

SYLLABUS FOR

Small Scale Energy Systems

7.5 ECTS CREDITS

SMÅSKALIGA ENERGISYSTEM

7,5 HÖGSKOLEPOÄNG

COURSE CODE

TER718

APPROVAL

Approved 2009-06-24 by The Faculty Board at Gotland University. Revised 2010-05-26.

Valid as from autumn term 2010.

SUBJECT AND LEVEL

Energy Technology, Undergraduate level, G1F.

LEARNING OUTCOMES

After completing the course the students should be able to:

- Describe sustainable energy systems and their characteristics
- Describe resource efficient use including storage systems
- Design small scale sustainable energy systems with regard to function, applicability, economy, environmental and social impact

COURSE CONTENTS

Course unit 1. Renewable energy resources 2 ECTS Credits

Different sustainable energy systems for small scale applications. Energy conversion and storage engineering.

Course unit 2. Applications 2 ECTS Credits

Applications of small scale sustainable energy systems. Off grid supply systems. Different conditions in different parts of the world.

Course unit 3. System design, 3.5 ECTS Credits

Design of an off grid sustainable energy supply system.

ENTRANCE REQUIREMENTS

Specific entrance requirements: Wind Power - Basics 7.5 ECTS Credits or Energy and Sustainability 7.5 ECTS Credits or equivalent knowledge.

TYPE OF TEACHING

The course is given as an Internet based university course in English. Exercises and assignments are submitted to the e-classroom on the Internet and participants are given personal feedback by their tutors. A forum for discussion is also available.

EXAMINATION AND GRADES

Course units 1 and 2 are examined by exercises. Course unit 3 is examined by a written report. Course grades on all units are Pass with distinction (VG), Pass (G), or Fail (U).

The grade Pass requires the grade Pass or higher on all course units. The grade Pass with distinction requires a minimum of two course units, including course unit 3, with the grade Pass with distinction.

LITERATURE

Selected parts of the literature below.

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David JC MacKay, *Sustainable Energy — without the hot air*, 2009,
<http://www.withouthotair.com> (382 s.)

Energy Assessment Energy and the Challenge of Sustainability, United Nations Development Programme, 2000, <http://www.undp.org/> (508 s.)

Energy and Environment for Sustainable Development,
<http://www.undp.org.ph/?link=11>

Global Village Energy Partnership, <http://www.gvepinternational.org/>

Lester R. Brown, *Plan B 4.0 – Mobilizing to Save Civilization*, Earth Policy Institute, 2010,
http://www.earthpolicy.org/images/uploads/book_files/pb4book.pdf (369 s.)

Renewable Energy in Swaziland,
http://www.ecs.co.sz/reaswa/REASWA_Renewable_Energy_in_Swaziland_Booklet.pdf Reports from United Nations Development Programme,
<http://www.undp.org/energy/>

Rural Energy Development Programme (REDP), <http://www.redp.org.np/phase3/>

Sustainable Energy Solutions for Rural Areas, <http://www.biog.as/sustainer.pdf>

Additional material of about 250 pages.