

Department of Mechanical Engineering
LESSON PLAN

Name of the Subject: PROBABILITY AND STATISTICS (14BT3BS03)

Class & Semester: II B.Tech II Semester (Mechanical)

Name of the faculty Member:

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
UNIT-I: PROBABILITY AND MATHEMATICAL EXPECTATIONS				
1	probability	2	T1	Permutations and Combination, Addition and Multiplication theorems.
2	Conditional probability, Bayes theorem	2	T1	
3	Discrete and continuous random variables, Distribution function of random variables.	2	T1	
4	Probability mass function and density functions.	1	T1	
5	Properties of mathematical expectations, mean and variance.	2	T1	
Total periods required:		09		
UNIT-II: PROBABILITY DISTRIBUTIONS				
6	Binomial distribution, mean and standard deviations of B.D.	2	T1	Binomial expansion.
7	Poisson distribution, mean and standard deviations of P.D.	2	T1	
8	Applications of B.D and P.D.	1	T1	
9	Normal Distribution	1	T1	
10	Mean, Variance of Normal distribution.	2	T1	
11	Area Properties of Normal distribution curve	1	T1	
Total periods required:		09		
UNIT-III: STATISTICAL QUALITY CONTROL AND CORRELATION AND REGRESSION				
12	Introduction, Advantages and limitations of statistical quality control.	1	T2	
13	Control charts and Specification limits	1	T2	
14	\bar{X} , R charts.	2	T2	
15	p, np and c charts.	2	T2	
16	Definition of correlation, correlation coefficient.	1	T2	
17	Rank correlation coefficients.	1	T2	
18	Simple linear regression, regression lines and properties.	1	T2	
Total periods required:		09		
UNIT-IV: SAMPLING DISTRIBUTIONS AND TEST OF SIGNIFICANCE FOR LARGE SAMPLES				

19	Population and Sample, Parameter and Statistic.	1	T1
20	Sampling Distribution of Statistic, Standard Error of Statistic.	1	T1
21	Null and Alternative Hypotheses, Type I and II errors Degrees of freedom.	1	T1
22	Critical region, Degrees of freedom.	1	T1
23	Test of Significance for Single Proportion.	1	T1
24	Test of Significance for Difference of Proportions.	1	T1
25	Test of Significance for a Single Mean.	2	T1
26	Test of Significance for Difference of Means.	1	T1
Total periods required:		09	
UNIT-V: TEST OF SIGNIFICANCE FOR SMALL SAMPLES			
28	Student's t-test.	2	T1
29	F-test for equality of population variance.	2	T1
30	Chi-square Test for Goodness of Test.	2	T1
31	contingency table.	2	T1
32	Chi-square Test for Independence of Attributes.	1	T1
Total periods required:		09	
Grand total periods required:		45	

TEXT BOOKS:

- T1. T.K.V. Iyengar, B. Krishna Gandhi ..etal., Probability and Statistics, S. Chand & Company, 3/e.(2011).
T2. S.P.Gupta, Statistical Methods, Sultan and Chand, New Delhi, 34th edition (2005).

REFERENCE BOOKS:

- R1. Shahnaz Bathul, A text book of Probability and Statistics, Ridge Publications, 2 ed,
R2 .S.C.Gupta and V.K.Kapoor , Fundamentals of Applied Statistics, Sultan and Chand, New Delhi.(1998).

**Signature of the faculty Member
framing the syllabus**

Signature of the Chairman (BOS)

