SD2414 Fibre Composites - Materials and Manufacturing 6.0 credits

Fiberkompositer - material och tillverkning

Course syllabus for SD2414 valid from Autumn 07

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

Grading scale: A, B, C, D, E, FX, F
Education cycle: Second cycle
Main field of study: -

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 main content

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.

Language of instruction

Language of instruction is specified in the course offering information in the course and programme directory.

Eligibility

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

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

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).