

Course Number: 28987

Course Name: Analysis and Design of Floating Structures

Course Type: Theory
Prerequisite: Fluid Mechanics
Level: Graduate
Group: Marine Engineering

Type & Max Unit: 3
Corequisite: Nothing
First Presentation: 2012
Last Edition: 2018

Objectives:

Analysis and design of floating offshore structures and mooring lines and tendons in both time and frequency domain.

Topics:

- Review on random vibration and its application on offshore vibration analysis
- Vibration analysis floating offshore structures under sea wave loads
- Compliant structures
- Response Amplitude Operator
- Tension Leg Platform
- Catenary mooring line
- Duffing equation
- Semi-submersible
- Spar and Mathieu type instability
- Coupling
- VIV
- Design codes

References:

1. Faltinsen, O M. "Sea Loads on Ships and Offshore Structures", Cambridge University Press, 1990.
2. Hsu, Teng H. "Applied Offshore Structural Engineering", Gulf Publishing Company, Houston Texas, 1984.
3. Thomas H. Dawson, "Offshore structural engineering", Prentice-Hall, 1983
4. James F. Wilson, "Dynamics of Offshore Structures", John Wiley & Sons, Inc, 1984.
5. ESDEP: WG 15A : Structural Systems: Offshore
6. Minoo H Patel, Joel A Witz, "Compliant Offshore Structures", Elsevier, 1991.