

# NOC: Fluid Dynamics and Turbomachines - Video course

## COURSE OUTLINE

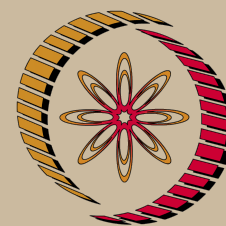
The first part of the course introduces important concepts of fluid dynamics which forms the theoretical foundation for the second portion of the course on turbomachines. The course is intended for advanced B. Tech/B. E. students as well as a refresher course for practicing engineers working in the field of pump and turbine industries.

## COURSE DETAIL

| S.No.  | Lessons/Topics                                    |
|--------|---|
| Week 1 | Introduction to fluid flows                       |
| Week 2 | Integral approach for analyzing fluid flow        |
| Week 3 | Differential approach for analyzing fluid flow    |
| Week 4 | Incompressible viscous internal and external flow |
| Week 5 | Introduction to turbomachines                     |
| Week 6 | Principle of turbomachines                        |
| Week 7 | Performance of pump and hydraulic turbine         |
| Week 8 | Performance of steam and gas turbine              |

## References:

1. Fox, R.W., Pritchard, P.J. and McDonald, A. T., "Introduction to Fluid Mechanics", 7th edition, Wiley India, 2011.
2. White, F. M., "Fluid Mechanics", 4th edition, McGraw-Hill, 1999.
3. Som, S.K., Biswas, G. and Chakraborty, S., "Fluid Mechanics and Fluid Machines", 3rd edition, McGraw-Hill, 2012.
4. Dixon, S.L., "Fluid Mechanics and Thermodynamics of Turbomachines", 4th edition, Butterworth Heinemann, 1998.
5. Kadambi, V. and Manohar Prasad, "An Introduction to Energy Conversion Vol.III: Turbomachinery", , Wiley Eastern, 1997.
6. Gopalakrishnan, G. and Prithvi Raj, D. "A Treatise of Turbomachines", Scitech Publications, 2002.



NP-TEL

NPTEL

<http://nptel.ac.in>

## Mechanical Engineering

### Pre-requisites:

1. Basic Engineering Mathematics and
2. Engineering Mechanics
3. Basic Engineering Thermodynamics

### Coordinators:

**Prof. Dhiman Chatterjee**

Department of Mechanical Engineering IIT Madras

**Prof. Shamit Bakshi**

Department of Mechanical Engineering IIT Madras