SD2414 Fibre Composites - Materials and Manufacturing 6.0 credits

Fiberkompositer - material och tillverkning

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 SD2414 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

Base programme BD, M, P, T or equivalent.

Language of instruction

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

Intended learning outcomes

The course aims to provide basic insight required to successfully design polymer composites.

After the course the participant should be able to:

- pick a suitable material concept and manufacturing method for a given composite product. The choices should take mechanical properties, environmental and economical aspects into account.
- determine a strategy for quality assurance
- predict the mechanical properties of a composite laminate
- based on the micro structure of the material describe how the properties of a composite material changes with temperature
- perform and analyse mechanical tests of composite materials and explain differnces between theory and practice
- pin-point governing manufacturing process parameters and describe how they affect the quality and characteristics of the composite material.

Course contents

Introduction and applications, constituent materials, properties, micromechanics, manufacturing techniques, modelling of manufacturing, machining, joining, repair, destructive and non-destructive testing, recycling, and health and safety. Compulsory elements include a project assignment, attendance at presentations of project assignments and a laboratory assignment.

Course literature

Åström, T. 1997. Manufacturing of Polymer Composites, Chapman & Hall, London, UK.

Material handed out at lectures.

Examination

- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Project, 1.5 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.

Other requirements for final grade

Experimental assignment (LAB; 1,5 university credits), project assignment (ÖVN; 1,5 university credits) and written examination (TEN; 3 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.