Advanced and Specialised Textile Processing - Dyeing (E064452)

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
Specifications
Valid as from the academic year 2020-2021

Course size  
Credits 3.0  
Study time 90 h  
Contact hrs 15.0 h

Course offerings and teaching methods in academic year 2020-2021
A (semester 1)  
English  
Gent  
lecture  
15.0 h

Lecturers in academic year 2020-2021
De Clerck, Karen  
TW11  
lecturer-in-charge

Offered in the following programmes in 2020-2021

<p>| Master of Science in Textile Engineering |</p>
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<th>crdts</th>
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Teaching languages

English

Keywords

Dyeing, printing, textiles, colour

Position of the course

This course is scheduled in the second half of the first semester of the first master year. This allows for the students to already gain knowledge in fiber materials. This knowledge will be further deepened in this course towards the dyeing and printing of fiber materials.

Contents

The aim of this course unit is to educate the students on the main aspects of fiber material colouration. A first part is dedicated to how colour can be quantified. A second part is dedicated to the thermodynamics and the kinetics of dyeing processes. A third part applies this knowledge to the most important textile materials, including examples of novel applications. Finally dyeing and printing equipment is discussed.

- Basic concepts of colour
- Quantification of colour
- Dye structures and classifications
- Basic principles of a dyeing and printing process
- Kinetics and thermodynamics of dyeing
- Dye application onto various textile materials
- Novel applications such as responsive dyes
- Dyeing and printing equipment

Initial competences

Basic chemistry at bachelor level including analytical chemistry physical chemistry, organic chemistry and polymer chemistry
Basic material science at bachelor level

Final competences

1 Theoretical knowledge on:

- Basic concepts of colour: colour structures, dye classes, colour quantification
- Thermodynamics and kinetics of dyeing processes
• Dye classes and their application to textiles
• Dyeing and printing machinery
2 Insights in:
• Connection between colour and dye chemistry
• Interpretation of spectra
• Importance of incoming light, object and observer for perceived colour
• Dyeing principles and interpretation of dyeing processes
• Advantages and disadvantages of different dye classes

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

Learning materials and price
Slides and hand-outs are provided during the course and are available on Ufora

References
• Color Chemistry, H. Zollinger, VCH (Weinheim), ISBN 3-527-28352-8
• The Theory of Coloration of Textiles, Ed. A. Johnson, Society of Dyers and Colourists (Bradford), ISBN 0 901956 48 1
• Chemical Principles of Synthetic Fibre Dyeing, S. M. Burkinshaw, Chapman & Hall (Glasgow), ISBN 0 7514 0043 2
• Basic Principles of Textile Coloration, A.D. Broadbent, Society of Dyers and Colourists (Bradford), ISBN 0 901956 76 7

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

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

Calculation of the examination mark

(Approved)