I – Academic Planner

A. **Teaching Plan (Year : 2020-2021   Semester: Odd)**

Teacher's Name: <u>Mr. Shrawan Kumar</u>   Department: <u>Statistics</u>

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1.	32371301	SAMPLING DISTRIBUTIONS	CORE	Sampling distributions: definition of parameter, statistic, standard error and their concepts, Sampling distribution of various statistics. Introduction to hypothesis testing Formulation of null and alternative hypothesis, Type I and Type II errors, level of significance and critical region. Large sample tests: for single mean, single proportion, difference of two means, difference of two proportions, difference of two standard deviations deviations by classical and p-value approaches. Examples and practical work based on these tests.	10.08.2020	30.08.2020
				Limit laws, different types of convergence and their inter relations, WLLN and SLLN, Central Limit Theorem (CLT), applications and examples based on CLT.	31.08.2020	09.09.2020

				Exact sampling distribution: Definition and derivation of pdf of Chi-square distribution with n degrees of freedom (d.f.) using mgf, nature of pdf curve for different degrees of freedom, mean,variance, mgf, cumulant generating function, mode, additive property and limiting form of Chi-square distribution, Tests of significance and confidence intervals based on distribution.	10.09.2020	30.09.2020
				Order statistics	01.10.2020	14.10.2020
				Exact sampling distributions: Student's and Fishers t-distribution, Derivation of its pdf nature of probability curve with different degrees of freedom, mean, variance, moments and limiting form of t distribution. Derivation of distribution of sample correlation coefficient when population correlation coefficient is zero (Sawkin's ethods). Snedecore's F-distribution:Derivation of pdf, nature of pdf nature of pdf curve with different degrees of freedom, mean, variance and mode. Relationship between t, F and χ^2 distributions. Test of significance and confidence Intervals based on t and F distributions.	15.10.2020	12.11.2020
				Revision and difficulties solving	13.11.2020	19.11.2020
2.	32375301	BASICS OF STATISTICAL INFERENCE	G.E.	Estimation of population mean, confidence intervals for the parameters of a normal	03.09.2020	26.10.2020

					Distribution (one sample and two sample problems). The basic idea of significance test, Null and alternative hypothesis, Type I & Type II errors, level of significance, Concept of p-value,Tests of hypotheses for the parameters of a normal distribution (one sample and two sample problems).		
					Categorical data: Tests of proportions, tests of association and goodness-of-fit using Chi-square Test, Yates' correction	27.10.2020	09.11.2020
					Revision and difficulties solving	10.11.2020	17.11.2020

B. Outstation Field visits for students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

C. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
568	Statistics	32371301	Chi-square distribution, Order Statistics, WLLN, CLT, Chebychev's inequality (TEST)	Thursday, 29.10.2020	After 10 Days
568	Statistics	32371301	Large sample, chi-square distribution, t-distribution and F-distribution (ASSIGNMENT)	Thursday, 05.11.2020	After 10 Days
568	G.E.	32375301	Unit I and Unit II (TEST)	Monday, 02.11.2020	After 10 Days
568	G.E.	32375301	Unit I and Unit II(ASSIGNMENT)	Thursday, 05.11.2020	After 10 Days

*Marks of the Internal Assessment to be submitted to the College 15 days before the last working day of every semester

A.   Teaching Plan (Year : 2020-2021   Semester: Even)

Teacher's Name: **Dr. Shrawan Kumar**   Department: **Statistics**

Sl. No.	UPC	Paper Name	Core/AECC /GE/SEC	Topic/Unit	Start Date	End Date
1.	32371401	STATISTICAL INFERENCE	CORE	Concepts of estimation, unbiasedness, sufficiency, consistency and efficiency. Fisher- Neyman Criterion (statement and applications), Factorization theorem. Complete statistic, Minimum variance unbiased estimator (MVUE), Rao-Blackwell and Lehmann-Scheffe theorems and their applications. Cramer-Rao inequality, MVB estimators and their applications	02.01.2021	17.02.2021
				Methods of Estimation: Method of moments, method of maximum likelihood estimation, method of minimum Chi-square, basic idea of Bayes estimators.	18.02.2021	28.02.2021
				Principles of test of significance: Null and alternative hypotheses (simple and composite), Type-I and Type-II errors, critical region, level of significance, size and power, best critical region, most powerful test, uniformly most powerful test, uniformly most powerful unbiased critical region (UMPU).	01.03.2021	23.03.2021

				Neyman Pearson Lemma and its applications to construct most powerful test. Likelihood ratio test, properties of likelihood ratio tests	31.03.2021	10.04.2021
				Interval estimation: Confidence interval for the parameters of various distributions, Confidence interval for Binomial proportion, Confidence interval for population correlation coefficient for Bivariate Normal distribution, Pivotal quantity method of constructing confidence interval, Large sample confidence intervals.	11.04.2021	23.04.2021
				Revision and difficulties solving	24.04.2021	29.04.2021
2.	32375902	APPLIED STATISTICS	G.E	Economic Time Series: Components of time series, Decomposition of time series- Additive and multiplicative model with their merits and demerits, Illustrations of time series. Measurement of trend by method of free-hand curve, method of semi-averages and method of least squares (linear, quadratic and exponential).Measurement of seasonal variations by method of ratio to trend.	19.01.2021	28.02.2021
				Index numbers: Introduction, Construction of price and quantity Index Numbers by Simple and Weighted Aggregate Method. Construction of price and quantity index numbers by Laspeyre's, Paasche's, Marshall-Edgeworth's and Fisher's Formula	01.03.2021	23.03.2021
				. Criteria for a good index number. Construction of wholesale price index number, fixed base index number and Consumer price index number with interpretation. Uses and limitations of index numbers	31.03.2021	23.04.2021
				Revision and difficulties solving	24.04.2021	29.04.2021

B. Outstation Field visits for students

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C. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
568	B,Sc.(H), Statistics	32371401	Unit I, Unit II, Unit III (TEST)	Tuesday, !6.03.2021	After 10 Days
568	B,Sc.(H), Statistics	32371401	Unit I, Unit II, Unit III (ASSIGNMENT)	Tuesday, 06.04.2021	After 10 Days
568	G.E.	32375902	Unit I and Unit II (ASSIGNMENT)	Friday 16.04.2021	After 10 Days
568	G.E.	32375902	Unit I and Unit II (ASSIGNMENT)	Saturday 16.04.2021	After 10 Days