I – Academic Planner

A. Teaching Plan (Year : 2021-2022 Semester: Odd)

Teacher's Name: Mr. Shrawan Kumar Department: Statistics

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.	16.08.2021	04.09.2021
				Limit laws, different types of convergence and their inter relations, WLLN and SLLN, Central Limit Theorem (CLT), applications and examples based on CLT.	6.09.2021	11.09.2021

				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.	13.09.2021	02.010.2021
				Order statistics	04.10.2021	23.10.2021
				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.	25.10.2021	02.12.2021
				Revision and difficulties solving	03.12.2021	07.12.2021
2.	32375301	BASICS OF STATISTICAL INFERENCE	G.E.	Estimation of population mean, confidence intervals for the parameters of a normal	20.08.2021	30.10.2021

				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	01.11.2021	31.11.2021
				Revision and difficulties solving	01.12.2021	07.12.2021

A. Outstation Field visits for students

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

B. 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, 18.11.2021	After 10 Days
568	Statistics	32371301	Large sample, chi-square distribution, t-distribution and F-distribution (ASSIGNMENT)	Wednesday, 24.11.2021	After 10 Days
568	G.E.	32375301	Unit I and Unit II (TEST)	Thursday,, 18.11.2021	After 10 Days
568	G.E.	32375301	Unit I and Unit II(ASSIGNMENT)	Thursday, 11.11.2021	After 10 Days

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

I – Academic Planner

A. Teaching Plan (Year : 2021-2022 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	03.01.2022	15.02.2022
				Methods of Estimation: Method of moments, method of maximum likelihood estimation, method of minimum Chi-square, basic idea of Bayes estimators.	17.02.2022	28.02.2022
				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).	01.03.2022	31.03.2022

				Neyman Pearson Lemma and its applications to construct most powerful test. Likelihood ratio test, properties of likelihood ratio tests	01.04.2022	09.04.2022
				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.	11.04.2022	23.04.2022
				Revision and difficulties solving	25.04.2022	27.04.2022
2.	32371602	MULTIVARIATE ANALYSIS AND NONPARAMETRIC METHODS	CORE	Random Vector, p.d.f., mean vector, dispersion matrix, distribution functions, marginal and conditional distribution. Bivariate normal distribution and its properties, m.g.f. of bivariate normal distribution, Multiple and partial correlation coefficient	01.01.2022	28.02.2022
				Multivariate Normal p.d.f., Properties of multivariate normal, characteristic function and m.g.f. of multivariate normal distribution, sampling distribution of mean vector, variance covariance matrix, Introduction to principal component analysis, introduction to factor analysis, introduction to discriminant analysis	01.03.2022	23.04.2022
				Revision and difficulties solving	24.04.2022	27.04.2022

C. Outstation Field visits for students

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

D. 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)	Friday 01.04.2022	After 10 Days
568	B,Sc.(H), Statistics	32371401	Unit I, Unit II, Unit III (ASSIGNMENT)	Wednesday 06.04.2022	After 10 Days
568	B,Sc.(H), Statistics	32371602	Unit I and Unit II (TEST)	Thursday 07.04.2022	After 10 Days
568	B,Sc.(H), Statistics.	32371602	Unit I and Unit II (ASSIGNMENT)	Thursday 31.03.2022	After 10 Days

I – Academic Planner

B. **Teaching Plan (Year : 2021-2022 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	03.01.2022	15.02.2022
				Methods of Estimation: Method of moments, method of maximum likelihood estimation, method of minimum Chi-square, basic idea of Bayes estimators.	17.02.2022	28.02.2022
				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).	01.03.2022	31.03.2022
				Neyman Pearson Lemma and its applications to construct most powerful test. Likelihood ratio test, properties of likelihood ratio tests	01.04.2022	09.04.2022

				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.	11.04.2022	23.04.2022
				Revision and difficulties solving	25.04.2022	27.04.2022
2.	32371602	MULTIVARIATE ANALYSIS AND NONPARAMETRIC METHODS	CORE	Random Vector, p.d.f., mean vector, dispersion matrix, distribution functions, marginal and conditional distribution. Bivariate normal distribution and its properties, m.g.f. of bivariate normal distribution, Multiple and partial correlation coefficient	01.01.2022	28.02.2022
				Multivariate Normal p.d.f., Properties of multivariate normal, characteristic function and m.g.f. of multivariate normal distribution, sampling distribution of mean vector, variance covariance matrix, Introduction to principal component analysis, introduction to factor analysis, introduction to discriminant analysis	01.03.2022	23.04.2022
				Revision and difficulties solving	24.04.2022	27.04.2022

E. Outstation Field visits for students

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

F. 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)	Friday 01.04.2022	After 10 Days
568	B,Sc.(H), Statistics	32371401	Unit I, Unit II, Unit III (ASSIGNMENT)	Wednesday 06.04.2022	After 10 Days
568	B,Sc.(H), Statistics	32371602	Unit I and Unit II (TEST)	Thursday 07.04.2022	After 10 Days
568	B,Sc.(H), Statistics.	32371602	Unit I and Unit II (ASSIGNMENT)	Thursday 31.03.2022	After 10 Days