OE 5200: DYNAMICS OF OCEAN STRUCTURES

Course Content:

SDOF systems; Time and frequency domain approaches - Formulation of equations of motion, Hamilton's principle; Lagrange equations of motions; continuous and discrete systems - Study of MDOF systems - Rayleigh – Ritz; Stodola and Holzer methods - Matrix methods for dynamic analysis; Eigen solution - Mode superposition. Vibrations of structures involving fluid - structure - solid interaction, dynamic behaviour of offshore towers - stochastic dynamics of offshore structures; Frequency domain response - Narrow band systems; fatigue predictions - Response to wave; and earthquake loadings.

Text Books:

1. **Chakrabarti, S. K. 2002**. The Theory and Practice of Hydrodynamics and Vibration. World Scientific, Singapore.
2. **2. Chakrabarti, S.K. 1987** Hydrodynamics of Offshore Structures: Computational Mechanics. WIT Press, Southampton, U.K.

Reference Books:

1. **Srinivasan Chandrasekaran. 2015**. Dynamic analysis and design of ocean structures. Springer. ISBN: 978-81-322-2276-7

Prerequisite: