



**Pimpri Chinchwad Education Trust's
Pimpri Chinchwad College of Engineering**

Department: Mechanical

Academic Year: 2021 2022

Semester: I

Class – BE

Course name : Operation Research (ELE II) 402045B

1. Course relevance in Mechanical engineering

Operation Research (OR) is a major subject in mechanical engineering. Operations research is important because **it is a helpful tool used to solve complex problems under uncertainty**. In business, very few things are certain, and managers must often make decisions based on their instincts instead of being able to use reliable data..

2. Prerequisite

Engineering Mathematics, Numerical methods

3. Teaching and Examination Scheme

Lectures : 3 hrs/week

In-Semester Exam : 30 Marks (1 hr.)

Theory Paper : 70 Marks (2½ hr.)

4. Course outcomes with method of assessments

On completion of the course, students will be able to

CO No.	CO Statement	No. of Lectures Planned	Content Delivery method	Assessment tools Planned
1	Apply LPP and Decision Theory to solve the problems	7	Presentation, Lecture with Interaction,	Unit Test 1, Assignment 1
2	Apply the concept of transportation model to optimize the available resources.	6	Presentation, Lecture with Interaction,	Unit Test 1, Assignment 2, TW
3	Decide the optimal strategies in conflicting situation .	6	Presentation, Lecture with Interaction,	Unit Test 2, Assignment 3, TW
4	Analyze and implement the	7	Presentation, Lecture with Interaction,	Unit Test 2, Assignment

	project management techniques .			4,TW
5	Analyze variety of operating characteristic of waiting line for time and cost optimization	6	Presentation, Lecture with Interaction,	Assignment 5,
6	Analyze and optimize multistage decision making problem	6	Presentation, Lecture with Interaction,	Assignment 6

5. Assignment:

Assignment Planned	CO Mapped	Tentative schedule
Assignment on each Unit	CO1,CO2, CO3, CO4, CO5, CO6	All the assignments are floated at the start of semester.

6. Activity/Visits/Mini projects/Posters planned

- *Solving problems in Assignment and Transportation models through open access TORA software*

7. Reference books/Online content(Website)/Research journals/Online courses available

Reference books

- R1** OPERATION RESEARCH HIRA AND GUPTA
R2 OPERATION RESEARCH VK KAPOOR
R3 OPERATION RESEARCH S DSHARMA

Online content (Website)

- NPTEL videos on Operation Research are available on <http://www.nptel.ac.in>

Course Faculty :S.R.Wankhede



Course Coordinator: S.R.Wankhede

Module Co-ordinator sign : Mr.S.B.Matekar

