UNIVERSITY OF BORÅS

Fibre technology I
Fiberteknik I

7.5 credits
7.5 högskolepoäng

Ladok Code: AT21FT
Version: 2.0
Established by: Education Committee 2015-06-02
Valid from: Autumn 2015

Education Cycle: Second cycle
Main Field of Study (Progressive Specialisation): Textile Engineering (A1N)
Disciplinary Domain: Technology
Prerequisites: Bachelor's Degree in Textile Technology (or equivalent). For admission the applicant shall have passed 15 credits in mathematics, 7.5 credits in chemistry with at least half in organic chemistry, 7.5 credits in materials science with at least half in polymers and also 15 credits in textile manufacturing methods. The applicant shall also have documented English skills at B level.
Subject Area: Textile Technology
Grading Scale: Seven-degree grading scale (A-F)

Content

This course will be divided in five parts:

1. Basic knowledge about textile fibres
    - Introduction to textile fibres,
    - Technical terminologies used in this field
    - Classifications of fibres (synthetic and natural fibres, natural/man-made fibres)
    - Properties of textile fibres
2. Production methods
    - Natural fibres
    - Synthetic fibres
    - Natural/man-made fibres
3. Testing and characterization
4. Applications
5. Recycling and waste management

Learning Outcomes

After passing the course the students should be able to:
Knowledge and Understanding
1. differentiate between natural and synthetic fibers and filaments,
2. account for man-made fibre and filament production methods and their impact on further textile processing,
3. characterize mechanical, thermal and surface properties of fibres and filaments,
4. account for technical fibre demands that rule textile recycling feasability,

Skills and abilities
5. melt spin mono- and multifilaments and characterize them,
6. produce non-woven structures,
7. identify the application areas depending on the properties of the fibres and filaments,
8. demonstrate strategies to acquire knowledge in contemporary fibre technology research,

Judgement and approach
9. master textile waste recycling strategies for different textile materials,
10. outline the economical and technical aspects of recycling potential of various textile materials.

Forms of Teaching

Teaching method involved:
• Class lectures
• Student’s active participation during lectures
• Seminars
• Laboratory work

The language of instruction is English.

Forms of Examination

The course is examined and assessed by the following steps:

- Written exam 4.5 Credits, Grade Scale: E7
- Seminars 1.5 Credits, Grade: E7
- Practical work report 1.5 Credits, Grade Scale: E7
  Every examination step must be passed and the final grade is determined by the written exam.

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

Literature and Other Teaching Materials

“Textiles and Fashion: Materials, design and technology” by Rose Sinclair (e-book) doi:10.1016/B978-1-84569-931-4.01001-1
“Recycling in Textiles” by Y. Wang ISBN: 978-1-85573-952-9 (e-book)
“Synthetic fibers; machines and equipment, manufacture, properties” by Franz Fourne, ISBN: 156990250X (online available)
“Dynamics of fibre formation and processing” by Roland Beyreuther Harald Bruning (not available online)
Relevant research articles will also be used as supporting material

Student Influence and Evaluation

The students' opinions are collected systematically and regularly through written course evaluations once the course is completed. One time per semester, student representatives, together with the Director of studies and Programme Directors, evaluate completed courses. For addition materials, please refer to the University's policy on course evaluation and documents established by the Department board, the Director of studies and the Programme director.

Miscellaneous

This course is primarily a programme course in the Master programme in textile engineering.