

## Course Syllabus

### Fluid Dynamics 7.5 Credits\*, First Cycle Level 1

#### Learning Outcomes

The overall objective of this course is that students shall gain knowledge and understanding of the fundamentals of fluid dynamics, with focus on applications in the built environment and energy systems.

Upon completion of the course students shall be able to:

- Demonstrate understanding of the fundamental behaviour of static fluids and fluids in motion.
- Evaluate problems with fundamental fluid dynamics and identify the related solutions.
- Develop skills for practical exploration of air flow in buildings.
- Estimate the energy performance of rotating turbine systems.

#### Course Content

In total, the course comprises three components. The first component is the fundamentals of fluid dynamics, including fluid properties, steady/unsteady uniform/non uniform compressible/incompressible flow, analysis approaches, continuity principle, and viscosity. The second component is the applied design and modelling of natural air flow ventilation in a building. The third component is turbine mechanics, involving the theory and design of wind and water power systems.

#### Assessment

Written examination of 5 credits; Group report with compulsory seminars of 2.5 credits.

#### Forms of Study

Lectures, tutorials, seminars and group assignment.

#### Grades

The Swedish grades U–VG.

The final grade for the course is given after an overall assessment made by the examiner.

#### Prerequisites

Introduction to Mechanics for Energy Engineering, 7.5 credits

**Subject:**

Energy Technology

**Group of Subjects:**

Energy Technology

**Disciplinary Domain:**

Technology, 100%

**This course can be included in the following main field(s) of study:**

1. No main field of study

**Progression Indicator within (each) main field of study:**

1. GIF

**Approved:**

Approved 12 October 2017

Valid from 10 December 2017