Course Code	Course Title	C	H	I	E	T
17P4KMC16	**Applied Operations Research**	5	90	25	75	100

Learning objectives

- To have an knowledge on Operations research and its applications to business decisions.
- To gain working knowledge and application of relevant operations research tools in business decisions.

Learning Outcomes: Knowledge on operations research tools and its applicability in business decisions and ability to solve various business problems through OR tools

Unit – I Introduction to Operations Research
Meaning – Definition – Techniques of Operations Research – Uses and Limitations of Operations Research.

Unit – II Linear Programming Problem
Meaning – Definition – Formulation of LPP – Methods for solving LPP – Graphical Method – Simplex Method – Big M Method – Duality Method.

Unit – III Transportation and Assignment Problem
Meaning – Transportation Model – Types of Transportation problem – Methods for solving transportation problem: Vogel's Approximation method – Least Cost Method – North West Corner Rule – Initial Solution – Optimal Solution.
Assignment Problem – Meaning –Types of Assignment problem – Hungarian Method.

Unit – IV Game Theory & Queuing Theory
Game Theory – Applications – Methods for solving Game theory – Saddle point method – Dominance Principle method – Algebraic method – Graphical Method – Sub Game method.
Queuing Theory – Applications – Uses – Limitation – Single Channel Model Only.

Unit – V Replacement Problems, Inventory Models and Simulation
Replacement Problems – Group replacement policy.
Inventory Models – EOQ Model with discount and without discount – Safety Stock.
Simulation – Meaning – Limitations – Monte Carlo Method – Applications.

Note: The Question paper shall consist of 80% problem and 20% theory.

Books for Study:

Kapoor V.K. & Sumant Kapoor, *Operation Research Techniques for Management*, Sultan Chand & Sons, New Delhi.

Books for Reference:

1. Chawla. K.K, Vijay Gupta & Bhushan K. Sharma, *Operation Research Quantitative Analysis for Management*, Kalyani Publishers, New Delhi.
2. K. Shridhara Bhat, *Operation Research,* Himalaya Publishing House, Mumbai.
3. J.K.Sharma, *Quantitative Techniques in Management,* Trinity Press, New Delhi.
4. www.investopedia.com