Department of Civil Engineering

Course Name:

Concrete Dams

Course Number: 20-670	**Credit:** 3
Program: Graduate	**Course Type:** Technical Selective
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

The main objective of this course is to familiarize students with the principles of loading, analysis, and design of common types of concrete dams, including gravity and arch dams. Students will also become acquainted with stability considerations, structural behavior, and construction requirements of these structures.

Course Content (outline):

- Chapter 1: Introduction and classification of concrete dams
- Chapter 2: Criteria for dam site selection
- Chapter 3: Arch concrete dams
- Chapter 4: Mass concrete in dams
- Chapter 5: Loading of concrete dams
- Chapter 6: Earthquakes and their effects on dams
- Chapter 7: Dynamic behavior of arch concrete dams and gravity dams
- Chapter 8: Introduction to load test analysis methods
- Chapter 9: Mathematical modeling and analysis methods of concrete dams
- Chapter 10: Determination of stress safety factors and concrete design
- Chapter 11: Analysis and design considerations for arch concrete dams, including 2D and 3D methods
- Chapter 12: Analysis and design considerations for gravity concrete dams
- Chapter 13: Analysis and design considerations for buttress concrete dams
- Chapter 14: Analysis and design considerations for multiple-arch and arch-gravity concrete dams
- Chapter 15: Construction methods and instrumentation systems for monitoring concrete dams

- Chapter 16: Presentation of videos, slides, and site visits to real dam construction projects

References:

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