

UNIVERSITY OF MADRAS

MASTER OF BUSINESS ADMINISTRATION (MBA) DEGREE PROGRAMME SYLLABUS WITH EFFECT FROM 2023-2024

Subject Code	Subject Name	Category	L	T	P	O	Credits	Inst. Hours	Marks		
									CIA	External	Total
434C2A	Applied Operations Research	Core	3	1	-	-	4	60	25	75	100
Course Objectives											
C1	To provide the students with introduction on OR and its models to aid in understanding its applicability in the various functional areas of management.										
C2	To understand the concept of linear programming models in determining profit maximization and cost minimization										
C3	To learn about various methods adopted in transportation and Assignments models.										
C4	To determine about inventory models, replacement models, job sequencing, networking model and Queuing model										
C5	To throw light on dynamic model and game models and the application of pure and mixed strategies in competitive environment.										
SYLLABUS											
UNIT	Details							No. of Hours	Course Objectives		
I	Introduction: Overview of operations research – Origin – Nature, scope & characteristics of OR – Models in OR – Application of operations research in functional areas of management							08	C1		
II	Linear Programming Problem: Linear programming problem model – Formulation – Maximization & Minimization problem – Graphical method – Simplex method – Artificial variable – Primal & Dual.							12	C2		
III	Transportation problem: Basic Solution – North / West corner Solution, LCM, VAM, Matrices method – Optimal Solution – Stepping stone method – Vogel’s approximation method – Modi method – Degeneracy – Imbalance matrix. Assignment model: Hungarian method – Traveling salesmen problem.							12	C3		
IV	Project Scheduling and Resource Management: Deterministic Inventory models – Purchasing & Manufacturing models – Probabilistic inventory models – Replacement model – Sequencing – Brief Introduction to Queuing models. Networking – Programme Evaluation and Review Technique (PERT) and Critical Path Method (CPM) for Project Scheduling- Crashing – Resource allocation and Resource Scheduling.							18	C4		

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V	Game Theory and Strategies: Games theory – two player zero sum game theory – Saddle Point –Mixed Strategies for games without saddle points – Dominance method – Graphical and L.P Solutions- Goal Programming; Simulation; Integer programming and Dynamic programming.	10	C5
	Total	60	
Course Outcomes			
Course Outcomes	On completion of this course, students will;	Program Outcomes	
CO1	Obtain insight on the origin and nature of OR and also the application of various models of OR.	PO4, PO6	
CO2	Learn about the graphical, Simplex, Big M and dual methods of Linear programming problem.	PO1, PO2, PO6, PO7	
CO3	Be well versed with the concept of transportation and Assignments models	PO1, PO2, PO6, PO7	
CO4	Have better understanding on inventory models, replacement models, job sequencing, networking model and Queuing model	PO1, PO2, PO6, PO7	
CO5	Be imparted knowledge on the various methods of game model	PO2, PO7	
Reading List			
1.	www.cbom.atozmath.com		
2.	http://www.pondiuni.edu.in/storage/dde/downloads/mbaii_qt.pdf		
3.	http://164.100.133.129;81/econtent/Uploads/Operations_Research.pdf		
4.	https://www.journals.elsevier.com/operations-research-perspectives		
References Books			
1.	Anderson, D.R., Sweeney, D.J., Williams, T.A. and Martin, K., An Introduction to Management Science: Quantitative Approach to Decision Making, 14 th Edition Paperback – 1, Cengage Learning India Pvt. Ltd., 2019		
2.	Gupta, P.K., and Comboj, Introduction to Operations Research, S. Chand, 2014		
3.	Hiller, F., Liebermann, Nag and Basu, Introduction to Operations Research, 11 th Edition Paperback, Tata McGraw-Hill Publishing Co. Ltd., 2021		
4.	Khanna, R.B., Quantitative Techniques for Managerial Decision Making, 3 rd Edition – Paperback, New Age International Publishers, 2018		
5.	Taha, H.A., Operations Research: An Introduction, 10 th Edition, Pearson, 2019		
6.	Vohra,N.D., Quantitative Techniques in Management, 5 th Edition, Tata McGraw Hill Education Pvt. Ltd., 2017.		

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1				2		2		
CO 2	3	2				2	2	
CO 3	3	3				3	2	
CO 4	3	3				2	2	
CO 5		3					2	

3-Strong 2-Medium 1-Low