M.Sc. Textile Engineering

10 reasons to study M.Sc. Textile Engineering at RWTH Aachen University

Helen Bassett | Study Course Coordinator | Textile@academy.rwth-aachen.de
Agenda

RWTH Aachen University

• Why choose Germany? – Why choose Aachen?
• RWTH Aachen University – Facts and Figures
• RWTH International Academy

M.Sc. Textile Engineering at RWTH’s Institute for Textile Technology (ITA)

• Institute for Textile Technology (ITA) – Research and background
• M.Sc. Textile Engineering – program structure
• The 10 reasons to study M.Sc. Textile Engineering

Becoming a student at RWTH Aachen University

• Application Requirements
• Scholarships and Funding

Contact Us
Living In Germany – Studying In Aachen

Why choose Germany?
- 3rd most popular destination for international students
- Land of innovation and creativity
- Beautiful landscapes and exciting cities
- Safe country
- Cultural diversity
- German university degrees are highly respected by employers worldwide
- One of the biggest producers of technical textiles
- Primary location for researching and developing new technologies in textile engineering

Why choose Aachen?
- Vibrant student city in the heart of Europe
- Three-Country Point (Germany, Netherlands, Belgium)
- Member of the ABC Science Region
- 260,000 inhabitants
- ~ 63,000 students in the city of Aachen; 19% international at RWTH
- One of the most important regions for students interested in science and technology
- Rich in cultural history, keen on “Thinking the Future”
- Affordable living costs (compared to cities like Munich, Stuttgart or Hamburg)
- Easy to reach from many big European cities
Welcome to RWTH Aachen University

Rheinisch-Westfälisch Technische Hochschule Aachen
- Technical university with focus on engineering and natural sciences
- German University of Excellence
- Established in 1870

Reputation
- Outstanding perspectives for RWTH graduates in high-level positions in academia and industry: secured 44th place in the QS world ranking for Graduate Employability in 2017
- Close relations to industry
- Highly ranked (inter)nationally and well reputed: e.g. No. 1 in Germany and No. 20 Worldwide for Mechanical Engineering by QS World Ranking 2016

9 Faculties  260 Institutes and 15 Affiliated Institutes  2 Clusters of Excellence  1 Graduate School
RWTH Aachen University – Facts and Figures

People at RWTH

- **44,517 Students**
  - 19% International

- **540 Professorships**
  - 8151 Academic and Administrative Staff

- **128 Nationalities on Campus**

![Pie chart showing percentage distribution of nationalities](chart.png)

- America: 43%
- Africa: 8%
- Europe: 6%
- Asia/Australia: 43%
RWTH International Academy

Your own dedicated team at RWTH International Academy is always ready to help you out!

Examples of our exclusive services include:

- help in getting settled and finding accommodation, including our own student residence
- academic and extracurricular orientation events
- continued individual support, i.e. mentoring programs, daily consultation hours
- fun social and cultural events
- career guidance from our very own career coach (CV checks, mock interviews, application advice, etc.)
- networking events with key industry players, company visits and field trips
- job application workshops
- intercultural workshops
- academic integrity workshops
- a Graduation Ceremony exclusively for RWTH International Academy students
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Contact Us
Institute for Textile Technology – Background

– Institute for Textile Technology (ITA) was established in 1934 as part of RWTH Aachen’s Faculty for Mechanical Engineering
– ITA currently employs 110 research staff, 65 service staff and more than 200 student assistants ("HiWi"s)
– ITA is an international cooperation with University Augsburg, AMIBM: Aachen-Maastricht-Institute for Bio-based Materials; Uni Maastricht (NL), subsidiaries in Turkey (e.g. ITA Bursa), TFI: Institut für Bodensysteme an der RWTH Aachen e.V, Dream2Lab2Fab: Cooperation with South Korea for a joint Institute “Smart Textiles”
– The focus of ITA’s research is on the development of new textile machines and new textile processes

Did you know...?
ITA won the Innovation Award 2015.
ITA - Institute for Textile Technology

ITA’s Strategic Approach

INTEGRATED

„Research and Service in one Hand“

INTERDISCIPLINARY

„From heart valves to trunk lids“

INDUSTRY-ORIENTED

„Innovation for Industry and Society“

INTERNATIONAL

„Worldwide Network for the Products of Tomorrow“
ITAs Approach: Comprehensive service
ITA - Institute for Textile Technology

ITA's current research topics

Research is carried out within publicly funded projects (e.g. EU) and also in direct R&D projects for industry

- Spinning, spinning preparation, non-wovens
- Textile fabrics production (weaving, knitting/warp knitting, braiding)
- Man-made fiber technology
- Technical textiles and fiber-reinforced composites
- Medical textiles and biomaterials
- Smart Textiles
- Textile economics
- Quality management and process optimization
- Recycling
ITA - Institute for Textile Technology

Automotive

- Structural applications, interior, transmission, safety
- Lightweight design
- Automated production
- Tailored reinforcement structures
Building and Living

- Textile-reinforced concrete
- Translucent concrete
- Integration of functions
- Interior and exterior design
- Geotextiles
Health

- Textile implants
- Tissue engineering and biofunctionalization of implants
- Medical Smart Textiles: wearable electronics for health
- Wound treatment
- Hospital textiles and hygiene products
Energy and Environment

- Energy conversion
- Resource efficiency
- Renewable energy sources
- Recycling
- Biologically-based materials
ITA - Institute for Textile Technology

Materials

- Material adaptation and functionalization
- Customized process and product characteristics
- Multiscale: molecular, macroscopic, fiber component
- Analytics
M.Sc. Textile Engineering

Key Facts

- M.Sc. degree of RWTH Aachen University
- Accreditation by ASIIN e.V. and the Textile Institute
- 90 CP | 3 semesters
- Fees: EUR 4,500 per semester
- Start: Every year in October
Program Structure: Coursework Track

1st Semester
- Compulsory Courses
- Minor Research Project
- German Language Course

2nd Semester
- Compulsory Courses
- Elective Courses
- German Language Course

3rd Semester
- Elective Courses
- Master's thesis

Helen Bassett | Study Course Coordinator | Textile@academy.rwth-aachen.de
## Curriculum: Coursework Compulsories

<table>
<thead>
<tr>
<th>Master with a focus on coursework</th>
<th>WS</th>
<th>SS</th>
<th>WS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>E</td>
<td>CP</td>
</tr>
<tr>
<td>Control Engineering</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Machine Design Process</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Gear and Transmission Technology</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Finite Element Methods</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Fluid Dynamics</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Minor Research Project</td>
<td></td>
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<tr>
<td>German Language Course</td>
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<td></td>
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<tr>
<td>Computational Fluid Dynamics I</td>
<td></td>
<td></td>
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<tr>
<td>High Performance Fibres</td>
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<td></td>
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<tr>
<td>Composites</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Engineering Electives</td>
<td></td>
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<tr>
<td>Master Thesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of Workload</td>
<td>32</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>
## Curriculum: Coursework electives

Students have to select textile related elective courses of at least **12 CP** (coloured ones)

<table>
<thead>
<tr>
<th>Electives - Textile Engineering - coursework</th>
<th>Lang.</th>
<th>L</th>
<th>E</th>
<th>CP</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faserstoffe 1 (natural fibres)</td>
<td>G</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>SS</td>
</tr>
<tr>
<td>Textiltechnik 3 (fabrics, finishing)</td>
<td>G</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>SS</td>
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<tr>
<td>Innovation Management</td>
<td>E</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>SS</td>
</tr>
<tr>
<td>Production Metrology</td>
<td>E</td>
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<td>2</td>
<td>5</td>
<td>SS</td>
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<tr>
<td>Factory Planning</td>
<td>E</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>SS</td>
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<tr>
<td>Failure of Structures and Structural Elements</td>
<td>E</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>SS</td>
</tr>
<tr>
<td>Ausgewählte Themen der Textiltechnik</td>
<td>G</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>SS</td>
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<tr>
<td>Finite Element Methods in Lightweight Design</td>
<td>E</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>SS</td>
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<tr>
<td>Boundary-Layer Theory</td>
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<td>1</td>
<td>3</td>
<td>SS</td>
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<tr>
<td>Nonlinear Structural Mechanics</td>
<td>E</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>SS</td>
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<tr>
<td>Reliable Simulation in the Mechanics of Materials and Structures (start in summer term 2017)</td>
<td>E</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>SS</td>
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<tr>
<td>Practical Introduction to FEM Software I</td>
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<td>2</td>
<td>3</td>
<td>WS</td>
</tr>
<tr>
<td>Quality Management</td>
<td>E</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>WS</td>
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<tr>
<td>Computational Fluid Dynamics II</td>
<td>E</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>WS</td>
</tr>
<tr>
<td>Technische Textilien (technical textiles)</td>
<td>G</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>WS</td>
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<tr>
<td>Faserstoffe 2 (synthetic fibres)</td>
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<tr>
<td>Textiltechnik 2 (yarns)</td>
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<tr>
<td>Modellbildung und Simulation in der Textiltechnik</td>
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<tr>
<td>Fundamentals of Lightweight Design</td>
<td>E</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>WS</td>
</tr>
</tbody>
</table>
Program Structure: Research Track

1st Semester
- Compulsory Courses
- First Research Project
- German Language Course

2nd Semester
- Compulsory Courses
- Second Research Project
- German Language Course

3rd Semester
- Elective Courses
- Master’s thesis
- Master’s thesis
- Master’s thesis
## Curriculum: Research Compulsories

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<td>First Research Project</td>
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<tr>
<td>German Language Course</td>
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<td>1</td>
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## Curriculum: Research Electives

Students have to select at least one textile related elective course (coloured ones)

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<td>WS</td>
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</tbody>
</table>
Curriculum: German courses

Learning the lingo

To integrate into society and put you in great standing to apply for a job in Germany after your studies, we have organized a unique German course structure for you.

You will start from scratch, attending an intensive A1 course Monday – Friday, 4 hours per day, with your fellow classmates in August before you start your M.Sc program. Then you will study A2 in your 1st Winter Semester and B1 in Summer Semester. These courses, in addition to the 2 compulsory German-taught engineering subjects in your Summer Semester (Composites and High Performance Fibers), will get you up to a working level in the language of poets and thinkers by the time you have completed your studies.
1. Germany is one of the biggest producers of technical textiles in the world and is the primary location for researching and developing new technologies in textile engineering
2. Aachen offers the perfect environment to make international students feel right at home and settled in your studies
3. RWTH Aachen has a top reputation, world-class infrastructure and is at the forefront of cutting-edge research
4. RWTH International Academy provides continued individual support for you in your studies
5. ITA is a prominent innovator in diverse areas of textile engineering
6. ITA enjoys close ties with the industry – ensures current curriculum and supports great career perspectives
7. ITA employs many “HiWi”s. The Institute also offers many positions for doctoral candidates
8. The flexible program lets you choose the study track which best suits your personal and professional interests. Each track allows you to tailor your course with a wide range of electives and a specialized research project(s)
9. This international M.Sc. program will increase your intercultural awareness
10. This course of study develops your language skills and prepares you for a fantastic future career in Germany

Apply for the exciting and rewarding challenge of joining our world-class innovators!
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Contact Us
Formal Application Requirements

- Curriculum Vitae
- Letter of Intent
- Transcript of Records
- University Degree Certificate *
- Proof of English Language Proficiency *
- Two Letters of Recommendation
- Proof of practical work experience (12 Months <)
- Graduate Record Examination (GRE)
- APS (only for Chinese Applicants)

* Mandatory at enrollment at the latest

If your documents were not issued in German or English, you must have a certified translator translate them into German or English.
Academic Application Requirements

- A Bachelor of Engineering or Science in Mechanical Engineering or a related discipline
- Fundamental knowledge in the fields of engineering, mathematics and natural science that should be covered within the following modules: Mathematics, Mechanics, Material Sciences, Thermodynamics, Chemistry, Physics, Machine Tools, Technical Drawing
- Furthermore knowledge in the following courses: Finishing, Textile techniques, Fibres, Automatic Control, Quality Management, Computer Sciences, Simulation Techniques, Economics, Molecular Chemistry
- Visit our FAQ section here.
Finding Scholarships

There are several scholarship opportunities available for international students. We highly recommend you start your scholarship research as soon as possible.
When you study with the RWTH International Academy, you can expect the following costs:

- **Tuition Fees**: EUR 13,500 in total
- **Semester Fee for all RWTH students**: approx. EUR 255 per semester
- **Living Expenses**: approx. EUR 800 < per month

**Approximated Monthly Living Expenses:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost (EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room in a shared flat</td>
<td>350</td>
</tr>
<tr>
<td>Food and other expenses</td>
<td>300</td>
</tr>
<tr>
<td>Mobile phone contract</td>
<td>20</td>
</tr>
<tr>
<td>Internet at home</td>
<td>20</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>90</td>
</tr>
<tr>
<td>Telephone, Internet, Radio, TV</td>
<td>30</td>
</tr>
<tr>
<td>Third-party liability insurance</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>816</strong></td>
</tr>
</tbody>
</table>

Source: DAAD
Master’s Prep Course for M.Sc. Textile Engineering

With our English-taught Master’s Prep Courses you can...

- fulfill your conditions for admission in English!
- have a smooth start into your Master’s degree program!
- start building your academic network early on!
- enjoy intensive support in small groups!

Bridging courses

- Textile Technology I
- Thermodynamics
- Machine Design
- Mechanics

Intensive German Language Course
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Get in touch with us...

Your Master Office Team

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www.academy.rwth-aachen.de

Tel: +49 241 80 96664

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Campus-Boulevard 30
Cluster Produktionstechnik
52074 Aachen
Germany
Thank you for reading...

Any further questions? Do not hesitate to contact us!

We are hoping to welcome you in Aachen soon!