



# FCK3111 Fibre - Water 4.5 credits

Fiber - Vatten

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

## Establishment

Course syllabus for FCK3111 valid from Spring 2021

## Grading scale

P, F

## Education cycle

Third cycle

## Specific prerequisites

Eligible for studies at the third-cycle level.

## Language of instruction

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

## Intended learning outcomes

After completion of the course the doctoral student should:

- Have good knowledge and overview of the basic processes that control the interaction of water with cellulose-based materials.
- Have overall understanding of the impact of wetting, absorption and swelling on porous fiber networks.
- Be able to define the basic mechanisms that control interactions (wetting, absorption, swelling) both from a thermodynamic and polymer physical perspective.
- Have planned and carried out the course independently in order to pass the exam, and be able to critically evaluate one's own and others' results from a scientific point of view.

## Course contents

- Fibre, paper and water interactions: Problem specification, and importance.
- Thermodynamics of water vapour adsorption to fibres
- Swelling of polyelectrolyte gels and cellulose fibres
- The influence of moisture on mechanical properties of fibre compositions, papers and films and their outcome performance
- Fundamentals of wetting, capillary penetration and superhydrophobicity
- Liquid absorption in hygiene products

## Examination

- TEN1 - Written exam, 3.0 credits, grading scale: P, F
- DEL1 - Participation, 1.5 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.

Participation in lectures, and 2 weeks of studies of supplied literature and a passed written exam.

## Other requirements for final grade

Compulsory presence during the lectures is credited as 1.5 ECTS, and the passed written exam as 3.0 ECTS.

## 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.