OPTIMIZATION TECHNIQUES

CREDITS :	3

OBJECTIVE:

- ➢ To learn the application of operation research is business decision making.
- ➢ To comprehend the techniques for decision making.

UNIT I INTRODUCTION TO OR   9
Introduction to Operations Research (OR), linear programming (LP), formulating decision problems using linear programming, interpreting the results and sensitivity analysis. Concepts of shadow price and reduced cost.

UNIT II LINEAR PROGRAMMING EXTENSIONS   9
Multi-period LP models. Applications of linear programming in product mix, blending, cutting stock, transportation, transshipment, assignment, scheduling, planning and revenue management problems. Network models and project planning.

UNIT III INTEGER PROGRAMMING   9
Integer Programming (IP) problems, mixed-integer and zero-one programming. Applications of IP in capital budgeting, location decisions, contracts.

UNIT IV MULTI-CRITERIA DECISION MAKING TECHNIQUES   9
Multi-criteria decision making (MCDM) techniques: Goal Programming (GP) and analytic hierarchy process (AHP) and applications of GP and AHP in solving problems with multiple OBJECTIVE.

UNIT V NON-LINEAR PROGRAMMING   9
Non-linear programming, portfolio theory, gradient descent algorithm technique.

TOTAL: 45 PERIODS

OUTCOME:

- ➢ To facilitate objective solutions is business decision making using optimisation.
- ➢ To familiarise the techniques used to optimize.
- ➢ To understand the applications of Linear programming in product mix decisions, Transportation and assignment in logistics and job allocation scenarios.
- ➢ To understand the nuances of non linear programming

REFERENCES

1. Hamdy A Taha, Operations Research: An Introduction, Pearson/ Prentice Hall India, Eighth Edition, 2007.
2. Gupta P.K, Hira D.S, Problem in Operations Research, S.Chand and Co, 2007.
3. Paneerselvam R., Operations Research, Prentice Hall of India, Fourth Print, 2008.
4. N. D Vohra, Quantitative Techniques in Management,Tata Mcgraw Hill, 2010.
   Ravindran, Phillips, Solberg, Operations Research: Principles and Practice, 2ed Wiley Learner Edition, 2007.