Fundamentals of Data Science

Course Code	20IT2701A	**Year**	IV	**Semester**	I
Course Category	Open Elective-III	**Branch**	Common to all	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Pre-requisites**	Data Mining
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Understand the basic concepts of Data Science	L2
CO2	Apply different modelling methods	L3
CO3	Discuss the concepts of web mining	L2
CO4	Analyze the different modelling methods	L4

Contribution of Course Outcomes towards achievement of Program Outcomes& Strength of correlations (3: High, 2: Moderate, 1: Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												3	
CO2	3	3	3										3	
CO3	3		3										3	
CO4	3	3											3	
Avg	2													

Syllabus

Unit No.	Contents	Mapped CO
1	**Introduction to data science:** The Data Science process: Roles in a data science project, stages of a data science project **Managing Data:** Cleaning data, Sampling for modeling and validation	CO1
2	**Modelling Methods:** Choosing evaluating models: Problems to machine learning tasks, Evaluating models,	CO1 CO2 CO4
3	**Linear and Logistic Regression:** **Using Linear Regression:** Understanding Linear regression ,building a linear regression model, Making Predictions **Using Logistic Regression:** Understanding Logistic Regression, building a Logistic regression model, Making Predictions	CO1 CO2 CO4

4	**Unsupervised methods:** **Clustering Analysis:** Preparing Data, K-Means Algorithm **Association Rules:** Overview of Association rules, Mining Associations rules	CO1 CO2 CO4
5	**Web Mining** :Web Content mining, Web structure mining, Web usage mining, Text mining, Unstructured Text, Episode rule discovery for text , Text Clustering	CO1 CO3

Learning Resources
Text Books
1. Nina Zumel, John Mount: Practical Data Science with R, Dream Tech, 2015 2. Arun K Pujari, Data Mining Techniques, University Press, 3rd Ed., 2013
Reference Books
1. Sanjeev J. Wagh, Manisha S. Bhende and A. D. Thakare: Fundamentals of Data Science, 1st Ed., 2021
e-Resources
http://nptel.ac.in