



### Master programme (Two Year) in textile engineering

#### Masterutbildning i textilteknik

120 credits

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**Ladok Code:** TATEX

**Version:** 7.1

**Level:** Second cycle

**Approved by:**

**Valid from:** Autumn 2015

**Valid for:**

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#### General Objectives

Second level education shall essentially build on the knowledge that students acquire in first level education or corresponding knowledge. Second level education shall involve a deepening of knowledge, skills and abilities relative to first level education and, in addition to what applies to first level education, shall

- further develop the students' ability to independently integrate and use knowledge,
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable independence or for research and development work.

(The Higher Education Act, Chapter 1, Section 9)

#### Objectives

After completing the programme, students shall meet the learning outcomes for a master's degree set out in the Swedish Higher Education Ordinance (1993:100).

##### 1. Knowledge and understanding

For a master's degree, students must:

1.1 be able to demonstrate and apply broad technical knowledge of textile materials, processes and applications, including both basic materials and manufacturing engineering theories and methods, and significantly deeper knowledge of the design, construction, manufacture and adaptation of advanced textile products.

1.2 demonstrate deeper technological and methodological knowledge within at least one such field of textile engineering, as well as a deeper insight into current research and development work.

1.3 describe and apply basic knowledge of the textile value chain, with an emphasis on logistics, resource efficiency, sustainability and quality.

##### 2. Skills and abilities

For a master's degree, students must:

2.1 demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex textile engineering phenomena, issues and situations, even in cases where limited information is available.

2.2 independently, critically and creatively be able to plan and employ appropriate methods to carry out advanced tasks within given timeframes, quickly obtain new technical knowledge and apply this to textile-related development and renewal.

2.3 demonstrate an ability to create, analyse and critically evaluate different technical solutions, and to develop and design textile products, processes and systems, taking human conditions and needs and society's goals for economically, socially and ecologically sustainable development into account.

2.4 demonstrate an ability in international contexts to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with both industry representatives and laymen, orally and in writing.

2.5 demonstrate the skill required to participate in research and development work or to work independently in other advanced activities.

##### 3. Judgment and approach

For a master's degree, students must:

3.1 demonstrate an ability to work in a social context and an organisational context, which involves being able to make assessments, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work.

3.2 demonstrate an insight into the opportunities, limitations and problems of science and technology, their role in society and people's responsibility for how they are used.

3.3 demonstrate an ability to identify their need for further knowledge and to take responsibility for developing their own knowledge.

#### **4. Independent work (degree project)**

For a master's degree, students must have completed an independent degree project in textile engineering, within the framework of the course requirements.

#### **Content**

Teaching takes place in the form of lectures, exercises, laboratory sessions, seminars and project work with individual supervision. The courses at second-cycle level are planned in order to be well balanced, interesting and relevant to growing marketing requirements. These courses aim to prepare students for either challenging technical work or research in equal measures. The programme is designed so that students will develop their scientific understanding of different processes and methods, while also applying these analytically and practically in order to independently solve specific technical problems with environmental, entrepreneurial and ethical issues in mind, as well as reinforcing and further developing a technical interest.

The subjects listed below are included in the textile engineering programme. They fall into four categories: advanced textile materials engineering, textile construction and manufacturing, smart textiles, and textile entrepreneurship and management. These four categories and their component courses represent, in a logical manner, a realistic progression within the textile engineering value chain, which is characterised by an increasing complexity from raw material to finished, sometimes high-tech products. During the second year of the programme, students are expected to carry out their studies with a higher degree of independence and responsibility, and they should then also demonstrate – in accordance with the objectives – the skills required in order to take part in research and development work or other advanced activities.

#### **Year one**

##### Study period 1: Advanced textile materials engineering

Polymer engineering (7.5 credits) Objectives 1.1, 1.3, 2.1-2.4

Fibre engineering I (7.5 credits) Objectives 1.1, 2.1-2.2, 2.4

##### Study period 2: Advanced textile materials engineering

Surface chemistry and chemical treatment (10.5 credits) Objectives 1.1, 1.3, 2.1-2.4

Fibre engineering II (4.5 credits) Objectives 1.1, 2.1-2.2, 2.4

##### Study period 3: Textile construction and manufacturing

Textile technology (7.5 credits) Objectives 1.1, 1.2, 2.1-2.4

Textile construction and product development (7.5 credits) Objectives 1.1, 1.2, 2.2, 2.4, 2.5, 3.1-3.2

##### Study period 4: Textile entrepreneurship and management

Project management and entrepreneurship (7.5 credits) Objectives 1.3, 2.1-2.2, 2.4-2.5, 3.1-3.2

Scientific methodology and communication (7.5 credits) Objectives 1.2, 2.4, 2.5

#### **Year two**

##### Study period 1: Textile entrepreneurship and management, and smart textiles

Textile management (7.5 credits) Objectives 1.3, 2.4, 2.5, 3.1-3.2

Textile interfaces (7.5 credits) Objectives 1.1, 1.2, 2.1-2.5

##### Study period 2: Smart textiles

Interactive and smart textiles (15 credits) Objectives 1.1, 1.2, 2.1-2.5

##### Study periods 3-4: Textile engineering

Degree project (30 credits) Objectives 1.1-3.3

#### **Admission Requirements**

Bachelor's degree 180 credits, in textile engineering or equivalent qualifications. "Equivalent qualifications" means that the applicant should have completed a three-year engineering course including at least 15 credits in mathematics, 7.5 credits in chemistry (with at least half in organic chemistry), 7.5 credits in materials engineering (with at least half in polymer materials), and 15 credits in textile production methods.

Proficiency in English equivalent to :

IELTS (academic training), 6.5 (with no part of the test below 5.5)

or

TOEFL (Internet based): 90 (with a minimum of 20 on the written part)

or

TOEFL (paper based): 575 (with a minimum of 4.5 on the written part)

For further information about English language proficiency requirements, please view: <http://www.hb.se/en/International-student/Application-and-Admission/Admission-Process/English-language-proficiency/>

## **Degree**

Master of Science in in Textile Engineering

Major Subject(s):

- Textile Engineering

Degree certificates are issued upon application on a special form. More information is available at [www.hb.se](http://www.hb.se).

## **Student Influence and Evaluation**

### **Miscellaneous**

Teaching takes place in English.

The Swedish document is the original. In the event of any uncertainty in connection with translations into other languages, the Swedish version shall apply.

The language of instruction is English.