



## Fibre technology II

### Fiberteknik II

4.5 credits

4.5 högskolepoäng

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**Ladok Code:** 52FK01

**Version:** 5.0

**Established by:** The Teaching Committee 2012-06-12

**Valid from:** Autumn 2011

**Education Cycle:** Second cycle

**Main Field of Study (Progressive Specialisation):** Textile Engineering (A1F), Mechanical Engineering (A1F)

**Disciplinary Domain:** Technology

**Prerequisites:** These prerequisites do not apply to students within the programme Science without Borders

Bachelor's degree in textile engineering or equivalent qualifications. Students must have passed courses in mathematics 15 credits, chemistry 7.5 credits (with at least half in organic chemistry), materials engineering 7.5 credits (with at least half in polymer materials), and textile production methods 15 credits. A qualification in English corresponding to En B is also required. Students must also have passed the course in Fibre Technology I, 7.5 credits at advanced level

**Subject Area:** Textile Technology

**Grading Scale:** ECTS-credits

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### Content

Advanced fibres and composites in textile applications.

- Theory of elasticity, shearing, tension, elongation, Hooke's law, the principle of energy conservation
- Shear modulus, bulk modulus, Poisson's ratio
- Anisotropy
- Advanced fibres: aramid fibres, carbon fibre, glass fibre, ceramic fibres, fluorinated fibres and their usage in composites
- Production methods: braiding, thermoplastic processes, prepreg, hand lay-up, degasification, autoclaving, vacuum, infusion, pultrusion
- Using computers for stress calculations
- Laboratory experiments: composites of natural fibres

### Learning Outcomes

After completing and passing the course, students should be able to:

- Qualitatively describe and use the theory of elasticity
- Use software to construct a composite material
- Produce a composite material with textile reinforcement

### Forms of Teaching

Teaching comprises lectures, project and work-based laboratory experiments. The teaching is conducted in English.

### Forms of Examination

The following examinations will form part of this course with respect to the stated learning objectives:

- Examination 3.5 HEC Grading scale: EC
  - Laboratory experiments 1.0 HEC Grading scale: EC
- All parts of the course must be passed, but the grade is determined by the examination.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

**Literature and Other Teaching Materials**

McCrum Ch. 6 of Principles of Polymer Engineering 2nd edition, Oxford University Press

**Student Influence and Evaluation****Miscellaneous**

The course is first and foremost a programme course for the Master's in Textile Engineering.