COURSE DETAIL

FLUID MECHANICS
Country Denmark
Host Institution University of Copenhagen
Program(s) University of Copenhagen
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering
UCEAP Course Number 105
UCEAP Course Suffix
UCEAP Official Title FLUID MECHANICS
UCEAP Transcript Title FLUID MECHANICS
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

Fluid mechanics is concerned with moving and stationary fluids. This course builds on the concepts of classical mechanics and thermodynamics, and develops the mathematical and numerical framework to understand the behavior of fluids, from molecular to astronomical scales. The equations are fundamentally nonlinear, and rely heavily on vector algebra. As a result, it develops the necessary command of mathematical and numerical methods for handling nonlinear partial differential equations, as well as physical intuition about how to deal with moving and deforming parcels of fluids. Specifically, the course begins by discussing the basic properties of fluids and gases, then applies thermodynamics and conservation laws to arrive at the Navier Stokes equations. With their help, it explores the behavior of fluids under different conditions, with a special focus on concepts relevant in biology, oceanography, and complex systems theory: turbulence, vorticity dynamics, boundary layers, instability, and waves.

Language(s) of Instruction
English

Host Institution Course Number
NFYB21003U

Host Institution Course Title
FLUID MECHANICS

Host Institution Campus

Host Institution Faculty
Science

Host Institution Degree
Bachelor

Host Institution Department
The Niels Bohr Institute

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