

# Master's Degree Programme SYSTEM TEST ENGINEERING

Experts in the systematic testing of complex electronic and mechatronic systems are urgently required in many industry sectors such as in the electronic and the automotive industry. The innovative Master's course in System Test Engineering makes you an expert in the field.

We offer an innovative Master's programme that is tailored to the needs of the industry. You will become an expert in the following fields:

### Applied Mathematics.

You analyse and visualise measurement data and apply methods of signal processing and machine learning.

### Software Development & Test Automation.

You develop automatic test software, establish data connections among measurement equipment, computers and devices under test and build up complex, automated measurement and test systems.

### Electronics & Measurement Engineering.

You analyse and test digital and mixed-signal integrated circuits, implement test circuits, design EMC compliant printed circuit boards for high frequencies and program microcontrollers and their interfaces.


### Requirements & Quality Management.


You implement test strategies, manage projects according to the V-model, understand the process of system and component qualifications and develop test specifications. You are familiar with measurement and test standards and reliability requirements for products and systems.

### Semiconductor Testing & System Testing.

You can specialise in the area of Semiconductor Testing and System Testing. Semiconductor Testing focuses on semiconductor verification, validation and production testing, whereas System Testing focuses on mechatronic systems such as automated and autonomous driving functions in vehicles in different testing environments.


## FACTS

 Master of Science in Engineering (MSc)

 Work-friendly

 4 semesters / 120 ECTS

 FH JOANNEUM Graz

 Language of instruction: English

- 20 Places per year
- Head of Degree Programme:  
**FH-Prof. Priv.-Doz. DI Dr. Christian Vogel**
- No tuition fees for students from the EU, EEA and Switzerland, tuition fees for Students from third countries
- All information about deadlines, requirements, application and admission can be found online.
- [www.fh-joanneum.at/stm](http://www.fh-joanneum.at/stm)

## Organisation

The work-friendly organisation of the course means that modules are taught in blocks. During the first three semesters classes generally take place from Wednesday to Friday and sometimes on Saturdays. There are three blocks of classes in the fourth semester. This allows for part-time work at an industrial company.

## Communication & Project Management

You plan and implement projects in the field of testing and document, present and communicate the results and measurement data.

## Master's Thesis & Scientific Work

In your Master's thesis you will carry out research in your specialised field and present the results in a scientific manner.

*"The curriculum of System Test Engineering was so thrilling that I decided to move to Austria just to study it. And I am very happy with this choice."*

Vikash Maiyani, Student

CURRICULUM: 120 ECTS (30 ECTS per semester)

1 <sup>st</sup> semester	LV-Typ	SWS	ECTS
Mathematical Methods in Test Engineering	ILV	4	6
Software Environments and Programming	ILV	4	6
Digital Electronics	ILV	4	6
Mixed-Signal Electronics	ILV	4	6
System Requirements and Testing	ILV	4	6
		20	30

3 <sup>rd</sup> semester	LV-Typ	SWS	ECTS
Security and Testing	ILV	2	3
Project Management	SE	2	3
Technical Documentation	SE	2	3
Project	PT	1	9
<b>Major: Semiconductor Testing</b>			
Design for Test	VO	2	3
Verification and Validation Testing	ILV	4	4,5
Production Testing	ILV	4	4,5
<b>Major: System Testing</b>			
Machine Learning and Optimization for Testing	ILV	2	3
Testing of Mechatronic Systems	ILV	4	4,5
Testing of Automotive Systems	ILV	4	4,5
		17	30

## Career prospects

Graduates are able to analyse, verify and validate complex systems composed of mechanical, electronic and software systems. Their expertise is in high demand in the semiconductor industry and the automotive sector. Graduates can work in a variety of fields and in different roles, e.g.

- Electronics test engineer
- Automotive test engineer
- Automated test equipment engineer
- Digital test development engineer
- Embedded systems test engineer
- Manager in product and test engineering
- Requirements and system test engineer
- System test engineer
- Systems and functional safety engineer
- Test development engineer
- Test engineer / test manager
- Validation engineer / validation manager

2 <sup>nd</sup> semester	LV-Typ	SWS	ECTS
Data Mining and Processing	ILV	4	6
Software Testing	ILV	4	6
Test and Measurement Automation Laboratory	ILV	4	6
PCB Design for Testing	ILV	2	3
Quality and Reliability Testing	VO	2	3
Test Standards	VO	4	6
		20	30

4 <sup>th</sup> semester	LV-Typ	SWS	ECTS
International Communication and Meetings	SE	2	3
Scientific Writing	SE	1	3
Master's Thesis and Exam	MA	1	24
		4	30

ILV = Integrated course, PT = Project, SE = Seminar, VO = Lecture, SWS = Hours per week, ECTS = European Credit Transfer and Accumulation System