**Course Name**: Introduction to Coastal Hydraulics  

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Group(s)</th>
<th>Language</th>
<th>Lecture</th>
<th>Prac</th>
<th>Lab</th>
<th>Credit</th>
<th>ECTS</th>
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<tr>
<td>INS3222</td>
<td>Introduction to Coastal Hydraulics</td>
<td>2</td>
<td>English</td>
<td>3</td>
<td>0</td>
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**Year**: 2019-2020  
**Semester**: Spring  
**Group(s)**: 2  
**Language**: English  
**Lecture**: 3  
**Prac**: 0  
**Lab**: 0  
**Credit**: 3  
**ECTS**: 4  

**Course Type**: Basic Sciences  
**Prerequisites**: Fluid Mechanics 0422212  
**Coordinator***: Assoc. Prof. Dr. Yeşim Çelikoğlu  
**Instructor**: Assoc. Prof. Dr. H. Anıl Güner  

**Aims**: The course is designed to give an introduction to the profession and to provide students with a basic understanding of the wave environment, wave forces and coastal structures.

**Course Content**: General/ Introduction to Wave Mechanics / Wave Climate and Statistics / Coastal Protection / Wave Loads on Coastal Structures / Breakwaters / Submarine Pipelines

**Knowledge and Skills**:  
- To gain the basic knowledge about the structures like seawalls, breakwaters, coastal defense structures and submarine pipelines  
- To understand the importance of the subject

**References**:  
1. **Kıyı Mühendisliği**, 2016, Y. Yüksel, E. Çevik, BETA yayınınevi  
2. Hydrodynamics of Coastal Regions, IB. A. Svendsen and I.G. Jonsson  
5. CEM (2003)

**Assignments and Projects**:  
1. Wave mechanics  
2. Wave Transformations  
3. Wave Statistics, Breakwaters  
4. Term Paper

**Laboratories**:  
**Computer codes**:  
**Other Activities**: Site visits

**Contribution of The Course Towards Providing Professional Education**:  
1. Students will learn wave characteristics.  
2. To gain knowledge on coastal engineering concepts towards sustainable use of natural resources in coastal and marine environments.  
3. To gain principle knowledge in the planning, design, building and monitoring of coastal engineering applications.  
4. To examine environmental factors in coastal and maritime engineering.  
5. To gain an ability of determination, monitoring and discussion of coastal and maritime engineering issues.
Course Learning Outcomes (Number needed)

1. Students will learn wave characteristics.
2. To gain knowledge on coastal engineering concepts towards sustainable use of natural resources in coastal and marine environments.
3. To gain principle knowledge in the planning, design, building and monitoring of coastal engineering applications.
4. To examine environmental factors in coastal and maritime engineering.
5. To gain an ability of determination, monitoring and discussion of coastal and maritime engineering issues.

Course Outcomes / Learning Outcomes Matrix

<table>
<thead>
<tr>
<th>i</th>
<th>ii</th>
<th>iii</th>
<th>iv</th>
<th>v</th>
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## Success Evaluation

### Theoretical Courses

<table>
<thead>
<tr>
<th>Number</th>
<th>Weight (%)</th>
<th>Projects</th>
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</thead>
<tbody>
<tr>
<td>Midterms</td>
<td>1</td>
<td>60*(0.80)</td>
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<tr>
<td>Quizzes</td>
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<td>-</td>
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<tr>
<td>Assignments</td>
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<tr>
<td>Term paper (project, report, etc)</td>
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<tr>
<td>Laboratories</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Others</td>
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<tr>
<td>Final</td>
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<td>40</td>
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### Subjects

1. Week  Introduction, Definition of Coastal Areas,
2. Week  Classification of Water Waves, Wave Characteristics
3. Week  Assumptions on Wave Theories, Linear Wave Theory, Wave Form, Propagating Wave, Hyperbolic Functions
4. Week  Wave Celerity, Wave Kinematics
5. Week  Pressure Distribution, Wave Energy, Energy Flux  **HOMEWORK 1**
6. Week  Wave Transformations; Shoaling, Refraction
7. Week  Wave Transformations; Shoaling, Refraction
8. Week  **MIDTERM**
9. Week  Wave Transformations; Reflection, Diffraction, Wave Breaking
10. Week  Wave Transformations; Wave Breaking  **HOMEWORK 2**
11. Week  Wave Climate and Statistics; Wave generation, Wave forecasting  **HOMEWORK 3**
12. Week  Breakwaters, Rubble Mound Breakwaters, Wave Run-up  **HOMEWORK 4**
13. Week  Seabed Hydrodynamics and Coastal Protection  **HOMEWORK 5**
14. Week  TERM PAPER
## Code : INS3222  
### Course Name: Introduction to Coastal Hydraulics

<table>
<thead>
<tr>
<th>Groups</th>
<th>Time and Place</th>
<th>Instructor</th>
<th>Office Number</th>
<th>Office Hours</th>
<th>E-mail</th>
<th>Web</th>
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<tbody>
<tr>
<td>2</td>
<td>Monday 10:00–13:00 F1-101</td>
<td>Assoc. Prof. Dr. H. Anıl Güner</td>
<td>H Blok-04</td>
<td>Tuesday 14:00–15:00</td>
<td><a href="mailto:aari@yildiz.edu.tr">aari@yildiz.edu.tr</a></td>
<td><a href="http://www.inm.yildiz.edu.tr">www.inm.yildiz.edu.tr</a></td>
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