Course Name:

Operation Research in Transportation

Course Number: 20-308	**Credit:** 3
Program: Graduate	**Course Type:** Technical Required
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

The main objective of this course is to familiarize students with mathematical modeling for decision-making problems and learning methods for solving linear optimization models. This course focuses on enhancing analytical skills and solving complex decision-making problems using mathematical tools.

Course Content (outline):

- Chapter 1: Modeling
- Chapter 2: Linear Programming
- Chapter 3: Sensitivity Analysis
- Chapter 4: Duality
- Chapter 5: Introduction to Graph Theory
- Chapter 6: Networks
- Chapter 7: Integer Programming
- Chapter 8: Dynamic Programming
- Chapter 9: Introduction to Nonlinear Programming
- Chapter 10: Large-Scale Programming
- Chapter 11: Practical Applications of Mathematical Programming

References:

- Bradley, Hax & Magnanti, Applied Mathematical Programming.
- Wagner, Principles of Operations Research.
- Dantzig, Linear Programming & Extensions.
- Luenberger, Introduction to Linear & Nonlinear Programming.
- Hillier, Frederick S. and Lieberman, Gerald J. Introduction to Operations Research.