

## LESSON PLAN

L No	TOPICS	Course Outcome Addressed
1	Introduction to the course, Definition and Axioms of probability.	CO1
2	Addition rule , independent events, problems.	CO1
3	Conditional probability, problems.	CO1
4	Total probability, problems.	CO1
5	Baye's Theorem with proof, problems.	CO1
6	Tutorial	CO1
7	One dimensional random variables, CDF, Mode, Median, problems.	CO2
8	Mean and Variance of one dimensional random variables, Chebyshev's inequality without proof, Problems.	CO2
9	Tutorial	CO2
10	Two dimensional Random variables, Marginal Pdf's, problems.	CO2
11	Mean and variance of discrete and continuous random variables, conditional probability function and Conditional pdf's, Problems.	CO2
12	Covariance and Correlation Co-efficient, Properties, Problems.	CO2
13	Tutorial	CO2
14	Probability distributions: Binomial distribution, mean and variance with problems	CO3
15	Poisson's distribution - mean and variance, Uniform distribution - mean and variance.	CO3
16	Tutorial	CO3
17	Normal distribution, mean and variance , problems	CO3
18	Problems on Normal distribution.	CO3
19	Gamma, Exponential and Chi- Square Distribution -- mean and variance.	CO3
20	Gamma, Exponential and Chi- Square Distribution : Problems.	CO3
21	Functions of one dimensional random variables, Problems.	CO4
22	Functions of two dimensional random variables, Problems.	CO4
23	F and t- distribution (Definition only) and Problems	CO4
24	Tutorial	CO4
25	Moment generating functions (mgf), Problems	CO4
26	Problems related to mgf of both continuos and discrete random variables.	CO4
27	Introduction to Sampling Theory and related problems	CO4
28	Central limit theorem with proof, Problems.	CO4
29	Problems on Central limit theorem.	CO4
30	Point estimation, problems.	CO4
31	Maximum Likelihood estimator (MLE) , problems.	CO4
32	Significance level, critical region and power of the test, Problems.	CO5
33	Testing of Hypothesis with problems	CO5
34	Chi-square test, problems	CO5
35	Best critical region, Neyman-Pearson lemma, Problems	CO5
36	Tutorial	CO5

### Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3						1				1			
CO2	3	3						1				1			
CO3	2	3						1				1			
CO4	2	2						1				1			
CO5	2	1						1				1			
Articulation Level	2.4	2.4						1				1			

#### FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):

FACULTY	SECTION	FACULTY	SECTION
SHS	CS(A)	ABB	IT(A)
VM	CS(B)	DN	IT(B)
SHK	CS (C )	SKV	IT(C)
KK	CS(D)	SP	CCE(A)
		VM	CCE(B)
		SME	CCE( C)

#### References:

1. Meyer P.L. - Introduction to probability and statistical applications, 2nd edition, 1980, Oxford and IBH Publishing, Delhi.
2. Miller, Freund and Johnson - Probability and Statistics for Engineers, 8th edn, PHI, 2011.
3. Hogg and Craig, Introduction to Mathematical Statistics, 6th edition, Pearson education, New Dehli, 2012.
4. Ross Sheldon M, Introduction to Probability and Statistics for Engineers and Scientists, Elseveir, 2010.

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(Signature of the faculty)

Date: 6.2.2023

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(Signature of HOD)