



**Course Outcomes &CO-PO-PSO Mapping and Justification**

Subject	Operation research	15CS653
<b>COURSE OUTCOMES:</b>		
CO No.	On completion of this course, students will be able to:	Cognitive Level
15CS653.1	Understand the objectives, phases, models, used in operation research	L2
15CS653.2	Solve linear programming problems using simplex method ,Big M method 2-phase method	L3
15CS653.3	Solve linear programming problems using duality theory and post optimality analysis	L3
15CS653.4	Solve problems on transportation, assignment problems and game theory.	L3
15CS653.5	Understand the nature of metaheuristics, simulated annealing and genetic algorithms, tabu search method	L2

**CO-PO-PSO MAPPING**

CO No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
15CS653.1	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
15CS653.2	2	2	-	-	-	-	-	-	-	-	-	1	-	-	-
15CS653.3	2	2	-	-	-	-	-	-	-	-	-	1	-	-	-
15CS653.4	2	3	-	-	-	-	-	-	-	-	-	1	-	-	-
15CS653.5	1	1	-	-	-	-	-	-	-	-	-	1	-	-	-
<b>Avg. Mapping</b>	1.8	2.0	-	-	-	-	-	-	-	-	-	1.0	-	-	-

## **CO-PO-PSO JUSTIFICATION**

<b>CO No.</b>	<b>PO/PSO</b>	<b>CL</b>	<b>Justification</b>
15CS653.1	PO1	2	Moderately mapped as students gain knowledge on objectives, phases and models of formulation of linear programming problem .
	PO2	2	Moderately mapped as students have an ability to formulate a solution plan and methodology for an linear programming problem and evaluate problem statements and identifies objective function.
15CS653.2	PO1	2	Moderately mapped as students apply the knowledge of engineering fundamentals and gauss –Jordan technique on simplex method and Big-M method.
	PO2	2	Moderately mapped as students are having ability to identify solution for simplex problem and Big-M and improve the objective function value in the next occurring tables.
	PO12	1	Slightly mapped as students apply the linear programming model using simplex method in every field of business
15CS653.3	PO1	2	Moderately mapped as students apply the knowledge of numerical techniques such as gauss-Jordan method to solve revised simplex problems.
	PO2	2	Moderately mapped as students are having ability to identify solution for duality theory and post optimality analysis and improve the objective function value in the next occurring tables.
	PO12	1	Slightly mapped as students apply the linear programming model using revised simplex method in business field.
15CS653.4	PO1	2	Moderately mapped as students apply the knowledge of Vogels approximation method to solve transportation problems.
	PO2	3	Highly mapped as students are having ability to identify optimal solution for Transportation problem and assignment problems using Loop construction and MODI method.
	PO12	1	Slightly mapped as students apply the linear programming model using Transportation problem and assignment problem in business field.
15CS653.5	PO1	1	Slightly mapped as students gain knowledge nature of metaheuristics, simulated annealing and genetic algorithms, tabu search method.
	PO2	1	Slightly mapped as students identifies mathematical algorithmic knowledge that applies to a given problem such as simulated annealing ,genetic algorithms and tabu search method.

	PO12	1	Slightly mapped as students apply the linear programming model using tabu search method in business field
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**Prepared by**

**HoD**

**Kavitha Bai A S/Shilpa Reddy K**

**Dr.M.Ramakrishna**