GANPAT UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Master of Technology		Branch/Spec.	Electrical (Electric Power Systems)	
Semester	II		Version	1.0.0.0	
Effective from Academic Year		2022-2023	Effective for the batch Admitted in		July 2022
Course Code	3EE21OE3	Course Name	Operation Research		

Teaching scheme					Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW				
Credit	3	0	0	0	3	Theory	40	60	100
Hours	3	0	0	0	3	Practical	00	00	00

Pre-requisites:

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Course Outcomes

On successful completion of the subject, students should be able to:

CO1	Demonstrate different optimization problems.
CO2	Analyse non-linear programming problems.
CO3	Develop the knowledge to simulate real-world problems by doing analysis.
CO4	Model dynamic programme for single and multi-channel problems.

Theory syllabus

Unit	Content	Hrs
1	**Optimization Techniques:** Optimization techniques, Model formulation, Models, General L.R formulation, Simplex techniques, Sensitivity analysis, Inventory control models.	09
2	**Linear Programming Problems:** Formulation of an LPP, Graphical solution revised simplex method, Duality theory, Dual simplex method, Sensitivity analysis, Parametric programming.	09
3	**Non-Linear Programming:** Non-linear programming problem, Kuhn-Tucker conditions, Min-cost flow problem, Max flow problem, CPM/PERT.	08
4	**Programming Models:** Scheduling and sequencing, single server and multiple server models, Deterministic inventory models, Probabilistic inventory control models, Geometric programming.	09
5	**Dynamic Programming:** Competitive models, Single and multi-channel problems, Sequencing models, Dynamic programming, Flow in networks, Elementary graph theory, Game theory simulation.	10

Practical content

Assignments and tutorials are based on the above syllabus.

Text Books

1.	H.A. Taha, Operations Research, An Introduction, PHI.
2.	H.M. Wagner, Principles of Operations Research, PHI, Delhi.
3.	J.C. Pant, Introduction to Optimisation: Operations Research, Jain Brothers, Delhi.

Reference Books

1.	Hitler Libermann Operations Research: McGraw Hill Pub.
2.	Pannerselvam, Operations Research: Prentice-Hall of India.
3..	Harvey M Wagner, Principles of Operations Research: Prentice-Hall of India.

ICT/MOOCs Reference	
1.	https://nptel.ac.in/courses/111/107/111107128/
2.	https://onlinecourses.nptel.ac.in/noc20_ma23/preview

Mapping of CO with PO and PSO:															
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	2	2	1	0	0	0	0	0	0	1	2	1	0
CO2	1	3	2	1	1	0	0	0	0	0	0	1	3	1	0
CO3	1	3	2	3	1	0	0	0	0	0	0	1	2	1	0
CO4	1	3	2	3	1	1	0	0	0	0	1	1	2	2	0