**Lesson Plan**

**Name of Faculty: Dr. Deepak Kumar**

**Discipline: Computer Engineering Department**

**Semester: 3rd**

**Subject: Operations Research**

Lesson plan Duration: 15 Weeks (August 2022 – November 2022)

Work load (lecture) per week (in hours): Lectures: 3 hours,

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| **Lecture No** | **Description** | **Remarks if any** |
| 1 | **Unit-1**: Introduction to Operation research |  |
| 2 | Optimization Techniques |  |
| 3 | Optimization Techniques cont…. |  |
| 4 | Model definition |  |
| 5 | Models Formulation |  |
| 6 | Models details and description |  |
| 7 | General L.R Formulation |  |
| 8 | Simplex Techniques |  |
| 9 | Sensitivity Analysis |  |
| 10 | Inventory Control Models |  |
|  | Minor test |  |
| 11 | **Unit-2** Formulation of a LPP |  |
| 12 | Graphical solution revised simplex method |  |
| 13 | Graphical solution revised simplex method examples/numerical |  |
| 14 | Graphical solution revised simplex method examples/numerical |  |
| 15 | duality theory |  |
| 16 | dual simplex method |  |
| 17 | dual simplex method examples/numerical |  |
| 18 | dual simplex method examples/numerical |  |
| 19 | sensitivity analysis |  |
| 20 | parametric programming |  |
| 21 | parametric programming examples/numerical |  |
| 22 | Nonlinear programming problem - Kuhn-Tucker conditions |  |
| 23 | min cost flow problem . |  |
| 24 | max flow problem - CPM/PERT |  |
|  | Minor test |  |
| 25 | **Unit 3**: Scheduling and sequencing |  |
| 26 | single server and multiple server models |  |
| 27 | deterministic inventory models |  |
| 28 | - Probabilistic inventory control models |  |
| 29 | Geometric Programming |  |
| 30 | **Unit-4** Competitive Models |  |
| 31 | Single and Multi-channel Problems |  |
| 32 | Sequencing Models |  |
| 33 | Dynamic Programming |  |
| 34 | Flow in Networks |  |
| 35 | Elementary Graph Theory |  |
| 36 | Elementary Graph Theory examples |  |
| 37 | Elementary Graph Theory examples |  |
| 38 | Game Theory Simulation |  |
| 39 | Game Theory Simulation examples |  |