



AF273V BIM3, Design, Cost Estimation and Time Planning 7.5 credits

BIM3, projektering, kalkyl och tidplanering

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

Establishment

Course syllabus for AF273V valid from Spring 2015

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

120 credits in the built environment, constructional engineering and architecture. Of these, at least 7.5 credits in the built environment, 15 credits in constructional engineering, 5 credits in architecture and 3 credits in CAD, or a Bachelor of Science in constructional engineering and design, or a Master of Science in the built environment, or an equivalent degree, as well as Swedish B/Swedish 3 and English A/English 6. In addition, courses AF1722 The Building Process 5.0 credits, AF1730 Building Information Modeling 7.5 credits, AF1740 Economics

and organization 7.5 credits, and AF272V BIM2 Design, Installation and Integrated Planning 7.5 credits, or equivalent.

Language of instruction

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

Intended learning outcomes

Following completion of the course, the student will be able to:

- Explain when is meant by design, cost estimation and time planning
- Analyse profitability and investment assessments in the early stages of the construction process
- Be aware of the cost estimation and time planning tools associated with a computer model
- Analyse and assess which type of tool will support time planning and estimation
- Assess and have practical skills in profitability and investment assessment
- Create technical reports with resource plans, containing a profitability and investment assessment
- Assess ethical considerations in connection with a profitability and investment assessment

Course contents

The following elements will be covered during the course:

- Design, cost estimation and time planning
- Design schedules for traditional and BIM projects
- Profitability and investment assessments at early stages
- Working methods and the future use of BIM in estimation and time-planning tools
- Traditional production scheduling and cost estimation
- BIM 4D and 5D - visualisation of production schedules and quantity take-off and cost estimation
- Ethical considerations in connection with profitability and investment assessments

Disposition

The classes are comprised of a series of lectures, exercises in a computer lab environment, one independent project and one group project. The students are expected to work independently outside of the lectures with their assigned projects while the course is ongoing.

Course literature

BIM - **ByggnadinformationsModellering** [Building Information Modelling], published by Godoymedia, latest edition. To be acquired before the start of the course. The remainder of the literature will be announced at the start of the course, and parts of it will be uploaded digitally.

Lecture notes, materials for seminars and group exercises are handed out during the course. Software for time planning, estimating, supply of construction materials and word processing is installed in selected computer labs.

Examination

- PRO2 - Project Work, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project, 2.0 credits, grading scale: P, F
- TEN1 - Examination, 1.5 credits, grading scale: A, B, C, D, E, FX, 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.

Tasks PRO1:

Individual tasks. The theoretical parts of the course are applied to an individual project in which the student studies an area of their choice concerning time planning (4D) and estimation (5D) in more depth. The student will write a synopsis and develop it into an article that could be published in a professional journal. The student will also assess another student's article as an opponent.

Task PRO2:

A comprehensive, coordinated project, including an analysis report. The theoretical parts of the course are applied in a group project in which parts of a construction project are analysed. The group's task as consultants, construction company or business developer is to carry out an independent analysis of existing documents for a given project and, based on these, create a report containing a resource plan, describe the project organisation and carry out a profitability and investment assessment. In addition to the technical and financial assessment, the analysis should also consider ethics.

The groups also have to assess another group's technical report and the oral presentation thereof at the end of the course. Other important parameters are the groups' ability to argue their case, allowing each student to have their say, their own reflections, critical thinking, and the ability to handle feedback from opponents, as well as group collaboration. The projects are assessed based on the performance of the group (the students select their group members themselves).

TEN1:

Written examinations take place at the end of the course, with the examination being an **open book examination**. A student may bring materials published on Bilda in the folder

"lectures and other literature". Personal notes in the materials or the textbook are not permitted.

Other requirements for final grade

To receive a final grade, the student must fulfil the minimum requirements for the PRO1 project and the requirements for the PRO2 project and the TEN1 examination. The final grade is awarded on a scale of A–F and is based on how well the student has performed in TEN1 and PRO2, as described above.

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.