

GANPAT UNIVERSITY									
FACULTY OF MANAGEMENT STUDIES									
Programme		Master of Business Administration				Branch/Spec.		---	
Semester		I				Version		1.0.0.0	
Effective from Academic Year			2026-27			Effective for the Batch admitted in			July 2026
Course Code		ICC502DSC		Course Name			Decision Science		
Teaching Scheme					Examination Scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CCE	SEE	Total
	L	TU	P	TW					
Credit	3	0	0	0	3	Theory	50	50	100
Hours	3	0	0	0	3	Practical	--	--	--
Pre-requisites									

Course Outcomes									
On successful completion of the course, the students will be able to:									
CO1	Apply descriptive statistical techniques to analyse data and draw meaningful conclusions.								
CO2	Utilize probability theories, probability distributions, and decision analysis tools such as EVPI and decision trees to solve business and management decision making problems.								
CO3	Construct real-world decision-making problems as linear programming models, solve them using appropriate methods, and perform sensitivity analysis to interpret the impact of parameter changes on the optimal solution for informed decision-making.								
CO4	Design optimized transportation and assignment models, forecasting methods to support effective managerial decision making								
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.								10
2	Theory of Probability – Definition and Rules of Probability, Probability under statistical independence and dependence; Bayes’ 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.								10
3	Linear problem programming (LPP): Mathematical formulations of LPP Models for product-mix problems; Graphical and simplex method of solving LP problems; Big M Method: simplex algorithm with artificial variables; Special cases: Unboundedness, infeasibility and multiple optimal solutions, Use of Solver for LPP solution and Sensitivity analysis: robustness of a solution for optimisation								15
4	Transportation problem: Balanced and unbalanced; Deriving feasible solution (NWCR, LCM and VAM); Optimal solution (Modified Distribution method- MODI), Dealing with Routes prohibited. Assignment model: Algorithm and its applications: Hungarian Assignment Method (HAM). Forecasting: Trend analysis; Cyclical, Seasonal and Irregular variation. Using spreadsheet for Forecasting								10
Practical Content									
Practical, assignments and tutorials are based on above syllabus.									
Text Books									
TB1	Levin, R. I., Rubin, D. S, Masood, H. S. & Rastogi, S., “Statistics for Management”, 8th Edition, Pearson Education Ltd., New Delhi.								
TB2	Vohra, N. D. & Arora, H., “Quantitative Techniques in Management”, 6th 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.
ICT/MOOCs Reference	
1	Pre-MBA Statistics Coursera https://www.coursera.org/learn/pre-mbastatistics
2	Statistics and Data Analysis with Excel, Part 1 (Coursera) MOOC List https://www.mooc-list.com/course/statistics-and-data-analysis-excel-part-1-coursera

Mapping of CO with Programme Outcomes (PO) and Programme Specific Outcomes (PSO)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	3	3	1	0	2	0	2	2	2	3
CO2	3	3	1	0	3	0	3	2	1	3
CO3	3	3	0	0	2	0	2	3	3	3
CO4	3	3	0	0	2	0	2	3	3	2

3= High/substantial correlation; 2 = Medium/moderate correlation; 1= Low/slight correlation; 0= No correlation