

OE 5800: COASTAL ENGINEERING

Course Content:

Waves in shallow waters – Shoaling, refraction, diffraction and breaking– Interaction currents and waves- near shore currents-wave run-up and overtopping- coastal sediment characteristics- Initiation of sediment motion under waves- Radiation stress-wave set-up and wave set- down- mechanics of coastal sediment transport - Limits for littoral drift – Suspended and Bed Load – alongshore sediment transport rate – Distribution of alongshore currents and Sediment transport rates in Surf zone. Physical modeling in Coastal Engineering. Onshore offshore sediment transport – Stability of tidal inlets- Coastal features – Beach Features – Beach cycles – Beach Stability – Beach profiles -Coastal erosion, Planning and methods of coast protection works - Design of shore defense structures – Non-breaking and breaking wave forces on coastal structures -Breakwaters- Classification, Design and application in coastal protection and harbor planning- Case studies on coastal erosion and protection- Generation, propagation and effect of tsunami.

Text Books:

1. **Horikawa,K.**, Coastal Engineering, University of Tokyo press, 1978
2. **Sorenson, R.M.**, Basic Coastal Engineering, A Wiley-Interscience Publication, New York, 1978
3. **Kamphius,J.W.** Introduction to coastal Engineering and Management, Advances on Ocean Engineering-Volume 16, World Scientific,2002.

Reference books:

1. **Reeve,D., Chadwick, A. and Fleming, C.** Coastal Engineering-Processes, theory and design practice, Spon Press, Taylor & Francis Group, London & Paris,2004
2. **Silvester,R. and Hsu,J.R.C.** Coastal Stabilisation, Advances on Ocean Engineering-Volume 14, World Scientific, 1997.
3. Coastal Engineering Manual, U.S.Army Corps of Engineers, Washington, DC 20314-1000,, Vol. 1 to 3, July 2003.
4. **Wood,M.**, Coastal Hydraulics: Mcmillan, Civil Engineering Hydraulics, London, 1969
Decisions.” CIFE Technical Report (177), Stanford University, Stanford.

Prerequisite:

Consent of teacher