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)

- **Technical Elective Option**
  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:**

<table>
<thead>
<tr>
<th>Understand wave mechanics</th>
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<tr>
<td>Understand and perform short-term and long-term ocean data analysis</td>
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<td>Be able to perform wave hindcasting</td>
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<td>Understand fundamentals of engineering design for coastal structures</td>
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<td>Understand coastal morphology and sediment transport</td>
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<td>Be able to develop solutions to problems of shore protection</td>
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**Prepared by:** Ali Farhadzadeh (2020)

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