Government Engineering College-Dahod
Mechanical Engineering Department
MID SEMESTER EXAM SYLLABUS – 2026

Semester: **4th** Exam Date: **08-04-2026**

Subject Name: **Operation Research**

Code: **BE04000201**

Sr. No.	Content	CO
1.	**Operations Research and Linear Programming:** Origin of Operation Research, Historical Standpoint, Methodology, Different Phases, Characteristics, Scope and Application of Operations Research. **Linear Programming Problem:** Introduction, Requirement of LP, Basic Assumptions, Formulation of LP, General Statement of LP, Solution techniques of LP: Graphical Methods, Analytical Methods: Simplex, Primal and Dual Problems.	CO-1
2.	**Transportation and Assignment:** Transportation Problems definition, Linear form, Solution methods: Northwest corner method, least cost method, Vogel's approximation method. Degeneracy in transportation, Modified Distribution method, Unbalanced and profit maximization problems. Transshipment Problems. Assignment Problems and Travelling salesman Problem.	CO-2
3.	**Project Management:** PERT and CPM Network theory, Critical Path calculation, float calculation and its importance. Resource allocation, Cost reduction by Crashing of activity.	CO-5
4.	**Replacement theory:** Introduction, Replacement of capital equipment which depreciated with time, replacement by alternative equipment, Group and individual replacement policy.	CO-3

Course Outcomes:

CO-1	Describe characteristics, scope, formulation, solution of linear programming problem.
CO-2	Formulate and solve transportation, travelling salesman, transshipment, and assignment problems of Operation Research.
CO-3	Evaluate simple models of Queuing, Inventory and Replacement problems.
CO-5	Draw Network of PERT, CPM with different time calculations and network crashing.

Subject Coordinator
(J. M. Patel)