1. **Course number and title**  
ORE 661 - Coastal and Harbor Engineering

2. **Credits and contact hours**  
3 credits, two 1.25-hour sessions per week

3. **Instructor**  
Kwok Fai Cheung

4. **Textbooks**  
Textbooks: None  
Reference books:  
b. NAVFAC DM 26.1, 26.2, and 26.3  

5. **Specific course information**  
a. Course context: 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.  
b. Prerequisites by Topics:  
   i. Applied mechanics  
   ii. Engineering economics  
   iii. Fluid mechanics  
   iv. Hydraulics  
   v. Probability and Statistics  
   vi. Soil Mechanics  
   vii. Wave mechanics  
c. Designation: ORE required course

6. **Specific goals for the course**  
a. Learning Outcomes:  
The course familiarizes students with the planning, design, and maintenance of coastal and harbor structures. Specific learning outcomes include:  
   i. Ability to identify, formulate, and solve coastal and harbor engineering problems  
   ii. Ability to provide optimal designs of coastal structures and harbor facilities  
   iii. Appreciation of professional and non-technical issues  

7. **Brief list of topics to be covered**  
a. Planning and Design. Problem definition, site characterization and data, alternative evaluation.
b. Breakwaters. Rubble mound structures (conventional and berm design), caissons, scour protection, and geotechnical consideration.

c. Revetments and Seawalls. Rubble mound structures, caissons, lateral earth pressure, seismic consideration.

d. Harbor. Navigational requirements, channels and turning basins, sedimentation and maintenance dredging.