



HÖGSKOLAN I GÄVLE

Fundamentals in Fluid Mechanics 7.5 cr

Grundläggande strömningsmekanik 7,5 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at

Valid from

12/15/21

HT2022

Level	G1N
Education level	First cycle
Course identifier	ETG007
Credits	7.5 cr
Main field of study	Energy Systems
Subject group	Energy Technology
Disciplinary domain	Technology 100.0 %

Learning outcomes After completing the course, the student should be able to

Knowledge and understanding

1. explain basic concepts of flow mechanics and flow statistics
2. explain the application of incompressible flow

Competence and Skills

3. evaluate simple technical flow systems with regard to dimensioning
4. develop and apply control volumes for basic equations in fluid mechanics
5. use dimensional analysis
6. perform engineering calculations involving basic fluid mechanics
7. perform various experiments and report the results in writing
8. evaluate simple technical flow systems with regard to dimensioning
9. show ability for teamwork and collaboration in laboratory groups with a focus on fluid mechanics
10. demonstrate the ability to give a written account of their and the group's laboratory report and discuss problems and solutions in dialogue with others in the group.

Course content Basic concepts in fluid mechanics

Flow statics - basic equations in flow mechanics, pressure variation in liquids
Principles of moving fluids - mass conservation, Bernoulli's equation and impulse rates
Dimensional analysis and modeling
Laminar/turbulent flow, Reynolds speech, Moody chart
Introduction to turbomachinery

Teaching	Lectures, exercises and laboratory work
Prerequisites	General entry requirements for higher education in Sweden and courses corresponding to the following Swedish Upper Secondary School courses: - Physics 2 - Mathematics 3c or Mathematics D
Examination	Written exam and laboration 0010 Written exam 6.5 credits examines learning objectives 1-6, 8, grades A-F 0020 Laboration 1 credit examines learning objectives 7, 9-10, grades Fail, Pass
Grade	A, B, C, D, E, Fx, F
Other regulations	Grading criteria are announced by the course coordinator or examiner at the start of the course.
Sustainable environment	A minor part of the course content deals with sustainable development.
Module	
	0010 Written examination 6.5 cr Grade: AF
	0020 Laboration 1 cr Grade: UG