SE2129 Fracture Mechanics and Fatigue 9.0 credits

Brottmekanik och utmattning

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 SE2129 valid from Autumn 2008

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

SE1010 or SE1020 or SE1055, SE1025.

Language of instruction

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

Intended learning outcomes

After the course, the participant should be able to

- understand and account for the theoretical background of linear and nonlinear fracture mechanics.
- carry out fracture mechanics analysis and design, using handbooks, of simple crack problems in linear and nonlinear materials.
- determine the loading applied on a crack.
- evaluate fracture mechanics testing.
- Carry out analyses of crack growth
- determine whether or not stable crack growth can become unstable.
- apply the knowledge from the course on practical cases where linear fracture mechanics is sufficient

Course contents

To acquire knowledge of the foundations for fracture of materials containing defects and classical fatigue, and ability to apply this knowledge for solution of problems of practical importance.

Course literature

Nilsson, F. Fracture Mechanics from theory to applications, Hållfasthetslära, KTH, 1999.

Faleskog, J. and Nilsson, F., Examples in fracture mechanics, Hållfasthetslära, KTH, 2001.

Formelsamling i Hållfasthetslära, Hållfasthetslära, KTH, 2004.

Examination

- LAB1 - Laboratory Work, 0.7 credits, grading scale: P, F
- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exersise, 0.8 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

Passed homework (HEM1; 3 university credits)
Laboratory (LAB3; 1 university credits)
Written exam (TEN3; 5 university 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.