Semester V

Operations Research (Open Course)

Code: MM 1551.1

Instructional hours per week: 3

No. of credits: 2

Course Outcomes: After the completion of the course the students will be able to

CO1 Find the solutions of LPP using graphical method.

CO2 Solve transportation network problems and assignment problems.

CO3 Able to solve two person games.

CO4 Acquire clear cut knowledge in both theory and application.

Module I - Introduction to OR and Linear Programming(18 Hours)

Origin and development of OR, Nature of OR, Phases of OR and uses and limitations of OR, Mathematical Formulation of the problem, grahical solution method of General LPP(only bounded case to be discussed)

The topics to be discussed in this module can be found in Chapter 1, sections 1.1, 1.2, 1.7, 1.9, Chapter 2, sections 2.1, 2.2 & 2.5. (**Exclude Theorem 2.1, 2.3.1**)

Module II - Transportation Problem and Assignment problem (18 Hours)

The transportation table, The initial basic feasible solution (The North West corner method, Row minima method, Column minima method,The Matrix minima Method and VAM), Assignment problem : The Assignment algorithm

The topics to be discussed in this module can be found in Chapter 6, sections 6.1, 6.2, 6.3, Chapter 7, sections 7.1 & 7.2. (**Exclude Theorem 6.1 and Theorem 7.1**)

Module III - Project Management and Game theory (18 Hours)

Network Scheduling Basic Concepts, constraints in Network, The calculation in net work, CPM, Game theory Two persons zero sum games.

The topics to be discussed in this module can be found in Chapter 19,

sections 19.1, 19.2, 19.3, 19.5, 19.6, Chapter 9, sections 9.1 and 9.2.

Text

Text 1 Kanti Swarup, P. K. Gupta, Man Mohan, *Operation Research*, Sultan Chand & Sons, 1990.

References

Ref. 1 J. K. Sharma, *Operations Research - Theory and Applications*, Sixth Edition, 2016

Ref. 2 Hamdy Taha, *Operations Research: An Introduction*, Pearson, 10th edition, 2016.

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9
CO1	3	2	3	3	3	2	3	3	2
CO2	3	3	3	3	2	2	3	3	3
CO3	3	2	3	3	2	2	3	3	2
CO4	3	3	3	2	2	2	3	2	2

(0-No correlation, 1-Low Correlation, 2-Moderate Correlation, 3-High Correlation)