



FMJ3336 Educational Aspects in Energy Technology 7.5 credits

Kunskapsaspekter inom energiteknik

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FMJ3336 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The overall goal of the course is to make graduate students act as an educational entrepreneur in a global context, with the aim to bring education outside the traditional approach. The course participants will gain experience by actively joining course seminars, by performing assigned individual readings followed by group discussions, and by supervising students/planning & assisting a course.

After the end of this course, the participants will be able to:

1. Implement pedagogical approach within a course in line with student centered learning approach and constructive alignment concept
2. Develop interactive learning material and on-line exam/exercise suitable for e-learning
3. Give lecture/ presentation/ seminar with modern audio-visual interactive tools, such as video showing, live software demonstration, online video conferencing, use of multi-media among others in line with integrating technologies in education and one of the following
4. Acquire methods in supervising BSc/MSc thesis students to be independent researcher/scientist, or
5. Apply new pedagogical thinking in ongoing courses as a course assistant

Course contents

The course participants will receive detailed instructions towards using the highly sophisticated audio visual equipment/communication in the two “Energy Learning Theatres” at EGI.

Seminars will be given to address the issues in teaching and in supervising project work students. Training will be provided to build up highly qualified course assistants (and future teachers). Experienced lecturers and testimonials from course assistants will show and discuss the qualities and challenges present in course assistance.

One part of the course will be the establishment of an e-teaching material in the student’s research area. The student should adapt the educational material into an e-learning chapter with the use of modern educational computerized multi-media tools (to be selected together with the examiner) and preferably with a high degree of interactivity. Technical, pedagogical and multi-media aspects and skills shall be considered. During the development of the educational material, students will evaluate the learning material, and give suggestions for modifications.

The topic of study is selected together with the examiner. It should consist of one or two chapter(s) (corresponding to a 2-3 hours lecture or more) of the undergraduate curriculum given at a university within the EXPLORE Energy platform. The student should study the existing material in detail, and read related materials.

The course will treat the general philosophy regarding interactive and computerized education. Individual readings and summary reports are part of the course. As part of the discussions, an evaluation will be presented regarding what students so far have considered to be the pros and cons of the present interactive learning material developed by different teachers at EGI, including remote lab exercises, pod-casts of lectures, Explore Energy and E-learning platforms, etc.

Specific prerequisites

Admitted to PhD studies

Basic Communication and Teaching (FLH3000)

Examination

- INL1 - Hand in exercise, 5.0 credits, grading scale: P, F
- PRO1 - Project, 2.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

The assessment criteria in the appendix are to be fulfilled to at the minimum C grade to pass the course.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.