



## KURSPLAN

# Hållbarhet, analyser och simuleringar, 9 högskolepoäng

*Sustainability, Analyses and Simulations, 9 credits*

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|------------------------|---------------|---------------------------|-------------------|
| <b>Kurskod:</b>        | THAR28        | <b>Utbildningsnivå:</b>   | Avancerad nivå    |
| <b>Fastställd av:</b>  | VD 2018-04-06 | <b>Utbildningsområde:</b> | Tekniska området  |
| <b>Gäller fr.o.m.:</b> | 2018-08-01    | <b>Ämnesgrupp:</b>        | BY1               |
| <b>Version:</b>        | 1             | <b>Fördjupning:</b>       | A1N               |
|                        |               | <b>Huvudområde:</b>       | Produktutveckling |

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### Lärandemål

After a successful course, the student shall

Kunskap och förståelse

- show familiarity with the concept of sustainability within the field of Construction Engineering
- show familiarity with the concept of BIM
- display knowledge of the most common systems and methods of assessing sustainability within the field of Construction Engineering

Färdighet och förmåga

- demonstrate the ability to design a BIM model in such a way that it can be used to perform sustainability analyses and simulations
- demonstrate the ability to use common BIM based tools to perform sustainability analyses and simulations

Värderingsförmåga och förhållningssätt

- demonstrate the ability to identify, analyse, simulate and evaluate vital building performance criterias from a sustainability aspect

### Innehåll

Having completed this course, the student will have an understanding of the concept of sustainability, the concept of BIM, knowledge about sustainability assessment systems, and skills to build BIM models and perform analyses and simulations to assess sustainable project performance qualities.

The course includes the following elements:

- The concept of Sustainability within the field of Construction Engineering
- The concept of BIM
- Sustainability assessment systems
- BIM based sustainability assessment tools
- Design Authoring

## Undervisningsformer

Lectures, exercises and project work. A limited number of guest lectures in Swedish can occur.

Undervisningen bedrivs på engelska.

## Förkunskapskrav

The applicant must hold the minimum of a bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in construction engineering or civil engineering, or equivalent. The bachelor's degree should comprise a minimum of 15 credits in mathematics. Proof of English proficiency is required.

## Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

The final grade for the course is based upon a balanced set of assessments.

The final grade will only be issued after satisfactory completion of all assessments.

Poängregistrering av examinationen för kursen sker enligt följande system:

| Examinationsmoment | Omfattning | Betyg   |
|--------------------|------------|---------|
| Tentamen           | 3 hp       | 5/4/3/U |
| Projekt            | 6 hp       | 5/4/3/U |

## Övrigt

It is strongly recommended that the applicant has basic knowledge in BIM, for example BIM-based software such as Revit, ArchiCad or equivalent.

## Kurslitteratur

The literature list for the course will be provided one month before the course starts.

BIM Handbook: A Guide to Building Information Modelling for Owners, Managers, Designers, Engineers and Constructors

Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston

(Wait until the beginning of the course to order it)

IPCC Climate Change 2014 Synthesis Report. Summary for Policymakers

(available in Ping Pong as pdf)

UN: 2030 Agenda for Sustainable Development (adopted in 2015)

(available in Ping Pong as pdf)

Scientific papers and other course material will be available in Ping Pong