

Common Subject
Sem II

I> Course Content:

Semester	II-Core
Subject	Operations Research
Course Code	MMSC203 (RGCMS)
Credits	4
Duration	40 hrs

Learning Objective:

1.	To know optimizing techniques
2.	To understand its use in decision making in business
3.	To identify and develop operational research model from real system
4.	To appreciate the mathematical basis for business decision making

Prerequisites if any	Statistics for management, Operations and production management, economics
Connections with Subjects in the current or Future courses	Project Management, Quantitative Techniques

Module

Sr. No.	Content	Activity	Course Outcome
1.	Linear Programming- Formulation, Solution by graph, Simplex, Duality, post optimality and Sensitivity Analysis	Use of Solver/ similar software for decision making, cases in various scenarios of management	MMSC203.1
2.	Transportation problem with special cases	Use of Solver/ similar software for decision making, cases in various scenarios of management	MMSC203.2
3.	Assignment Problem with special cases	Use of Solver/ similar software for decision making, cases in various scenarios of management	MMSC203.2
4.	Game theory- Zero sum games	Use of Solver/ similar software for decision making, cases in various scenarios of management	MMSC203.3
5.	Decision Theory- Under Risk, Uncertainty, decision tree	Use of Solver/ similar software for decision making, cases in various scenarios of management	MMSC203.4

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6.	Waiting lines model- (M M 1): (FIFO ∞ ∞) with cost implication	Use of Solver/ similar software for decision making, cases in various scenarios of management	MMSC203.5
7.	Simulation- queue system, inventory and demand simulation	Create models in Microsoft Excel	MMSC203.6

II> Course Outcomes

<u>Course Code</u>	<u>Course Outcomes</u> Students will be able to:	<u>Cognition</u>
MMSC203.1	CO1: Apply Linear Programming in business decision making	Apply
MMSC203.2	CO2: Apply Linear Programming in appropriate situations through transportation and assignment problems	Apply
MMSC203.3	CO3: Evaluate competitive environment of business through game theory	Evaluate
MMSC203.4	CO4: Apply project management techniques through decision theory	Apply
MMSC203.5	CO5: Evaluate performance of systems using queuing model	Evaluate

Text books

Sr. No.	Books
1.	Operation Research – An introduction – Hamdy Taha, Prentice Hall of India
2.	Quantitative Techniques in Management- N. D. Vohra, Tata McGraw Hill
3.	Operations Research Theory and Applications- J. K. Sharma, McMillan Business Books

Reference Books

Sr. No.	Books
1.	Principles of Operations Research- Wanger, Prentice Hall of India
2.	Operations Research- Hilier Liberman, Tata McGraw Hill
3.	An Introduction to Management Science- Andrew Sweeney Williams, Cengage Learning