



FLUID DYNAMICS AND TURBOMACHINES

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TYPE OF COURSE : Rerun | Both | UG
COURSE DURATION : 8 weeks (20 Jul' 20 - 11 Sep' 20)
EXAM DATE : 27 Sep 2020

PRE-REQUISITES : 1. Basic Engineering Mathematics 2. Engineering Mechanics 3. Basic Engineering Thermodynamics

INTENDED AUDIENCE : 1. Undergraduate students 2. Practicing engineers (refresher course)

INDUSTRIES APPLICABLE TO : Pump and turbine industry

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.

ABOUT INSTRUCTOR :

Dr. Dhiman Chatterjee is currently an Associate Professor in the department of Mechanical Engineering, IIT Madras. He teaches Incompressible Fluid Flow and Turbomachines. His research specialization includes turbomachines and cavitation.

Dr. Shamit Bakshi is currently an Associate Professor in the department of Mechanical Engineering, IIT Madras. He teaches Incompressible Fluid Flow and IC Engines. His research specialization includes droplet/spray processes and I.C. Engine flows.

COURSE PLAN :

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: Non-dimensional groups in turbomachines

Week 8: Performance of pump and fan, hydraulic turbine, steam and gas turbines