RĪGAS TEHNISKĀ UNIVERSITĀTE

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Study programme "Telecommunication"

Main attributes

Title	Telecommunication
Identification code	EMC0
Education classification code	45523
Level and type	Academic Master Study
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 Electronics and Telecommunications
Head of the study programme	Lilita Ģēģere
Professional classification code	
The type of study programme	Full time
Language	Latvian, English
Accreditation	31.05.2013 - 31.12.2023; Accreditation certificate No 2020/38
Volume (credit points)	80.0
Duration of studies (years)	Full time studies - 2,0
Degree or/and qualification to be obtained	Master Degree of Engineering Science in Telecommunications
Qualification level to be obtained	The 7th level of European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF)
Programme prerequisites	Bachelor Degree of Engineering Science in Electrical Science

Description

Abstract	Telecommunication technologies play a key role in our modern information society. Digitalization is here to stay. The ongoing digitalization builds on an efficient communications systems infrastructure. Research on telecommunications systems and networks focuses on the future of the broadband Internet, as well as on new (RoF, 5G, and further) optical fibre, wireless, and multi-service communication systems, which are critical elements of the connected world of the future. Graduates of the telecommunication technologies and networks management specialization will acquire the knowledge and skills required to design, implement and manage telecommunications solutions based on modern technologies. In the field of telecommunications when innovative technologies rapidly develop, the proportion of research work and new, complex solutions in the total work amount increases accordingly; it is connected with processing and transmission of a large amount of information, as well as the necessity of their use in decision adoption. With the rapid change of technologies, the emphasis in the study program is not on any current, topical, specific technology, but on the unifying foundations of these technologies with a view to the future.
Aim	The aim of the study programme is to prepare specialists who are characterized by the ability to think systematically, analyse, develop and implement engineering solutions, as well as manage telecommunication systems. In addition, to develop students' ability to perform scientific work, participate in local and international projects and continue Doctoral studies. Students are provided with in-depth academic, practical and professional knowledge in the fields of telecommunications management, fibre optics and wireless transmission, and information technology.
Tasks	To achieve the aim several tasks of the study programme are defined, as well as indicators of their fulfilment. - to provide competitive education in the telecommunication technologies and networks management sub-sector in accordance with the level of master's studies and international standards; - to develop students' systemic thinking and practical skills required in the field of telecommunications management and development and implementation of engineering solutions; - in the study process to promote students' independent and practical work in groups; - to ensure sufficient flexibility of the content of the study program, the realization of the study process, development and changes of scientific research work, in accordance with the changing requirements of the labour market and changes in telecommunication technologies, international practice, and science; - to develop co-operation with similar or thematically related study programs in other countries within the framework of ERASMUS+ and other agreements; - to inform and stimulate the desire of students to participate in the implementation of scientific research; - to prepare and motivate students for further Doctoral studies; - to ensure the achievement of the learning outcomes of the study programme.

Learning outcomes	Graduate of the study programme: - is able to independently formulate and analyse scientific and professional problems in the telecommunication technologies and networks management sector; - is able to manage telecommunication networks and understands their processes; - is able to conduct scientific research, formulate and substantiate its results; - is able to adapt and learn new research methods and technologies; - is able to professionally design, submit and present the results of scientific research; - is able to participate in research projects and assist in pedagogical work; - is able to prepare scientific articles and conference presentations; - is able to apply current methods and tools in telecommunication system management, analysis and modelling tasks and solutions; - is able to organize and lead a technologies' developer working groups, delegate work tasks, control their execution, and analyse the results; - is able to independently improve their competencies; - is able to innovate in the telecommunications sector.
Final/state examination procedure, assessment	The acquisition of the programme concludes with a final exam, which includes the development of an independent Master thesis and public defence in an open session of the Final Examination Commission (FEC) on-site or using secure video conferencing and online meeting e-platform. The development and defence of the Master thesis are part of the final exam on the academic curriculum, the purpose of which is to test the student's abilities and skills to independently solve problems and work in the field. The Master's thesis is an analytical study with elements of scientific work in the field of telecommunication technologies and management on a relevant topic, selected by the student individually and approved by the scientific advisor. The FEC consists of the head of the commission and at least two members of the commission. Students' knowledge, skills, and competencies are collectively assessed by the FEC in a closed session on a 10-grade scale, based on the author's report, the quality of answers to questions related to the developed work and remarks of supervisor and reviewer, as well as considering the assessment of the supervisor and reviewer.
Description of the future employment	Graduates can become managers, leading specialists, engineers, designers in telecommunication and ICT companies, data transmission infrastructure specialists, telecommunication systems analysis specialists, telecommunication technology and solution development and implementation specialists, competent scientists. The knowledge acquired during the studies allows establish your own companies, hold leading positions in private companies or public institutions, as well as to manage high-level engineering projects in the required fields of modern technologies. Potential employers: • Telecommunications companies; • IT companies; • Higher education institutions, universities; • Scientific research institutions; • Production units in the field.
Special enrollment requirements	
Opportunity to continue studies	Graduates of the study programme can continue their studies in doctoral studies.

Courses

No	Code	Name	Credit points
A		**Compulsory Study Courses**	**34.0**
1	RDE417	Physics of Optical Information Processing	4.0
2	RDE701	Telecommunications Theory (special course)	5.0
3	RDE419	Fibre Optic Transmission Systems	5.0
4	RAE473	Computer Technologies in Telecommunications	3.0
5	RDE425	Research Seminars	4.0
6	RDE432	Transmission Systems (special course)	4.0
7	RDE410	Design and Maintenance of Telecommunications Networks	4.0
8	RDE703	Microwave Telecommunications Systems	5.0
B		**Compulsory Elective Study Courses**	**22.0**
B1		**Field-Specific Study Courses**	**18.0**
1	RAE556	Mobile Communications Systems	3.0
2	RAE419	Telecommunications Marketing	2.0
3	RAE411	Telecommunications Software	4.0
4	RAE472	Digital Switching Systems	3.0
5	RAE553	Signalling Systems and Protocols	3.0
6	RDE431	Telecommunications Pricing Policy	2.0
7	RAE541	Encoding and Encryption	4.0
8	RAE475	Telecomunications and Computer Networks	5.0
9	RAE555	Teletraffic Theory	3.0
10	RDE713	Digital Optical Communication Systems	4.0
11	RDE714	Quantum Communication	6.0
12	RDE715	Metaphotonics in Telecommunications	4.0
13	RDE716	Microwave Photonics Devices and Systems	6.0
14	RDE717	Hybrid Optical Fibre-Wireless Communication and Networking	4.0
15	RDE718	Basics of Integrated Photonics	4.0
16	RAE713	Management of Telecommunications Projects	4.0
17	RAE714	Telecommunications Network Management	6.0
B2		**Humanities and Social Sciences Study Courses**	**4.0**
1	IVZ845	Enterprise Management	4.0
2	HSP484	Psychology	2.0
3	HSP446	Pedagogy	2.0
4	HFL432	Ethics	2.0
5	HFL433	Presentation Skills	2.0
C		**Free Elective Study Courses**	**4.0**
E		**Final Examination**	**20.0**
1	RDE002	Master Thesis	20.0