

| Semester-2 | | | | | | | | | | | |
|-------------------|------------------------------------|----------------|------------|-----|-----|-------|--------------|-----|----|-----|-------|
| Paper Description | Introduction to Linear Programming | | Paper Code | | | | UPOBMDC12034 | | | | |
| Paper (Type) | Multidisciplinary Course (Theory) | | Credit | | | | Marks | | | | |
| Paper Level | Class Hours | Sem. End Exam. | L | T | P | Total | TH | | CE | ATT | Total |
| 100 | 3 Hours/week | 2 Hours 30 Min | 3 | --- | --- | 3 | 60 | --- | 10 | 5 | 75 |

INTRODUCTION TO LINEAR PROGRAMMING

Unit 1 :

30 classes

Introduction to linear programming problem (LPP), definition of related terminology such as constraints, objective functions, optimization, different types of LPP, and mathematical formation of LPP. Feasible and infeasible regions. Definition of type of solutions: basic solution (BS), feasible solution (FS), basic feasible solution (BFS), degenerate and non-degenerate BFS. Matrix notation of LPP, graphical method of solution for LPP in two variables. Slack and surplus variables, standard form of LPP.

Unit 2 :

15 classes

Mathematical formulation of Transportation models. Matrix formation of transportation problem (TP), Determine the initial basic feasible solution of TP using North-West corner method, and Vogel approximation method (optimality not required).

Suggested Reading Books:

- M.S. Bazaraa, J.J. Jarvis and H.D. Sherali, Linear Programming and Network Flows, John Wiley and Sons, India.
- F.S. Hillier and G.J. Lieberman, Introduction to Operations Research, Tata McGraw Hill, Singapore.
- H.A. Taha, Operations Research: An Introduction, Prentice-Hall India.
- G. Hadley, Linear Programming, Narosa Publishing House, New Delhi.
- P. M. Karak, Linear Programming, *New Central Book Agency*.
- J.G. Chakravorty and P.R. Ghosh, Linear Programming, *Dhur & Sons*.
- D. C. Sanyal and K. Das, Introduction to Linear Programming, *Dhur & Sons*.

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