UNIVERSITY OF BORÅS

Textile Chemistry
Textilkemi
7.5 credits

Ladok Code: AT2TK2
Version: 4.0
Established by: Committee for Education in Technology 2022-05-13
Valid from: Autumn 2022

Education Cycle: Second cycle
Main Field of Study (Progressive Specialisation): Textile Engineering (A1N)
Disciplinary Domain: Technology
Prerequisites: Admitted to the Master's Program in Textile Technology and Engineering
Subject Area: Textile Technology
Grading Scale: Seven-degree grading scale (A-F)

Content
Textile chemistry has decisive importance for fibre production and treatments such as functionalization and dyeing of textiles. These textile chemical treatments and the inherent fibre chemical properties also essential for the possibilities to utilize discarded textiles as raw material to make new textiles.

The course offers the students profound knowledge about the chemistry of textile fibres, including feasible dyeing and surface finishing treatment strategies. They are also offered the possibility to work on their hands-on skills by applying these strategies during as series of lab practicals. The course also handles how the textile materials act in weak and strong electrolytes, the impact of surface and colloidal chemistry on textile processes and means to make these processes more sustainable.

Learning Outcomes
After completing this course, the students will be able to:

Knowledge and understanding
1.1 account for the mechanisms and reaction patterns used in textile chemical processes,
1.2 in detail describe the chemical aspects of printing and dyeing processes, and
1.3 account for reactive dyeing, including the preparative steps and how different finishing processes affect the the sustainability of textile materials.

Skills and abilities
2.1 Critically and creatively plan and employ appropriate dying and printing methods according to the nature of the textile materials,
2.2 analyze and critically assess textile properties in acidic/alcalic solutions, and
2.3 communicate scientific results in good English writing.

Forms of Teaching
The course consists of lectures and laboratory sessions.

The language of instruction is English.

Forms of Examination
Examination of the course occurs through:

• Written examination
Learning objectives (1.1 – 1.2, 2.1 – 2.3)
Higher education credits: 4.0

ECTS Grading scale: A-F

• Laboratory work
Learning objectives (1.1 – 1.2, 2.1 – 2.3)
Higher education credits: 2.5
Grading scale: pass/fail

• Laboratory report
Learning objectives (1.3, 2.2, 2.4)
Higher education credits: 1.0
Grading scale: pass/fail

The module Written examination determines the final grade, which is issued when all components of the course are approved. The grading scale for the course is: Seven-degree grading scale (A-F)

If the student has received a decision/recommendation regarding special pedagogical support from the University of Borås due to disability or special needs, the examiner has the right to make accommodations when it comes to examination. The examiner must, based on the objectives of the course syllabus, determine whether the examination can be adapted in accordance with the decision/recommendation.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

Literature and Other Teaching Materials

Course literature is in English.

Pashley R. M. and Karaman M. E. Applied Colloid and Surface Chemistry, John Wiley & Sons Ltd., Chichester, England, 2004

Thomas B. Tung P. Textile Chemistry, De Gruyter, 2019 (eBook)

Zumdahl S. S. and DeCoste D.J. Chemical Principles, 8th ed., Brooks/Cle, Cengage Learning, 2017

Some additional research will be made available at the learning platform.

Student Influence and Evaluation

The course is evaluated in accordance with current guidelines for course evaluations at the University of Borås in which students' views are to be gathered. The course evaluation report is published and returned to participating and prospective students in accordance with the above-mentioned guidelines, and will be taken into consideration in the future development of courses and education programmes. Course coordinators are responsible for ensuring that the evaluations are conducted as described above.

Miscellaneous

This course is primarely intended for the master programme in textile technology and engineering.

This syllabus is a translation from the Swedish original.