Certificate of the allocation of a module to the major of study

(to be confirmed by the respective examiner)

		2025	☐
		2019	☐
name, prename	student ID number	FSPO CSE *	

** please check the relevant box*

Major subjects in the master's degree Computational Science and Engineering (CSE) (Description on the back)

module number	examination number	module	Examiner	ECTS
			semester	

The module can be credited towards the major.
(please check/multiple choices are possible)

☐	BIG DATA – Industry 4.0 – machine learning	
☐	Biomechanics	
☐	Energy	
☐	Engineering/Mobility	Fluid mechanics
☐		Systems Engineering
☐		Vehicle technology
☐	High Performance Computing (HPC)	
☐	Life sciences	
☐	Modelling, simulation und optimisation	
☐	Quantum science	
☐	Signal and image processing	

date signature of the Examiner

Brief description of the major studies

Computational Science and Engineering (CSE) is an interdisciplinary study program at the interface of Applied Mathematics, Computer Science, Natural science and Engineering Sciences. Within the Master's program, the following main areas of study can be pursued:

- **Big Data / Industry 4.0 / Machine Learning**
  Methods for analyzing and processing extremely large amount of data, intelligent industrial systems, machine learning and artificial intelligence

- **Energy**
  Modelling, simulation and optimisation of real problems from different fields of energy production and storage

- **Engineering/Mobility**
  Modelling, simulation and optimisation of real problems from different fields of engineering, especially
  - **Fluid mechanics**
  - **Systems engineering**
  - **Vehicle technology**

- **High Performance Computing (HPC)**
  Methods and algorithms for the simulation and optimisation of complex processes in the field of natural Science or Engineering Science on supercomputers

- **Life sciences**
  Modelling, simulation and optimisation of real problems from the life sciences, biology and medicine

- **Biomechanics**
  Modelling, simulation and optimisation of biomechanical systems

- **Modeling, simulation und optimization**
  Mathematical modelling of complex processes in the field of natural science or engineering sciences, numerical methods for their simulation and optimisation

- **Quantum science**
  Modelling, simulation and optimisation of real problems from the quantum science

- **Signal and image processing**
  Methods and algorithms for recording (sensor technology), processing, compression, evaluation and visualization of images and signals of all kinds