

MSc in Materials Engineering

Materials of Energy Technology
Health Technology Materials
Modern Industrial Materials

25.11.2021 UTU Virtual Open Week

University teacher
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Today's timeline

- University of Turku
- Materials Engineering in UTU
- MSc programmes
- General admission details + application timeline
- Time for questions



Welcome to Finland!

- 5.5 million people
- 180,000 lakes and islands
- 70% of land covered in forests
- 4 distinct seasons



Clean nature, innovation and happy people

#1 Happiest country in the world – four years in a row

- Sustainable Development Solutions Network, World Happiness Report 2018-2021

#1 Most peaceful and sustainable country in the world

- The Fund for Peace, Fragile States Index 2016

#1 Best place for work–life balance

- Kisi Work–Life Balance Index 2019

#2 Global Cleantech Innovation

- the Global Cleantech Innovation Index 2017

#1 in availability of latest technologies

- World economic forum global competitiveness report 2017-2018

#1 Best Higher Education and Training System

- World Economic Forum 2015

#1 World's cleanest air

- World Health Organization 2018

> [Finland: a superpower of education and innovations](#)



- Turku, founded in 1229, is the oldest city in Finland. Turku is compact in size, perfect for exploring the exciting mixture of old and new.
- Turku offers the best quality of life with reasonable living costs, many housing options, active academic community, vivid cultural life, and a variety of outdoor activities.

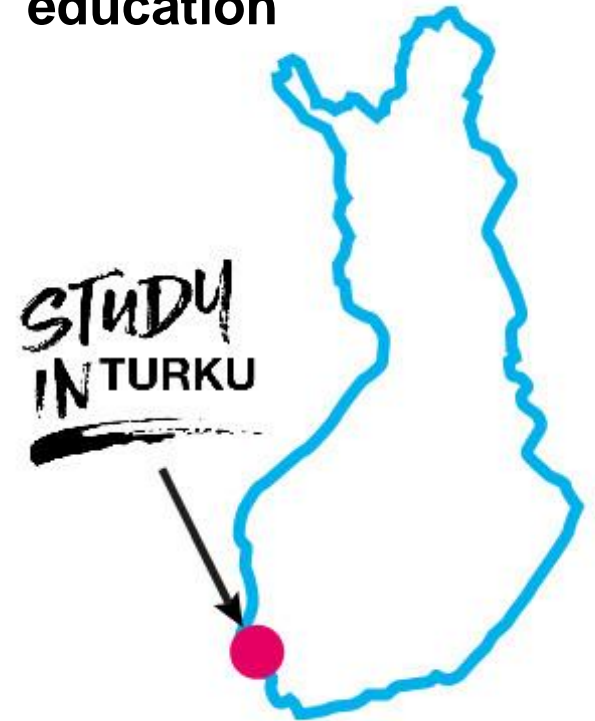


turku.fi/en/study-turku

[Video: Turku is a city of students](#)

40,000

**Students in higher
education**





Multidisciplinary.

International.


Research university.

TURUN YLIOPISTO
VAPAAKANSAN LAHJA
VAPAALLE TIETEELLE

**Our research
is profiled
through six
thematic areas**



Biodiversity and sustainability
Future technologies and digital society
Cultural memory and societal change
Children, young people and learning
**Health, diagnostics and drug
development**
Sea and maritime studies

A photograph of two young women taking a selfie outdoors. The woman on the left is making a peace sign and smiling broadly. The woman on the right is wearing glasses and holding a smartphone. In the background, there are trees with yellow autumn leaves and a church spire. The image is used as a background for the text overlays.

The Turku campus is located near the city centre and Aura River. It is close to other higher education institutions, businesses at Science Park, and the University Hospital. **Services are near and you can easily get from one place to another by foot or by bike.**

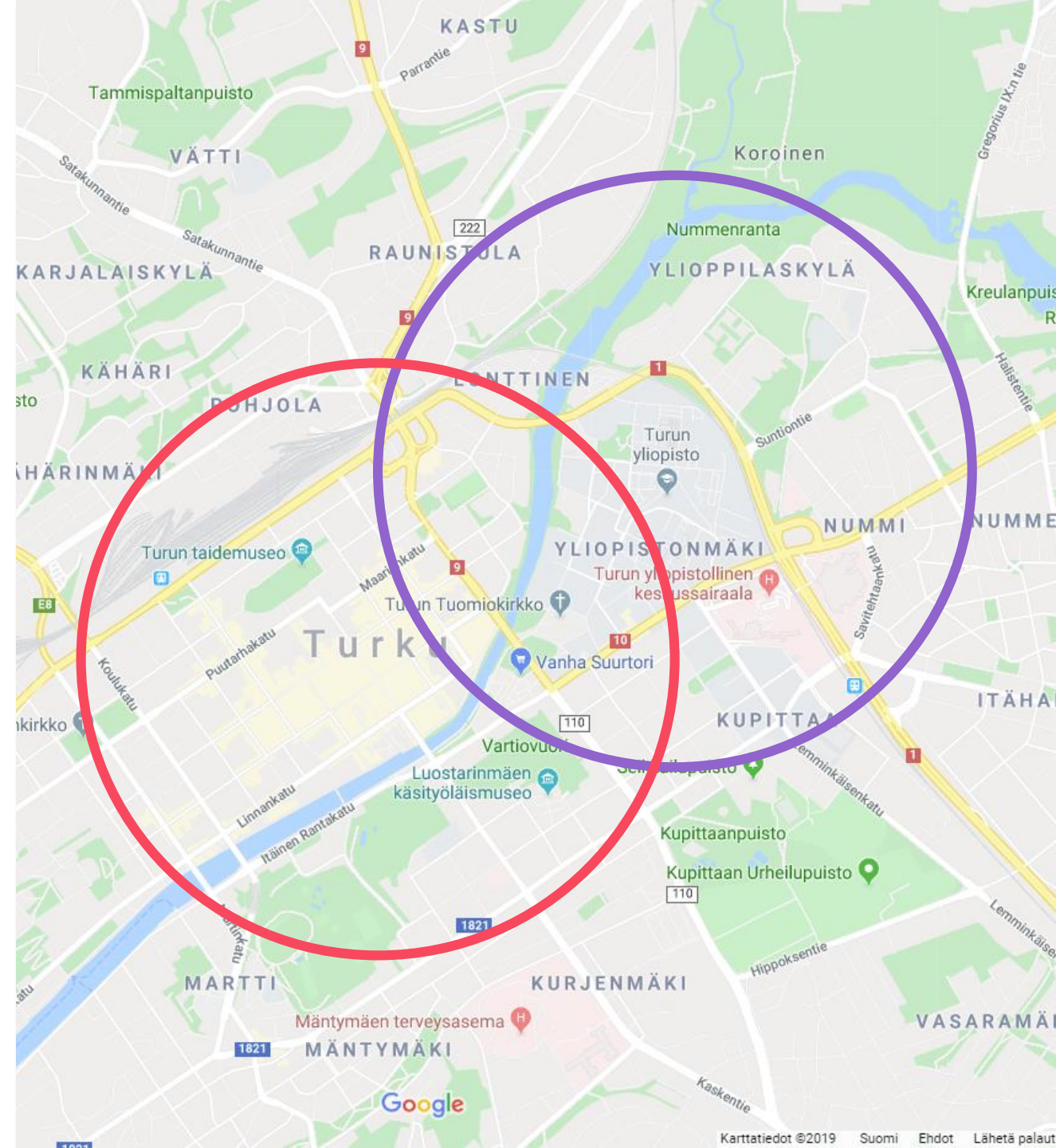
**Compact
campus in the
city centre**



[6 reasons why you'll feel welcome
at the University of Turku](#)

Why choose UTU?

- Teaching based on top level research conducted with global partners. Our programmes are based on our strengths in research.
- Excellent facilities and learning environments, i. eg. libraries and IT facilities.
- Versatile teaching methods: online courses, workshops, simulations and seminars as well as contacts with local and international companies.
- Small groups and close professor-student relations.
- Personal support and student services throughout your studies.



One the most international universities in Finland.


20,300

students from
over 100
countries


1,600

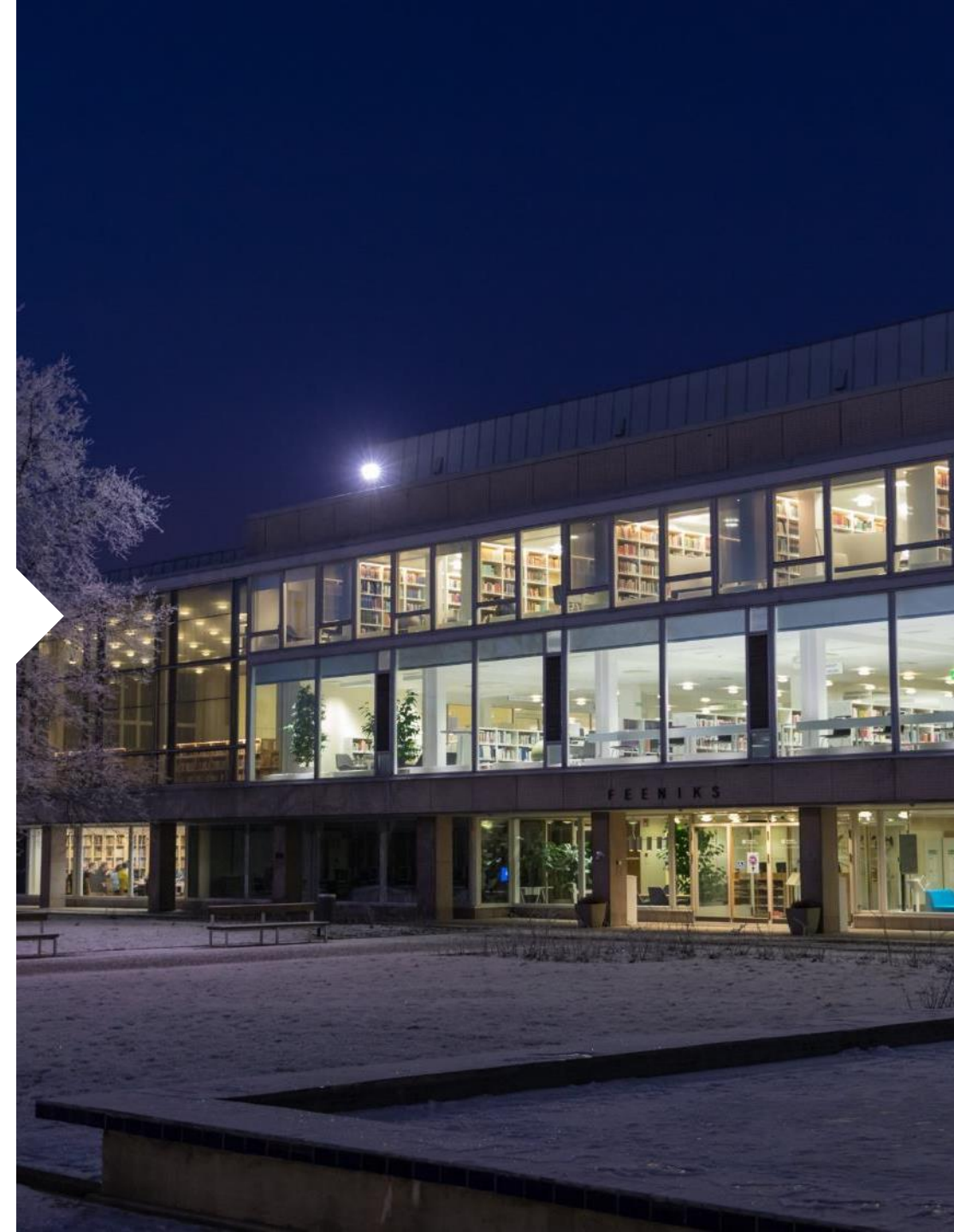
International
students
annually


92%

of international
students are
satisfied with
their experience
at utu.

Degrees at the University of Turku

- Bachelor, Master and Doctoral degrees awarded.
- Bachelor level studies mainly in Finnish, Master and Doctoral also in English.
- All degrees follow the common European framework.
 - Bachelor 3 years
 - Master's 2 years
 - Doctoral degree 4 years



8

FACULTIES



Faculty of Education

Faculty of Humanities

Faculty of Law

Faculty of Medicine

Faculty of Science

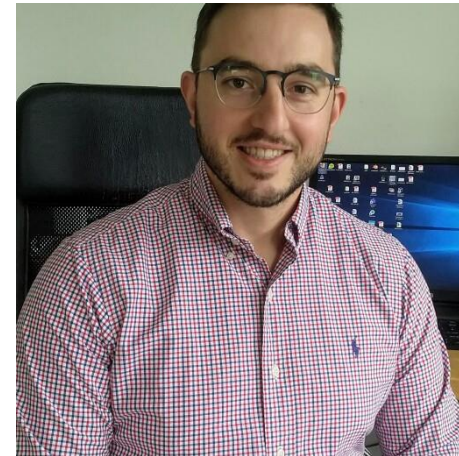
Faculty of Technology

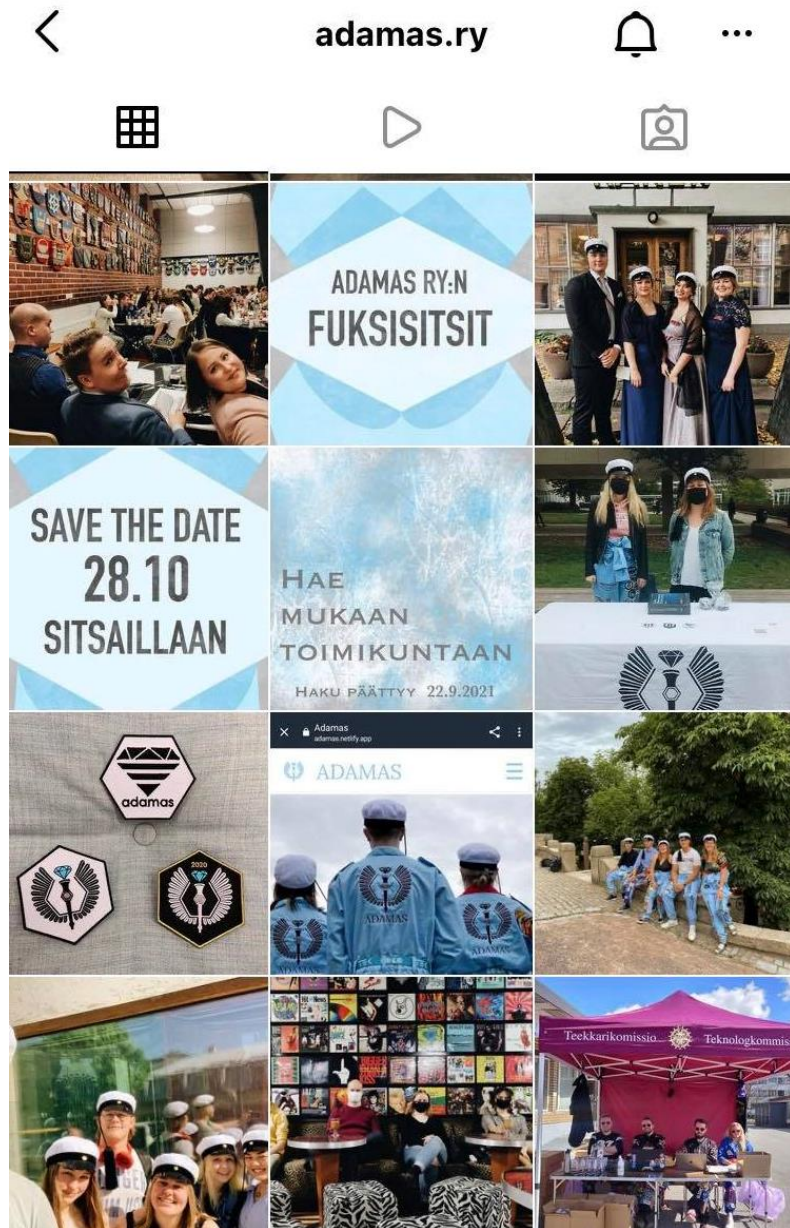
Faculty of Social Sciences

Turku School of Economics

Department of Mechanical and Materials Engineering

- Currently five professors
- Research:
 - Solar Energy Materials and Systems
 - Battery Materials and Technologies
 - Light-emitting Materials and Devices
 - AI-Driven Computational Materials Science
 - Materials in Health Technology
- <https://www.utu.fi/mema>





We are a new faculty and a department!

- Finnish BSc and MSc programmes in autumn 2020
- First students finishing MSc(Tech) this autumn
- We value teaching and varying teaching methods in addition to research excellence

I am interested in...

New solutions for solar energy and batteries

Biomaterials for different uses

Manufacturing designs with bio-based materials

Sustainable manufacturing of new materials

Sustainable use of renewable energy

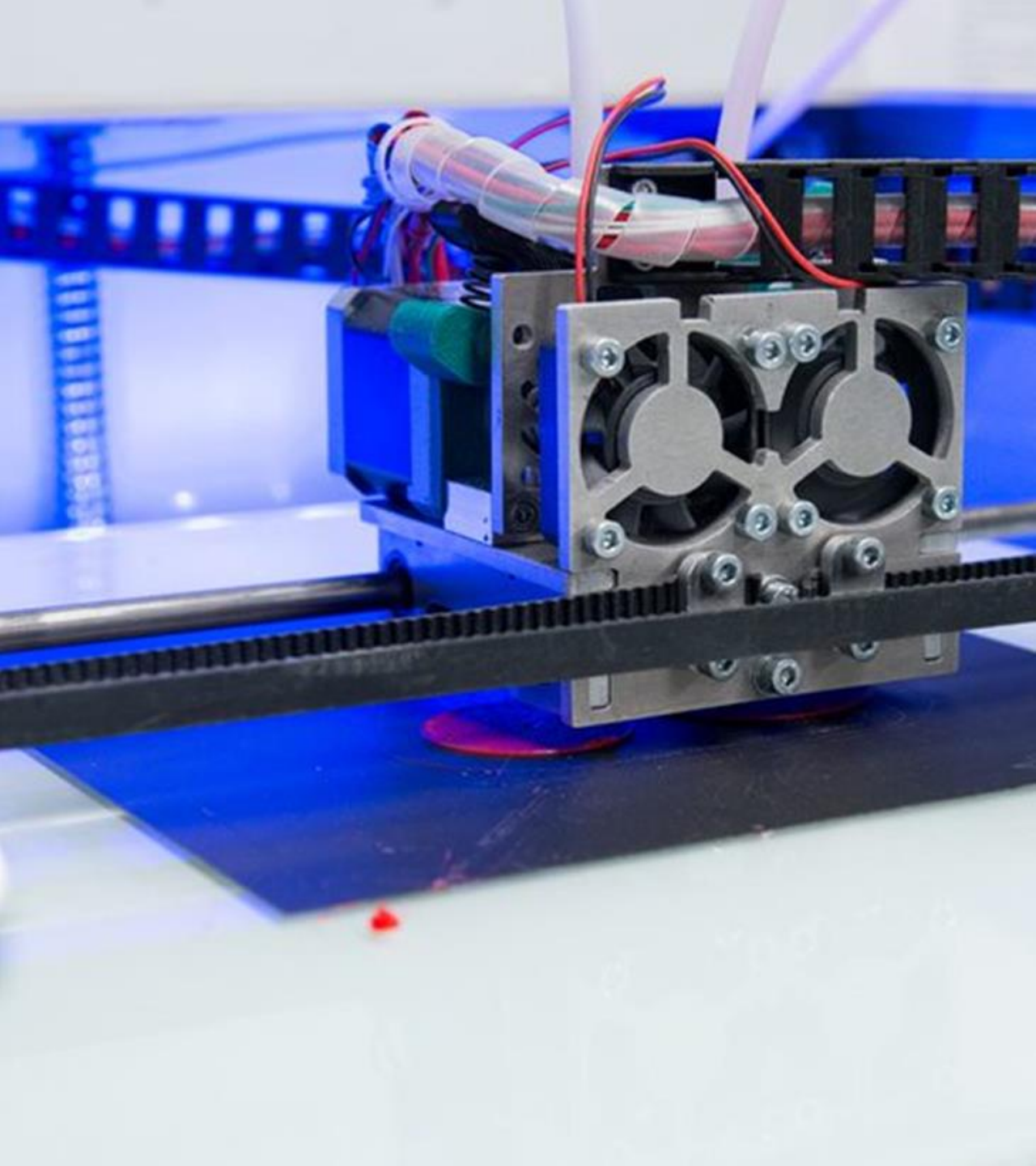
Sensor interface in bioimplants

Master's Degree Programmes in Materials Engineering

**Modern Industrial
Materials**

**Materials of Energy
Technology**

**Health Technology
Materials**



Modern Industrial Materials

How to manufacture light structures to reduce material usage?

How to enhance material lifetime and recycling?

<https://www.utu.fi/en/study-at-utu/masters-degree-programme-in-materials-engineering-modern-industrial-materials>

“You will learn the characterization, modelling, properties and life cycle of both traditional and future materials used in the Industrial. Moreover, we consider the special topics of 3D printing and artificial (“digital”) materials.”



Prof. Milica Todorovic

Photo by Valeria Azovskaya



Materials of Energy Technology

New and sustainable materials for next generation solar cells?

How to develop storing renewable energy and electrifying transportation?

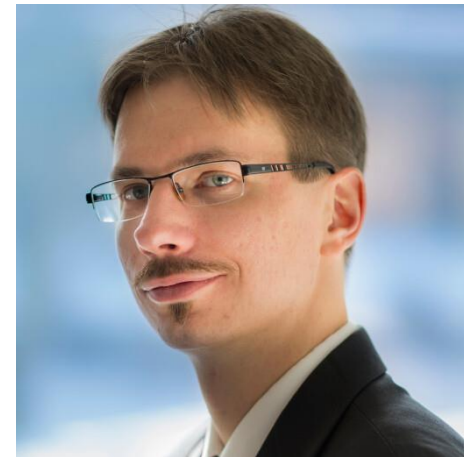
<https://www.utu.fi/en/study-at-utu/masters-degree-programme-in-materials-engineering-materials-of-energy-technology>

Photo by Mikael Nyberg

“You will learn a general overview of the field of energy materials, focusing on renewable energy production and storage.”

You can tailor your studies by selecting different suitable minor subjects or thematic subjects, for example to focus on

- *manufacturing and properties of battery materials*
- *circular economy*
- *sustainability*
- *different biomaterials and nanomaterials etc.*



Prof. Pekka Peljo



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OF TURKU**



Health Technology Materials

*Durability of biomaterials in
use?*

*How to get data out of an
implant?*

<https://www.utu.fi/en/study-at-utu/masters-degree-programme-in-materials-engineering-health-technology-materials>

Photo by Mikael Nyberg



“You will learn different biomaterials and their uses in biomedical and dental applications. In addition, you learn about the use of sensor- and information technology in health applications, how biosignals are processed and what restrictions they have in wireless data transfer.”



Prof. Emilia Peltola

You could end up being one of these

Product development scientist

**Modern Industrial
Materials**

Manufacturing systems engineer

**Materials of
Energy
Technology**

Technology manager

Validation and verification engineer

Development manager

Researcher

**Health
Technology
Materials**



UNIVERSITY
OF TURKU

Overview of MSc structure

Materials engineering
studies 20 ECTS

MSc project and thesis
40 ECTS

Line specific studies
20 ECTS

Minor subject /
thematical studies
20-25 ECTS

Freely chosen studies
15-20 ECTS

- Solar Energy Engineering
- Electrical Energy Storage Systems
- Acquisition and Analysis of Biosignals
- Medical Instrumentation
- 3D Printing & Additive Manufacturing
- Modelling and New Materials
etc...

Multidisciplinary study modules in Artificial Intelligence, Sustainable development studies, Basic business studies, Environmental science, Bioanalytical chemistry, Optical instrumentation design and technology, etc.

General Admission Criteria

Master's Degrees

- Bachelor's Degree or other first level University degree
 - minimum 3 years in length
 - You can apply with an incomplete degree, if the proof of graduation reaches us by the beginning of August.
- Strong English language skills
 - IELTS 6.5 / TOEFL 90
 - Degree in an English-language programme in Australia, Canada, New Zealand, the United Kingdom, the United States or in an EU/EEA country
 - No exceptions will be made on the language requirements!
- All relevant enclosures must be attached to the application form within one week of the application deadline





Evaluation

- Annually 10 students are admitted
- The decision of admission will be based on
 - the relevance of the applicant's awarded degree(s)
 - the amount, relevance, and grades of the courses in the degree(s)
 - the language test result (see [Language requirements](#))
 - the motivation letter
- Write a good motivation letter!

Relevant fields of previous studies

Materials of Energy Technology

- materials engineering
- energy engineering
- chemical engineering
- environmental engineering
- process engineering
- physics
- chemistry

Health Technology Materials

- materials engineering
- chemical engineering
- physics
- chemistry
- biochemistry
- biomedical sciences
- medical sciences
- biotechnology

Modern Industrial Materials

- materials engineering
- chemical engineering
- environmental engineering
- process engineering
- physics
- chemistry

Applying for MDP in Materials Engineering

5 JANUARY 2022

APPLICATION TIME BEGINS

19 JANUARY 2022

**APPLICATION TIME ENDS
AT 3 PM (FINNISH TIME)**

31 MARCH 2022

**ADMISSION RESULTS PUBLISHED
AND SCHOLARSHIPS OFFERED**

15 JULY 2022

**ACCEPT OFFERED STUDY PLACE
BEFORE 3 PM (FINNISH TIME)**

31 JULY 2022

FIRST TUITION FEE INSTALMENT

AUGUST 2022

**OPTIONAL SUMMER SCHOOL,
ARRIVAL & STUDENT ORIENTATION**

Programme-specific admission criteria

- the relevance of the applicant's awarded degree(s)
- the amount, relevance, and grades of the courses in the degree(s)
- the language test result
- the motivation letter
- possible answers to the optional questions included in the application
- possible relevant work experience
- possible interview (applicants will be informed in advance by email if they are interviewed)

Apply in studyinfo.fi

- You may apply only for one specialisation track within the programme

> [More info about general admission criteria and how and when to apply](#)

Tuition fee: 12 000€/year for non-EU/EEA students

> [More info about tuition fees and scholarships](#)

After graduation

- Graduates can get a residence permit for one year to look for a job or start a business.
- Master graduates have the opportunity to apply for PhD studies in Finland or abroad.
 - In UTU application period for [PhD studies](#) twice a year.



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Questions that came up during the Q & A

- Student housing in Turku: <https://www.turku.fi/en/study-turku/arriving-turku/student-housing>
- Financing your studies: <https://www.utu.fi/en/study-at-utu/financial-matters>
- Knowledge on studying in Finland for international students: <https://www.youtube.com/c/RoadtoFinnish>

In the case of new questions, you can contact Emilia Palo (emilia.palo@utu.fi) or the UTU Admission services.



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