I – Academic Planner

A. Teaching Plan (Year : ___2021-2022_____ Semester: (Odd)

Teacher's Name __DR. GOPA KARMAKAR_____

Department____STATISTICS_____

S. No.	UPC	Paper Name	Core/ AECC /GE/ SEC	Topic/Unit	Start Date	End Date
1	32377908	Econometrics	DSE 2B	Introduction: Objective behind building econometric models, nature of econometrics, model building, role of econometrics	22-7-2021	Week 2
				General linear model (GLM).Estimation under linear restrictions.(Theory and practicals)	Week 2	Week 4
				Multicollinearity: Introduction and concepts, detection of multicollinearity, consequences, tests and solutions of multicollinearity (Theory and practicals)	Week 5	Week 7
				Autocorrelation: concept, consequences of autocorrelated disturbances, detection and solution of autocorrelation. (Theory and practicals)	Week 8	Week 10
				Generalized least squares estimation, Aitken estimators. (Theory and practicals)	Week 10	Week 11
				Heteroscedastic disturbances: Concepts and efficiency of Aitken estimator with OLS estimator under heteroscedasticity. Consequences of heteroscedasticity. Tests and solutions of heteroscedasticity. (Theory and practicals)	Week 12	Week 13
				Autoregressive and Lag models. (Theory and practicals)	Week 13	Week 14
				Difficulties and Problem solving	Week 14	Last day before practical exams
2	32371109	Calculus	Core	Leibnitz rule for successive differentiation. Euler's theorem on homogeneous functions. .(Theory and Tutorial)	24.11.2021	Week 2
				Partial differentiation and total differentiation. Indeterminate forms: L-Hospital's rule. .(Theory and Tutorial)	Week 3	Week 5
				Integral Calculus: Review of integration and definite integral. Differentiation under integral sign.(Theory and Tutorial)	Week 6	Week 7
				Double integral, change of order of integration, transformation of variables. .(Theory and Tutorial)	Week 8	Week 9
				Beta and Gamma functions: properties and relationship between them. .(Theory and Tutorial)	Week 10	Week 11
				Maxima and minima of functions of one and two variables, constrained optimization techniques (with Lagrange multiplier) along with some problems. .(Theory and Tutorial)	Week 11	Week 12

				Jacobian, concavity and convexity, points of inflexion of function, singular points. Theory of Asymptotes (Only for Cartesian forms). .(Theory and Tutorial)	Week 13	Week 14
				Limits of function, continuous functions. Properties of continuous functions.(Theory and Tutorial)	Week 15	week before practical exams
3	323713 01	Sampling Distributions	Core	**Practical** : Testing of significance and confidence intervals for single proportion and difference of two proportions . Testing of significance and confidence intervals for single mean and difference of two means and paired tests. . Testing of significance and confidence intervals for difference of two standard deviations.	Week 2	Week 4
				Practical : Testing if the population variance has a specific value and its confidence intervals. 6. Testing of goodness of fit. 7. Testing of independence of attributes.	Week 5	Week 8
				Practical : Testing based on 2 X 2 contingency table without and with Yates' corrections. 9. Testing of significance and confidence intervals of an observed sample correlation coefficient	Week 9	Week 12
				Practical : Exact Sample Tests based on Chi-Square Distribution. Testing and confidence intervals of equality of two population variances	Week 13	Last day of practical class

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	B.Sc.(Hons) Statistics	32377908	Objective behind building econometric models, GLM, Autocorrelation	8-9-21	Two weeks after submission of assignment
568	B.Sc.(Hons) Statistics	32377908	Improvement assignment GLM, Heteroscedasticity, Autucorrelation, Multicollinearity.	15-10-21	One week after submission of assignment
568	B.Sc.(Hons) Statistics	32377908	GLM, Heteroscedasticity, Autucorrelation TEST	27-10-21	After one week
568	B.Sc.(Hons) Statistics	32371109	Successive and Partial Differentiation, Integral Calculus	5-2-2022	15-2-2022
568	B.Sc.(Hons) Statistics	32371109	Full Course except Limits and continuity(TEST)	2-3-2022	9-3-2022

I – Academic Planner

A. Teaching Plan (Year : ___2021-2022_____ Semester: (Even)

Teacher's Name __DR. GOPA KARMAKAR_____

Department____STATISTICS_____

S. No.	UPC	Paper Name	Core/ AECC /GE/ SEC	Topic/Unit	Start Date	End Date
1	32371202	Algebra	Core	Review of algebra of matrices, theorems related to triangular, symmetric and skew symmetric matrices, idempotent matrices, Hermitian and skew Hermitian matrices, orthogonal matrices, singular and non-singular matrices and their properties. Trace of a matrix, unitary, involutory and nilpotent matrices**. Practical work**	8-4-2022	Week 2
				Adjoint and inverse of a matrix and related properties. **Practical work.**	Week 2	Week 3
				Rank of a matrix, row-rank, column-rank, standard theorems on ranks, rank of the sum and the product of two matrices. Practical work	Week 3	Week 4
				Row reduction and echelon forms, the solution of matrix equations AX=B, linear independence, Applications of linear equations, inverse of a matrix**. Practical work.**	Week 4	Week 5
				Generalized inverse (concept with illustrations). **Practical work**	Week 5	Week 6
				Partitioning of matrices and simple properties. Practical work	Week 6	Week 7
				Characteristic roots and Characteristic vector, Properties of characteristic roots, Cayley Hamilton theorem. **Practical work**	Week 7	Week 8
				Quadratic forms, Linear orthogonal transformation and their digitalization**. Practical work**	Week 8	Week 9
				Definition, properties and applications of determinants for 3rd and higher orders, evaluation of determinants of order 3 and more using transformations. Symmetric and Skew symmetric determinants, Circulant determinants, Jacobi's Theorem, product of determinants. Use of determinants in solution to the system of linear equations.	Week 9	Week 10
				Statement of the fundamental theorem of algebra and its consequences. Relation between roots and coefficients or any polynomial equations.	Week 11	Week 12
				Solutions of cubic and biquadratic equations when some conditions on roots of equations are given. Evaluation of the symmetric polynomials and roots of cubic and biquadratic equations.	Week 13	Week 14
				Problem solving	Week 14	Last day of practical
2	32371403	Statistical Quality Control	Core	**Practical** :Construction and interpretation of statistical control charts -.X-bar & R-chart and.X-bar & s-chart	Week 3	Week 5

				Practical: Construction and interpretation of statistical control charts np-chart and.p-chart	Week 6	Week 8
				Practical: Construction and interpretation of statistical control charts: c-chart and. u-chart	Week 8	Week 9
				Practical: Single sample inspection plan: Construction and interpretation of OC, AQL, LTPD, ASN, ATI, AOQ, AOQL curves	Week 9	Week 11
				Practical: Calculation of process capability and comparison of 3-sigma control limits with specification limits.	Week 11	Week 12
				Practical: Construction of index numbers and problems thereof for weighted and unweighted index numbers including Laspeyre's, Paasche's, Edgeworth-Marshall and Fisher's. Average of Price Relatives.	Week 12	Week 13
				Practical: Chain index numbers, conversion of fixed based to chain based index numbers and vice-versa. Criteria of Good Index Numbers. Consumer price index numbers.	Week 13	Week 14
				Practical: Base shifting, splicing and deflating of index numbers	Week 14	Week before practical exams

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	B.Sc.(Hons) Statistics	32371202	Review of Algebra of matrices to Rank of matrices **(Assignment**)	7-6-2022	Two weeks after giving the assignment
568	B.Sc.(Hons) Statistics	32371202	Echelon forms, partitioning of matrices, generalized inverse and characteristic roots. **(Test)**	3rd week of July (18th)	Two weeks after the test