



HÖGSKOLAN I GÄVLE

Sustainable Cities 6 cr

Hållbara städer 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	ETA319
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. describe and explain basic concepts of sustainable society and sustainable cities
2. present various methods for the design and evaluation of sustainable cities
3. present technical solutions and system integration of sustainable and renewable energy
4. present the effects of the local climate, large-scale climate and climate change on the design of buildings and control of indoor environment
5. describe the importance of latitude and urban geometry on the sunlight and daylight
6. describe how urban boundary layers are formed during both day and night, and their impact on ventilation of the cities.

Course content

Sustainable construction, sustainable transport, and technical installations
Energy efficiency in buildings and infrastructure systems
Technical solutions and system integration of sustainable and renewable energy
Climate, climate change, and the built environment
Innovation, design, and sustainable technology
Urban boundary layers
Air velocity and flow visualization in city models
Heat island effects

Solar energy in urban areas
The effect of traffic on air quality
Biodiversity in urban areas
Air quality
Project work
Laboratory work

Teaching	Lectures, project work, laboratory work, and seminars
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	Examination Written examination, project work, and laboratory 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	2.5 cr	Grade: AF
	0020	Project work	1.5 cr	Grade: UV
	0030	Laboratory work	2 cr	Grade: UV