AF1717 Technical Work, Methods and Tools 7.5 credits

Tekniskt arbete, metoder och verktyg

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 AF1717 valid from Autumn 2012

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Students in year 1 of the Higher Education Diploma programme in Construction Management
Students in year 1 of the Bachelor of Science in Engineering programmes Constructional Engineering and Design or Engineering and Economics specialising in Constructional Engineering and Design.

Language of instruction

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

Intended learning outcomes

The overall purpose of the course is to give students an introduction to constructional engineering and insight into what it means to work as an engineer. Students will become acquainted with the interpretation of drawings and CAD. Students will participate and actively contribute to running a project.

After completion of the course, students will:

- Be aware of basic construction techniques and designs for single family residences
- Know the basics of how a construction project is managed from concept to completed project, including requirements from authorities, industry regulations and community restrictions
- Be able to actively participate in project work and contribute to the project group's result
- Be able to perform a prestudy and define realistic goals
- Be able to make a project schedule, associate it with project time reporting, and analyze the outcome
- Be able to formulate background, problem, goal, limitations, and solution methods
- Be able to express themselves in writing, both formally and informally
- Be able to search scientific databases for information
- Be able to evaluate sources
- Be able to use MS Office to write and present a report
- Be able to present a technical report logically and in an easily understood manner that catches the interest of the audience
- Be able to lead meetings and, as project manager, lead the work group
- Be able to compose a summons and agenda for a meeting and write a meeting protocol
- Be able to produce documentation for project control and follow-up
- Be able to explain the importance of common rules in a group
- Be able to describe the role of group dynamics when a project group is formed
- Be aware of various types of drawings in the construction process
- Be aware of dimensioning principles
- Be aware of the significance of different line types
- Be aware of the content of architectural, construction design and survey drawings
- Be able to perform simple quantitation
- Be aware of geodetic coordinates
- Be able to draw and edit objects in CAD model environment
- Be aware of the difference between relative and absolute coordinates

- Be able to create and manage layers
- Be able to write text in a construction specification
- Know about variables related to scale
- Be able to create and manage blocks and symbols
- Be able to cross-hatch and customize settings for a 2D object
- Be able to develop setting out data based on a CAD drawing

Course contents

- Basic construction techniques and design of single family houses
- Basic concepts of construction projects from concept to completion, including requirements from authorities, industry regulations and community restrictions
- Project methodology and implementation of a project
- Computer exercises in Excel and PowerPoint
- Information searches
- Group dynamics
- Presentation techniques
- Study visit
- Drawings in the construction process
- Dimensioning, scales
- Architectural drawings, construction design drawings, survey drawings
- Quantitation
- Interface and drawing environment in CAD
- Coordinate systems, lines, line types, and handling line types in scale
- Drawing and editing commands
- Layers, text and measurements
- Cross-hatching of 2D surfaces
- Blocks
- Site plans in a geodetic coordinate system and the use of site plans in setting out

Course literature

Andersson, Erling S; Schwencke, Eva: Projektarbete–en vägledning för studenter.
Hemgren, Per; Wannfors, Henrik: Husets ABC, ICA Bokförlag.
Sandin, Kenneth: Praktisk husbyggnadsteknik.
Stensgård, Göran: Bygghandlingar 90, Skolupplaga.
Kompendier och annat material - meddelas vid kursstart.
För projektuppgiften erforderliga ritningar.

Referenslitteratur:
Björk, Cecilia; Reppen, Laila: Så byggdes staden.
Annan lämplig litteratur till stöd för projektarbetet.

Examination

- PRO1 - Project, 2.5 credits, grading scale: P, F
- TEN1 - Examination, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises, 2.5 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.

The course contains a number of obligatory modules, in accordance with the course memo.

Other requirements for final grade

- Passing grade on project (PROA), 2.5 credits
- Passing grade on exam (TENA), 2.5 credits
- Passing grade on exercises, CAD and interpretation of drawings (ÖVNA), 2.0 credits
- Passing grade on exercises, Microsoft Office (ÖVNB), 0.5 credits

The final grade will be based on the grade received for TENA.
A passing grade on this course requires participation in all obligatory modules, in accordance with the course memo.
Overall course grade is based on grading scale A-F

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.