

I	Course Code	<b>MA 5003</b>								
II	Course Title	<b>Optimization Techniques</b>								
III	Credit Structure	<table border="0"> <tr> <td>L</td> <td>T</td> <td>P</td> <td>C</td> </tr> <tr> <td>3</td> <td>1</td> <td>0</td> <td>4</td> </tr> </table>	L	T	P	C	3	1	0	4
L	T	P	C							
3	1	0	4							
IV	Prerequisite (If any)	NIL								
V	Course Content	<p>Introduction to Optimization: Introduction, Historical Development, Applications of Optimization techniques, Statement of an Optimization Problem, Design Vector, Design Constraints, Constraint Surface, Objective Function, Objective Function Surfaces, Classification of Optimization Problems. Linear Programming: Introduction to Linear Programming, Formulation of linear programming problem (LPP), Solution of LPP, Convex set, Basic feasible solution, Optimum solution, Graphical Methods, Simplex Method, Big-M Method, Two-Phase Method, Types of LPP Solutions Duality in Linear Programming, Importance of Dual Problems, Parametric Analysis, Transportation Problem, North West Corner Method, Least Cost Method, Vogel's Approximation Method, Modified-Distribution (MODI) Method, Stepping Stone Method, Variation in Transportation problems, Assignment Problem, Hungarian Method, Variation in Assignment Problem, Game Theory, Two Person Zero Sum Game, Game with Saddle Point, Game without Saddle Point, Solving Game by different Method, Introduction to Non-linear programming: Classical Optimization techniques. Non-linear optimization problems with constraints and without constraints.</p>								
VI	Text/References	<ul style="list-style-type: none"> <li>• S. S. Rao, Engineering optimization: theory and practice, 2009, John Wiley &amp; Sons.</li> <li>• Hillier, Lieberman, Nag and Basu, Introduction to Optimizations Research, MacGraw Hill Education Pvt Ltd. 2012.</li> <li>• Nita H. Shah, Ravi M. Gor and Hardik Soni, Operation Research, PhiLearning Pvt. Ltd., 2007.</li> <li>• S. D. Sharma, Operations Research, Kedar Nath Ram Nath &amp; Co., 2005.</li> <li>• Taha H.A. - Operations Research: An Introduction, 7th ed., 2003, MacMillan Publishing Co.</li> <li>• J. K. Sharma, Operation Research -Theory and Applications, McMillan Publishers India, 2008.</li> </ul>								