

CIV 101 – Introduction to Civil Engineering

Current Catalog Description: This course explores the science and engineering of the built environment and the important role of infrastructure in daily life. Students will learn about major infrastructure systems including transportation, water resources, environmental, energy, and structural infrastructure.

Prerequisite: None

Textbooks and/or Other Required Material: Required Texts:
Penn, M. and P. Parker, Introduction to Infrastructure (2012), John Wiley & Sons, Inc., New York [ISBN978-0-470-41191-9]

This course is: Required

- Topics Covered:**
1. Structural Infrastructure
 - a. Bridges
 - b. Buildings
 - c. Collapse of the Structures
 2. Transportation Infrastructure
 - a. Road Design
 - b. Roundabouts
 - c. Traffic Data
 - d. Braess paradox
 - e. The Zipper Merge
 3. Environmental Infrastructure
 - a. Water Use and Quality
 - b. NYC Water System (Drinking Water, Wastewater)
 - c. Solid Waste Management
 4. Water Resource Infrastructure
 - a. Dams
 - b. Reservoirs
 - c. Hurricane Katrina Case Study
 5. Energy and Communication Infrastructure
 6. Planning and Economic Considerations
 7. Sustainability
 8. Infrastructure Security and Resilience

Course Learning and Student Outcomes:	Course Learning Objectives	<u>ABET Student Outcomes</u>
	Demonstrate an ability to apply scientific and engineering tools and knowledge to infrastructure systems and to solve problems related to infrastructure	1, 2, 4, 5
	Design, understand, build, and analyze selected aspects of the built environment.	6, 7

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