



HÖGSKOLAN I GÄVLE

Fundamental Thermodynamics 7.5 cr

Grundläggande termodynamik 7,5 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at	Valid from
10/20/10	HT2010
2/25/15	VT2015

Level	G1N
Education level	First cycle
Course identifier	ME563A
Credits	7.5 cr
Main field of study	Energy Systems
Subject group	Energy Technology
Disciplinary domain	Technology 100.0 %

Learning outcomes	On completion of the course, the student should be able to: <ol style="list-style-type: none">1. show familiarity with basic concepts in thermodynamics2. carry out energy and mass balances and discuss the consequences of these from system and environmental perspectives3. carry out engineering calculations for basic thermodynamic processes4. carry out experiments and present results both orally and in writing.
Course content	Energy and the first law. Thermodynamic system properties. Enthalpy and heat capacity. Ideal gas. Energy and mass balances. Entropy and the second law. Temperature scales. Basic thermodynamic processes. The Carnot cycle. Efficiency. Air/water mixtures. Practical applications.
Teaching	Lectures, exercises and laboratory sessions. The laboratory sessions are compulsory
Prerequisites	Mathematics for Engineers, 15 HE credits and Physics for Engineers, 7.5 HE credits or equivalent
Examination	0010 Examination, 5.5 HE credits (Expected learning outcomes 1-3)

0020 Compulsory Parts, 2 HE credits, grades Fail, Pass, Pass with Credit (Expected learning outcomes 1-4)

Grade

A, B, C, D, E, Fx, F

Other regulations

Grading criteria are provided by the course coordinator or examiner in connection with the course introduction

Sustainable environment

A minor part of the course content deals with sustainable development.

Module

0010	Written examination	5.5 cr	Grade: AF
0020	Obligatoriska moment	2 cr	Grade: UV