GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Analysis of Structures (E051511)

Course size *(nominal values; actual values may depend on programme)*

Credits 3.0 **Study time 90 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	English	Gent	lecture
			seminar

Lecturers in academic year 2024-2025

Franchini, Andrea	TW14	lecturer-in-charge
Alderete, Natalia Mariel	TW14	co-lecturer

Offered in the following programmes in 2024-2025	**crdts**	**offering**
International Master of Science in Fire Safety Engineering	3	A
Master of Science in Fire Safety Engineering	3	A
Postgraduate Studies in Fire Safety Engineering	3	A

Teaching languages

English

Keywords

- Structural analysis
- Structural equilibrium
- Load conditions
- Statically determinate structure
- Statically indeterminate structure
- Deformation
- Safety format

Position of the course

Students learn the essential principle of structural analysis at normal design temperatures, both for statically determinate and statically indeterminate structures. Thus, the course provides basic principles for the evaluation of the performance of structures exposed to fire further in the curriculum.

Contents

- Equilibrium of structural systems (statically determinate and statically indeterminate)
- Load conditions and load transfer
- Deformation of structures, as calculated using integration methods, and using virtual work
- Introduction to safety factors and load combinations for structural design

Initial competences

Basic concepts of mechanics of materials

Final competences

1 Evaluate the equilibrium and deformation of statically determinate and indeterminate structural systems
2 Explain the effect of boundary conditions on the deformation and load distribution in the structure
3 Perform a load transfer for a simple structure
4 Explain the use of safety factors and load combinations in design practice

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture

Extra information on the teaching methods

This course consists of theory lectures and exercises. Exercises are explained plenary after having the students worked individual on them with coaching of the lecturer.

Study material

Type: Slides

Name: Slides supporting the lectures
Indicative price: Free or paid by faculty
Optional: no
Language : English
Number of Slides : 100
Oldest Usable Edition : 2023
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No

References

Hibbeler, R.C. (2016). Mechanics of Materials (10th Edition).

Course content-related study coaching

Students can ask additional explanation after the lectures or on appointment

Assessment moments

continuous assessment

Examination methods in case of periodic assessment during the first examination period

Examination methods in case of periodic assessment during the second examination period

Examination methods in case of permanent assessment

Participation, Written assessment open-book, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Open book exercise evaluations will be organized during the semester. The assignments are introduced in the lecture and are completed alone/in group in function of the assignment. The retake exam consists of an assignment, taking into account the learning outcomes not achieved by the student in the first evaluation round.

Calculation of the examination mark

60% of the mark is made up of the open book evaluation, 30% of the mark results from the assignment, 10% relates to active participation in the lectures

Facilities for Working Students

There are no special facilities for working students.