IZTECH CIVIL ENGINEERING DEPARTMENT

CE 511 COASTAL ENGINEERING /SPRING 2025-2026

COURSE OUTLINE

Objective:

- An introduction to coastal engineering with emphasis on the interaction between ocean dynamic processes (waves, currents and tides) and coastal regions (beaches, harbors, structures) and on the engineering approaches necessary to prevent adverse effects caused by this interaction. Wave climate and extreme value statistics.

Text Book:

- Ergin A. (2009) Coastal Engineering, METU Press
- Goda, Y. (2010), 'Random Seas and Design of Maritime Structures', Advanced Series of Ocean Engineering, Volume 33, World Scientific.

References:

- Kıyı Yapıları Planlama ve Tasarım İlkeleri (2016) Ulaştırma Bakanlığı, Altyapı Yatırımları Genel Müdürlüğü, https://aygm.uab.gov.tr/uploads/pages/kiyi-yapilari-planlama-ve-tasarim-teknik-esaslari/teknikesas.pdf

- 'Coastal Engineering Manual' ,(2003), Coastal Engineering Research Center, Dept. of Army Corps of Engineers, US

Course Topics:

- Introduction to coastal engineering and coastal structures
- Review of basic equations
- Small amplitude wave theory
- Irregular waves
- Design wave selection and extreme wave statistics
- Determination of design load cases for offshore structures
- Irregular wave transformation
- Design of floating structures

Class Requirements:

- 3 hours per a week
- Assignments (30%)
- One midterm exam (40%)
- Final project (30%)

Computer Usage:

Students are asked to write short codes to do assignments

Instructor:

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