MJ2502 Industrial Dynamics of Innovation in Combined Energy Systems 6.0 credits

Industriell dynamik för innovation i kombinerade energisystem

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

Establishment

Course syllabus for MJ2502 valid from Autumn 2017

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

- MJ2411 Renewable Energy Technology, 6 ECTS (or corresponding 2nd cycle course)
- MJ2414 Energy Systems Analysis in an Environomical Context, 6 ECTS (or corresponding 2nd cycle course)

Language of instruction

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

Intended learning outcomes

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

- Discuss and analyze the process of innovation, through the phases of search, select, implement and capturing the value.
- Analyze State-of-the-Art and merging technology in Research and Development to identify opportunities for innovation
- Analyze drivers of technical change and industrial transformation
- Translate drivers for change into an business opportunity
- Understand how the development of sustainable energy systems and energy combines mobilizes opportunities for innovation

Course contents

- The course is an advanced 2nd level course in sustainable energy engineering, with special focus on identifying the opportunities for innovation that lie inherent in the development of sustainable energy systems in general, and advanced energy combines in particular.
- Advanced state-of-the-art assessment of merging technologies is coupled with analysis using the tools of industrial dynamics and evolutionary theories for discussing and analyzing opportunities for innovation in the field.
- The course consists of a few key lectures, with student-centered seminars carrying the bulk of the learning process in discussing and analyzing.
- A project is introduced in the beginning of the course, and follows the course period throughout. Through the projects, the tools mentioned above are practiced on real cases, such that upon completion of the project, the course objectives are reached.
- A final exam asses the level of knowledge and skills achieved, serving the main basis for the course grade (beyond pass).

Course literature

- Tidd J, and Bessant J, "Managing Innovation: Integrating Technological, Market and Organizational Change", Wiley, 2013 (or later edition)
- Övrig litteratur som anvisas under kursen (journalartiklar och bokkapitel).
- Tidd J, and Bessant J, "Managing Innovation: Integrating Technological, Market and Organizational Change", Wiley, 2013 (or later edition)
- Literature assigned (prints or online resources) throughout the course

Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Exam, 3.0 credits, grading scale: A, B, C, D, E, FX, 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.

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

Other requirements for final grade

- TEN1 EXAM 3 ECTS, A-F
- PRO1 PROJECT 3 ECTS, P-F

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.