OPERATION RESEARCH AND MANAGEMENT

Paper Code: ETCE-302	**L**	**T/P**	**C**
Paper: Operation Research and Management	**3**	**1**	**4**

INSTRUCTIONS TO PAPER SETTERS: **Maximum Marks: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12.5 marks.

Objective*: To prepare students for technical careers and providing a strong foundation for engineering management positions. The subject also deals with concepts of Linear Programming, Geometric Programming, Dynamic Programming and problem formulation/solution of various engineering problems.*

UNIT I

Role of Project Manager, Project formulation and Cost Estimation, Project Financing, Economic Evaluation Criteria of the Project, Preparing a detailed project plan, Managing Risk and Uncertainty, Monitoring and Control during Project Execution, Monitoring the Project Interfaces, Project Communication and Documentation, Project Evaluation, Introduction to Bar Charts and Mile-Stone Charts, Introduction to Enterprise Resource Planning.

Engineering Application of Operational Research, Statement of an Optimization Problem, and Classification of Optimization Problems.

[T1][No. of Hours: 11]

UNIT II

Standard Form of Linear Programming, Simplex Algorithm, Two Phases of the Simplex Method, Duality in Linear Programming, Sensitivity of Post optimality Analysis, Transportation Problems, Assignment Model.

[T2] [No. of Hours: 12]

UNIT III

Deterministic Dynamic Programming, Classical Optimization Techniques, Unconstrained and Constrained Problems, Nonlinear Programming, Unconstrained Algorithm, Direct search Method, Gradient Method.

[T1,T2][No. of Hours: 11]

UNIT IV

General Management Concepts, Planning, Policy making, Programmes and Procedures, Staffing Technical Organizations, Models of Organization Development, Authority and Power, Delegation, Committees and Meetings, Technical, Administrative and Engineering Management, Manufacturing and System Management Human Resource Planning and Management, Motivation, Performance Management and Appraisal, Participative Management, Trade Unions, Organization and Management, Introduction to Material Management, Financial Management, Quality Management and Project management.

[T1,T2][No. of Hours: 11]

Text Books:

[T1] Hamdy A.Taha- Operations Research, Pearson Education, New Delhi.
[T2] Harvey M.Wagner-Principles of Operations Research- PHI, New Delhi

References:

[R1] Gary R.Heerkens -Project Managesment, Tata Mcgraw Hill Publication, New Delhi
[R2] Daniel L.Babacock-Managing Engineering and Technology- Lucy C. Morse, PHI, New Delhi
[R3] J David Hunger, Thomas L.Wheelen,- Essentials of Strategic Management- PHI, New Delhi
[R4] Engineering Optimization [Theory and practice] – Singiresu S.Rao, New Age, New Delhi.
[R5] A. K. Gupta,-Engineering Management , S.Chand and Company Ltd., New Delhi.