



# HÖGSKOLAN I GÄVLE

## Applied Thermodynamics 7.5 cr

*Tillämpad termodynamik 7,5 hp*

Set by Faculty of Engineering and Sustainable Development

**Version**

**Set at**

**Valid from**

3/7/14

**HT2014**

<b>Level</b>	G1F
<b>Education level</b>	First cycle
<b>Course identifier</b>	ETG301
<b>Credits</b>	7.5 cr
<b>Main field of study</b>	Energy Systems
<b>Subject group</b>	Energy Technology
<b>Disciplinary domain</b>	Technology 100.0 %

**Learning outcomes**

After completion of the course the student shall be able to

1. describe and explain the principles of different conventional heat and power generation methods
2. analyse conventional heat and power generation methods thermodynamically
3. compare different power generation alternatives and choose the most suitable at given conditions
4. describe the main components in a power plant
5. describe, explain and analyse heat pump and refrigeration systems and its components.

**Course content**

Steam power basics  
Advanced steam power cycles  
Combined heat and power plant  
Boilers and combustion  
Gas turbine basics  
Advanced gas turbine systems  
Combined cycles  
Combustion engines  
Vapor compression refrigeration and heat pump systems  
Absorption cooling systems

<b>Teaching</b>	Lectures and exercises
<b>Prerequisites</b>	Fundamentals in Fluid Mechanics 7.5 cr, Fundamentals in Thermodynamics 7.5 cr, Linear Algebra 7.5 cr, Calculus in one Variable 7.5 cr, or equivalent.
<b>Examination</b>	Written examination
<b>Grade</b>	A, B, C, D, E, Fx, F
<b>Other regulations</b>	Degree Criteria for final grade will be given by examiner or course responsible latest at the beginning of the course.
<b>Sustainable environment</b>	The majority of the course content deals with sustainable development..
<b>Module</b>	0010 Written examination 7.5 cr Grade: AF