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 "Electronics"

Main attributes

Title	Electronics
Identification code	EDJ0
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, Information Technology and Energy
Head of the study programme	Dmitrijs Pikuļins
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)	288.0
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
Qualification level to be obtained	The 8th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Second cycle higher education in electronics, or comparable education and an entrance exam. English language skills equivalent to at least B2 level (for studies in English)

Description

Abstract	The four-year doctoral study programme includes: compulsory (22 CP), compulsory elective (32 CP) and free elective study courses (9 CP), as well as scientific work (225 CP). Compulsory study courses provide knowledge in one of the current basic directions of electronics - solid state electronics, signal processing theory and electrodynamics, in order to be able to study the chosen specialization at the highest level and perform scientific work in the chosen direction. Specialization study courses provide in-depth (compared to master's and bachelor's) knowledge in the chosen field of electronics. These include Scientific Seminars (6 CP), in which doctoral students must demonstrate the ability to independently acquire and critically evaluate one of the current problems of electronics, new technologies, measurement and calculation methods, as well as to develop and improve their presentation skills. The largest amount of the study programme consists of scientific work, during which a solution must be found to the formulated scientific problems. Research results should be presented at scientific conferences and reflected in the scientific literature. The scientific work ends with the preparation and defence of the doctoral thesis in the doctoral council.
Aim	To prepare highly qualified specialists in electronics who are able to identify and solve current problems in any field of electronics, thus ensuring the effective development or use of new technologies in the design, implementation and operation of various electronic systems related to information processing.
Tasks	The tasks of the study programme: - to prepare students for independent research and pedagogical work in a scientific institution or branch company; - to provide competitive knowledge in current world fields in the field of electronics; - to develop student's analytical skills to a level that allows them to identify current problems in one of the fields of electronics and offer possible solutions; - to develop students' skills to conduct experimental research, processing and interpretation of the obtained data; - to develop and improve students' skills to summarize and present research results, to improve the culture of discussion; - to strengthen students' desire to constantly improve their professional knowledge and skills.
Learning outcomes	Graduate of the study programme: - is able to independently carry out scientific research and pedagogical work in electronics; - is able to identify, analyse and offer solutions to current problems in any field of electronics; - is able to work individually and in a team doing research work; - manages research methodology and modern research methods; - is able to formulate and present research results (also in a foreign language); - is able and willing to constantly improve their knowledge of electronics; - has defended his dissertation.

Final/state examination procedure, assessment	After successful completion of the studies, the doctoral dissertation is publicly defended by the doctoral council. The members of the Doctoral Council, after getting acquainted with the evaluations of the reviewers of the doctoral thesis, as well as taking into account the course of public defence, make a decision on awarding the doctoral degree by secret ballot. The procedure for promotion is determined by the Regulations on Promotion Councils and Promotion at RTU (https://www.rtu.lv/lv/studijas/doktora-limena-studijas/promocija).
Description of the future employment	Graduates of the study programme are highly qualified specialists in electronics and work in Latvia and in foreign higher education institutions, research institutes, electronic equipment development and production companies, state institutions and other organizations related to the electronics industry.
Special enrollment requirements	English language proficiency equivalent to at least CEFR B2 level.
Opportunity to continue studies	Not intended.

Courses

No	Code	Name	Credit points
A		**Compulsory Study Courses**	**22.0**
1	DE0100	Elements of Solid State Electronics	7.0
2	DE0207	Signal Processing Theory	8.0
3	DE0106	Applied Electrodynamics	7.0
B		**Compulsory Elective Study Courses**	**32.0**
B1		**Field-Specific Study Courses**	**32.0**
1	DE0876	Scientific workshop	9.0
		Electromagnetic Fields and Waves	
1	DE0119	Application of Microwaves	7.0
2	DE0875	Numerical Methods and Software for Electromagnetics Engineering	15.0
3	DE0116	Mobile Communications Systems	7.0
		Signals and Circuits	
1	DE0224	Nonlinear Dynamics of Electronic Systems	23.0
2	DE0235	Ultra-Wideband Technology	23.0
3	DE0240	Radiofrequency Wireless Power Transfer	23.0
4	DE0102	Measurements in Lumped and Distributed Parameter Circuits	7.0
C		**Free Elective Study Courses**	**9.0**
E		**Final Examination**	**225.0**
1	DE0874	Research Work	225.0