Course Name:
Coastal and Port Engineering

<table>
<thead>
<tr>
<th>Course Number: 20-257</th>
<th>Credit: 3</th>
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<tbody>
<tr>
<td>Program: Undergraduate</td>
<td>Course Type: Technical elective</td>
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<tr>
<td>Prerequisite: Hydraulics</td>
<td>Corequisite: -</td>
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</tbody>
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Course Description (Objectives):
Introduction to analysis of water waves, wave forces on coastal and offshore structures, design of coastal and port features

Course Content (outline):
- Governing equations of fluid motion under wave, wave energy and momentum, kinematic and dynamic properties of waves
- Wave breaking and shore-wave interaction
- Wave transformation between deep water and shallow water: wave refraction, diffraction, and reflection. Computation models
- Coastal water level fluctuations: tide, storm surge, computation methods
- Wind-generated waves: equations, probabilistic models, design waves
- Wave forces on piles, pipelines, offshore structures, and coastal structures.
- Design of breakwaters
- Costal sediment processes, shore protection, erosion control structures

References:
- Sorensen, R. (2008), Basic Coastal Engineering, 3rd Ed., Springer