



Nonwoven technology

Nonwoventeknik

5 credits

Ladok Code: ATINT1

Version: 2.0

Established by: Committee for Education in Technology 2024-08-30

Valid from: Spring 2025

Education Cycle: First cycle

Main Field of Study (Progressive Specialisation): Textile Technology (G1N)

Disciplinary Domain: Technology

Prerequisites: General entry requirements for university studies

Completed Textile basics 5 credits

Subject Area: Textile Technology

Grading Scale: Seven-degree grading scale (A-F)

Content

The course presents basic principles for various nonwoven processes, as well as how fiber properties and manufacturing methods affect the properties and use of these structures.

The course introduces the characterization of fiber properties, links them to appropriate production methods and technical requirements for nonwoven products. During the course, the students will produce and evaluate nonwoven samples. They will also be introduced to braiding techniques. The sustainability and recyclability of the production materials and methods will be discussed during the course.

Learning Outcomes

After completing the course, the student must be able to, in regard to:

Knowledge and understanding

- 1.1 describe properties of fibers used in the production of nonwoven fabric,
- 1.2 describe the principles of various processes and process steps in the production of nonwoven fabric,
- 1.3 describe the relationship between properties of starting materials and production methods,
- 1.4 explain the relationship between production methods and properties of nonwoven fabric,
- 1.5 explain the possibilities of using discarded nonwoven products as raw material for the manufacture of new products, and
- 1.6 describe the basic principles of braiding.

Skills and abilities

- 2.1 Identify nonwoven fabrics and basic braided structures,
- 2.2 choose the appropriate manufacturing method for nonwoven fabric based on available fiber material,
- 2.3 choose the production method and raw material to achieve a certain property profile of nonwoven fabric, and
- 2.4 choose appropriate values of parameters for braiding technology.
- 2.5 characterize properties of fibers used in the production of nonwoven fabrics,
- 2.6 evaluate the structure of nonwoven fabrics in terms of technical performance and raw material requirements.

Judgment and approach

- 3.1 Critically analyze and reflect on nonwoven fabrics in the context of sustainable development;
- 3.2 discuss and argue for selected production method in relation to fiber properties and nonwoven fabric,

Forms of Teaching

Lectures, study visits, laboratories

The language of instruction is English.

Forms of Examination

The course will be examined through the following examination elements:

Exam

Learning outcomes:

Credits: 3

Grading scale: Seven-degree grading scale (A-F)

Laboratories with lab report

Learning outcomes:

Credits: 2

Grading scale: Fail (U) or Pass (G)

The result of the exam determines the course's final grade, which is issued when all examination elements have been approved. Re-examination of laboratories can only take place during the course in progress.

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

Albrecht, Wilhelm; Fuchs, Hilmar; Kittelmann, Walter; (2003). Non-woven fabric. Weinheim: Wiley-VCH

Horrocks, A. Richard; Anand, Subhash C. (2015) Handbook of Technical Textiles: Technical Textile Processes. [Elektronisk resurs]. Cambridge: Elsevier Science & Technology.

Russell, S. (2022). Handbook of Nonwovens [Elektronisk resurs] Burlington : Elsevier Science

Additional material including scientific articles is provided via HB's 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 syllabus is a translation from the Swedish original.

The course is part of the range of basic textile technology courses at basic level.