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| **Sl. No** | **Syllabus** | **Curriculum** | **Deployment Strategy and**  **Tool** | **Cross-cutting issues**  **integrated** | **PO, PSO and CO** | **Attainment Verification** |
| 1. | OPERATIONS RESEARCH | 1. techniques to address specific application areas including transportation and logistics, production planning, inventory control, scheduling, location analysis, forecasting, and supply chain management.  2 The central objective of operations research is optimization, i.e., "to do things best under the given circumstances." This general concept has great many applications, for instance, in agricultural planning, biotechnology, data analysis, distribution of goods and resources, emergency and rescue operations, en  3. Three essential characteristics of operations research are a systems orientation, the use of interdisciplinary teams, and the application of scientific method to the conditions under which the research is conducted. | 1. Chalk and   Talk method   1. PPT | * Business   Ethics   * Human   values | PO1:Engineering Knowledge  PO2:Problem Analysis  PO3:Design/Development Of Solutions  PO4:Conduct Investigations Of Complex Problems |  |
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|  |  | PSO2:Problem Solving Skill |
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|  |  | CO1:Understand the basics of operation research, formulate optimization problem as a linear programming problem and graphical method usage to solve LPP.    CO2:Apply simplex method to Solve linear programming problem.  CO3:Understand essence of duality theory and apply dual simplex method to Solve linear programming problem.    CO4:Model the given problem as transportation problem and assignment problem and solve.  CO5:Apply Game theory to identify the optimal strategies for players and understand the concepts of metaheuristics. |
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