

Course Code	CourseTitle	L	T	P	C
23MAT08	Optimization Techniques	3	1	0	4
Course Objectives:					
To provide the students with the concept and an understanding of basic concepts in					
<ol style="list-style-type: none"> 1. Linear programming, Game Theory 2. Integer Programming and Network Techniques 3. Application of everything learnt in real life. 					
Expected Course Outcome:					
After completion of this course, students will be able to:					
<ol style="list-style-type: none"> 1. Understand the importance of optimization and to formulate and solve linear programming problems. 2. Understand the importance of Transportation problems. 3. Knowing of Game Theory Concepts. 4. Compose the findings of Integer Programming problem 5. Construct and Demonstrate the basic concepts of PERT- CPM and their application 					
Unit 1					
Linear Programming				12 hours	
An overview and scope of Operations Research and Introduction to Linear Programming (LP) - Illustration of LP Problems - Formulation exercises on LP Problems - Graphical Method of solving LPP - Simplex Method- Dual Simplex Method					
Unit:2					
Introduction to Transportation problem				12 hours	
Transportation problem - LP formulation of the TP - Solution of a TP - Finding an initial basic feasible solution (NWCM - LCM - VAM) – Degeneracy in TP - Transportation Algorithm (MODI Method) - Assignment problem – Travelling Salesman problem					
Unit:3					
Game Theory				12 hours	
Game theory: Two-person zero-sum games, Maximum- minimum principle, Games without saddle points, Mixed strategies, Graphical method.					
Unit:4					
Integer programming				12 hours	
Construction of Integer programming problem- Differentiating between the simplex and Integer programming problem solution -Cutting plane algorithm, Branch and bound technique					
Module:5					
Network Techniques				12 hours	
Network diagram-Critical Path Method- PERT					

Text Books :

1. Kanti Swarup, P.K. Gupta and ManMohan, Operations Research, 13th edition, Sultan Chand and Sons, 2007.
2. Hiller S.H., Lieberman G.J.; Introduction to Operations Research; 7 th edition, McGraw Hill Publications
3. Panneerselvan. R. (2006), Operation Research, Prentice Hall of India Pvt Ltd.

Reference Books :

- 1.Taha, H.A.; Operations Research: An Introduction; 8 th edition; Pearson Education Inc.
2. Sharma S.D., Sharma H.; Operations Research: Theory, Methods and Applications; 15th edition; Kedar Nath Ram Nath Publishers.
3. Hira and Gupta, (2001), Operations Research, S.Chand & Sons.