RĪGAS TEHNISKĀ UNIVERSITĀTE

Reģ.Nr.90000068977, Ķīpsalas iela 6A, Rīga, LV-1048, Latvija

Tālr.:67089999; Fakss:67089710, e-pasts:rtu@rtu.lv, www.rtu.lvwww.rtu.lv

Study programme "Computer Science"

Main attributes

Title	Computer Science
Identification code	DBW0
Education classification code	43484
Level and type	First-Cycle Higher Education (Academic Bachelor) 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	Center for Nature and Engineering
Head of the study programme	Dzintars Tomsons
Professional classification code	
The type of study programme	Full time
Language	Latvian, English
Accreditation	29.11.2023 - 30.11.2029; Accreditation certificate No 2023/44A
Volume (credit points)	180.0
Duration of studies (years)	Full time studies - 3.0
Degree or/and qualification to be obtained	Bachelor's Degree of Natural Sciences in Programming
Qualification level to be obtained	The 6th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Secondary education

Description

Abstract	The duration of the academic bachelor study programme “Computer Science” is 3 years (180 credit points). It trains academic bachelors in computer science. The curriculum provides opportunities to acquire the knowledge and skills necessary for designing, programming, testing of mobile applications, solutions for the Internet of Things (IoT), interactive websites, online stores, computer control systems, applications of data processing and analysis and other types of software systems. The acquired knowledge and skills provide the basis for professional growth in a prospective industry with opportunities to receive a competitive salary. During their studies, students learn such theoretical study courses in the field of information technology as "Introduction to Software Engineering", "Programming", "Mathematics", "Software Project Management", "Software Project and Data Quality", "Internet of Things", "Data Processing Systems", "Database Technologies", as well as learning modules for professional specialization such as "Computer Systems and Networks", "Applications of Artificial Intelligence", and "Smart Technologies". At the end of their studies, students have to develop and defend a Bachelor Thesis (18 credit points).
Aim	To provide academic education in the field of computer science and information technology, providing the opportunity to obtain higher education, retraining and further education, which allows to fully function in education, culture, science and other fields in the dynamic conditions of democracy, communication, competition, information and culture in the interests of the Latvian state and the Latvian people.
Tasks	- to ensure the acquisition of competences corresponding to the requirements of academic bachelor's degree and higher education in computer science standard; - to ensure the academic and applied research connection with coursework and scientific and professional problem solving, ensure student involvement in research on current problems of information technology and computer science; - to promote the self-education needs satisfaction and involvement in further education.
Learning outcomes	- the knowledge of computer science and mathematics, which provide an understanding of computer science and information technologies, have been learned, and theoretical courses of computer science in all major computer science industries have been learned; - the common knowledge of the information technology industry on the design of computer systems and the basic principles for building them, IT applications for natural, technical, and social process solutions, national and international standards of the IT industry and IT industry terms in Latvian and English, as well as advanced skills for the use of acquired knowledge in practice, has been acquired; - methods and technologies for programming, development and maintenance of computer systems have been learned; - the skills needed to carry out independent studies in a selected computer science sub-sector have been acquired and developed; - knowledge, skills, and expertise in software engineering have been acquired and improved.
Final/state examination procedure, assessment	At the end of the study programme, a bachelor's thesis should be developed and publicly defended at an open meeting of the Final Examination Commission.
Description of the future employment	Graduates can work in companies and organizations that develop, test, and/or maintain software, as well as in companies and organizations that use Information Technology solutions.
Opportunity to continue studies	Access to master study programmes.

Courses

No	Code	Name	Credit points
A		**Compulsory Study Courses**	**111.0**
1	LA1317	Discrete Mathematics	6.0
2	LA1318	Linear Algebra	3.0
3	LA1319	Analytic Geometry	3.0
4	LA1320	Mathematics I	3.0
5	LA0621	Mathematics II	6.0
6	LA0622	Probabilities and Mathematical Statistics	3.0
7	LA1321	Introduction to Electronics	3.0
8	LA0678	Internet of Things I	3.0
9	LA0623	Programming Languages	3.0
10	LA1322	English for Engineers	3.0
11	LA0656	Environmental and Civil Protection	3.0
12	LA1323	Business Management	2.0
13	LA1324	Business Communication	2.0
14	LA0658	Enterprise Resource Planning	3.0
15	LA0659	Research Methodology in Information Technology	3.0
16	LA0660	Human-computer Interaction	3.0
		Module "Software Development I"	*14.0*
1	LA1325	Programming	8.0
2	LA1326	Introduction to Software Engineering	3.0
3	LA1327	Introduction to Studies, Research and Tehnology	3.0
		Module "Software Engineering I"	*15.0*
1	LA0624	Software Project Management	3.0
2	LA0626	Technologies of Databases I	6.0
3	LA0627	Cyber Security	3.0
4	LA0628	Object-Oriented Programming	3.0
		Module "Software Engineering II"	*15.0*
1	LA0629	Information Systems Analysis and Design	6.0
2	LA0630	Quality of Software Projects and Data	3.0
3	LA0633	Software Testing	3.0
4	LA0634	Software Development Project II	3.0
		Module "Computer Systems and Computer Networks"	*15.0*
1	LA0661	Computer Organisation	3.0
2	LA0662	Computer Networks	6.0
3	LA0663	Internet Technologies	3.0
4	LA0664	Cloud Computing	3.0
B		**Compulsory Elective Study Courses**	**42.0**
B1		**Field-Specific Study Courses**	**42.0**
1	LA0639	Data Processing Systems	3.0
2	LA0641	Computer-Aided Design	3.0
3	LA0637	Mobile Application Development	3.0
4	LA0644	Operating Systems	3.0
		Module "Software Development II"	*15.0*
1	LA1328	Algoritms and Data Structures	3.0
2	LA1329	Web Programming	3.0
3	LA1330	Programming language Python	3.0
4	LA1331	Introduction to Data Processing Systems	3.0
5	LA1332	Software Development Project I	3.0
		Optional Module "Applications of Artificial Intelligence"	*15.0*
1	LA0665	Introduction to Artificial Intelligence	6.0
2	LA0666	Computer Vision	3.0
3	LA0667	Virtual Assistants	3.0
4	LA0668	Project of Artificial Intelligence	3.0
		Optional Module "Smart technologies"	*15.0*
1	LA0277	Robot Control I	3.0
2	LA0295	Robot Control II	3.0
3	LA0944	Internet of Things II	3.0
4	LA1269	Technical Drawing and 3D Printing	3.0

5	LA1270	Project of Smart Technologies	3.0
		Optional Module "Advanced Content of the Computer Science School Course"	*15.0*
1	LA1456	Office Software and its Applications in Education	3.0
2	LA0651	Computer Graphics and Video Editing	3.0
3	LA1457	Programming Olympiads Practice	3.0
4	LA0569	Visual Programming and Robots	2.0
5	LA1458	Computer-based Learning Environments	2.0
6	LA1459	Project for Development of Educational Software	2.0
C		**Free Elective Study Courses**	**9.0**
E		**Final Examination**	**18.0**
1	LA0669	Bachelor Thesis	18.0