



Shrimathi Devkunvar Nanalal Bhatt Vaishnav College For Women (Autonomous)

Owned and Managed by Cork Industries Charities Trust
Affiliated to University of Madras - Re-Accredited with 'A+' Grade by NAAC - 4th Cycle

COURSE DATASHEET

SEMESTER	I	BATCH	2026
COURSE NAME	Quantitative Techniques	COURSE CODE	26UCOGE1D02
COURSE UNITS	5	COURSE TYPE	Generic Elective(GE)-II
CONTACT HOURS (L-T-P)	75	CREDITS	5
OFFERED BY	B.Com(Commerce)	SHIFT	8:20–12:50pm

COURSE OBJECTIVES

1	To introduce the concepts and applications of quantitative techniques in business and management.
2	To develop analytical and logical thinking skills among commerce students.
3	To familiarize students with probability, transportation, assignment, inventory and project management techniques.
4	To enable students to solve simple business and operational problems using quantitative models.
5	To develop decision-making abilities through optimization and practical business applications.

COURSE OUTCOMES: On completion of the course the students will be able to...

	CO Statement	Cognitive Level
CO1	Explain the concepts of probability and its role in business decision making.	K3
CO2	Formulate and solve Linear Programming Problems using graphical methods.	K4
CO3	Apply transportation and assignment techniques for optimization problems.	K5
CO4	Analyze inventory management techniques and compute EOQ for inventory control decisions.	K4
CO5	Apply PERT, CPM and basic queuing models for project scheduling and service system management.	K4



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SYLLABUS

UNIT	TOPICS	HOURS
1	Meaning and Concept of Probability – Addition and Multiplication theorem – Conditional Probability – Simple Problems only	15
2	Introduction to Operations Research- Meaning and application of Linear programming Problems, Formulation of Linear programming Problems- Graphical Methods- Maximization and Minimization problems- Simple Problems only	15
3	Transportation Problem: Finding Initial basic feasible solution by North-west corner rule, Least Cost Method, Vogel's Approximation Method- (MODI method not included)- Assignment Problem: Hungarian Method- Simple Problems only	15
4	Meaning and importance of inventory – Types of inventory – Inventory carrying, ordering and shortage costs – Economic Order Quantity (EOQ) concept – Reorder level – Inventory control techniques – Simple numerical problems.	15
5	Network Analysis – PERT and CPM (no crashing) – simple problems.	15
Note (if any)		

TEXT/REFERENCE BOOKS/E-RESOURCES:

Text Books	Business statistics and Operations Research - Dr. P.R. Vittal, Margham Publication, 3 rd Edition
Books For Reference	1. S.P. Gupta - Statistical Methods – Sultan 46th Edition 2023. 2. Introduction to Operation Research – Dr. P.R. Vittal, Margham Publication, 2012. 3. Sundaresan V., Ganapathy Subramanian K.S. & Ganesan, K., 'Resource Management Techniques' (Operations Research), A. R. Publications, Tenth Edition 2016. 4. P.K. Gupta and D.S. Hira - Operations Research - S. Chand Publication, 2021. 5. Hamdy A. Taha - Operation Research An Introduction –



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	Pearson Education Limited, 11 th Edition, 2025
E-Learning Resources	1. NPTEL– https://nptel.ac.in 2. SWAYAM– https://swayam.gov.in 3. Khan Academy– https://www.khanacademy.org 4. GeeksforGeeks– https://www.geeksforgeeks.org 5. TutorialsPoint– https://www.tutorialspoint.com

PEDAGOGY (TEACHING METHODOLOGY):

- Chalk and Talk
- Online Coaching
- LCD
- Assignment
- Seminar
- Quiz
- Group discussion

CO-PO AND CO-PSO MAPPING:									
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	3	2	2	1	2	1	2	3	2
CO2	2	1	3	2	3	1	3	2	3
CO3	2	1	3	2	3	1	3	2	3
CO4	3	1	2	2	3	2	3	3	2
CO5	2	2	3	2	3	2	2	3	2
Average (Use only filled in cells for calculation)	2.4	1.4	2.4	1.8	2.8	1.4	2.8	2.4	2.6

Correlation Level: Strong-3 Moderate-2 Weak-1 No Correlation-0



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JUSTIFICATION OF CO-PO/PSO MAPPING

CO	PO/PSO	Level of correlation	Justification
CO1	PO1	3	To fosters clarity in concepts, confidence in domain knowledge application, and assertiveness in decision-making across various opportunities.
	PO2	2	Develop life skills for logical appraisal and decision-making through a deeper understanding.
	PO3	2	Incorporate probability theory to design effective solutions for complex societal challenges.
	PO4	1	Foster a program-centric thought process through the study of probability, facilitating further specialization in the respective domain.
	PO5	2	To promote lifelong learning, adaptability, and readiness for specialized fields in a dynamic environment.
	PO6	1	Integrate probability theory to cultivate self-awareness, ethical values, and compassion in decision-making.
	PSO1	2	To comprehend the foundational concepts, principles, and practices essential for successful business ventures.
	PSO2	3	To enhance analytical skills crucial for pursuing professional courses like CA, ICWA, and ACS.
	PSO3	2	To bridge academic theory with practical business applications, facilitating the integration of knowledge between academia and the business world.
CO2	PO1	2	Develop clarity in concepts, confidence in domain knowledge, and assertiveness through mastering sampling techniques.
	PO2	1	Enhance life skills and logical reasoning abilities through an in-depth exploration.
	PO3	3	To design effective solutions for complex societal challenges.
	PO4	2	To cultivate a program-centric approach conducive to further domain studies through comprehensive exploration of sampling techniques.
	PO5	3	Foster lifelong learning and adaptability, enhancing clarity and preparedness for specialized fields through the study.
	PO6	1	Enhance life skills and logical reasoning abilities.
	PSO1	3	To gain insights into business ventures by understanding the fundamental concepts, principles, and practices.



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	PSO2	2	Equip students with the analytical skills needed for professional courses like CA, ICWA, and ACS through the comprehensive study.
	PSO3	3	Bridge academia with the business world by mastering sampling techniques, facilitating effective data-driven decision-making.
CO3	PO1	2	Develop clarity, confidence, and assertiveness in applying domain knowledge through the study.
	PO2	1	Enhance life skills and logical reasoning abilities through deeper understanding of hypothesis testing techniques.
	PO3	3	Foster the ability to tackle societal challenges by employing hypothesis testing methods to develop innovative solutions.
	PO4	2	Empower students to address societal issues through hypothesis testing, fostering innovative problem-solving skills.
	PO5	3	Develop clarity, confidence, and assertiveness in applying domain knowledge through the study.
	PO6	1	Promote self-awareness and ethical development by integrating moral values into hypothesis testing methodologies.
	PSO1	3	Gain a comprehensive understanding of business ventures by mastering hypothesis testing methodologies.
	PSO2	2	Prepare for professional courses like CA, ICWA, and ACS through the application of hypothesis testing principles.
	PSO3	3	Bridge academia and business realms by applying hypothesis testing techniques to real-world scenarios.
CO4	PO1	3	Enhance conceptual clarity and confidence in applying domain knowledge through techniques.
	PO2	1	To develop life skills, including logical reasoning, through the study.
	PO3	2	Utilize techniques to engineer innovative solutions addressing complex societal challenges.
	PO4	2	Foster a program-centric approach, aiding further study in specialized domains.
	PO5	3	Develop adaptable skills and readiness for specialized fields by engaging in lifelong learning.
	PO6	2	Foster ethical and compassionate decision-making through self-regulation and moral focus.



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	PSO1	3	Explore the operational intricacies vital for business success, encompassing logistics and resource allocation strategies.
	PSO2	3	Develop foundational skills applicable across diverse professional domains, aligning with the comprehensive approach demanded by courses like CA, ICWA, and ACS.
	PSO3	2	Facilitate the integration of academic insights into practical business logistics, fostering a symbiotic relationship between academia and the business real.
CO5	PO1	2	Develop a comprehensive understanding of network analysis principles to confidently navigate complex systems and make informed decisions
	PO2	2	To Enhance critical thinking abilities and apply logical reasoning in various life situations for personal growth.
	PO3	3	Address societal issues by formulating innovative solutions through strategic problem-solving approaches.
	PO4	2	Foster advanced analytical skills essential for future academic pursuits and specialized domain knowledge.
	PO5	3	Enhance adaptability and readiness for specialized fields by mastering network analysis techniques in a dynamic learning environment.
	PO6	2	Develop the critical thinking abilities and apply logical reasoning in various life situations for personal growth
	PSO1	2	Explore the application of network analysis in understanding and optimizing business operations and strategies.
	PSO2	3	Incorporate network analysis to enhance decision-making skills vital for professional courses in finance and accounting.
	PSO3	2	Utilize network analysis to bridge academia and business, fostering collaboration and innovation.



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