

ST. JOSEPH'S DEGREE & PG COLLEGE
(Autonomous), Affiliated to Osmania University

DEPARTMENT OF BUSINESS MANAGEMENT
SEMESTER-IV

BBA(BA) & BBA (ENTREPRENEURSHIP)
OPERATIONS RESEARCH

DSC

w.e.f. 2020-2021 AY

SCHEME OF INSTRUCTION

SCHEME OF EXAMINATION

Hours per week	: 5 Hrs.	Maximum Marks	: 100
Credits	: 5	Internal Assessment	: 40
Instruction mode	: Lecture	External Examination	: 60
Course Code	: BM.06.301.210T	External Exam Duration	: 3 Hrs

Course Objectives: To provide a basic knowledge about Operations research and to acquaint the students some common operations Research Tools for various Business decision situations

Course Outcomes: On successful completion of this course, the students will be able:

CO1: To acquaint students with concept of operations research and its applications

CO2: To apply linear programming problem in decision making

CO3: To recognise the use of transportation problem to make decision

CO4: To recognise the knowledge of assignment and queuing techniques

CO5: To apply Networking concept in making decisions related to projects.

Unit I: Operations Research

Operations Research: Concept -- Meaning and Definition – Historical Development of OR – characteristics of OR – Scope & Objectives of OR – Phases of OR –Applications of OR – limitations of OR.

Unit II: Linear Programming Problem

Linear programming problem – Meaning & Objective of LP – Applications of LP – Formulation of Mathematical Model to a LPP – Objective function – Constraints – Solution to LPP (Graphical solution only) – Advantages & Disadvantages of LP.



Unit III: Transportation Problem

Structure of Transportation problem – IBFS using North West Corner Method (NWCM) – Least Cost Method (LCM) – Vogel's Approximation method (VAM), unbalanced TP, Degeneracy in TP- concept (Simple problems only).

Unit IV: Assignment Problem & Queuing Theory

Mathematical model – Balanced AP – Hungarian Method – Managerial Application of AP – Queuing Theory – Introduction – elementary Queuing system – Operating Characteristics of Queues – Notation – single Channel Queuing Model (with Poisson Arrivals and Exponential Service time)(Simple problems) – length of the queue and system, Waiting time of the queue and system.

Unit V: Network Analysis

Network Analysis – PERT & CPM- Meaning and Objectives – Managerial applications of Network Techniques — Difference between PERT & CPM - Network fundamentals- Construction of Network diagram –Fulkerson's rules –Finding of critical path & Estimated Duration – Time estimates in PERT – Steps involved in PERT calculations – (only simple problems)

Text Book:

1. Sharma. S. D, Operations Research, Kedar Nath Ram Nath, 2008

Reference Books:

1. Sridhar Bhat. K, Operations Research, Himalaya Publishing House, 2012
2. Sharma. J. K ,Operations Research Theory and Applications , Laxmi Publications, 5th Ed, 2013
3. Hamdy A.T, Operations Research: An Introduction, Pearson,2010.
4. Hiller, F.S. and Lieberman, G.J., Introduction to Operations Research (9th ed.), McGraw-Hill, 2009