

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 Course Details

<https://kurser.ku.dk/course/nfyb21003u/2024-2025>

Host Institution Campus

Host Institution Faculty

Science

Host Institution Degree

Bachelor

Host Institution Department

The Niels Bohr Institute

Course Last Reviewed

2024-2025

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