

Computer Science Engineering MSc Master programme

Full-time study
programme

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Department of Informatics

ENGLISH-TAUGHT MSC PROGRAMMES AT OUR FACULTY

Business Informatics

Computer Science

Computer Science Engineering

Electrical Engineering

Mechanical Engineering



- **Responsible department:** Department of Informatics
 - https://it.sze.hu/en_GB/welcome
 - Department Office: Main Building, Floor 6th; B Building, Room number B602
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- **Program supervisor:** Dr Katalin Kovács (kovacsk@sze.hu)

ABOUT THE COMPUTER SCIENCE ENGINEERING MSC PROGRAMME

Occupation obtained	Computer Science Engineering
Length of education	4 semester
Credit points	120 credits
Schedule	Full-time
Compulsory internship	6 weeks (240 working hours)
Tuition fee	<ul style="list-style-type: none">▪ for Hungarian students: state-funding or self-funding▪ for international students: scholarship (e.g. Stipendium Hungaricum) or self-funding

- The goal of the education programme is to provide students a high level knowledge built on a strong foundation of natural and technical sciences related to the fields of Computer Science and Information and Communications Technologies (ICT) in order to enable them to understand, design, implement and integrate complex, heterogeneous networked systems, and furthermore, to coordinate and perform research and development tasks for IT purposes.

- The programme will equip students with knowledge of algorithms, performance and quality of IT services, communications systems protocols and architectures, a safe and secure design of hardware and software components of embedded and distributed systems, and also to combine a scientific perspective with the practical engineering approaches. Advanced and emerging future technologies, such as Artificial Intelligence methods are in special focus. As a basic objective, the students will be prepared to be able to continue their studies in postgraduate schools, such as in the Multidisciplinary Doctoral School of Engineering Sciences at Széchenyi István University.

MAIN TOPICS IN THE CURRICULUM

Mathematical logic

Programming

Formal languages

Data science

Coding Theory

Soft computing
methods

Research and innovation



- **Specialization/modules:** there are no specialization in the degree.
- **Practical training/Internship:** to be undertaken at a company independent from the university and to last for a minimum of six weeks.
- **The supervisory system of knowledge:** it is composed of performing the requirements detailed in the curriculum, finishing professional practice, creation of thesis work and passing the final exam.

REQUIREMENTS OF THE THESIS

- The thesis has to solve an IT problem or work out a research topic during two semesters based on the knowledge of the student, complimented by studying the literature and supervised by a consultant.
- The candidate proves his/her proficiency by the thesis work in applying the knowledge learned, ability to perform analysis and design tasks, is experienced in the literature and can use it to create value.

CONDITIONS FOR TAKING THE FINAL EXAM

- All requirements of the curriculum must be met, furthermore
 - collect at least 120 credits, in which the thesis work represents 30 credits,
 - the requirements of physical education and professional practice must be fulfilled,
 - the thesis work must be judged and accepted by a reviewer.

- The candidate has to present and defend his/her thesis work. The members of the committee ask questions referring the topic of the thesis during the complex exam, in order to check the skills of the candidate.
- The committee grades the result of the final exam with a single mark by averaging the grades given to the thesis defense and the complex exam. If this grade is “fail”, the committee decides whether partly or fully accepts the thesis work.

- Weighted grade point average considering the whole study time, arithmetic average of the grades given to the complex exam and thesis defense.

OBLIGATORY SUBJECTS

Total credits: 92

No.	Code	Title	Theory	Practice Lab		Exam type	Credits	Suggested semester	Prerequisites
2.	GKNM_INTA058	IT Project Management	2	2	0	v	4	1	
3.	GKNM_MSTA002	Theory of Algorithms	2	2	0	v	5	1	
4.	GKNM_MSTA025	Data Analysis	4	0	0	v	4	1	
5.	KGNM_VKTA005	Management Competencies	2	2	0	f	5	1	
6.	GKNM_AUTA011	Automatic Controls	2	0	0	v	5	2	
7.	GKNM_INTA055	Formal Languages and Automata	4	0	0	v	4	2	
8.	GKNM_INTA057	System and Software Testing	2	2	0	v	4	2	
9.	GKNM_TATA019	Coding theory	4	0	0	v	5	2	
10.	KGNM_GETA025	Advanced Corporate Finance	0	2	0	v	4	2	
11.	GKNM_INTA098	Thesis Consultation I. (Master Programme)	0	0	0	f	15	3	
12.	GKNM_MSTA003	Numerical Analysis	2	2	0	v	5	3	
13.	GKNM_INTA059	Knowledge Base Technologies and Planning	2	2	0	v	4	4	
14.	GKNM_INTA060	Kernel engineering	2	2	0	v	4	4	
15.	GKNM_INTA063	Translation Programs	2	2	0	v	4	4	
16.	GKNM_INTA099	Thesis Consultation II. (Master Programme)	0	0	0	f	15	4	GKNM_INTA098

DIFFERENTIATED PROFESSIONAL ELECTIVE SUBJECTS

Interface Technologies	GKNM_AUTA010
Design of Virtual Instrument	GKNM_AUTA029
Photometry and Colorimetry	GKNM_FKTA031
Computer Image Analysis	GKNM_FKTA032
Modern Technologies of System Development	GKNM_INTA064
Adaptive Systems	GKNM_INTA066
Computational Intelligence	GKNM_INTA067
Software Examination	GKNM_INTA068
Introduction to Bioinformatics	GKNM_INTA069
Complexity Theory	GKNM_INTA070
Document Management Systems	GKNM_INTA071
Data Mining	GKNM_INTA072
Platform-Independent Programming	GKNM_INTA073
Programming in LabView	GKNM_INTA074
Stochastic Processes	GKNM_MSTA024
Parallel programming	GKNM_MSTA034
Information Security	GKNM_TATA046
Internet of Things	GKNM_TATA048
Cloud Computing	GKNM_TATA051

At least 30 credits must be collected until the end of studies from this group of subjects.

OPTIONAL SUBJECTS (FREELY ELECTED COURSES)

Nanoelectronics	GKNM_FKTA012
Measuring Theories and Techniques	GKNM_FKTA013
Nuclear Technology	GKNM_FKTA035
Risk Analysis	GKNM_MGTA021
Exchange Course 2.	KGNB_NOKM022
Leadership and Organizational Communication	KGNM_VKTA003
Innovation and Research Communication I.	KGNM_VKTA020
Innovation and Research Communication II.	KGNM_VKTA021

At least **6 credits** must be collected until the end of studies from this group of subjects.

FURTHER EDUCATIONAL OPPORTUNITIES



Doctoral Programme in Informatics

Doctoral School of Multidisciplinary
Engineering Sciences

software developer

data scientist

DIGITAL INDUSTRY



**INTERNATIONAL RESEARCH
ORGANIZATIONS**

system analyst

AI specialist

computer and information research scientist

HIGHLIGHTS OF THE PROGRAMME

Strong foundations for AI, data science, cloud computing and programming

Small class size - with all benefits of learning experience in a small community

Wide range of elective subjects with individual paths in the curriculum

Work experience in high quality industry and international projects

**We wish you a successful study at
our university and eventful and
enjoyable stay in Győr!**

About the Faculty:
givk.sze.hu