Govt. Mankunwar Bai Art & Commerce Autonomous College For Women, Jabalpur (M.P.)

Theory Paper

Part A Introduction					
Program: Honours/Research		Class : B.COM	Year: IV		Session: 2024-25
Subject:		COMMERCE			
1	Course Code	C4 - COMA2T			
2	Course Title	Advanced Statistical Analysis			
3	Course Type	CORE - II			
4	Pre-requisite	B.COM. Degree			
5	Course Learning outcomes (CLO)	After completion of this course the student is able to: 1. To develop an understanding of the theory of probability, rules of probability and probability distributions. 2. To comprehend the decision making process under uncertainty using statistical tools. 3. To become aware of the concepts in sampling, sampling distributions and estimation. 4. To understand the meaning and process of hypothesis testing including one-sample and two-sample tests. 5. To appreciate the importance and application of non-parametric tests in hypothesis testing. 6. To apply correlation and regression analysis including both simple and multiple correlation and regression in the real life case situations using available software packages.			
6	Credit Value	6			
7	Total Marks	Max. Marks: 30 + 70 MIN. Passing Mark: 3			

Part B- Content of the Course		
Total No. of Lectures- 90		
Unit	Topics	No. of Lectures
1	**Theory of Probability and Probability Distributions**: Approaches to calculation of probability. Marginal, joint and conditional probabilities; Probability rules; Bayes' theorem; Expected value and standard deviation of a probability distribution; Standard probability distributions - Binomial, Poisson, and Normal.	18
2	**Statistical Decision Theory**: Decision-making process. Payoff and Regret tables. Decision rules under risk and uncertainty; Expected value approach and EVPI; Marginal analysis; Decision-tree analysis.	18
3	**Sampling Distributions and Estimation**: Sampling concepts; Types of sampling techniques; Sampling distribution of means and proportions; Central Limit Theorem. Point and interval estimation; Properties of a good estimator; Confidence intervals for means; Confidence intervals for proportions; Sample size determination.	18
4	**Hypothesis Testing**: Steps of hypothesis testing. One and two-tailed tests. Type I and type IIErrors; Power of a test; Calculation and use of p-value. *One Sample Tests*: Means and proportions. *Two-sample Tests*: Tests for difference between means – Independent samples; Small samples; Dependent samples; Testing of difference	18

	between proportions.	
5	**Analysis of Variance and Non-Parametric Tests**: F-test of equality of variances; One-factor ANOVA; Chi–square test for Independence and for Goodness-of-fit. Sign test, One-sample runs test.	**18**

Keywords/Tags: Regression, Interpolation, Association of Attributes, Probability, Sampling Quality Control, Research Methodology

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:
1. Gupta & Gupta, Business Statistics, Himalaya Publication House
2. Dr. N.P. Agrawal, Advanced statistical Analysis ,Ramesh book depot
3. S.P. Gupta, Statistical Methods, Sultan Chand & sons
4. Chakrabarty, S.K , Business Statistics , New Age International (P) Ltd., Publishers
5. Mc Clave, Benson Statistics for Business and Economics, Prentice Hall Publication.
6. Jack Levin, James Alan Fox , Elementary Statistics in Social Research, Pearson Education.
7. Sanjiv Jaggia, Alison Kelly, Business Statistics, McGraw Hill
8. D. P. Apte, Statistics for Managers, Excel Publication

Suggestive digital platforms, web links:

https://www.ddegjust.ac.in/studymaterial/mcom/mc-106.pdf
https://ug.its.edu.in/sites/default/files/Business%20Statistics.pdf
https://www.wbnsou.ac.in/online_services/SLM/PG/MCOM-14.pdf
https://ddceutkal.ac.in/Downloads/UG_SLM/Commerce/Business_Statistics.pdf
https://mu.ac.in/wp-content/uploads/2021/08/MMS-Business-Statistics-1.pdf
https://www.ddegjust.ac.in/2022/2/mba-1st/MBA-102%20book.pdf
http://anucde.info/thirdsem/307BCO21.pdf

Part D-Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks University Exam (UE): 70 Marks

Internal Assessment : Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30
External Assessment : University Exam Section Time : 03.00 Hours	**Section(A)** : Very Short Questions **Section (B)** : Short Questions **Section (C)** : Long Questions	70

Any remarks/ suggestions: