Course Specifications
Valid as from the academic year 2016-2017

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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
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<tbody>
<tr>
<td>3.0</td>
<td>90 h</td>
<td>15.0 h</td>
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</tbody>
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Course offerings and teaching methods in academic year 2019-2020

B (semester 1) English lecture 15.0 h

Lecturers in academic year 2019-2020
Van Langenhove, Lieva TW11 lecturer-in-charge

Offered in the following programmes in 2019-2020

Master of Science in Textile Engineering 3 B

Teaching languages

English

Keywords

Definitions, sensing, data processing, actuation, storage, communication, concepts, release mechanisms, micro-encapsulation, electrotextiles, optical fibres

Position of the course
To obtain an understanding of functional textile materials.

Contents

- Definition, evolution and functions of Smart Textiles
- Electroconductive textiles
- Sensors: electrical, optical
- Actuators: mechanical, chemical, thermal, optical, electrical
- Energy: batteries, energy scavenging (from heat, light, deformation)
- Communication: textile antennae
- Components of smart textiles, textile integration

Initial competences

Bsc level in mathematics, organic chemistry, physical chemistry, general process engineering, textile technology and materials engineering

Final competences

1. Know the concepts: passive smart, active smart, very smart; evolution; sensing, data processing, actuation, storage, communication; examples; smart suits of the future; mechanical actuators, chemical actuators, concepts, release mechanisms; colour change; micro-encapsulation; electrotextiles, optical fibres; functional textiles; smart textiles.
2. Obtain an understanding of functional textile materials; obtain knowledge of smart and functional textile materials and structures and their basic materials, to convert classical devices into fibre based structures.

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

Extra information on the teaching methods

(Approved)
Learning materials and price
- Syllabus in English, slides

References

Course content-related study coaching

Evaluation methods
- end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
- Written examination, assignment

Examination methods in case of periodic evaluation during the second examination period
- Written 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 closed-book exam

Calculation of the examination mark
- first session: exam: 18 points, project: 2 points
- second session: 20 points exam