

ORE 661 Coastal and Harbor Engineering

Designation

Coastal Engineering Required Course

Catalog Description

Planning and design of seawalls, groins, jetties, breakwaters, and layout of ports. Design requirements for harbor entrances and channels. Littoral drift and sedimentation problems. Navigation and mooring requirements. Pre. 607 or consent.

Prerequisites by Topics

Applied mechanics
Engineering economics
Fluid mechanics
Hydraulics
Probability and Statistics
Soil Mechanics
Wave mechanics

Textbooks

None

Reference books

1. *Coastal Engineering Manual* - Version 1.02, US Army Corps of Engineers.
2. NAVFAC DM 26.1, 26.2, and 26.3
3. *Handbook of Coastal and Ocean Engineering*, Vol. I, II, and III, Edited by John Herbich, Gulf Publishing Company, 1990.
4. *Port Engineering*, Vol. I and II, Edited by Per Bruun, Gulf Publishing Company, 1990.

Course Objectives

To familiarize students with the planning, design, and maintenance of coastal and harbor structures.

Topics Covered

1. Breakwaters. Rubble mound structures (conventional and berm design), caissons, scour protection, and geotechnical consideration.
2. Revetments and Seawalls. Rubble mound structures, caissons, lateral earth pressure, seismic consideration.
3. Harbor. Navigational requirements, channels and turning basins, sedimentation and maintenance dredging.
4. Engineering practice issues. Design process, economics, construction, and risk.

Assessment

3 design projects (90%)
Class participation (10%)

Usage of Engineering Tools and Computers

Automated Coastal Engineering System (ACES), Coastal Engineering Manual (CEM),
Excel, Matlab

Schedule

Two 1.25-hour sessions per week.

Contribution to Professional Component

Engineering Science: 1 credit

Engineering Design: 2 credits

Relationship to Program Outcomes

Program Outcome 2: Basic science, mathematics, & engineering

Program Outcome 4: Ocean engineering specialization

Program Outcome 5: Use of latest tools in ocean engineering

Program Outcome 6: Problem formulation & solution

Program Outcome 7: Design & optimization in ocean engineering

Program Outcome 9: Professional issues

Prepared by

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