Course syllabus

Brandteknisk riskvärdering
Fire Safety Evaluation

VBRN70, 9 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED BI/RH
Date of Decision: 2023-04-12

General Information

Compulsory for: BI3
Language of instruction: The course will be given in Swedish

Aim

The course is aimed at synthesizing and broadening the knowledge gained in this and previous courses, and provides the students with an insight into how this knowledge can be applied to evaluating personal safety issues in the event of fire in a built structure. Another objective is to enhance the students' engineering-related capabilities for constructing and analysing models.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- be able to describe and interpret the directives contained in the National Building Code related to evacuation procedures in the event of fire.
- be able to describe and explain other directives contained in the Building Code, together with relevant examples of solutions, methods, and general guidelines, as well as be familiar with the Swedish Civil Protection and Swedish Work Environment Acts.
- demonstrate knowledge of present research and developments within the area of fire science.

Competences and skills
For a passing grade the student must

- be able to utilize critically and develop procedures and techniques of fire protection in building construction,
- be able to assess the effect on people of heat, smoke, and toxic gases produced in various fire scenarios.
- be able to apply methods for calculating the spread of fires and combustion gases.
- be able to apply methods for describing the speed of evacuation for various building types.
- be able to carry out a personal safety assessment in fire situations at an actual site.
- understand and be able to use, both orally and in writing, professional terminology within the field.
- demonstrate a capacity for teamwork and for working in groups.
- demonstrate the ability to present and discuss clearly, both orally and in writing, the conclusions drawn and the knowledge and arguments that underlie these conclusions in interactions with various target groups.
- be able to find and make use of information on fire safety technology contained in the scientific literature and in databases.
- be able to critically use information in databases to solve a problem or assignment.
- be able to plan and keep time records and to understand their importance.

Judgement and approach
For a passing grade the student must

- demonstrate insight into the possible applications and the limitations of fire safety technology for the selected application, its role in society, and responsibility of the professional person for its use, taking into account social and, to a certain degree, economic aspects, and
- be able to assess engineering solutions with regard to the scientific, community-related, and ethical aspects involved.
- be able to assess evaluate obtained information with regard to the scientific, community-related, and ethical aspects involved.
- demonstrate the capability to identify need for further knowledge and continuously develop the competence.

Contents

Carry out an assessment of personal safety in the event of fire at an actual site. Recommendations for improvement, as well as the safety-related consequences of these recommendations, shall be included.

During the course, the students shall report on their time-management and time-planning activities in weekly reports.

Home assignments and written assignments are also included in the course.

The objective is to learn to use the building code directives related to fire protection (especially evacuation safety) through prescriptive design. Working in a group, the students will draw up a simple description of fire safety features for a test building.

A project assignment constitutes the major part of the course.

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)
Assessment: Approved home assignments, approved written assignments, attendance at demonstration lab sessions, approved lab work, presentation, satisfactory execution and examination of practical projects, attendance at compulsory presentations, revision of report after final approval of presentation.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0118. **Name:** Report 1.
Credits: 4. **Grading scale:** UG. **Assessment:** Approved home assignments, satisfactory execution and examination of practical projects. **Contents:** Carry out an assessment of personal safety in the event of fire at an actual site. Recommendations for improvement, as well as the safety-related consequences of these recommendations, shall be included. During the course, the students shall report on their time-management and time-planning activities in weekly reports. The project is conducted as a group assignment with experimental parts, site visit and report writing.
Code: 0218. **Name:** Report 2.
Credits: 5. **Grading scale:** UG. **Assessment:** Written and oral presentation of project and revision after presentation. **Contents:** Presentation, satisfactory execution and examination of practical projects and revision of report after final approval of presentation. Presence at the presentation by other groups.

Admission

Admission requirements:

- VBRF05 Fire Dynamics or VBRF10 Fire Dynamics

Assumed prior knowledge: VBRF20 Fire Chemistry and Heat Transfer, FMA420 Linear Algebra or FMAB20 Linear Algebra, FAFA30 Physics: Electricity – Fluids, MMVA01 Thermodynamics and Fluid Mechanics, VBRN60 Fire Protection Systems.
The number of participants is limited to: No
The course overlaps following course/s: VBR054

Reading list

- Kursen innehåller ingen obligatorisk kurslitteratur.

Contact and other information

Course coordinator: Marcus Runefors, marcus.runefors@brand.lth.se
Further information: Active participation in group work is required. Each group member must be able to report and be responsible for the content individually. If a group member does not fulfill the requirements for active participation, or disregards his/her commitments, she/he can be reassigned by the examiner to another group or get a fail result.