



Course Name:

Sustainable Transportation

Course Number: 20-029	Credit: 3
Program: Graduate	Course Type: Technical Selective
Prerequisite: -	Corequisite: -

Course Description (Objectives):

This course aims to introduce an overview of sustainable transportation planning practices and management strategies and policies; with focus on unsustainable impacts of different types of transport modes (e.g. rail, sea and air transport).

Course Content (outline):

- Chapter 1: Introducing sustainable transportation based on three pillars of sustainability
- Chapter 2: Environmental issues of transportation energy use and air quality and energy policies
- Chapter 3: Active transportation modes (no motorized modes)
- Chapter 4: Sustainable transportation and extreme natural and man-made hazards
- Chapter 5: Life-cycle assessment (LCA) for transportation infrastructure / projects
- Chapter 6: Alternative propulsion technologies
- Chapter 7: Defining accessibility in transportation and its connection with the concept of justice in transportation
- Chapter 8: Shared transportation services and their opportunities
- Chapter 9: Basics of mobile source emission estimation models
- Chapter 10: Public transportation
- Chapter 11: Demand management strategies
- Chapter 12: Transportation in future cities

References:

- Black, William R. Sustainable transportation: problems and solution. Guilford Press, 2010.
- Shiller, P.L; E. Bruun, and J.R. Ken worthy. (2010). An Introduction to Sustainable transportation. Earth scan, London, Washington DC.
- Tumlin, Jeffrey. Sustainable transportation planning: tools for creating vibrant, healthy, and resilient communities. John Wiley & Sons, 2012.
- Derrible, S. (2019) Urban Engineering For Sustainability. MIT Press, 2019.