



MCA
Semester II

Course Code	PS02FMCA21	Title of the Course	STATISTICAL AND OPTIMIZATION TECHNIQUES
Total Credits of the Course	4	Hours per Week	4

Main Focus of the Course outcomes	Employability	Skill Development	Entrepreneurship
	✓	✓	
Course Objectives:	<ol style="list-style-type: none"> 1. To understand basic statistical techniques. 2. To understand basic concepts of linear programming. 3. To understand basic concepts of project scheduling and optimization techniques. 		

Course Content		
Unit	Description	Weightage* (%)
1.	Basic Statistical Techniques – I <ul style="list-style-type: none"> - Frequency Distributions. - Measures of Central Tendency & Measures of Dispersion - Least square fit 	25
2.	Basic Statistical Techniques – II <ul style="list-style-type: none"> - Regression, Algorithm for linear regression. - Correlation & Multiple correlation. - Time Series, Components of Time Series, and Methods on Measurement of components. 	25
3.	Linear Programming <ul style="list-style-type: none"> - Mathematical model, assumptions of linear programming. - Graphical solution, simplex method. - Transportation & Assignment models. 	25
4.	Project Scheduling in PERT-CPM & Special types of Optimization Techniques <ul style="list-style-type: none"> - Diagram representation and critical path calculations. - Introduction to Dynamic Programming concept. 	25





	- Sequencing Problems.	
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Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching as well as online / ICT-based teaching practices
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	gain knowledge of basic statistical techniques.
2.	gain knowledge of linear programming.
3.	gain knowledge of project scheduling and optimization techniques.

Suggested References:	
Sr. No.	References
1.	Murray R Spiegel : Theory and Problem of Statistics McGraw-Hill Schaum's Outline Series,1981.
2.	Sharma S.D. : Operations Research. Kedar Nath Ram Nath & Co. Meerut , 1988-89.
3.	Taha H. A. : Operations Research Macmillan, New York (1987).
4.	Gupta S.C. & Kapoor V. K.: Fundamental of Mathematical Statistics, Sultan Chand & Sons, New Delhi, 1982.
5.	Bronson Richard : Operations Research Schaum's outline Series, 1983.





Vallabhnagar, Gujarat

(Recognized with 'A' Grade by NAAC (CGPA 3.25))

SARDAR PATEL UNIVERSITY

Syllabus with effect from the Academic Year 2017-2018

6.	Gillett B. E.: Introduction to Operations Research - a computer oriented algorithmic approach, McGraw-Hill , 1976.
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