

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule: November 2024 – April 2025**

**Department** : Mathematics  
**Name of the Faculty** : Dr. Amalore Arumica  
**Course Title** : OPTIMIZATION TECHNIQUES  
**Course Code** : 19MT/ME/OT45  
**Shift** : II

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Nov 18 – 25, 2024 (Day Order 1-6) – 5 hours	<b>Unit 1: Linear Programming</b> 1.1 Formulation of Linear Programming Problems 1.2 Graphical Method of Solution	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Nov 26- Dec 3, 2024 (Day Order 1 to 6) – 5 hours	1.3 Canonical and Standard Form 1.4 Simplex Method	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Dec 4-11, 2024 (Day Order 1 to 6) – 5 hours	1.5 Artificial Variable Technique: Big-M Method <b>Unit 2 : Duality in LPP</b> 2.1 Formulation of Dual LPP 2.2 Characteristics of the Dual Problem	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	<b>III Component Test 1: Assignment [10 marks] Portion: 1.4, 1.5</b>
Dec 12-19, 2024 (Day Order 1 to 6) – 5 hours	2.3 Primal-Dual Optimal Solutions <b>Transportation Model</b> 2.4 Introduction and assumptions to the Model 2.5 Matrix Terminology	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Quiz

Dec 20, 2024 (Day Order 1) – 1 hour	2.6 Formulation and Solution of Transportation Model Least Cost method	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Jan 3 – 7, 2025 (Day Order 3 to 6) – 3 hours	Vogel's Approximation method MODI's Optimality Test 2.7 Variants in Transportation Problems	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Jan 8 – 17, 2024 (Day Order 1 to 6) – 5 hours	<b>Unit 3: Assignment Model</b> 3.1 Formulation and Solution of the Assignment Models 3.2 Mathematical Representation of Assignment Models 3.3 Comparison with Transportation Model	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Jan 18 - 23, 2025	<b>C.A. Test – I (Units 1.1-1.3, 2)</b>			
Jan 24 - 30, 2025 (Day Order 1 to 6) – 5 hours	3.4 Hungarian Method for Solution of the Assignment Problems 3.5 Travelling Salesman Problem	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Feb 3-8, 2025 (Day Order 1 to 6) – 5 hours	<b>Sequencing Models and Related Problems</b> 3.6 Sequencing Problems – Assumptions in Sequencing Problems 3.7 Processing n Jobs through One Machine (SPT rule only) 3.8 Processing n Jobs through Two Machines	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Feb 10– 18, 2025 (Day Order 1 to 4) – 3 hours	<b>Unit 4: Theory of Games</b> 4.1 Theory of Games 4.2 Characteristics of Games 4.3 Game Models – Definitions 4.4 Rules for Game Theory 4.4.1 Rule 1: Look for a Pure Strategy	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Quiz

Feb 19-26, 2025 (Day Order 1-6) – 5 hours	4.4.2 Rule 2: Reduce Game by Dominance 4.4.3 Rule 3: Solve for a Mixed Strategy 4.5 Mixed Strategies (2×2 Games) – Mixed Strategies (2 × n games or m × 2 games)	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Quiz
Feb 27- Mar 6, 2025 (Day Order 1 to 6) – 5 hours	<b>Unit 5: Network Analysis in Project Planning</b> 5.1 Project – Project Planning – Project Scheduling – Project Controlling 5.2 W.B.S. – Basic Tools and Techniques of Project Management 5.3 Role of Network Techniques in Project Management 5.4 Network Logic-Numbering the Events	Lecture	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	<b>III Component Test 2: Test [25 marks] Portion:4.4,4.5</b>
Mar 7 – 11, 2025 (Day Order 1 to 3) – 3 hours	5.5 Activity on Node Diagram 5.6 Merits and Demerits of AON Diagram 5.7 Critical Path Method: Measure of Activity – Time Units 5.8 Critical Path Analysis	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Quiz
Mar 12 – 17, 2025	<b>C.A. Test – II (Units 3, 4.1-4.3, 5.1-5.6)</b>			
Mar 18 – 20, 2025 (Day 4 to 6) – 2 hours	5.9 The Three Floats. PERT: Time Estimates	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	Questioning
Mar 21 - 28, 2025 (Day Order 1 to 6) – 5 hours	5.10 Frequency Distribution Curve for PERT – Probability of Completing the Whole Project by a given Time	Problem solving	Gupta, Premkumar and Hira D.S. Operations Research, New Delhi: S.Chand & Company Pvt., Ltd., 2007	<b>III Component Test 3: Project (15 marks) Portion: 5.7-5.9</b>
Mar 29- April 3, 2025 (Day Order 1 to 3) – 3 hours	Revision			