

## CIV 423 - Coastal Engineering Planning and Design

**Current Catalog Description:** Planning and design of various types and functions of coastal structures and shore protective measures. Considerations of site conditions; Design processes; Design of sloping - and vertical- front coastal structure; Scour and scour protection; coastal sediment transport; shore protection measures such as coastal armoring, beach restoration, and beach stabilization; and introduction to harbor and marina.

**Prerequisite:** CIV 364 or MEC 364 or CIV 422 or permission of instructor.

**Corequisite:** None

**Textbooks and/or Other Required Material:** Required Texts:  
Introduction to Coastal Engineering and Management (J. William Kamphuis);  
Random Seas and Design of Maritime Structures (Yoshima GODA)

**This course is:** Not Required;  
Technical Elective Option

- Topics Covered:**
1. Review of Linear Wave Theory
  2. Wave data analysis
  3. Wave hindcasting
  4. Design Processes
  5. Design of Sloping- and vertical- front coastal structure
  6. Coastal Sediment Transport
  7. Shore Protection Measures
    - a. Coastal Armoring
    - b. Beach restoration
    - c. Beach Stabilization

**Course Learning Objectives:**

Understand wave mechanics
Understand and perform short-term and long-term ocean data analysis
Be able to perform wave hindcasting
Understand fundamentals of engineering design for coastal structures
Understand coastal morphology and sediment transport
Be able to develop solutions to problems of shore protection

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