

Course Syllabus

Degree Thesis in Solar Energy Engineering 30 Credits*, Second Cycle Level 2

Learning Outcomes

The goal of the thesis work is for students to apply and develop in-depth knowledge of solar energy technology by conducting a work comprising five months of fulltime study of a research or industrial nature. The student should acquire a deeper methodological knowledge of the subject. More specifically, the student will be able to:

- show substantially more in-depth knowledge and understanding of current research and development in one or more of the following areas: technologies and systems for solar heating or solar electricity; solar energy technologies that are integrated into buildings for lower and more efficient energy use; measurement or calculation of insolation
- identify his/her need of further knowledge and take responsibility for his/her knowledge development
- critically and systematically identify, integrate and apply this knowledge of solar technology for the planning, execution and reporting of the thesis work
- contribute to the development of knowledge in the chosen field of thesis work
- critically, independently and creatively identify and formulate qualified questions and goals with clear limitations in the thesis work
- choose appropriate methods, and give reason for the choice of methodology and explain its strengths and weaknesses
- work with reliability in empirical data or computations
- critically and systematically analyze and evaluate the results obtained in the thesis work
- complete the work within specified timeframes
- report in both oral and written form the thesis work, and present conclusions that correspond to initial research questions and objectives in the thesis

Course Content

The thesis project is an independent piece of engineering work, based on the knowledge acquired during the programme. The intention with the thesis project is for students to analyze complex technical contexts using critical-thinking skills and formulate and solve problems within a given timeframe using a holistic approach. A thesis can be carried out as either an industrial project or an academic project, nationally or internationally. An industrial project is carried out in collaboration with an external company or other

organization. The task involves the presentation of a problem related to the project for which goals and objectives are then formulated, after which follows a study of literature. Goals, objectives, methodology and a literature review are presented in an initial seminar. These must be approved before the student can continue with data collection, analysis and conclusions. The work is compiled in report form and defended at a seminar. The seminar includes an opposition on another student's report, which is presented at the same time.

Assessment

Oral and written report of project proposal, 1 Credit (U-G)

Individually written report, oral presentation and opposition of a class peer's project presentation, 29 credits (A-F)

Forms of Study

Introductory lecture. Individual project work supervised by teachers/researchers from the subject Energy and Environmental Technology at Dalarna University or by a person external to the subject upon approval by the Energy and Environmental Technology group. Discussions with the contact people and supervisor must be carried out on a regular basis and on the student's initiative.

If the thesis project is carried out by two students, it has to be clear in the report which part of the work has been done by each student so that an individual grade can be set.

Grades

The Swedish grades A–F.

Prerequisites

Bachelor degree of 180 HEC and at least 60 HEC of the courses of the Master Programme in Solar Energy Engineering as well as the course Scientific Communication and Information Retrieval or equivalent have to be passed.

Subject:

Energy Technology

Group of Subjects:

Energy Technology

Disciplinary Domain:

Technology, 100%

This course can be included in the following main field(s) of study:

1. Solar Energy Engineering



D.no:
Page 3(3)
EG4001

Progression Indicator within (each) main field of study:

1. A2E

Approved:

Approved 27 November 2014

Valid from 27 November 2014