**Type/ Status**          : Core

**Course Code**       **: SOST 32414**

**Title**                 **: Operational Research I**

**Learning Outcomes** : On completion of this course unit students be able to formulate quantitative model for decision making process, solve quantitative models and analyze the solution.

**Course Content**        :

- The steps of Operational Research Project, Modelling.

- Linear Programming : Graphical Method, Simplex Method, Duality, Sensitivity Analysis

- Transportation problem: Mathematical model of Transportation problem, North West corner rule, Vogel's Approximation Method, Modify Distribution Method.

- Assignment Problems: Mathematical representation of Assignment Problem, Formulation of Assignment Problem, The Hungarian Method, the assignment technique for minimizing and maximizing, unequal sources and destinations.

- Network Analysis: Project Evaluation and Review Technique, Critical Path Analysis, Time Cost trade off, Shortest Route Problem, Minimum Spanning Tree Problem, Max Flow Problem.

**Methods of Teaching and Learning: Lectures**, Discussions, Tutorials

**Assessment Scheme** :

| Mid Semester test | 30% |
|---|---|
| Semester end Examination | 70% |

**Recommended Readings**:

Wagner H.M. (2004) *Principles of Operational Research with Application to Managerial Discussions.* 2nd edition , Prentice-Hall of India Pvt Ltd.

Hamdy, A.T. (2001) *Operations Research,* 6th edition, Easton Economy Edition, India.

Lucey, T. (1996), *Quantitative techniques,* 5th edition, DP Publication, London.

Vonderembse M.A. and White G.P. (1994), *Operational Management – Concepts, Methods and Stategies,* 3rd edition, West Publishing Company.