

Course title	Coastal Engineering									Course No	OE5800			
Department	Ocean Engineering	New	L	T	E	P	O	C	TH	Old	L	T	P	C
		Credits	3				6	9		Credits	3			3
Offered for	Ph.D.; M.S.; M. Tech.; B. Tech. 4th year									Status	Modified			
Faculty	Prof S A Sannasiraj									Type	Theory			
Pre-requisite	None									To take effect from	01-01-2022			

Objectives:

To have an in-depth knowledge on the wave sediment transport along the coast and its effects on the stability of shoreline.

Course Contents:

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.