

## **ST5003 OFFSHORE STRUCTURES**

### DETAILED SYLLABUS

#### **OBJECTIVE**

To study the concept of wave theories, forces and design of jacket towers, pipes and cables.

#### **UNIT I WAVE THEORIES**

Wave generation process, small, finite amplitude and nonlinear wave theories.

#### **UNIT II FORCES OF OFFSHORE STRUCTURES**

Wind forces, wave forces on small bodies and large bodies - current forces - Morison equation.

#### **UNIT III OFFSHORE SOIL AND STRUCTURE MODELLING**

Different types of offshore structures, foundation modeling, fixed jacket platform structural modeling.

#### **UNIT IV ANALYSIS OF OFFSHORE STRUCTURES**

Static method of analysis, foundation analysis and dynamics of offshore structures.

#### **UNIT V DESIGN OF OFFSHORE STRUCTURES**

Design of platforms, helipads, Jacket tower, analysis and design of mooring cables and pipelines.

#### **REFERENCES**

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3. Chakrabarti, S.K., Hydrodynamics of Offshore Structures, WIT press, 2001.
4. Dawson.T.H., Offshore Structural Engineering, Prentice Hall Inc Englewood Cliffs, N.J. 1983.
5. James F. Wilson, Dynamics of Offshore Structures, John Wiley & Sons, Inc, 2003.
6. Reddy, D.V. and Arockiasamy, M., Offshore Structures, Vol.1 and Vol.2, Krieger Publishing Company, 1991.
7. Reddy.D.V and Swamidas A.S.J., Essential of offshore structures.CRC Press.2013
8. Turgut Sarpkaya, Wave Forces on Offshore Structures, Cambridge University Press, 2010.