



HÖGSKOLAN I GÄVLE

Building Energy Systems 6cr

Byggnadens energisystem 6hp

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 | 6cr |
| 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.

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|--------------------------------|---|---------------------|-------|-----------|
| 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 | 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 | 4.5cr | Grade: AF |
| | 0020 | Project work | 1.5cr | Grade: UG |