COURSE SYLLABUS
Engineering of Socio-technical Systems, 6 credits

Utveckling av sociotekniska system, 6 högskolepoäng

Course Code:	TUSG15	Education Cycle:	First-cycle level
Confirmed by:	Dean Feb 9, 2015	Disciplinary domain:	Technology (95%) and social sciences (5%)
Valid From:	Aug 1, 2015		
Version:	1	Subject group:	DT1
Reg number:	JTH 2015/2142-313	Specialised in:	G1N

Intended Learning Outcomes (ILO)

After completing the course, the student shall

Knowledge and understanding

- display knowledge of fundamentals of system thinking and socio technical systems
- display knowledge of hard- and soft system perspectives
- display knowledge of emergent and purposive behavior
- demonstrate comprehension of the engineering process (life-cycle) of socio technical systems

Skills and abilities

- demonstrate skills of understanding, evaluation and design of socio technical systems through modeling
- demonstrate ability to apply methods for understanding, evaluation and design of socio technical systems

Judgement and approach

- demonstrate ability to choose an appropriate method for understanding, evaluation and design of socio technical systems

Contents

The course introduces systems thinking and describes its application to the concept of engineering complex systems, in which software plays a key role. The value of modelling itself is emphasised as a way of understanding and designing socio technical systems. Research and problem solving methods with a strong basis in the systems tradition are elaborated and used in the course.

The course includes the following topics:
- Systems thinking
- Hard and Soft systems
- Representing systems through modeling and models
- Soft Systems Methodology (SSM)
- Socio-technical systems and purposive behavior
- Complexity, chaos theory and emergent behaviour

Type of instruction

The course will consist of lectures, seminars, exercises and practical work.

The teaching is conducted in English.

Prerequisites

General entry requirements and Mathematics D or Mathematics 3c (or the equivalent). Proof of English proficiency is required..

Examination and grades

The course is graded 5,4,3 or Fail.

The final grade for the course is based upon a balanced set of assessments. The final grade will only be issued after satisfactory completion of all assessments.

Registration of examination:

Name of the Test	Value	Grading
Examination	3 credits	5/4/3/U
Assignment	3 credits	5/4/3/U

Other information

Exemption from entry requirement allowed according to the selection groups of the program, where the course is included.

Course literature

The literature list for the course will be provided one month before the course starts.