

Study programme "Telecommunication"

Main attributes

Title	Telecommunication
Identification code	EDC0
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 Nikitenko
Deputy head of the study field	Jurgis Poriņš
Department responsible	Faculty of Computer Science, Information Technology and Energy
Head of the study programme	Vjačeslavs Bobrovs
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	Master degree of engineering science in telecommunication technologies and networks management, or comparable education

Description

Abstract	<p>The study programme ensures the implementation of the doctoral study programme in the telecommunications sub-sector and allows to prepare scientists in fundamental and applied telecommunications engineering. The studies are organized for both academically oriented students and students with professional goals in business, public sector, and industry, who need in-depth knowledge of telecommunications, local and international network management and understanding of future technological solutions for development and implementation in Latvia.</p> <p>Study courses and involvement in research are offered in a variety of telecommunications engineering sub-sectors, including: digital signal processing, digital communications, signal modulation and coding, quantum communications and networking, microwave photonics, integrated photonics, metaphonics, combined fibre-wireless optical communications, high-density fibre optical networks, network design and optimization, wireless communications, sensors, etc.</p> <p>Students are provided with the opportunity to both choose and redefine scientific topics and to carry out the research, development, and perspective innovations needed to achieve significant advances in telecommunications in a scientific and technological plane.</p>
Aim	To prepare specialists of the highest scientific qualification - Doctors of Science, mainly to carry out the research and pedagogical work in the field of electrical engineering, electronics, information and communication technology science.
Tasks	<p>The tasks of the study programme:</p> <ul style="list-style-type: none"> - to provide in-depth theoretical knowledge in the fundamental study courses of the study field, as well as to acquire the skill to perform research work and to acquire the skills of scientific discussions; - to develop skills to carry out scientific research on the chosen topic, using experimental and laboratory equipment, modern methods of analysis and data processing; - to develop analytical, creative, and critical thinking skills, as well as cooperation skills; - to provide skills for presentation of research results in international scientific conferences and seminars, to be able to prepare and publish scientific articles on research results; • to develop skills in leadership, ability to work in a team and cooperate with professionals in various fields of science; • to promote the introduction of scientific research in industry, production, and business management; • to improve the skills of scientific, pedagogical, and organizational work.

Learning outcomes	<p>Graduate of the study programme:</p> <ul style="list-style-type: none"> - is able to show and understand current scientific theories in the field of telecommunication technologies; - is able to apply the acquired knowledge in solving scientific problems; - is able to independently perform scientific research, pedagogical and organizational work in the field of telecommunications; - is fully aware of the terminology used in the sector, and can communicate about the scientific activity in the field of telecommunications; - is able to carry out scientific and industrial research, introduce innovations and manage complex research and development projects; - is able to manage and implement the academic process (delivery of study courses, evaluation of study results, development of study courses content, management of study programmes); - is able to advance the research ideas in the field of telecommunications, develop, plan, present, implement and manage large-scale international scientific projects in the field of telecommunications; - is able to work independently and in a team to solve scientific problems; - is able to independently improve his/her scientific qualification and manage research or development tasks in companies, institutions, and organizations where extensive research knowledge and skills are required; - is able to analyse the latest development trends in telecommunications technologies and improve knowledge; - is able to independently plan and conduct research with added scientific value in the field of telecommunications, interpret and analyse the results, develop high-level scientific publications.
Final/state examination procedure, assessment	<p>To receive the academic doctoral degree in science, students must accomplish the syllabus, prepare and defend the doctor's thesis. The workload of the doctor's thesis is 225 credit points. The evaluation of the doctor's thesis is determined by the Rules of the Cabinet of Ministers No. 1001. The doctoral thesis must be publicly defended at the Promotion Council RTU P-08 "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science" that has been founded at the Faculty of Electronics and Telecommunications of RTU.</p>
Description of the future employment	<p>The study programme prepares internationally competitive high-skilled specialists in the field of telecommunications for academic and scientific work in universities, research centres, as well as for work in public, private and international institutions, that have developed skills related to telecommunications technology, can critically solve problems, including in research and innovation process, able to provide new technological solutions.</p>
Special enrollment requirements	<p>English language proficiency equivalent to at least CEFR B2 level.</p>
Opportunity to continue studies	<p>Studies can be continued at post-doctoral studies in Latvia or abroad.</p>

Courses

No	Code	Name	Credit points
A		Compulsory Study Courses	23.0
1	DE0211	Theory of Signal Transmission	23.0
B		Compulsory Elective Study Courses	31.0
B1		Field-Specific Study Courses	31.0
		<i>Computer Engineering and Networks</i>	
1	DE0870	Computer Technologies in Telecommunications	15.0
2	DE0091	Telecommunications and Data Networks	7.0
3	DE0098	Mobile Telecommunications Systems	7.0
4	DE0852	Hybrid Optical Fibre-Wireless Communication and Networking	6.0
5	DE0844	Management of Telecommunications Projects	6.0
6	DE0839	Telecommunications Network Management	9.0
7	DE0873	Scientific workshop	9.0
		<i>Electronic Communications</i>	
1	DE0204	Optical Transmission Lines	8.0
2	DE0872	Electrodynamics of Driving Systems	15.0
3	DE0838	Quantum Communication	9.0
4	DE0842	Metaphotonics in Telecommunications	6.0
5	DE0845	Microwave Photonics Devices and Systems	9.0
6	DE0851	Basics of Integrated Photonics	6.0
7	DE0873	Scientific workshop	9.0
C		Free Elective Study Courses	9.0
E		Final Examination	225.0
1	DE0871	Research Work	225.0
2	DE0869	Research Work	225.0