| PROGRAM | Master of Business Administration |
|---|---|
| SEMESTER | 3 |
| COURSE TITLE | Operations Research Applications |
| COURSE CODE | 04MB0344 |
| COURSE CREDITS | 3 |
| COURSE DURATION | 42 Hrs (42 sessions of 60 minutes each) |

**COURSE OUTCOMES:**

∗ Select optimal problems solving techniques for a given problem using LPP with simplex method.
∗ Demonstrate and solve Simulation.
∗ Demonstrate and solve models of Game theory.
∗ Evaluate optimum solutions using dynamic programming for different applications.
∗ Choose / devise appropriate queuing model for practical application

**COURSE CONTENTS:**

| Unit No | Unit / Sub Unit | Sessions |
|---|---|---|
| I | *Linear Programming: Simplex Method:* Introduction, Linear Programming Problem, Requirements of LPP, Mathematical Formulation of LPP, Standard Form of LPP, Fundamental theorem of LPP, Solution of LPP | 06 |
| II | *Simulation:* Introduction, Methodology of Simulation, Basic Concepts, Simulation Procedure, Application of Simulation, *Simulation* | 08 |
| III | *Game Theory:* Introduction, Competitive Situations, Characteristics of Competitive Games, Maximin – Minimax Principle, Dominance, Advanced Queuing, sequencing, Simplex Method, The Simplex Algorithm, Penalty Cost Method or Big M-method, Two Phase Method, Solved Problems on Minimization, Goal Programming, Dynamic programming, | 12 |
| IV | Replacement theory: Introduction, Replacement of capital equipment which depreciated with time, replacement by alternative equipment, Group and individual replacement policy. | 08 |
| V | *Monte-Carlo Method:* Introduction, Monte-Carlo Simulation, Applications of Simulation, Advantages of Simulation, Limitations of Simulation | 08 |

**EVALUATION:**

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

| | Component | Weightage |
|---|---|---|
| A | Continuous Evaluation Component (Assignments / Quizzes / Class Participation etc.) | 20% (C.E.C.) |
| B | Internal Assessment | 30% (I.A.) |
| C | End-Semester Examination | 50% (External Assessment) |

**SUGGESTED READINGS:**

**Text Books:**

| Sr. No | Author/s | Name of the Book | Publisher | Edition and Year |
|---|---|---|---|---|
| **T-01** | N.D.Vohra | Quantitative Techniques in Management | Tata McGraw-Hill | Latest |
| **T-02** | V.K Kapoor | Operations Research: techniques for Management | Sultan Chand | Latest |
| **T-03** | J.K Sharma | Operations Research: theory and application | Lakshmi publication | Latest |

**Reference Books:**

| Sr. No | Author/s | Name of the Book | Publisher | Edition and Year |
|---|---|---|---|---|
| R-01 | R. Paneerselvam | Operations Research | Prentice Hall of India Pvt. Ltd. | Latest |
| R-02 | Hamdy Taha | Operations Research: An Introduction | Pearson | Latest |
| R-03 | D. S. Hira and Prem Kumar Gupta | Operations Research | s. chand | latest |