Course Specifications
Valid as from the academic year 2019-2020

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>90 h</td>
<td>36.0 h</td>
</tr>
</tbody>
</table>

Course offerings and teaching methods in academic year 2019-2020

A (semester 1) Dutch HoWest lecture 12.0 h
seminar: coached 24.0 h exercises

Lecturers in academic year 2019-2020

Monte, Michael TW08 lecturer-in-charge

Offered in the following programmes in 2019-2020

<table>
<thead>
<tr>
<th>Programmes</th>
<th>crds</th>
<th>offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Engineering Technology (main subject Electromechanical Engineering Technology)</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Bachelor of Science in Engineering Technology (main subject Machine and Production Automation)</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Bachelor of Science in Industrial Design Engineering Technology</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Bachelor of Science in Bioindustrial Sciences</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Linking Course Master of Science in Industrial Design Engineering Technology</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Preparatory Course Master of Science in Industrial Design Engineering Technology</td>
<td>3</td>
<td>A</td>
</tr>
</tbody>
</table>

Teaching languages

Dutch

Keywords

statics, tension, bending, shear, tension, compression, torsion

Position of the course

This course focuses on the internal force distribution. From these forces, the stress can be determined as a function of the external load of mechanical systems.

Contents

- Introductory concepts:
- Bending and Shear:
  - deflection of beams
  - shear forces and moment diagrams
  - Shape Change, elastic line
  - Statically indeterminate cases
  - Shear stresses
- Tensile strength:
  - Mechanical properties of materials
  - Stress-strain diagram, Poisson’s modulus, Hooke’s Law
  - Statically indeterminate cases
- Torsion:
  - Torsion Formula
  - Static indeterminate cases
  - combined load

Initial competences

The course builds further on certain competences that are achieved in following courses: Mechanics

Final competences

(Approved)
1 Calculate the deformation due to applied forces and moments on a structure.
2 Be able to determine the internal loads and calculate the resulting stress
3 Be able to calculate the overall stress state in simple constructions.
4 Be able to solve static undefined problems
5 Be able to interpret the results for accuracy and relevance.

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

Conditions for exam contract
Access to this course unit via an exam contract is unrestricted

Teaching methods
Lecture, seminar: coached exercises

Learning materials and price
Sterkteleer: R. Hibbeler (€ 60,0)

References

Course content-related study coaching
Interactive support on a forum on the electronic learning environment.
Student counseling service is available on appointment.

Evaluation methods
end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
not applicable

Extra information on the examination methods
exercises

Calculation of the examination mark
Examination mark = mark on exam

(Approved)