St. Xavier's College (Autonomous) Ahmedabad-09
Department of Big Data Analytics
Unitize Teaching Plan (2024-25)

Name of faculty: Pravida Raja A.C. Class: FY BDA Semester I

Subject Name: Probability and Stochastic Process Subject Code: PBD:1802

Theory Lect No	Practical Lecture No.	Date of completion	Unit	Topic	Activity and resources planned
1				Fundamental Principle of Counting	
2				Permutation Examples	
3				Combination Examples	
4				Probability Theory: Introduction	
5				Basic Concepts of Probability	
6				Random Experiments, Types of Events	
7				Definition of Probability	
				Main results of Probability	
				Application of Important results of probability	
8				Conditional Probability	
9				Multiplication Rule and Independent Events	
10				Total Probability Rule, Bayes Rule	
11				Application of Bayes Rule	
	1-3			**Practical**	Case study
1. Presentation					
12				Random Variable, Types of random variable	
13				Discrete and Continuous Random Variable, Probability Distribution	
14				Probability mass function and probability density function: properties and applications	Case study
				Probability mass function and probability density function: properties and applications	
15				Cumulative Distribution Function	
16				Cumulative Distribution Function	
2. Presentation					

				Mathematical Expectation of discrete random variable	
				Mathematical Expectation of continuous random variable	
17				Bivariate Random Variables and joint Probability Distributions	
18				Properties of Mathematical Expectation and Variance of a Random Variable	
19				Independent Random Variables	
				Variance of a Random Variable	
20				Properties of variance and Covariance	
21				Probability Distributions: Theoretical Discrete Distributions; Degenerate, Bernoulli and Binomial	
22				Binomial Distribution (contd…)	
23				Fitting of Binomial Distribution	
24				Poisson Distribution	
25				Poisson Distribution	
	4-6			**Practical**	
26				Geometric Distribution	
27				Hypergeometric Distribution	
	7-9			**Practical**	
28				Theoretical Continuous Distribution: Uniform Distribution	Case study
	CIA-1				
29				Exponential Distribution	
30				Normal Distribution	
31				Normal Distribution	
32	10-12			Practical	Case study
3. Presentation					
33				Introduction to Stochastic Process	
34				Markov Chains	
35				Classification of states	
36				Stationery distribution	
	13-15			Practical	
4. Presentation					
				Limit theorems	
				Poisson Process	
37				Poisson Process	
38				Illustrations and Application	
39				Illustrations and Application	
40				Practical	Case study

				White Noise Model	
				Time series Models; Auto regression	
41				Auto regressive (AR) Models	
	16-18			**Practical**	
5. **Presentation**					
42				Moving Average (MA) Models	
43				Auto Regressive Moving Average (ARMA) Models	
44				Auto regressive Integrated Moving Average Models (ARIMA)	
45	19-21			**Practical**	Case study
CIA-II					

Signature of faculty

Head of the Department