



(Shri Ramkrishna Seva Mandal's)
ANAND COMMERCE COLLEGE

An Autonomous College (2025-26 to 2034-35)

(Affiliated to Sardar Patel University)

NAAC ACCREDITED 'A' GRADE (3.04 CGPA)

ISO 9001:2015

Syllabus as per NEP 2020 with effect from the Academic Year 2025-26



Bachelor of Commerce
B COM Semester – II

Course Code	UC02MDCOM01	Title of the Course	Descriptive Statistics II
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none">1. To develop proficiency in solving Linear Programming Problems to optimize resource allocation and improve efficiency in production, supply chain management, and other business processes.2. To apply Transportation Problems and Assignment Problems to optimize transportation and assignment of resources in logistics, distribution, and project scheduling.3. To understand and utilize Replacement Problems to make cost-effective decisions regarding the replacement of assets or equipment over time.4. To develop proficiency in students in using PERT and CPM techniques for effective project management5. To Develop proficiency in sampling techniques to accurately gather and interpret data for market research and business forecasting.
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Course Content		
Unit	Description	Weightage * (%)
1.	Linear Programming Problem (LPP): <ul style="list-style-type: none">• Meaning and Mathematical form of LPP• Assumptions and limitations of LPP• Uses of LPP, Definitions• Objective functions, Constrains• Solution, Feasible Solution• Optimum Feasible solution,• Optimum Feasible Solution of LPP by Graphical Method. Application of LPP in business and Management.	20%
2.	Transportation Problem: <ul style="list-style-type: none">• Meaning and Mathematical form of Transportation Problems Transportation Problem <ul style="list-style-type: none">• Solution of Transportation problems by 1,North-West Corner Rule	20%

	(Least Cost) 2. Matrix minima (Least Cost) Method, 3. Vogel's Approximation Method	
3.	Assignment problems (AP) and Replacement Problems (RP): <ul style="list-style-type: none"> • Meaning of Assignment Problem • Mathematical form of Assignment problems • Hungarian method for solving Assignment problems in the cases of maximization and minimization problems • Meaning of Replacement problem • Examples of Replacement problems. 	20%
4.	PERT and CPM: <ul style="list-style-type: none"> • Meaning and characteristics of PERT, PERT chart with the explanation of activities and events • Dummy activity, Estimates of time of activities, Earliest start time (EST), Earliest finishing time (EFT), Latest starting time (LSD), Latest finishing time (LFT), Float time (FT) • Meaning of Critical path Method (CPM) • Difference between PERT and CPM uses and Limit of PERT and CPM, Application of PERT and CPM 	20%
5.	Sampling: (Theory Only) <ul style="list-style-type: none"> • Terminology: Population, Sample, Parameter, Statistics • Characteristics of Ideal Sample • Population Survey V/s Sample Survey • Sampling Methods: Procedure, Merits, Demerits: Simple Random Sampling, Stratified random Sampling, Systematic Sampling 	20%

Teaching-Learning Methodology	Lecture-cum-discussion, Group Discussion, Presentations, Seminars, Tutorials, Research Exercises
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Internal and / or External Examination Evaluation

Sr. No.	Details of the Evaluation / Exam Pattern	50 Marks (%)	25 Marks (%)
1	Class Test (at least one)	15 (30%)	10 (40%)
2	Quiz (at least one)	15 (30%)	05 (20%)
3	Active Learning	05 (10%)	----
4	Home Assignment	05 (10%)	05 (20%)
5	Class Assignment	05 (10%)	----
6	Attendance	05 (10%)	05 (20%)
Total Internal (%)		50 (100%)	25 (100%)
College External Examination (%)		50 (100%)	25 (100%)

Course Outcomes: Having completed this course, the learners will be able to	
1.	Understand and apply Linear Programming concepts and graphical methods to solve real-life business problems.
2.	Formulate and solve Transportation Problems using North-West Corner Rule, Matrix Minima Method, and Vogel's Approximation Method. Analyze and interpret the results to optimize transportation costs.
3.	Solve Assignment Problems using the Hungarian Method and understand Replacement Problems with real-life applications.
4.	Apply PERT and CPM to optimize scheduling and improve decision-making under time constraints to plan, monitor, and control project activities for timely completion.
5.	Understand sampling techniques and their applications in collecting representative data for accurate statistical analysis.

Suggested References:	
Sr.No.	References
1.	Kapoor, V. K. (2011). <i>Operation research: Techniques for management</i> . Sultan Chand & Sons.
2.	Philips, D. T., Ravindran, A., & Solberg, J. J. (1987). <i>Operation research: Principles and practices</i> . Wiley.
3.	Sancheti, D. C., & Kapoor, V. K. <i>Statistics: Theory, methods and applications</i> . Sultan Chand & Sons.
4.	Sharma, J. K. (2006). <i>Quantitative techniques for management decisions</i> . Macmillan.
5.	Taha, H. A. (2007). <i>Operations research: An introduction</i> . Pearson/Prentice Hall.
6.	Vyas, H. R. (2017). <i>Operation research and quantitative techniques</i> . B. S. Shah Publication.
7.	Soni, R. S. <i>Business mathematics</i> . Pitamber Publishing House.
Digital resources to be used if available as reference material	
Digital Resources	
https://www.youtube.com/watch?v=86NwKBcOlow	
https://www.youtube.com/watch?v=Ow3XWYnPgSM	
https://www.youtube.com/live/8npg04bd2XA	



Chairman

**BOS of Mathematics and Statistics
Anand Commerce College**



Academic Coordinator

Anand Commerce College



Principal

Anand Commerce College