



Degree Profile

Master in Computer Science

Organizational unit	Department of Mathematics and Computer Science, Computer Science Section
Degree	MSc in Computer Sciences
Scope, Duration, Start	90 ECTS, 3 semesters (if full-time), autumn or spring semester
Language of instruction	English

Program Goals

Students acquire specialized computer science knowledge in accordance with their chosen specialization modules. The Master's program in Computer Science provides in-depth scientific knowledge and methodological skills in computer science.

Program Characteristics

Orientation	Scientific-oriented education
Majors	–
Program structure	The degree program consists of the following modules: General Topics in Computer Science; Distributed Systems; Machine Intelligence; Cyber Security; Data Engineering (50 ECTS in total); Preparation Master's Thesis (6 ECTS); Master's Thesis (30 ECTS); Master's Examination (4 ECTS)
Distinctive Features	Computer Science is a young science at the interface between science and engineering. It has an interdisciplinary character with strong mathematical foundation. It deals with the possibilities of processing, storing, transmitting, presenting and using information from a scientific and technical perspective.

Career Opportunities

Employment	Research and development in industry, university and research institutes, banks and insurance companies, logistics companies, pharmaceutical industry, telecommunications, trading companies, management consultancies, IT consultant, hospitals, medical sector, media companies, teaching
Further Studies	Doctorate, teaching diploma for secondary school

Teaching

Approaches	Problem-based learning, autonomous learning, research-oriented learning, teamwork, individual learning, interactive learning, cooperation in research projects, reflective learning
Assessments	Oral and written exams, active participation in courses, presentations, Master's thesis, Master's examination

Competences

Generic Attitude / Communication Approach / Management	Students acquire the skills to ... – work critically with scientific research literature. – work on questions and hypotheses, alone and in groups, using suitable approaches and methods. – develop own questions and research sketches. – carry out projects independently from conception to communication. – lead discussions and deal constructively with criticism. – present complex systematic interrelationships, scientific results and theories orally and in written form to specialists as well as general audiences. – communicate ideas and results effectively in English. – work with a research team in a respectful and responsible manner. – deal with ethical aspects of information technologies in an appropriate and critical manner.
Subject-related Knowledge / Understanding Application / Judgment Interdisciplinarity	Students acquire the skills to ... – know and describe relevant theories of Computer Science. – establish cross-references between current research in the fields of Distributed Systems, Machine Intelligence, Cyber Security, and Data Engineering. – develop, apply and enhance discipline-specific concepts, methods, practices and/or solutions in a research context. – prepare and present Computer Science knowledge in a didactic way. – to identify subject-specific problems, formulate appropriate solutions and implement them methodically. – independently develop new disciplinary and methodical approaches – critically evaluate scientific questions and independently develop research results. – design, implement, and evaluate complex software and IT systems.

Learning Outcomes

Graduates of the Master of Science in Computer Science...

- are able to systematically analyze scientific problems and independently develop, clearly present and communicate effectively solutions using current information and communication technologies.
- can apply their knowledge of the current state of research to correctly and appropriately establish subject-specific cross-references.
- are able to work on a small guided research project within which they develop, apply and expand concepts, methods, practices and solutions in the area of their selected specialization module of Computer Science.
- are able to select, apply and document suitable theories, procedures and tools for the specification, design, implementation and evaluation of computer-based solutions by means of their theoretical knowledge and practical skills in a specialization area of computer science.
- are able to correctly describe their own scientific work, interpret the achieved results, present the conclusions and hypotheses in a clear and concise written form and defend them appropriately within the scientific community.