



- Unique programme in Europe
- Scholarships and stipends
- Internships

## Master of Science in Engineering APPLIED MEASUREMENT SCIENCE



In 2008 "Chemistry Euromaster" quality label was awarded to the international consortium "Measurement Science in Chemistry", uniting nine European universities, and initiated by the University of Tartu.



This Master's degree programme has been selected by the Estonian Ministry of Education and Research as one of the winners of the 2007 national quality competition of the international Master's programmes in Estonia.



### What is measurement science?

Measurements must be considered in the broadest sense and have very many applications:

- toxic metals in drinking water;
- cholesterol level in blood;
- strength of construction materials;
- protein content in wheat;
- octane number of gasoline.

### Why is measurement science important?

Importance of measurements is enormous for economy, society, medical sciences and much more:

- 40% of the EU directives involve measurements
- Critical economical, social, medical decisions are based on results of measurements
- Estimated direct annual spending on measurements is 80 billion EUR or 1% of the GDP in Europe

### Excellent international career prospects:



**Madis Juurma**  
graduated in 2010:

*Participation in this programme has already influenced my life: I have got a very good job in the field of metrology. And one of my course mates has received several job offers from the Joint Research Centre, a Directorate-General of the European Commission.*

- R&D departments of major companies
- Chemical industry labs
- Pharmaceutical industry labs
- Health and environmental protection agencies
- Safety, security, forensics
- Food processing and manufacturing quality assurance labs
- Certification, standardization and accreditation authorities
- National Centers and Institutes of Metrology
- Academic career and PhD studies

Measurement Science



## Who should apply?

- Graduates with Bachelor's degrees in physics, chemistry, materials science, natural sciences, engineering, technology or medicine.
- Working professionals from laboratories, accreditation bodies, inspection agencies, etc.

## Curriculum structure:

Compulsory courses	45 ECTS
Elective courses	30 ECTS
Optional courses	6 ECTS
Internship	9 ECTS
Master's thesis	30 ECTS
<b>TOTAL</b>	<b>120 ECTS</b>

## Compulsory courses:

Fundamentals of Metrology  
Metrology in Chemistry  
Measuring and Instrumentation  
Measurement Data Processing  
Practical Chemical Analysis  
Quality Management  
Practical Works on Physical Measurement and Calibration  
Practical Works in Chemical Analysis and Metrology  
Master Seminar in Measurement Science

## Elective courses:

Materials Characterization and Testing Methods  
Radiation protection and measurements  
Measurements in Biochemistry  
Measurements and the Law  
Economic Aspects of Measurements  
Environment and Measurements  
Electrochemical Methods for Quantitative Analysis  
Signal Processing  
Chemometrics  
Nanometrology  
etc...

**Language of instruction:** English

**Programme duration:** 2 years

## Address for inquiries:

**International Student Service**  
University of Tartu  
Ülikooli 18, 50090 Tartu, Estonia  
Telephone +(372) 737 6109  
Skype iro\_tartu  
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## Admission requirements:

- Bachelor's degree or equivalent (at least 3 years of studies at a higher educational institution) in natural sciences.
- Applicants must have completed 18 ECTS in physics or chemistry in prior learning periods (minimum eligibility requirement for application is 60% of the maximum grade available).

## Application process:

1. Submit the online application.  
Form available at [www.ut.ee/ams](http://www.ut.ee/ams). You will receive an automated confirmation of your online application submission with log-in information to track the status of your application.
2. Mail the required and properly prepared documents by the indicated deadline to:

**International Student Service**  
**University of Tartu**  
**Ülikooli 18, Tartu 50090, Estonia.**

Only complete applications will be considered by the Admission Commission and students accepted into the programme will be notified of their admission soon after.

## Documents to be submitted:

1. online application (Remember to print it out and sign in the end. You will need to mail it.)
2. motivation letter - guidelines and evaluation criteria are included in the online application form
3. completed and signed application form for recognition of prior learning
4. official copy of the Bachelor's diploma or its equivalent and Diploma Supplement (transcript/mark sheet) in the original language
5. official translation of the Bachelor's diploma and Diploma Supplement (transcript/mark sheet) into English, translation certified
6. proof of English language proficiency. Detailed information on accepted tests and scores is available at: [www.ut.ee/requirements](http://www.ut.ee/requirements)
7. copy of applicant's valid identification document

## Application deadline:

EU applicants - June 1  
non-EU applicants - April 15

**NB!** Applicants graduating with diplomas issued later than the set deadlines (e.g. in July), please send the application form and the most recent Transcript of Records by the required deadline.

## Tuition fees and scholarships:

Programme fee covers tuition, some study materials, supervision and advising of thesis preparation. Tuition fee is 4600 EUR per year, but a limited number of tuition fee waiver scholarships and monthly stipends will be granted.

**NB!** This publication can be used for information purposes only. Please refer to the programme website for current official information.