



# AF2301 Building Materials, Advanced Course 7.5 credits

Byggnadsmaterial, fortsättningskurs

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

## Establishment

Course syllabus for AF2301 valid from Autumn 2021

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

The Built Environment

## Specific prerequisites

Documented knowledge in Building Materials and Building Physics, 15 ECTS corresponding to the content in courses AF1301 and AF1402.

Eng B/6 according to the Swedish upper secondary school system.

## Language of instruction

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

## Intended learning outcomes

The overall goal of the course is to give a deeper understanding about building material science. The main focus is to study renewable wood and biobased building materials and systems. After having passed the course (grade E) the student should have general knowledge on:

- Degradation mechanisms of building materials
- Structure and function of wood
- Wood-moisture relationships and coatings
- Durability and biodeterioration of wood
- Wood protection concepts
- Engineered wood products (EWP)
- Wood and biobased composites
- Material science aspects of other non-renewable building materials such as road materials and systems
- Sustainability aspects of building materials, including life cycle assessment

## Course contents

- The overall course content is related to building material science including a deeper understanding about in particular renewable wood and biobased building materials and systems. The following key topics will more or less be covered: General degradation mechanisms of building materials; structure and function of wood, including some basics on its physical and mechanical behaviour; wood-moisture relationships & coatings; durability and biodeterioration of wood; wood protection concepts including means for wood modification; engineered wood products (EWP) & timber engineering including some aspects on hybrid systems; wood and biobased composites; material science aspects of other non-renewable building materials such as road materials and systems; and sustainability aspects related to building materials, including some basics about life cycle assessment (LCA). The means for achieving the learning outcomes of the course will mainly be based on lectures, exercises with study questions, study visits, lab work, and an assignment. The assignment will consist of a project work on a specific topic related to renewable biobased building material including a review of scientific publications, as well as a compulsory part on sustainability aspects.

## Examination

- PROA - Project Assignment, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVNA - Exercises, 1.5 credits, grading scale: P, F
- LABA - Laboration, 2.0 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.

Higher grades (D-A) will be based on the student's performance in a project (assignment) about renewable biobased building materials or systems. In this project the student should be able to apply the general knowledge listed above and show a deeper understanding thereof relevant to the project. The assessment of the assignment will be based on the process, content and presentation of the project work as specified in the instructions for the assignment.

## Other requirements for final grade

Approvedmoment

- Laboration, 2.0 ECTS
- Project Assignment, 4.0 ECTS
- Exercises, 1.5 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.