Post Lab Questions	End Sem Exam (TW)	Course exit survey
CSDL8023.1	30%	20%	50%	100%
CSDL8023.2	30%	20%	50%	100%
CSDL8023.3	30%	20%	50%	100%

Attainment:

CSDL8023.1:

Direct Method

$$A_{CSDL8023.1D} = 0.3 * \text{Lab Performance} + 0.2 * \text{Assignment/Post Lab} + 0.6 * \text{SEE_TW}$$

Final Attainment:

$$A_{CSDL8023.1} = 0.8 * A_{CSDL8023.1D} + 0.2 * A_{CSDL8023.1I}$$

CO CSDL8023.2:

Direct Method

$$A_{CSDL8023.2D} = 0.3 * \text{Lab Performance} + 0.2 * \text{Assignment/Post Lab} + 0.6 * \text{SEE_TW}$$

Final Attainment:

$$A_{CSDL8023.2} = 0.8 * A_{CSDL8023.2D} + 0.2 * A_{CSDL8023.2I}$$

CO CSDL8023.3:

Direct Method

$$A_{CSDL8023.3D} = 0.3 * \text{Lab Performance} + 0.2 * \text{Assignment/Post Lab} + 0.6 * \text{SEE_TW}$$

Final Attainment:

$$A_{CSDL8023.3} = 0.8 * A_{CSDL8023.3D} + 0.2 * A_{CSDL8023.3I}$$

Practical Session Plan

Batch	Dates		Remarks
	Planned	Actual	
Experiment No. 1 - Apply data visualization techniques to a selected case study			
C	24/01/2023	24/01/2023	
B	25/01/2023	25/01/2023	
D	27/01/2023	27/01/2023	
A	02/02/2023	02/02/2023	
Experiment No. 2 - Explore the descriptive and inferential statistics on the dataset.			
C	31/01/2023	31/01/2023	
B	1/02/2023	1/02/2023	
D	3/02/2023	3/02/2023	
A	9/02/2023	9/02/2023	
Experiment No. 3 Apply data cleaning/ Data Imputation techniques on the dataset			
C	07/02/2023	07/02/2023	
B	08/02/2023	08/02/2023	
D	10/02/2023	10/02/2023	
A	16/02/2023	16/02/2023	
Experiment No. 4 - Implement and explore performance evaluation metrics for data models(supervised/unsupervised)			
C	14/02/2023	14/02/2023	
B	15/02/2023	15/02/2023	
D	17/02/2023	17/02/2023	
A	23/02/2023	23/02/2023	
Experiment No. 5 - Build Neural Network Model for a given problem statement.			
C	21/02/2023	21/02/2023	
B	22/02/2023	22/02/2023	
D	24/02/2023	24/02/2023	
A	16/03/2023	16/03/2023	
Experiment No. 6 - Use SMOTE technique to generate synthetic data. (To solve the problem of class imbalance).			
C	14/03/2023	14/03/2023	
B	15/03/2023	15/03/2023	
D	17/03/2023	17/03/2023	
A	23/03/2023	23/03/2023	
Experiment No. 7 - Implement Outlier detection using IQR, Z-score, LOF and DBSCAN method.			
C	21/03/2023	21/03/2023	
B	24/03/2023	24/03/2023	
D	29/03/2023	29/03/2023	
A	6/04/2023	6/04/2023	
Experiment No. 8 - Perform Time series forecasting using RNN model (GRU or LSTM)			

C	11/4/2023	11/4/2023	
B	6/04/2023	6/04/2023	
D	6/04/2023	6/04/2023	
A	6/04/2023	6/04/2023	

Verified by:

(Prof. Merely Thomas)
(DQAC Coordinator)

(Prof.Roshni Padate /Prof. Ashwini Pansare)
(Subject Expert)