

Course description

Course code: MAP18ET / MAP18ET01

Course name: Applied Thermodynamics

Extent of studies: 4 ECTS

Recommended Progression of Studies: 2nd year

Prerequisites: Hydromechanics and Thermal Physics (recommended)
General Energy Technology (recommended)

Course-specific Competences (matrix): Look at the Matrix

Language of instruction: Swedish

Courses included in the Study Module: Applied Thermodynamics
Streaming and Heat Transport
Energy Technical Laboratory Works
Operation and Process Economic

Administering Degree Programme: Mechanical and Production Engineering xxxxx

Course-specific competences

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Competences	Criteria for Assessment		
	1	3	5
Thermodynamic quantities	Knows the central thermodynamic quantities and can determine values for a homogenous medium using tables, diagrams and ideal gas equation	Can explain the meaning of the thermodynamic quantities of a homogenous medium and knows how these relate to one another.	Knows the statistical interpretation of the entropy concept and the relationship between entropy and reversibility.
Thermodynamic processes	Can use energy and mass balances in calculations on individual steady state processes such as heat exchange and mixing.	Can calculate efficiencies of turbines and compressors. Can do simple calculations on cyclical processes.	Can do calculations on more demanding cyclical processes and non-steady-state processes.
Humid air	Can determine the thermodynamic quantities of humid air with a Mollier diagram.	Can calculate processes without condensation or water addition.	Can calculate processes with condensation and water addition.
Combustion processes	Can, using diagrams and software, calculate the amount of air and flue gas in combustion.	Can calculate how the flue gas composition changes with the air factor. Can carry out energy calculations on combustions processes.	Can, through stoichiometric calculations determine the amount of air and flue gas as well as the flue gas composition.
Calculational skills	Can mathematically formulate and solve standard problems in thermodynamics.	Can use computerised tools to efficiently analyse thermodynamic processes.	Can derive thermodynamic relationships. Can develop computerized tools for calculation.

Made by:	Checked by:	Approved by:	Valid in curriculum
MB 6.3.2018	HS 8.3.2018	HS 8.3.2018	2018