Course Number and Name

BCE076 - COASTAL ENGINEERING

Credits and Contact Hours

3 & 45

Course Coordinator's Name

Ms.B.Kaviya

Text Books and References

TEXT BOOKS:

• Garrison .T, "Oceanography", Wadsworth Publications, 4th edition, 2002.

REFERENCES:

• Sorenson .R. M, "Coastal Zone Engineering", Chapman & Hall, 3rd edition, 2006.

• Wiegal. R.L., Oceanographical Engineering Prentice Haff, Englewood Cliff's, New Jersy, 1964.

Course Description

- To provide an overview of the analysis and design procedures used in the field of coastal engineering.
- To introduce the processes of including coastal and estuarine circulation, coastal and shelf waves, surf zone hydrodynamics, sediment transport, hurricane-induced storm surge and inundation, beach nourishment etc
- To enable students apply these engineering principles to solve the problems in this environment such as shoreline erosion, natural flooding hazards, water quality deterioration and coastal habitat evanescence.

Prerequisites							Co-requisites							
Fluid Mechanics							NIL							
	required, elective, or selected elective (as per Table 5-1)													
Course Outcomes (COs)														
CO1 To provide an overview of the fundamental principles of ocean science and ter										chnology	у.			
CO2 To provide the background needed to undertake coastal oceanograph sets them in context by incorporating case studies and sample proble and global examples.									ographic problem	investig s based	gations a on local	and		
	CO3	To facilitate students to work across disciplinary boundaries and develop an approach that will enable them to incorporate human society in their exploration and analysis of coastal areas.												
CO4		To be able to "see" the features and components of the natural, engineering and human aspects of the coast, the functions of components and relationship between them.												
CO5		To provide students understanding of the materials and processes associated with the major natural natural and artificial harbours.												
Student Outcomes (SOs) from Criterion 3 covered by this Course														
	COs/SOs	a	b	с	d	e	f	g	h	i	j	k		
	CO1	Η												

	CO2	Н		М							
	CO3	Η					Н			М	
	CO4	Η									
	CO5	Н									
List of Topics Covered											

UNIT I WAVES GENERATION, PROPAGATION AND FORCE

Definition – Wave classification – Linear theory of waves- Assumptions and derivations of relationship of wave characteristics- Pressure within progressive wave- Wave energy -Fundamental aspects of stokes theory.

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UNIT II WAVE FORECASTING

Need for forecasting – SMB and PNJ methods of wave forecasting.

UNIT III TIDES

Origin and classification of tides - Karwin's equilibrium theory of tides- Effects on structure -Seiches, surges and Tsunamis.

UNIT IV SEDIMENT MOVEMENT

Types of sediment movement – Types of beaches and beach profile – long shore drift and its engineering significance – Causes of coastal erosion and methods of protection.

UNIT V HARBOURS

Classification - types of their requirements – Requirements of modern port -Selection of site. BreakWater and their types of selection - Functional design of entrance Channel and breakwaters- Dredging - Need & types of selection of dredgers.