

## Mechanics of Structures (E044010)

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

Credits 5.0 Study time 150 h Contact hrs 45.0 h

Course offerings and teaching methods in academic year 2019-2020

A (semester 2)	Dutch	lecture	15.0 h
		seminar: coached	30.0 h
		exercises	

Lecturers in academic year 2019-2020

Verleysen, Patricia TW08 lecturer-in-charge

Offered in the following programmes in 2019-2020

	crdts	offering
<a href="#">Bachelor of Science in Engineering (main subject Electromechanical Engineering)</a>	5	A
<a href="#">Bachelor of Science in Electromechanical Engineering</a>	5	A

Teaching languages

Dutch

Keywords

Position of the course

Contents

- Basic mechanical equations for elastic bodies: Hooke's law, Solution methods
- Work and energy theorems: Alternative formulation of equilibrium, Virtual work, Elastic energy, Potential and complementary energy
- Normal force, bending and torsion of beams: Bending and normal force, Shear force, Torsion
- Instability: Buckling

Initial competences

This course builds on certain learning outcomes of the course Mechanics of Materials ('Mechanica van materialen')

Final competences

- 1 Knowledge of the traditional formulas describing an elastic problem and the alternative formulations. Being able to assess the applicability of the traditional or alternative formulations.
- 2 Knowledge and application of advanced beam theory.
- 3 Identification of the forces that dominate the stress and deformation state of a beam or column. Design of beams and columns able to resist well-defined forces.
- 4 Be familiar with instability phenomena. Recognize the factors that affect the instability.

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

Lecture, seminar: coached exercises

Learning materials and price

Dutch syllabus, distributed by VTK.

References

Course content-related study coaching

By the lecturer. Contacts are possible during and after the lectures as well as by e-mail and through the electronic learning platform

Evaluation methods

end-of-term evaluation

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

Written examination, open book examination

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

Written examination, open book examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

During examination period: written exam closed book - theory for half of the points (10/20); written open-book exam - exercises, equally for half of the points (10/20).

Calculation of the examination mark

Both theory and exercise exam account for half of the notes.