

**BHARATHIAR UNIVERSITY, COIMBATORE.**  
**B.Sc. Mathematics CA**  
**Revised papers with effect from 2017-18 onwards)**

**Note : The revised syllabus for the following paper furnished below be followed and there is no change in the existing scheme of examination and syllabi of remaining papers.**

**Semester IV - Skill Based Subject**  
**Subject title - Operations Research – Paper II**

**Credit hours: 3**

**Subject Description:**

This course gives emphasis to enhance student knowledge in game theory, performance measures of queues, optimal use of Inventory and Network scheduling with application.

**Unit I:**

Game Theory – Two person zero sum game – The Maxmini – Minimax principle – problems - Solution of  $2 \times 2$  rectangular Games – Domination Property –  $(2 \times n)$  and  $(m \times 2)$  graphical method – Problems.

**Unit II:**

Queueing Theory – Introduction – Queueing system – Characteristics of Queueing system – symbols and Notation – Classifications of queues – Problems in  $(M/M/1) : (\infty/FIFO)$ ;  $(M/M/1) : (N/FIFO)$ ;

**Unit III:**

Inventory control – Types of inventories – Inventory costs – EOQ Problem with no shortages – Production problem with no shortages – EOQ with shortages – Production problem with shortages – EOQ with price breaks.

**Unit IV:**

Simulation – Introduction – simulation models – Event – Types of simulation - Generation of Random Numbers – Monte-carlo simulation – simulation of queueing system.

**Unit V:**

Network scheduling by PERT / CPM – Introduction – Network and basic components – Rules of Network construction – Time calculation in Networks – CPM.  
PERT – PERT calculations..

**References:**

1. Operations Research – Prem Kumar Gupta D. S. Hira, S. Chand & Company Ltd, Ram Nagar, New Delhi
2. Operations Research – Kandiswarup, P. K. Gupta, Man Mohan, S. Chand & Sons Education Publications, New Delhi, 12<sup>th</sup> Revised edition.
3. Operations Research Principles and Problems: S. Dharani Venkata Krishnan, Keerthi publishing house PVT Ltd.