

11. Lesson Plan

Mathematics II A (BS-M201) 2019-20 even

SL No	Module	Lecture No	Topic Covered	Taxonomical Activity	Use of Special Resources
1.	0	1	BASIC PROBABILITY THEORY 1 : Introduction, introductory terminologies ,classical definition of probability , axiomatic definition of probability ,related problems .	Overall description of the subject	Oral Communication/ Verbal mode
2	1	2	BASIC PROBABILITY THEORY 2 : Complementary events, mutually exclusive events, exhaustive event ,mutually independent events, conditional probability , Bayes theorem and their properties .	Revise, understand analyze and apply	Black Board & Chalk [BB&C]
3	1	3	THE BERNOULLI TRIAL : Joint independent experiments, finite and infinite bernoulli trial and the example of finite Bernoulli trial (Bionomial low) ,application of finite and infinite Bernoulli trial .	Understand analyze and apply	BB&C
4	1	4	DISCRETE RANDOM VARIABLE : Definition of random variable , discrete random variable , continous random variable , probability mass function and discrete distribution , PROPERTIES OF DISTRIBUTION FUNCTION : Properties of discrete and continous distribution ,and related problems.	Revise, understand, analyze, apply	BB&C
5	1	5	EXPECTATION OR MEAN OF A DISCRETE RANDOM	Understand, analyze, apply	BB&C

			VARIABLE : Definition , properties of Expectation and related problems .		
6	1	6	VARIANCE AND STANDARD DEVIATION OF A RANDOM VARIABLE : Definition , theorem on variance , Moments of a Random variable and related theorem .	Understand, analyze, apply	BB&C
7	1	7	SPECIAL TYPE OF DISCRETE DISTRIBUTION : Binomial distribution , mean and variance of Binomial distribution , Moments of Binomial variate and their properties .	Understand, analyze, apply	BB&C
8	1	8	POISSON APPROXIMATION TO BINOMIAL DISTRIBUTION : Poisson Distribution , theorem on Poisson Distribution , properties of Poisson Distribution , Poisson approximation to Binomial Distribution and related theorem and problems .	Understand, analyze, apply	BB&C
9	1	9	DISCRETE JOINT DISTRIBUTION : Joint Distribution of two random variables , Marginal distribution of X , Independent Random variables ,multinomial distribution , joint distribution function ,their properties and theorem .	Understand, analyze, apply	BB&C
10	1	10	BIVARIATE EXPECTATION ,CORRELATION COEFFICIENT : Bivariate expectation and related theorem , Covariance of two variables , correlation coefficient between two variables ,properties of correlation coefficients .	Understand, analyze, apply	BB&C
11	1	11	VARIANCE OF A SUM ,CHEBYSHEVS INEQUALITY : Variance of sum of two variables, related	Understand, analyze, apply	BB&C

			theorem , Chebyshevs inequality and related problem .		
12	2	12	Continuous random variables and their properties	Understand, analyze, apply	BB&C
13	2	13	Distribution functions and densities	Understand, analyze, apply	BB&C
14	2	14	Normal, Exponential and Gamma densities	Understand, analyze, apply	BB&C
15	2	15	Normal, Exponential and Gamma densities	Understand, analyze, apply	BB&C
16	3	16	Bivariate distributions and their properties	Understand, analyze, apply	BB&C
17	3	17	Distribution of sums and quotients	Understand, analyze, apply	BB&C
18	3	18	Conditional densities	Understand, analyze, apply	BB&C
19	3	19	Conditional densities and related problems	Understand, analyze, apply	BB&C
20	3	20	Bayes' rule and related problems		
21	4	21	Basic Statistics: Classification and Tabulation-frequency distribution	Understand, analyze, apply	BB&C
22	4	22	Measures of Central Tendency: Mean(A.M,G.M,H.M) Various problems on this topic	Understand, analyze, apply	BB&C
23	4	23	Measures of Central Tendency: Median and Mode, problems on this topic and problems on missing frequencies	Understand, analyze, apply	BB&C
24	4	24	Measures of Dispersion: Absolute measures(Range, Quartile Deviation, Mean Deviation)	Understand, analyze, apply	BB&C
25	4	25	Measures of Dispersion: Standard Deviation	Understand, analyze, apply	BB&C
26	4	26	Moments and Measures of Skewness (introduction)	Understand, analyze, apply	BB&C
27	4	27	Measures of Skewness and Kurtosis	Understand, analyze, apply	BB&C
28	4	28	Linear Correlation	Understand, analyze, apply	BB&C
29	4	29	Rank Correlation and	Understand,	BB&C

			Regression(Introduction)	analyze, apply	
30	4	30	Regression (problems on this topic)	Understand, analyze, apply	BB&C
31	5	31	Applied Statistics: Curve fitting by the method of least squares	Understand, analyze, apply	BB&C
32	5	32	Fitting of straight lines, second degree parabolas and more general curves	Understand, analyze, apply	BB&C
33	5	33	Sampling: Population and Sample, Random Sampling, SRSWR, SRSWOR , Law of statistical regularity, Sampling error	Understand, analyze, apply	BB&C
34	5	34	Sample mean & Sample variance, Sample Proportion and Population Proportion, Sampling Distribution: of sample mean & sample variance	Understand, analyze, apply	BB&C
35	5	35	Problems related to Sampling Distribution, Examples	Understand, analyze, apply	BB&C
36	5	36	Statistical Hypothesis, Test Statistic , Examples & related problems	Understand, analyze, apply	BB&C
37	5	37	Critical Region: Region of acceptance & level of significance, related problems	Understand, analyze, apply	BB&C
38	5	38	Type I error and Type II error illustration and related problems	Understand, analyze, apply	BB&C
39	5	39	Best Critical Region , related problems	Understand, analyze, apply	BB&C
40	6	40	Test for Single mean, Test of Single Proportion , Examples	Understand, analyze, apply	BB&C
41	6	41	Difference of mean , Illustrative examples, Test for Difference of Proportions , Test for Difference of	Understand, analyze, apply	BB&C

			standard deviations		
42	6	42	Test for single means, Test for Difference of mean, specified correlation coefficient, difference of correlation coefficient, Examples	Understand, analyze, apply	BB&C
43	6	43	Chi-square test for goodness of fit, related problems	Understand, analyze, apply	BB&C