

University of Miskolc
Faculty of Mechanical Engineering and Informatics

PhD Programme in Computer Science and Engineering

Structure of the Study Program

The doctoral program is a 4-year program consisting of two periods both having a length of two years. The first two year stage (study-research phase) is a course-based period; the students must take courses to acquire the professional knowledge in Information Science and Mathematics. At the end of the study-research phase, there is a Complex Exam. The exam relates to two selected courses passed by the student, to the research activity of the first period and the proposed research plan of the second period. The second period of the program is devoted to the research activity. In the second phase, the research - dissertation period, the main goal is to publish high-quality papers on the selected research work.

Students have to take a mandatory and an elective course-unit consisting of four major subjects. Ppassing the exams they acquire the professional knowledge in information science and Mathematics. In accordance with the research field of applied information engineering, students can choose either mathematics or information science (in the ratio 2:1) depending on their interests and the chosen topic.

Mandatory Courses

Area	NEPTUN Code	Title	Institute
A	GEMAN401	Discrete Mathematics I	Mathematics
A	GEMAK416	Theory of Algorithms	Mathematics.
A	GEMAN421	Matchematical Logic with Applications	Mathematics
A	GEIAL401	Paradigms of Programming	Informatics

Elective / Optional Courses

Area	NEPTUN Code	Title	Institute
SZT	GEMAN411	Differential and Integral Equations	Mathematics
SZT	GEIAL424	Ontology Management Systems	Informatics
SZT	GEMAK409	Paralel algorithms	Mathematics

SZT	GEMAK406	Complexity of Algorithms	Mathematics
SZT	GEMAN403	Discrete Mathematics II	Mathematics
SZT	GEMAN402	Modern Analysis	Mathematics
SZT	GEMAK411	Numerical Methods I	Mathematics
SZT	GEIAL421	Theory and technology of data mining	Informatics
SZT	GEIAL407	Distributed and Parallel Systems	Informatics
SZT	GEMAN422	Lattices, Concept Lattices and Fuzzy Systems	Mathematics
SZT	GEAGT401	Computer aided curve and surface modelling	Ábrázoló Geom.
SZT	GEIAL403	Operating Systems	Informatics
SZT	GEMAK404	Information and Coding Theory	Mathematics
SZT	GEMAK413	Optimization Theory	Mathematics
SZT	GEMAK412	Numerical methods II.	Mathematics
SZT	GEAHT411	Numerical Methods in Fluid and Heat Engineering	Fluid and Heat Engineering
SZT	GEFIT411	Computer Simulation of Physical Processes	Physics
SZT	GEVGT425	Optimization of Structures	Chemical Machinery
SZT	GEMAN424	Methods for Differential Equations	Mathematics
SZT	GEMAN425	Methods for Nonlinear Differential Equations	Mathematics
SZT	GEMAN426	Numerical Methods for Differential Algebraic Equations	Mathematics
SZT	GEIAL402	Distributed Algorithms	Informatics
SZT	GEIAL415	Grid Systems	Informatics
SZT	GEMAK414	Stochastic Methods	Mathematics
SZT	GEIAKX1	Programming of Graphical Processors	Informatics
SZT	GEIALX1	Graphical Algorithms in Game Development	Informatics
SZT	GEIAL432	Soft Computing	Informatics
SZT	GEIAL481	Nature Inspired Optimization Methods	Informatics
SZT	GEIAL??	Szoftver Defined Networks	Informatics
SZT	GEIAK433	Knowledge Representation and Reasoning	Informatics

		Methods of Expert Systems	
SZT	GEVGT990N	Methodology of Publication Process	Chemical Machinery
SZT	GEMAK420	Cryptography	Mathematics
SZT	GEIAL456	Fuzzy Systems	Informatics
TR	GEIAK401	Theory of Manufacturing Processes and Systems	Informatics
TR	GEIAK405	Principles, Models and Methods in Computer Integrated Manufacturing	Informatics
TR	GEIAK406	Computerized Production Planning and Control	Informatics
TR	GEIAK407	Theory of Computer Aided Production Control	Informatics
TR	GEIAK403	Modelling of Manufacturing Processes	Informatics
TR	GEIAK408	Numerical Control of Machine Tools	Informatics
TR	GEIAK415	Computer optimisation of gears mating	Informatics
TR	GEVAU401	Information Systems in Control Engineering	Aurtomation Technology
TR	GEVAU415	Telecommunication in Control Systems	Aurtomation Technology
TR	GEVAU460	Embedded Systems and Architektures	Aurtomation Technology
TR	GEVAU413	System on chip design and modelling methods	Aurtomation Technology
TR	GEVAU404	Speech Information Systems	Aurtomation Technology
TR	GEVAU402	Intelligent Controlling	Aurtomation Technology
TR	GEVEE405	Electronic systems and metrology	Electrical Engineering.
TR	GEVEE412	Computer aided measurement systems	Electrical

			Engineering.
TR	GEVEE413	Computer aided electronic design	Electrical Engineering.
TR	GEVEE414	Electromagnetic Compatibility (EMC)	Electrical Engineering.
TR	GEVEE415	Power Electronics	Electrical Engineering.
TR	GEVEE416	Electric Servo Drives	Electrical Engineering.
TR	GEVEE417	Electrical modeling and simulation	Electrical Engineering.
LR	GEALT408	Theory of Material Handling Systems	Materials Handling and Logistics.
LR	GEALT410	Mathematical Models of Logistics	Materials Handling and Logistics.
LR	GEALT411	Theory of Logistics	Materials Handling and Logistics.
LR	GEALT412	Beszerzési és elosztási logisztika	Materials Handling and Logistics.
LR	GEALT413	Logistic of Supply Systems	Materials Handling and Logistics.
LR	GEALT414	Logistic of Production Systems	Materials Handling and Logistics.
LR	GEALT415	Logistic of Service Systems	Materials Handling and Logistics.
LR	GEALT416	Logistics of Quality Assurance, Product Logistic	Materials Handling and Logistics.
LR	GEALT417	Recycling Logistics	Materials Handling and Logistics.
LR	GEALT418	Global Logistics	Materials Handling and Logistics.
LR	GEALT419	Storage Systems	Materials Handling and Logistics.
LR	GEALT420	Mathematical Models of Logistics	Materials Handling and Logistics.
SZT	GEMAK40	Combinatorial Algorithms	Mathematics
TR	GEIAK403	Modelling of Production Processes	Informatics
TR	GEVEE418	Automotive electrics and -electronics	Electrical Engineering
LR	GEALT422	Simulation in Material Flow and Logistics	Materials Handling and Logistics

LR	GEALT423	Transportation-Forwarding	Materials Handling and Logistics
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Area codes: A: Theoretical Foundations, SZT: Applied Computer Science, TR: Information Science for Production Engineering, LR: Material Flow Systems