RĪGAS TEHNISKĀ UNIVERSITĀTE

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Study programme "Automation and Computer Engineering"

Main attributes

Title	Automation and Computer Engineering
Identification code	DDF0
Education classification code	51523
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 and Information Technology
Head of the study programme	Dmitrijs Bļizņuks
Professional classification code	
The type of study programme	Full time, Extramural
Language	Latvian, English
Accreditation	31.05.2013 - 30.06.2023; Accreditation certificate No 2020/80
Variant 1	
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0; Extramural - 5,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D.) in Engineering and Technology / –
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	
Variant 2	
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0; Extramural - 5,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D.) in Engineering and Technology / –
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	
Variant 3	
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0; Extramural - 5,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D.) in Engineering and Technology / –
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	
Variant 4	
Volume (credit points)	192.0
Duration of studies (years)	Full time studies - 4,0; Extramural - 5,0
Degree or/and qualification to be obtained	Doctor of Science (Ph.D.) in Engineering and Technology / –
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	

Description

Abstract	Study program „Automation and Computer Engineering” envisages training of computer engineering specialists for enterprises dealing with computer graphics and networks, signal processing and mathematical statistics as well as specialists for corresponding research laboratories and research institutions.
Aim	The goal of study program is to provide the highest qualification corresponding to doctor’s level in the field of information technologies, as well as for academic work.
Tasks	General tasks of study program: - to ensure competitive doctorate level education in Automation and Computer Engineering; - to guarantee the higher education in fundamental sciences linked with direction, to provide skills to formulate and to solve independently scientific and practical tasks, and knack to organize and to lead research work, to provide skills and experience necessary for pedagogical employment.

Learning outcomes	Graduates of program: - is able to create (to design, to implement and to adapt) essential engineering processes, - is capable to receive national and international recognition (with publications and patents) using original scientific ideas and to broaden technological possibilities and knowledge, - taking into account technological, social, short-term and economical restrictions, graduate is able to carry out critical analysis, evaluation and synthesis of new and complicated ideas, - graduate is able to make responsible decisions, to plan projects and to calculate necessary resources within international context, to communicate with colleagues, international scientific community and society about his/her ideas and experience, - graduate can promote (within academic and professional context) technological, social or cultural progress of knowledge based society.
Final/state examination procedure, assessment	The final examination is presentation of thesis (dissertation). The doctoral degree is awarded for independent promotional work (thesis), which contains original approved research results and provides new findings in chosen scientific field. The conformity of work is evaluated by the State scientific qualification committee, the experts of Latvian Science Council and the Promotional Council of corresponding scientific branch taking into account following criteria: completeness and novelty of investigations, conformity of content and volume of thesis, usage of advanced methods for analysis and data treatment, the presence of publications in peer reviewed international scientific issues, participation in international scientific conferences (seminars) and dissemination of results of investigation. Promotional Council makes decision by closed voting.
Description of the future employment	Graduate can work as self-employed person or individual businessman, as well as leading researcher at research institutions and as academic staff.
Special enrollment requirements	
Opportunity to continue studies	N/A

Courses

No	Code	Name	C.p. [1]	C.p. [2]	C.p. [3]	C.p. [4]
A		**Compulsory Study Courses**	**15.0**			
		Computer control				
1	DAI601	Structural Simulation of Technical and Biological Systems	10.0			
2	DID610	Intelligent Computer Tehnologies and Systems	5.0			
B		**Compulsory Elective Study Courses**	**21.0**			
1	DID612	Evolutionary and Genetic Algorithms	10.0			
2	DID621	Artificial Neuron and Neural Networks	10.0			
3	DID619	Intelligent Decision Making Systems	5.0			
4	DAI603	Diagnostics of Uninterrupted Systems by Digraphs	10.0			
5	DID618	Fuzzy Logic and Inference	5.0			
6	DAI606	Computer Technology in Biomedicine	10.0			
7	DAI605	Medical Information Systems	5.0			
8	DAI604	Computerized Decision Making in Medicine	5.0			
9	DDI702	Scientific seminar	6.0			
C		**Free Elective Study Courses**	**6.0**			
E		**Final Examination**	**150.0**			
1	DAI009	Docotral Thesis	150.0			
2	DID009	Research Work	150.0			
A		**Compulsory Study Courses**		**15.0**		
		Systems Analysis, Modelling and Design				
1	DST645	Advanced Network Technologies		7.0		
2	DAA604	Modern Methods in Computer Graphics, Image Processing and Scene Analysis		8.0		
B		**Compulsory Elective Study Courses**		**21.0**		
1	DST644	Signal Testing and Processing Methods		15.0		
2	DST643	Simulation Technology of Computer Networks		15.0		
3	DAA601	Pattern Recognition and Image Processing		10.0		
4	DAA603	Computational Methods in Research		5.0		
5	DAA605	Research Seminar		6.0		
C		**Free Elective Study Courses**		**6.0**		
E		**Final Examination**		**150.0**		
1	DAA009	Doctoral Thesis		150.0		
2	DST009	Doctoral Thesis		150.0		
A		**Compulsory Study Courses**			**15.0**	
1	DIM602	Methods and Algorithms of Mathematical Modelling			10.0	
2	DIM611	Mathematical Physics			5.0	
B		**Compulsory Elective Study Courses**			**21.0**	
1	DIM605	Theory of Complex Variables with Applications			10.0	
2	DSP634	Structural Modelling			10.0	
3	DIM609	Algorithms for Solving Non-linear Equations and Their Systems			10.0	
4	DAI603	Diagnostics of Uninterrupted Systems by Digraphs			10.0	
5	DAI606	Computer Technology in Biomedicine			10.0	
6	DID612	Evolutionary and Genetic Algorithms			10.0	
7	DID632	Intelligent Decision Making Systems			10.0	
8	DIM611	Mathematical Physics			5.0	
9	DIM607	Eddy Current Methods in Mathematical Problems of Non-destructiveTesting			5.0	
10	DIM608	Dynamics and Magnetohydrodynamics of Viscous Fluids			5.0	
11	DIM614	Research Seminars			6.0	
12	DSP643	Scientific Seminar			6.0	
C		**Free Elective Study Courses**			**6.0**	
E		**Final Examination**			**150.0**	
1	DAM009	Research Work			150.0	
A		**Compulsory Study Courses**				**15.0**
1	DMS667	Stochastic Differential Equations				10.0
2	DMS602	Mathematical Computer Technology				5.0
B		**Compulsory Elective Study Courses**				**21.0**
1	DMS671	Assimptotic Analysis of Differential Equations with Markov Switchings				10.0

2	DMS668	Stochastic Analysis of Securities Trading				10.0
3	DIM609	Algorithms for Solving Non-linear Equations and Their Systems				10.0
4	DSP634	Structural Modelling				10.0
5	DAI603	Diagnostics of Uninterrupted Systems by Digraphs				10.0
6	DAI606	Computer Technology in Biomedicine				10.0
7	DID612	Evolutionary and Genetic Algorithms				10.0
8	DID632	Intelligent Decision Making Systems				10.0
9	DMS601	Risk Management Mathematical Methods				5.0
10	DAA603	Computational Methods in Research				5.0
11	DIM611	Mathematical Physics				5.0
12	DMS672	Research seminars				6.0
C		**Free Elective Study Courses**				**6.0**
E		**Final Examination**				**150.0**
1	DMS009	Research Work				150.0
K.p.[*] kredītpunkti studiju programmas variantā						