



GITAM INSTITUTE OF MANAGEMENT (GIM)
Gandhi Institute of Technology and Management (GITAM)
(Declared as Deemed to be University u/s 3 of UGC Act. 1956)
Visakhapatnam – 45.

Course Code: MAN 305	Course Title: Operations Research	
Semester: V	Course Type: Core	Credits: 3
Home Programme(s):BBA (BA)		Batch/Academic Year: 2020-23
Course Leader:		

Course description and learning objectives

Operations Research is a widely accepted discipline that deals with the application of advanced analytical methods to help make better decisions. This method helps to derive optimal or near-optimal solutions to complex decision-making problems. Gaining an insight into the structures and processes that Operations Research can offer and the practical utility of these techniques in Business would be an asset to the future managers.

Learning objectives:

- To understand the mathematical models used in Operations Research
- To apply these techniques constructively to make effective business decisions

On successful completion of this course, students will be able to:

	Course Outcomes	Assessment
CO1	Identify and understand the roles and responsibilities of operations manager in different organizational contexts	A1, A2, A4
CO2	Apply the concepts and formulate operations research models that represent real world problems	A1, A2, A3, A4
CO3	Understand the probabilistic and deterministic models that are needed to solve decision making problems	A2, A3, A4
CO4	Apply mathematical models to solve decision making problems	A2, A3, A4

Course outline and indicative content

Unit I (6 Hours) (CO1, CO3, L1 & L2)

Introduction: Nature and meaning of Operations Research, Management applications of Operations Research, main characteristics of Operations Research, scope of Operations Research, role of Operations Research in decision making.

Unit II (15)(CO2, CO4, L1, L2 & L3)

Linear Programming Problem: Introduction, mathematical formulation of LPP, general Linear Programming problem, Graphical Solution of LPP, Canonical and Standard Forms of LPP, solving LPP by Simplex Method.

Unit III (8)(CO2, CO4, L1, L2 & L3)

Transportation & Assignment Problems: Introduction of transportation problems, procedures of finding basic feasible and optimal solution – NW corner rule, minimum cost method, Vogel's Approximation, MODI method, Assignment Problem - introduction, solving of Assignment problem by Hungarian Algorithm.

Unit IV (8)(CO2, CO3, CO4, L2 & L3)

Game Theory and Simulation: Game theory: Introduction, Two Person Zero Sum Games, Pure Strategies, Dominance Principle, Graphical; Simulation: introduction, types of simulation, generation of random numbers, Monte Carlo Simulation, and waiting lines.

Unit V (10)(CO2, CO3, C04, L2 &L3)

Network Scheduling by PERT / CPM: Introduction, network and basic components, logical sequencing, rules of network construction, Critical Path Analysis, probability considerations in PERT, distinction between PERT and CPM.

Assessment methods			
Task	Task type	Task mode	Weightage (%)
A1. Mid Exam	Individual	Written	20
A2. Coursera/ Presentation	Group	Presentation	10
A3. Case/Assignment	Individual	Presentation or Report	10
A4. End Term Exam	Individual	Written (short/long)	60

Mapping COs-Blooms levels- Assessment Tools

Knowledge dimension / Cognitive dimension	L1. Remember	L2. Understand	L3. Apply	L4. Analyze	L5. Evaluate	L6. Create
Factual Knowledge						
Conceptual Knowledge		CO1 (A1, A2, A4) CO3 (A2, A3, A4)				
Procedural Knowledge			CO2 (A1, A2, A3, A4) CO4 (A1, A2, A3, A4)			
Meta Cognitive Knowledge						

CO PO Mapping

This is to map the level of relevance of the Course Outcome (CO) with Programme Outcome (PO).

0= No Relevance; 1= Low Relevance; 2= Medium Relevance; 3= High Relevance

CO PO Mapping							
	PO1	PO2	PO3	PO4	PO5	PO6	Sum
CO1	1	0	0	0	0	0	1
CO2	3	1	1	2	2	0	9
CO3	3	1	1	2	2	0	9
CO4	3	1	1	2	2	0	9
Target Level Max.	10	3	3	6	6	0	28

BBA (BA) - Programme Outcomes

1. Ability to understand the business problems with their knowledge indifferent functional areas of management.
2. Integrate with structured, semi – structured and unstructured data.
3. Utilize the tools such as Microsoft Excel, SPSS, R, Weka and Tableau to solve business analytics problems.
4. Ability to apply analytics techniques to analyze and interpret the data.
5. Incorporate the descriptive, predictive and prescriptive analytics.
6. Evaluate the necessary skills and understanding to take up advanced topics in the area of analytics and thus enhance their career prospects.