GANPAT UNIVERSITY

FACULTY OF MANAGEMENT STUDIES

Programme	Master of Business Administration	Branch/Spec.	Marketing/Finance/HR/International Business/Entrepreneurship/SCM
Semester	I	Version	1.0.0.1
Effective from *Academic* Year	2022-23	Effective for the batch Admitted in	June 2022
Subject code	**2IA02QTM**	Subject Name	**QUANTITATIVE TECHNIQUES IN MANAGEMENT**

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	0	0	0	4	Theory	60	40	100
Hours	4	0	0	0	4	Practical	-	-	-

Pre-requisites:

-

Course Objective

This course helps students to understand and formulate managerial situations in a theoretic framework in a decision making. It focuses on developing skills in structuring and analyzing problems and to inculcate the attitude of developing an executable solution to the problem with the help of some advanced statistical techniques and approaches

Course Outcome (CO):

2IA02QTM.CO1: Apply descriptive statistical techniques to analyze data and draw meaningful conclusions.

2IA02QTM.CO2: Utilize probability theories, probability distributions, and decision analysis tools such as EVPI and decision trees to solve business and management decision0making problems.

2IA02QTM.CO3: Construct linear programming models using graphical and simplex methods, incorporating sensitivity and dual analysis to design optimal solutions for management problems.

2IA02QTM.CO4: Design optimized transportation and assignment models, forecasting methods, and index number techniques to support effective managerial decision0making.

Theory syllabus

Unit	Content	Hrs
1	Central Tendency and Descriptive statistics (Skewness and Kurtosis); Basic Statistical Methods: Measures of Central tendency: Mean, Median, Mode and Dispersion: Range, Inter Quartiles, Standard Deviation, Application of Chebyshev Theorem, Coefficient of Variation, Reliability of data sets.	15
2	Theory of Probability – Definition and Rules of Probability, Probability under statistical independence and dependence; Baye's Theorem; Probability Distribution – Discrete distribution – (Binomial and Poisson), Continuous distribution –Normal; Decision Theory: Profit table/Loss table; Expected value of perfect information (EVPI), Minimum probability computation for additional unit; Decision tree analysis.	15
3	Linear programming: Mathematical formulations of LPP Models for product-mix problems; Graphical and simplex method of solving LP problems; Special cases: Unboundedness, infeasibility and multiple optimal solutions, Use of Solver for LPP solution: Simplex method,	15

	Sensitivity analysis; Formulating Dual problem from Primal.	
4	Transportation problem: Balanced and unbalanced; Various methods of finding Initial basic feasible solution (NWCR, LCM and VAM) and optimal cost (Stepping Stone and Modified Distribution method- MODI), Dealing with Routes prohibited, Assignment model: Algorithm and its applications. Forecasting: Trend analysis; Cyclical, Seasonal and Irregular variation, Index numbers: weighted and unweighted; Consumer Price Index	15

Practical content

Text Books	
TB1	Levin Richard I & Rubin David S, "Statistics for Management", Seventh Edition, Pearson Education Ltd., New Delhi.
TB2	Vohra N D, "Quantitative Techniques in Management", Fourth Edition, TMH Publishing Company Ltd., New Delhi.

Reference Books	
1	Statistics for Management by Richard I. Levin, David S. Rubin, Sanjay Rastogi and Masood Husain Siddiqui, Seventh edition (Pearson Education).
2	Business Statistics for Contemporary Decision Making by Ken Black (Fourth or later edition) Wiley Student Edition.
3	Business Statistics by J. K. Sharma (2nd Edition or later edition) Pearson.
4	Business Statistics by Vohra, Tata McGraw-Hill, Fourth edition.
5	Business Statistics by Gerald Keller & Hitesh Arora, Cengage, Latest Edition.
6	Statistics for Management by T N Srivastava and Shailaja Rego, Tata McGraw Hill, 3rd Edition.
7	Statistics for Business and Economics by R Anderson, J Sweeney and A Williams, 8/e, Thomson.
8	Business Statistics by Naval Bajpai, Pearson Education, Second edition.

Note:

Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme, Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision)

L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work

CE= Continuous Evaluation, SEE= Semester End Examination

Mapping of CO with PO and PSO:

Semester 1: Course Name: 2IA02QTM QUANTITATIVE TECHNIQUES IN MANAGEMENT							
Course outcomes	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
2IA02QTM. CO 1	3	3	1	2	2	1	1
2IA02QTM .CO 2	3	3	1	3	1	1	2
2IA02QTM. CO 3	3	3	-	1	1	-	3
2IA02QTM. CO 4	3	3	-	1	-	-	2

Semester 1: Course Name: 2IA02QTM QUANTITATIVE TECHNIQUES IN MANAGEMENT			
Course outcomes	**PSO1**	**PSO2**	**PSO3**
2IA02QTM. CO 1	3	3	2
2IA02QTM.CO 2	3	3	2
2IA02QTM.CO 3	2	1	2
2IA02QTM.CO 4	2	3	3