Haldia Institute of Technology

Lecture Plan/Lesson Plan

Department: CSE/IT   **Batch(s):**
Semester: 4th   **Session:**
Paper Name: Mathematics – III   **Paper Code:** M 401
Alloted Hour(s): 48   **Actual Hour(s):** 48
Name of the Teacher: Mr. Nabin Sen

Sl. No.	Date	Topics (As per University Syllabus)	Hours	Remarks/Books
Module – I				
1		Definition of Probability; Conditional Probability	1	1. Fundamental Mathematical Statistics, Gupta, Kapoor
2		Independent events and related problems.	1	
3		Baye's theorem (Statement only) & its application.	1	2. Probability by Sen, Dey and Banerjee
4		One dimensional random variable. Probability distributions -discrete and continuous.	1	3. Probability by A. Gupta
5		Expectation	1	
6		Binomial, Poisson	1	
7		Uniform, Exponential	2	
8		Normal distributions	2	
9		t, χ^2 and F-distribution (Definition only)	1	
10		Transformation of random variables.	1	
11		Central Limit Theorem, Law of large numbers (statement only)	1	
12		Tchebychev inequalities (statement only) and their applications	1	
Module – II				
13		Random sampling, Parameter, Statistic and its Sampling distribution. Standard error of statistic.	1	1. Fundamental Mathematical Statistics, Gupta, Kapoor
14		Sampling distribution of sample mean and variance in random sampling from a normal distribution (statement only) and	2	2. Mathematics – 3 (CSE,IT), Das

		related problems.		and Pal
15		*Estimation of parameters:* Unbiased and consistent estimators.	1	
16		Point estimation. Interval estimation.	1	
17		Maximum likelihood estimation of parameters (Binomial, Poisson and Normal)	1	
18		Confidence intervals and related problems	1	
Module – III				
19		Simple and Composite hypothesis	1	1. Fundamental Mathematical Statistics, Gupta, Kapoor
20		Critical region. Level of significance	1	
21		Type I and Type II errors	1	
22		One sample and two sample tests for means and proportions	1	
23		χ^2 - test for goodness of fit.	1	
Module – IV				
24		Planar and Dual Graphs. Kuratowski's graphs, Homeomorphic graphs.	1	1. Graph Theory by N. Deo
25		Eulers formula ($n - e + r = 2$) for connected planar graph and its generalisation for graphs with connected components, Detection of planarity.	1	2. Introduction to Graph Theory, West D.B.
26		Graph colouring.	1	
27		Chromatic numbers of C_n, K_n , $K_{m,n}$ and other simple graphs.	1	
28		Simple applications of chromatic numbers.	1	
29		Upper bounds of chromatic numbers (Statements only).	1	
30		Chromatic polynomial. Statement of four and five colour theorems.	1	
Module – V				
31		Group	1	1. Topics in Abstract Algebra ,Sen,

Sl. No.	Date	Topics	Hours	Remarks/Books
32		Subgroup	1	Ghosh, Mukhopadhyay
33		Cyclic group	1	
34		Permutation group, Symmetric group (S3)	1	2. Higher Algebra (Abstract & Linear), S. K.Mapa
35		Coset	1	
36		Normal subgroup	2	
37		Quotient group	1	
38		Homomorphism	1	
39		Isomorphism (Elementary properties only)	1	
40		Definition of Ring	2	
41		Field	1	
42		simple related problems	1	
43		Integral Domain and simple related problems	1	
Sl. No.	**Date**	**Topics (Beyond Syllabus)**	**Hours**	**Remarks/Books**
44		Set Theory	1	Higher Algebra (Abstract & Linear), S. K.Mapa
45		Permutation and Combination	1	