UNIVERSITY OF MADRAS

B.B.A. DEGREE PROGRAMME IN BUSINESS ADMINISTRATION

SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
250E4A	**Operations Research**	Generic Elective	Y	-	-	-	3	4	25	75	100

Learning Objectives	
CLO1	Introduction to Operations Research definition and concept Essential features of LPP.
CLO2	Formulation of Transportation problem and finding an initial basic feasible solution.
CLO3	Expressing Assignment problem, Hungarian method- Minimization and Maximization case and Sequencing Problem.
CLO4	Analyse Network models and constructing network- critical path, various floats.
CLO5	Analyse Game Theory and Decision Theory

UNIT	**Details**	**No. of Hours**	**Learning Objectives**
I	Linear Programming problem -Concept and scope of OR, general mathematical model of LPP, steps of L.P model formulation, Graphical method of the solution of LPP- simple problems.	12	CLO1
II	Transportation problem- Basic definitions, formulation of transportation problem as LPP, finding an initial basic feasible solution- North -west corner rule, row minima method, column minima method, least cost entry method-Vogel's approximation method to find the optimal solution.	12	CLO2
III	Assignment problem-Hungarian method- Minimization and Maximization case, unbalanced assignment problem. Sequencing Problem-Processing n jobs on 2 machines, processing n jobs on 3 machines, processing n jobs on m machines.	12	CLO3
IV	Network models-PERT and CPM — difference between PERT and CPM- constructing network- critical path, various floats, three-time estimates for PERT	12	CLO4
V	Game Theory- Maximin-Minmax criterion, Saddle point, Dominance property, Graphical method for solving 2xn and mx2 game. Decision Theory –statement of Baye'stheorem application - decision trees.	12	CLO5
		60	

UNIVERSITY OF MADRAS

B.B.A. DEGREE PROGRAMME IN BUSINESS ADMINISTRATION

SYLLABUS WITH EFFECT FROM 2023-2024

Course Outcomes		
Course Outcomes	On Completion of the course the students will	**Program Outcomes**
CO1	Analyse Linear Programming	PO1,PO2,PO6
CO2	Analyse Transportation problem	PO1,PO2,PO6
CO3	Analyse Assignment problem	PO1,PO2,PO6
CO4	Analyse Network models	PO1,PO2,PO6
CO5	Analyse Game Theory and Decision Theory	PO1,PO2,PO6
Reading List		
1.	Operational Research | Research.com	
2.	Operations Research | PubsOnLine (informs.org)	
3.	Prabandhan : Journal of Management	
4.	International Journal of Operations research	
5.	DR H. Premraj, Elements of Operation Research, Margham publications, Chennai, 2019	
References Books		
1.	P.R. Vittal& V. Malini, Operative Research – Margham Publications – Chennai – 17.	
2.	P.K. Gupta& Man Mohan, Problems in Operations Research – Sultan Chand & sons – New Delhi	
3.	V.K. Kapoor, Introduction to operational Research – Sultan Chand & sons – New Delhi	
4.	Hamdy A Taha, Operation Research – An Introduction prentice Hall of India- New Delhi	
5.	P. Gupta, N. Aruna Rani, M. Haritha (2018), Operations Research and Quantitative Techniques, First edition, Himalaya Publishing House.	
Web Resources		
1	chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.rccmindore.com/wp-content/uploads/2021/04/Operations-Research.pdf	
2	chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.bbau.ac.in/dept/UIET/EMER601%20Operation%20Research%20Queuing%20theory.pdf	
3	https://www.onlinemathlearning.com › linear-programming-example	
4	https://www.kellogg.northwestern.edu › weber › Notes_6_Decision_trees	
5	www.pondiuni.edu.in › sites › default › files	
Methods of Evaluation		
Internal Evaluation	Continuous Internal Assessment Test	25 Marks
	Assignments	
	Seminars	
	Attendance and Class Participation	
External Evaluation	End Semester Examination	75 Marks
	Total	100 Marks

Methods of Assessment	
Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions
Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Short summary or overview
Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain
Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

Mapping with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	M	M	S	M	S
CO2	S	S	M	M	S	S	M	S
CO3	S	S	M	M	S	S	M	S
CO4	S	S	M	M	M	S	M	S
CO5	S	S	M	M	M	S	M	S

CO-PO Mapping (Course Articulation Matrix)

Level of Correlation between PSO's and CO's

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage of Course Contribution to PO's	3.0	3.0	3.0	3.0	3.0