



Course Name:

Water Wave Mechanics

Course Number: 20-892	Credit: 3
Program: Graduate	Course Type: General Selective
Prerequisite: -	Corequisite: -

Course Description (Objectives):

The course explores wave mechanics, hydrodynamics, and wave interactions with seabed and structures. Students gain practical and theoretical skills through concepts like wave spectrum, forces, and nonlinear behavior.

Course Content (outline):

- Chapter 1: Introduction to wave mechanics
- Chapter 2: Review of hydrodynamics and vector analysis
- Chapter 3: Small amplitude theory
- Chapter 4: Sediments
- Chapter 5: Wave characteristics
- Chapter 6: Long waves
- Chapter 7: Wave-maker theory
- Chapter 8: Wave spectrum
- Chapter 9: Wave forces
- Chapter 10: Wave on real seabed
- Chapter 11: Nonlinear waves
- Chapter 12: Laboratory works on waves

References:

- “Water wave mechanics for engineers and scientists”, R.G. Dean & R.A. Dalrymple (1984).
- “Water Wave Mechanics”, B. Ataie-Ashtiani & A.A. Beheshti, Amir-Kabir UP, pp.305 (1385).
- “Coastal Hydrodynamics”, B. Ataie-Ashtiani & A. Najafi-Jillani, Amir-Kabir UP, pp.655, (1384).