



RĪGAS TEHNISKĀ UNIVERSITĀTE

Reģ.Nr.9000068977, Krišsalas iela 6A, Rīga, LV-1048, Latvija
Tālr.:67089999; Fakss:67089710, e-pasts:rtu@rtu.lv, www.rtu.lvwww.rtu.lv

24.11.2023 07:12

Study programme "Computer Systems"

Main attributes

Title	Computer Systems
Identification code	DBD0
Education classification code	43481
Level and type	Academic Bachelor Study
Higher education study field	Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science
Head of the study field	Agris Nikitenko
Deputy head of the study field	Jurģis Poriņš
Department responsible	Faculty of Computer Science and Information Technology
Head of the study programme	Egons Lavendelis
Professional classification code	
The type of study programme	Full time
Language	Latvian, English
Accreditation	31.05.2013 - 31.12.2023; Accreditation certificate No 2020/80
Volume (credit points)	120.0
Duration of studies (years)	Full time studies - 3,0
Degree or/and qualification to be obtained	Bachelor of Engineering Science in Computer Control and Computer Science
Qualification level to be obtained	The 6th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	General Secondary Education or 4-year Vocational Secondary Education

Description

Abstract	Academic Bachelor study programme "Computer Systems" (120 credit points) provides studies in one of the engineering fields – computer systems. The studies are 3 years long and students acquire basic knowledge in computer science for their future studies or for practical work in the area of information and communication technologies. Mathematics, physics, computer science and programming courses including Applied Software Automation Tools, Data Structures, Introduction to Computer Architecture, Fundamentals of Computer Graphics and Image Processing, Fundamentals of Computer Simulation and Modelling, Database Management Systems provide theoretical basis. In the area of computer science students learn Operating Systems, Computer Organization and Networks, Algorithms and Methods of Programming, Systems Analysis and Design, Technology of Large Databases and Fundamentals of Artificial Intelligence. In the area of software engineering students acquire knowledge of Programming Languages, Software Engineering Technologies and Tools. Thus, theoretical knowledge is combined with application skills. The study programme includes mandatory courses (86 credit points), including courses of specialization, courses of general education and humanitarian/social science course, restricted electives (20 credit points from which 15 credit points are for courses of specialization). Free electives have 4 credit points, and bachelor thesis 10 credit points. Specific character of this study programme is the possibility for graduates to continue their studies in academic Master or professional Master study programme "Computer Systems".
Aim	The aim of the study programme is to prepare professionals for starting independent work in the field of informatics with knowledge in software engineering, research and solving computer engineering problems, computer systems development, systems analysis and modelling, fundamentals of database technologies and artificial intelligence, as well as with ability to demonstrate systems thinking and/or systems approach and participate in software development project, fulfilling different roles, who demonstrate professional ethics and knowledge/skills complying with IT industry standards. Prepare students for the continuation of studies both at professional (fulfilling additional requirements) and academic Master studies level.
Tasks	Study programme tasks are the following: <ul style="list-style-type: none">- To provide knowledge in mathematics and physics in accordance with the highest technical engineering education requirements.- To provide basic knowledge in computer science, focusing on software engineering, computer systems development, database technologies, systems analysis and fundamentals of artificial intelligence.- To develop students' practical abilities to work with various software.- To practice students in programming and professional use of computers.- To develop students' ability to independently acquire, evaluate and use new software products.- To improve the students' professional skills in foreign languages.- To introduce students with the professional ethics and IT industry standards.- To improve students' oral and written communication skills as well as to develop students' skills in team work.- To provide the initial scientific research skills, developing Bachelor Thesis.

Learning outcomes	<p>Graduate of the study program:</p> <ul style="list-style-type: none"> - has acquired knowledge in computer science in general and its formal basis; - is able to choose the appropriate algorithms (including artificial intelligence based), methods, software products and tools for solving problems; - is able to use software development environments and tools as well as to develop - software according to the best praxis and standards of the IT sector; - is able to study professional literature in Latvian and a foreign language as well as to use professional terminology in the state language; - is able to participate in project development, management, and work in a team, manage, plan and coordinate the working group following the interests of the society as a whole and principles of sustainable development; - is able to plan independently work activities.
Final/state examination procedure, assessment	<p>To receive the academic degree of Bachelor of Computer Systems, students must accomplish the syllabus and work out and defend their Bachelor Thesis. The volume of the Bachelor Thesis is 10 credit points. Bachelor Thesis must be publicly defended, and a reviewer is appointed for its evaluation. The guidelines for contents and evaluation criteria are described in "Requirements for the final thesis of the academic bachelor's study program at the Institute of Applied Computer Systems".</p>
Description of the future employment	<p>Graduates can start working in information technology companies (or in IT departments of other companies) within software development projects playing a variety of roles such as programmers, tester, technical writers.</p>
Special enrollment requirements	
Opportunity to continue studies	<p>Graduates of this study program can continue studies at academic Master and professional Master (fulfilling additional requirements) study programmes.</p>

Courses

No	Code	Name	Credit points
A		Compulsory Study Courses	86.0
1	DIM701	Mathematics	9.0
2	DIM707	Discrete Mathematics	3.0
3	DMS212	Probability Theory and Mathematical Statistics	2.0
4	MFZ101	Physics	6.0
5	DIP107	Algorithmization and Programming of Solutions	6.0
6	ICA301	Civil Defence	1.0
7	DAA300	Fundamentals of Computer Graphics and Image Processing	2.0
8	DSP202	Discrete Structures of Computer Science	3.0
9	DIP203	Data Structures	3.0
10	DIP208	Programming Languages	2.0
11	DMS214	Random Processes	2.0
12	DSP201	Database Management Systems	4.0
13	DPI230	Object-Oriented Programming	3.0
14	DOP201	Introduction to Operations Research	3.0
15	DMI201	Fundamentals of Computer Simulation and Modelling	3.0
16	DST203	Introduction to Computer Architecture	3.0
17	DOP204	Numerical Methods	2.0
18	DIP381	Operating Systems	3.0
19	DOP319	Computer Networks	3.0
20	DSP332	Fundamentals of Artificial Intelligence	3.0
21	DDI711	Basics of Computer Control	3.0
22	DIP225	Applied Software Automation Tools	2.0
23	DPI343	Computer Organization and Assembly Language	3.0
24	DIP383	Software Engineering	2.0
25	DSP344	Systems Analysis and Knowledge Acquisition	2.0
26	DSP105	Introduction to Study Field	1.0
27	SDD701	Innovative Product Development and Entrepreneurship	4.0
28	VAS038	Environment and Climate Roadmap	1.0
29	DSP797	Data Models in Database Systems	2.0
B		Compulsory Elective Study Courses	20.0
B1		Field-Specific Study Courses	15.0
1	DIP320	Adaptive Data Processing Systems	2.0
2	DIP330	Functional Programming	2.0
3	DSP342	Methods of Systems Theory	2.0
4	DSP347	System Engineering	2.0
5	DPI349	Software Evolution Technologies	3.0
6	DIP321	Algorithms and Methods of Programming	2.0
7	DSP341	Fundamentals of Computer Systems Design	2.0
8	DIP392	Applied System Software	2.0
9	DPI739	Software Testing Technologies and Principles	2.0
10	DPI740	Automated Functional and Load Testing of Web Solutions	4.0
11	DPI741	Continuous Automation of Software Server Tests	4.0
12	DSP798	Parallel Database Systems	2.0
13	DPI456	Multithreading in Software	2.0
B2		Humanities and Social Sciences Study Courses	2.0
1	HSP378	Politolology	2.0
2	HSP379	Political System of Latvia	2.0
3	HSP380	United Europe and Latvia	2.0
B6		Languages	3.0
1	HVD153	The Terminology Minimum in English	3.0
2	HVD149	The terminology minimum in German	3.0
C		Free Elective Study Courses	4.0
E		Final Examination	10.0
1	DIP001	Bachelor Thesis	10.0
2	DPI001	Bachelor Thesis	10.0
3	DSP001	Bachelor Thesis	10.0