FSH3001 Nuclear Power Safety Engineering Project 9.0 credits

Kärnkraftsäkerhet, projektkurs

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

Establishment

Course syllabus for FSH3001 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Master level in nuclear energy engineering or equivalent, or permission of instructor.

Language of instruction

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

Intended learning outcomes

Nuclear Power Safety (NPS) is paramount to both economic performance and public acceptance of nuclear power. The ultimate mission of NPS is to ensure that release of radioactive

materials from nuclear power plants and its effect on plant personnel, public health and environment is as low as reasonably achievable.

Technical content of NPS addresses both the Probability and Consequences of such radioactive releases from the plant under normal, abnormal and accident conditions, including hypothetical accidents.

The NPS Engineering Project aims to provide students with opportunity to learn in-depth one technical aspect in nuclear power safety by performing an engineering assessment of a safety issue in nuclear power plant.

Upon successfully completing this course the student should be able to:

- Identify the key elements of a complex project, define main scientific and technological challenges,
- Contribute in organizing a new group, recognize the different phases of the project, and different roles of group members,
- Operate in a project team in various positions, initiate and contribute to administrative activities like running meetings, recording minutes, outlining action items, etc.,
- Collect and select background information via independent research, library, databases, correspondence with companies, etc.,
- Structure a logical method of approach to problem solution, break down a real-life engineering problem into manageable parts, and assimilate the results into a coherent form,
- Communicate the progress of a project to peers, instructors, and clients, both in oral and written forms,
- Apply knowledge learned in energy-related specialization courses in order to tackle a complex engineering problem.

Course contents

For the selected technical topic in safety of a nuclear power plant, the student shall collect and systematize technical materials, examine relevant safety features, perform critical review of works done in the past with respect to the relevant safety issue, develop an assessment basis. The student will interact closely with the instructor and senior scientists and experts in the Division of Nuclear Power Safety who will provide guidance in the review and assessment process. The student will also be given opportunity to participate in the active research project at the Division of Nuclear Power Safety related to the course's topic, including attending the research meetings and seminars. The student writes a technical report, makes a presentation to a group seminar or project meeting.

Course literature

Vetenskapliga artiklar och tekniska rapporter för utvalda ämnen inom kärnkraftverkskonstruktion, säkerhetssystem, riskbedömning och riskhantering.

Examination

- LIT1 - Literature study, 2.0 credits, grading scale: P, F
- PRO1 - Project work, 4.0 credits, grading scale: P, F
- RAP1 - Report, 2.0 credits, grading scale: P, F
- TEN1 - Oral exam, 1.0 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.

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

Other requirements for final grade

Pass all the parts of the course: LIT1 - Literature study, 2.0 credits, PRO1 - Project work, 4.0 credits, RAP1 - Report, 2.0 credits, TEN1 - Oral exam, 1.0 credits

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.