HÖGSKOLAN I GÄVLE

Building Energy Systems 6 cr

Byggnadens energisystem 6 hp

Set by Faculty of Engineering and Sustainable Development

Version	**Set at**	**Valid from**
	10/15/14	**HT2015**

Level	A1F
Education level	Second cycle
Course identifier	ETA318
Credits	6 cr
Main field of study	Energy Systems
Subject group	Energy Technology
Disciplinary domain	Technology 100.0 %

Learning outcomes

After completion of the course the student shall be able to
Knowledge and understanding
1. present various technical installations for air-conditioning of buildings
2. present the basic concepts of building energy systems
3. present different principles for the transport of heat, moisture, and air through the building envelope
4. describe basic concepts of indoor climate

Competence and skills
5. analyse and dimension technical installations for air-conditioning of buildings
6. analyse and design energy-efficient buildings
7. plan and, using appropriate methods, undertake a project within predetermined time frames
8. in writing report clearly their project work and discuss their conclusions and the knowledge and arguments on which they are based

Judgement and approach
9. make assessments informed by disciplinary issues related to the course content
10. make assessments informed by social issues related to the course content.

Course content	Indoor climate and its definition Building physics – heat, air, and moisture transport Physical environment factors Air distribution in rooms Energy balance of buildings Air handling systems of buildings Hydronic heating and cooling systems Internal heat generation Building energy systems Energy management Simulation of the building's energy use
Teaching	Lectures, lessons, and tutorials
Prerequisites	English language proficiency equivalent to (the Swedish upper secondary school) English course 6/B. Energy Systems 6 credits and Heat and Power Generation Systems 6 credits, or equivalent.
Examination	Written examination and project work
Grade	A, B, C, D, E, Fx, F
Other regulations	Criteria for final grades are announced by the co-ordinator or examiner at the start of the course.
Sustainable environment	The majority of the course content deals with sustainable development..

Module

0010	Written examination	4.5 cr	Grade: AF
0020	Project work	1.5 cr	Grade: UG