



HÖGSKOLAN I GÄVLE

Renewable Energy Resources 7.5 cr

Förnybara energiresurser 7,5 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at

Valid from

5/9/22

HT2023

Level	A1N
Education level	Second cycle
Course identifier	ETA010
Credits	7.5 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 renewable energies, their possibilities, and problems
2. present current research and development work related to the course content
3. present the fundamental challenges of sustainable environment with a special focus on the challenges faced by future energy systems

Competence and skills

4. analyse technical solutions and system integration of sustainable and renewable energy
5. plan and give a written account of work in project form and discuss conclusions and the knowledge and arguments on which they are based

Judgement and approach

6. demonstrate awareness of ethical aspects of research and development work
7. make assessments with regard to scientific and societal aspects.

Course content The Fundamentals of Energy usage
Global Energy Problems

Energy usage
Greenhouse Effect and Ozone Depletion
Solar Thermal Energy
Solar PV
Hydropower
Wind power

Teaching Lectures, project and calculation exercises

Prerequisites Completion of Bachelor's degree in technology or natural sciences of at least 180 credits, or equivalent foreign degree with at least 12 credits of which in thermodynamics and fluid mechanics, or equivalent knowledge
English language proficiency equivalent to (the Swedish upper secondary school) English course 6/B

Examination Written examination, assignments and project work

0010 Written examination 4 credits examines Learning outcomes 1-4, grades A-F
0020 Assignments 1 credit examines Learning outcomes 1, 3, 4, grades Pass, Fail
0030 Project Work 2.5 credits examines Learning outcomes 5-7, grades Pass, Fail

Grade A, B, C, D, E, Fx, F

Other regulations Degree criteria for final grade will be handed out by the course responsible or examiner latest at the beginning of the course.

Sustainable environment The majority of the course content deals with sustainable development..

Module

0010	Written examination	4 cr	Grade: AF
0020	Assignments	1 cr	Grade: UG
0030	Project work	2.5 cr	Grade: UG