

Branch Name:	B.Com
Program Code:	2CM101
Course Name:	Advanced statistics-7
Course Code:	2CM1010613
Pre-requisite Course:	Basic clarity of statistical aspects and approaches.

Course Objectives:

1. To provide in depth knowledge to the students about advanced statistical tools and approaches, that is applicable in various fields.
2. Describe and discuss the key terminology, concepts tools and techniques used in business statistical analysis

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)					Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit		Theory (Marks)		Practical (Marks)		Total (Marks)
			T	P	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	--	-	3	-	70	30	-	-	100

Subject Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1	Inventory Control : • Introduction, Meaning of Inventory Control, Advantages of Carrying Inventory, • Terms of Inventory Controls, Various Deterministic Inventory Models: Economic Order Quantity (EOQ) without Shortages (derivation of the model), • EOQ with Shortages, EOQ with finite production rate, • EOQ with Price Discounts, simple examples based on these models.	9	25%
2	Queuing Theory: • Introduction, Essential features of Queuing Systems (Input source, Queue configuration, • Queue discipline, Service pattern), • Operating characteristics of Queuing System (Expected waiting time in queue and system, • expected number of customers in queue and system, busy period of server), Probability distribution in Queuing Systems, Queuing Models: M/M/1 with unlimited and limited queue length, simple examples based on these models.	9	25%
3	Replacement: • Introduction of replacement problem, • types of replacement problems, • replacement policy for items whose maintenance cost increases with time when money value is fixed and money value changes with constant rate, Worked examples, replacement of items that fail completely.	9	25%
4	Transportation Problems: • Introduction to the T.P., Mathematical formulation of T.P., Loops in T.P. and their properties, Methods for finding Initial Solution: North West Corner , Least Cost , Vogel's Approximation Method., • Test for Optimality, MODI Method for obtaining Optimal Solution. Special Cases in T.P. (Unbalanced problem, Degeneracy, Alternative Optimal Solution, Prohibited routes) , Maximization T.P.	9	25%

Text Books:

1. Vohra N.D, Quantitative Techniques in Management Tata McGraw Hill, New Delhi.

Reference Books:

1. Anderson, Sweeney, Williams, An Introduction to Management Science Quantitative Approach to Decision Making, Cengage Learning India Pvt. Ltd. New Delhi.
2. Barry Render, Ralph M. Stair , Michael E. Hanna,
3. H.A.Taha, Operations. Research, Macmillan Publishing Co. Inc.
4. J.K.Sharma : O.R. Theory and Applications, Macmillan India Ltd.
5. Vohra N.D, Quantitative Techniques in Management Tata McGraw Hill, New Delhi.

List of Open Source Software/learning website:

1. https://www.youtube.com/watch?v=Yeo_ig96s6I
2. <https://www.youtube.com/watch?v=MaW6t9ajE7M>

LAB/Practical

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Discuss critically the uses and limitations of statistical analysis	2 Understanding 1 Remembering
CLO2	Solve a range of problems using the techniques covered	2 Understanding 3 Applying
CLO3	An understanding of the theoretical and computational underpinnings of various statistical procedures	4 Analyzing 2 Understanding
CLO4	Describe and discuss the key terminology, concepts tools and techniques used in business statistical analysis	2 Understanding 3 Applying,
CLO5	Critically evaluate the underlying assumptions of analysis tools	2 Understanding 3 Applying
CLO6	Understand and critically discuss the issues surrounding sampling and significance	2 Understanding 5 Evaluating

Mapping of CLOs with POs & PSOs

Course Learning Outcomes (CLOs)	Program Outcomes (POs)							Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CLO1	H		L		L		M		H
CLO2	H		M			L		M	
CLO3		H		L		L			H
CLO4	M			L	M	H			H
CLO5	L		L	H		L			M
CLO6	M	L	M		L		H	H	

H: High, M: Medium, L: Low