

FH University of Applied Sciences TECHNIKUM WIEN

Language ENGLISH

MASTER'S PROGRAM

QUANTUM ENGINEERING

The New Master's Program for Quantum Technologies

Quantum technologies are currently making the crucial leap from basic research to market maturity. They are among the key digital technologies of the 21st century. The Quantum Engineering degree program is an excellent continuation of a Bachelor's degree in Physics, Electronics or Computer Science, but also offers graduates of other technical Bachelor's degree programs very good job prospects in a promising professional field.

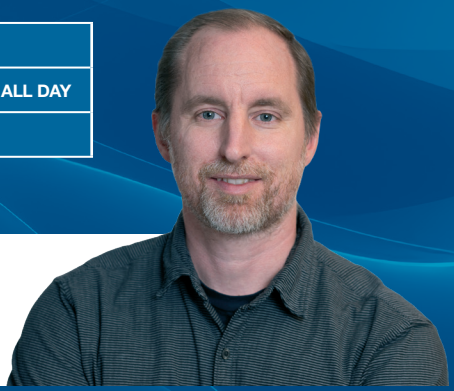
The specifically practice-oriented study program offers the opportunity to learn about the groundbreaking possibilities of quantum technology. From absolutely secure communication systems to software development for quantum computers and coherent systems – with this degree program you are well prepared for the future. The program is internationally oriented and conducted in English.

DURATION: **4 SEMESTER**	DEGREE: **MASTER OF SCIENCE IN ENGINEERING**	
LANGUAGE: **ENGLISH**	ADMISSION PLACES: **20**	ORGANISATION FORM: **TUE–THU AFTERNOONS, FRIDAY ALL DAY**
COST: **€ 363,36 TUITION FEE, € 26,20 ÖH FEE / € 3.000 Tuition fees for students from third countries**		

CHANGE OUR TOMORROW

„The Quantum Engineering degree program provides comprehensive preparation for working in various interdisciplinary and international teams in a pioneering professional field."

Hermann Detz, Program Director



1st SEMESTER	ECTS
Enabling Technologies	5.00
Homologation Module	5.00
Homologation Physics	
Homologation Electronics	
Homologation Computer Science	
Mathematical Methods	5.00
Mathematics for Quantum Engineering	
Quantum Computing I	5.00
Quantum Computing I	
Quantum Prog. Laboratory I	
Quantum Information I	5.00
Quantum Information I	
Quantum Information Laboratory	
Team Performance and Leadership	5.00

2nd SEMESTER	
Electronic Control Engineering	5.00
Electronic Control Engineering	
Electronic Control Engineering Laboratory	
Interpretation and Trends	5.00
Foundations of Quantum Information	
Technology Trends in Quantum Engineering	
Quantum Communication I	5.00
Quantum Communication I	
Quantum Communication Laboratory	
Quantum Engineering Project	5.00
Specialization I	5.00
Quantum Algorithms & High-Performance Computing: Software Engineering & Design, High-Performance Computing	
Quantum Communications: Networking for Quantum Engineering, IT-Security	
Quantum Hardware & Coherent Systems: Advanced Optics	
Specialization II	5.00
Quantum Algorithms & High-Performance Computing: Quantum Programming Languages	
Quantum Communication: Enabling Technologies II, Data Modelling Lab	
Quantum Hardware & Coherent Systems: Enabling Technologies II, Data Modelling Lab	

3rd SEMESTER	
Scientific Writing & Research Methods	5.00
Quantum Information II	5.00
Quantum Sensing & Metrology	5.00
Specialization III	5.00
Quantum Algorithms & High-Performance Computing: Quantum Computing Project	
Quantum Communication: Quantum Master Project	
Quantum Hardware & Coherent Systems: Quantum Hardware & Coherent Systems Project	
Specialization IV	5.00
Quantum Algorithms & High-Performance Computing: Quantum Computing II, Quantum Prog. Laboratory	
Quantum Communication: Quantum Communication II, Post Quantum Cryptography	
Quantum Hardware & Coherent Systems: Quantum Optics and Atomic Physics	
Entrepreneurship	5.00
Business Model Innovation	
Ethics & Technology Assessment	

4th SEMESTER	
Master Thesis	25.00
Master Thesis Seminar	5.00

CAREER PROSPECTS

The program trains highly qualified engineers who develop hardware for quantum computers and quantum sensors, program quantum computers, implement systems for quantum cryptography or work in photonics with coherent light. The demand for workers in quantum technologies is high and will increase rapidly in the coming years. Close collaborations with industry allow our students to take field trips, internships, and thesis projects in companies. In this way, they can already establish contacts with future employers during their studies.

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FURTHER INFORMATION, CURRENT DATES AND CONTACT DATA: www.technikum-wien.at/mqe