RĪGAS TEHNISKĀ
UNIVERSITĀTE

Study programme "Computer Science and Information Technology"

Main attributes

Title	Computer Science and Information Technology
Identification code	DDC0
Education classification code	51483
Level and type	Doctoral (Third Cycle) Studies
Higher education study field	Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science
Head of the study field	Agris Ņikitenko
Deputy head of the study field	Jurģis Poriņš
Department responsible	Faculty Of Computer Science Information Tehnology And Energy
Head of the study programme	Jānis Grabis
Professional classification code	-
The type of study programme	Full time
Language	Latvian, English
Accreditation	29.11.2023 - 30.11.2029; Accreditation certificate No 2023/44-A
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D) in engineering and technology or Doctor of Science (Ph.D) in natural sciences / –
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	1. Master degree of engineering science in electrical engineering, electronics, information and communication technologies or master degree of natural sciences in computer science and informatics, mathematics, or comparable education. 2. Master degree of engineering science or master degree of natural sciences, or master degree of social sciences, or comparable education, fulfilling the preconditions.

Description

Abstract	Information technologies have a high degree of complexity with many challenges requiring advanced knowledge and problem-solving and skills. Computer science and information technology doctoral study programme prepares professionals with in-depth knowledge in computer science, information technology, computer control and applied mathematics, who are able to perform scientific research leading to new scientific discoveries, to develop innovative digital technologies and to optimize implementation of digital technologies in practice. The study programme focuses on transferable research skills, advanced software engineering, intelligent systems, simulation, big data technologies, computer visions, computer networks and mathematical modelling.
Aim	The objective of the study programme is to prepare highly qualified specialists and researchers in the area of: 1) electrical engineering, electronic engineering, information engineering with specialization in systems analysis, modelling and design; or 2) mathematics with specialization in applied mathematics and mathematical modelling or probability and mathematical statistics, who are able to carry out state of the art research and solve complex real-life problems.
Tasks	Tasks of the study programme: - to prepare students for independent research work in academia and industry; - to promote knowledge transfer to industry; - to develop the individual abilities of students and to provide a stimulating environment; - to strengthen abilities of continuous self-development of knowledge and professional skills; - to develop critical, analytical and systematically thinking and to develop collaborative skills; - to explain and advocate the role of computer science and information technology in society.

Learning outcomes	The graduate of the study programme: - is able to identify the significant and promising direction of the doctoral research and to formulate research challenges; - is able to select and to used scientific research methods; - is able to independently plan and carry out scientific research and to perform critical analysis, synthesis and evaluation; - is able to present and to defend results of the scientific research; - is able to publish research results in scientific publications; - is able to implement technology transfer and projects and to promote scientific achievements to the general public; - is able to solve complex computer science and information technology problems in a systematic and formal manner; - is able to perform scientific and practical experiments, process data and disseminate results on open research repositories; - is able to follow and to promote principles of ethical research. • Research specific outcomes: - is able to create new methods and algorithms for systems modelling, design, implementation and optimization; - is able to create new methods and technologies in computer engineering including computer architecture, computer networks and computer control; - is able to create new methods and technologies in applied mathematics and statistics.
Final/state examination procedure, assessment	Defence of the Doctoral Thesis at the Promotion Council.
Description of the future employment	Graduates work as leading information technology specialists in the areas of system analysis, design, computer control and modelling as well as applied mathematics and statistics. They work at higher education institutions, research centres and enterprises in Latvia and abroad.
Special enrollment requirements	English language proficiency equivalent to at least CEFR B2 level.
Opportunity to continue studies	Lifelong learning.

Courses

No	Code	Name	Credit points
A		**Compulsory Study Courses**	**16.0**
1	DOP727	Research Methods in Computer Science and Information Technology	6.0
2	DSP795	Transfer of Research Results in Computer Science for Industrial Applications	5.0
3	DDD700	Scientific Seminars	5.0
B		**Compulsory Elective Study Courses**	**15.0**
			10.0
1	DPI737	Fundamentals of Software Development	5.0
2	DSP638	Distributed Intelligent Systems	5.0
3	DST718	Networked Systems	5.0
4	DDR601	Advanced Computer Vision Technologies	5.0
5	DIM780	Methods and Algorithms of Mathematical Modelling	5.0
6	DMS603	Mathematical Computer Technology	5.0
7	DMI751	Methodology for Stochastic Modelling of Complex Systems	5.0
8	DMI752	Machine Learning and Data Mining for Data Analysis	5.0
9	DMS667	Stochastic Differential Equations	10.0
			5.0
1	DOP729	Practical Research Engagement	5.0
C		**Free Elective Study Courses**	**11.0**
E		**Final Examination**	**150.0**
1	DDD701	Scientific Work	150.0