

For Syllabus, Question Papers, Notes & many More

**MF5201 OPTIMIZATION TECHNIQUES IN
MANUFACTURING**

DETAILED SYLLABUS

UNIT I INTRODUCTION

Optimization – Historical Development – Engineering applications of optimization – Statement of an Optimization problem – classification of optimization problems.

UNIT II CLASSIC OPTIMIZATION TECHNIQUES

Linear programming - Graphical method – simplex method – dual simplex method – revised simplex method – duality in LP – Parametric Linear programming – Goal Programming.

UNIT III NON-LINEAR PROGRAMMING

Introduction – Lagrangeon Method – Kuhn-Tucker conditions – Quadratic programming – Separable programming – Stochastic programming – Geometric programming.

UNIT IV INTEGER PROGRAMMING AND DYNAMIC PROGRAMMING AND

NETWORK TECHNIQUES

Integer programming - Cutting plane algorithm, Branch and bound technique, Zero-one implicit enumeration – Dynamic Programming – Formulation, Various applications using Dynamic Programming. Network Techniques – Shortest Path Model – Minimum Spanning Tree Problem – Maximal flow problem.

UNIT V ADVANCES IN SIMULATION

Genetic algorithms – simulated annealing – Neural Network and Fuzzy systems

REFERENCES

1. Hamdy A. Taha, Operations Research – An Introduction, Prentice Hall of India, 1997
2. J.K.Sharma, Operations Research – Theory and Applications – Macmillan India Ltd., 1997.

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3. P.K. Gupta and Man-Mohan, Problems in Operations Research – Sultan chand & Sons, 1994.

4. R. Panneerselvam, “Operations Research”, Prentice Hall of India Private Limited, New Delhi 1 – 2005.

5. Ravindran, Philips and Solberg, Operations Research Principles and Practice, John Wiley & Sons, Singapore, 1992.

OBJECTIVES

To make use of the above techniques while modeling and solving the engineering problems of different fields.