

## OVERVIEW

### Degree

- Master of Science (M.Sc.)

### Duration

- 3 semesters (1.5 yrs)

### Start

- Annually in October (winter semester)

### Admission requirements

- Successful completion of a bachelor's degree in Computer Science, Physics, Technology or a related subject
- Language requirements English: level B2
- Successfully completed assessment test

### Language of instruction

- English

### Fees

- No tuition fees
- €62 student services fee per semester

## APPLICATION

### Application period

- 15 April - 15 July

### Online application

- In the Primuss Portal at [www.th-deg.de/en/apply](http://www.th-deg.de/en/apply)

### Deadline for submission of required documents

- 27 July

### Notice of acceptance or denial

- In the Primuss-Portal in mid August

### Enrolment

- Information available in letter of admission

### Prep courses

- See [www.th-deg.de/prep-courses](http://www.th-deg.de/prep-courses) (no obligation)

### Semester start

- 01 October

## STUDY LOCATION

Deggendorf Institute of Technology

Dieter-Görlitz-Platz 1

94469 Deggendorf

Germany

 [www.th-deg.de/en/dit/campuses/deggendorf-campus](http://www.th-deg.de/en/dit/campuses/deggendorf-campus)

## CONTACT

Are you interested in studying for this Master in High Performance Computing / Quantum Computing and would like to find out more?

Please direct all enquiries to:

 [welcome@th-deg.de](mailto:welcome@th-deg.de)

 [www.th-deg.de/en/advice](http://www.th-deg.de/en/advice)



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**MASTER**  
**HIGH PERFORMANCE**  
**COMPUTING /**  
**QUANTUM COMPUTING**



## BOOST YOUR UNDERSTANDING

Welcome to the futuristic world of quantum computing, the next great evolutionary leap in computer technology, where data analytics are used to boost our understanding of the universe. Quantum computing is a new computer paradigm that will accelerate complex troubleshooting from years to minutes, potentially solving challenges that conventional computers cannot handle.

Become an expert in this field and gain knowledge that can be adapted to many different exciting areas such as in the improvement of forecasts and predictions, in cryptography (the science of writing and solving coded messages) or pharmacology (the science of drugs). The course is divided into four main module groups to cover all areas of quantum computing and related topics:

### 1. Hardware design and efficiency

- Physics and technology of modern computer systems
- Modern and experimental computer architectures
- Networks and distributed systems
- Infrastructure design facility design

### 2. Software engineering and optimization

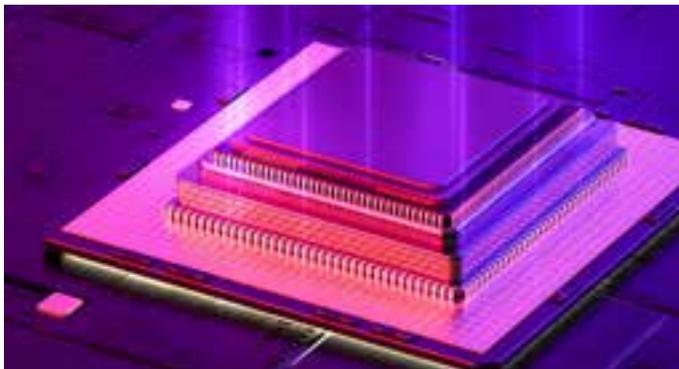
- Advanced topics of mathematics and IT
- Software design for modern, experimental computer systems
- Programming methodologies and frameworks
- Optimization methods

### 3. System design and administration

- Technology of HP & Quantum Computing
- System design for large computer systems
- System maintenance for HP & Quantum Computing
- Application of systems design

### 4. General skills

- Maths background
- Physics background
- Fundamentals of modern, experimental computing technologies
- Elective classes in a wide range of topics



## COURSE CONTENT

This course is located in our main flagship campus in Deggendorf, where it is embedded in the faculty of Computer Science.

The course consists of three semesters and concludes with the master's thesis.

Semester 1	Physics for HPC/QC, Software Engineering, HPC/QC Programming Lab, HPC/QC Technology, Advanced Mathematics for HPC/QC, FWP I (Elective subject in accordance with study coordinator)
Semester 2	Computer Architectures for HPC/QC, Networks for HPC/QC, Optimization Methods, HPC/QC Infrastructure, System Design and Application of HPC/QC Systems, Advanced Mathematics and Physics for HPC/QC
Semester 3	FWP II (Elective subject in accordance with study coordinator), Master colloquium, Master thesis

All lectures and exams are conducted in English, therefore fluent English skills are crucial.

## CAREER PROSPECTS

This postgraduate course is supported by numerous partnerships with industry and peer institutions, ensuring the course spearheads your training in rapidly developing technological advancements of quantum systems.

With this excellent qualification, expect to build your future career in one of these job markets:

- IT and IT infrastructure
- (IT) security and safety
- Hardware and software design
- Operating systems and system design
- Programming
- Designing and building computing centres
- Power supply / UPS
- Fire protection
- Building technology and HVAC
- IT management
- Innovation management

