

## RTU Course "Computer Technologies in Telecommunications"

13104 null

**General data**

Code	RAE473
Course title	Computer Technologies in Telecommunications
Course status in the programme	Compulsory/Courses of Limited Choice
Responsible instructor	Andis Supe
Academic staff	Jurgis Poriņš Toms Salgals
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN
Annotation	The study course covers the basics of information technology, such as Internet technology, data science, and the principles of database management in the field of telecommunications. The course focuses on the basics of modern web and cloud services, service-oriented architectures and is an introduction to cybersecurity.
Goals and objectives of the course in terms of competences and skills	The study course aims to provide knowledge about the use of information and computer technology in the field of telecommunications. Tasks of the study course: - to introduce the terminology related to the study course; - to teach to compile and simulate operation algorithms of telecommunication systems; - to improve knowledge about the development of telecommunications management network (TMN) systems; - to develop skills in the simulation of operational algorithms with Petri and neuron network programs; - to develop skills in the compilation of operational algorithms in SDL and UML languages.
Structure and tasks of independent studies	In the framework of the study course, the independent work of the students will be organized as follows: - get acquainted with the study materials and familiarise themselves with the available literature indicated by the course instructor; - solve the tasks defined by the course instructor by demonstrating the use of knowledge acquired in lectures; - independently prepare for tests, practical work, and examination.
Recommended literature	Obligātā/Obligatory: 1. Studiju kursa materiāli RTU e-studiju vidē / Study course materials in RTU e-learning platform 2. Sibley, M. J. N.. Modern telecommunications : basic principles and practices /by Martin Sibley., xi, 190 lpp., 2018 3. Silberschatz, Abraham. Database system concepts / Abraham Silberschatz, Henry F. Korth, S. Sudarshan., xxviii, 1344 lpp., 2020 4. Telecommunications Transmission Handbook.Freeman, Roger L. Wiley & Sons. 1998. Papildus/Additional: Kursa apguvē var izmantot arī interneta resursus/Internet resources can also be used to acquire the course: 5. <a href="ftp://ftp.liis.lv/macmat/matemat/algebra/">ftp://ftp.liis.lv/macmat/matemat/algebra/</a> 6. <a href="http://www.tinac.com/about/principles_of_tinac.htm">http://www.tinac.com/about/principles_of_tinac.htm</a> Programmatūras un apraksti/Software and descriptions: 7. <a href="http://www.informatik.uni-hamburg.de/TGI/PetriNets/tools/db.html">http://www.informatik.uni-hamburg.de/TGI/PetriNets/tools/db.html</a> 8. <a href="http://www.informatik.uni-hamburg.de/TGI/PetriNets/tools/java/">http://www.informatik.uni-hamburg.de/TGI/PetriNets/tools/java/</a> 9. <a href="http://www.neurosolutions.com/products/ns/">http://www.neurosolutions.com/products/ns/</a> 10. <a href="http://www.bestsoftware4download.com/s-axbrotre-sql-software.html">http://www.bestsoftware4download.com/s-axbrotre-sql-software.html</a>
Course prerequisites	Computer Studies. Digital electronics and computer architecture.

**Course contents**

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Formal languages and algorithms. Automata and SDL languages.	12	16	0	0
Network simulation. Petri and neuron network software.	10	12	0	0
Intellectual networks. Types of services.	6	10	0	0
Telecommunications network management. TMN and TINA.	6	10	0	0
Common Object Request Broker Architecture. CORBA software.	10	16	0	0
Expert systems.	4	8	0	0
<b>Total:</b>	<b>48</b>	<b>72</b>	<b>0</b>	<b>0</b>

**Learning outcomes and assessment**

Learning outcomes	Assessment methods
Students are able to compile telecommunications network management algorithms.	Practical work. Test. Exam
Students are able to modulate telecommunications network management algorithms.	Practical work. Test. Exam
Students are able to simulate telecommunications network management algorithms by using Petri and neuron networks.	Practical work. Test. Exam
Students are able to perform telecommunications network management programming with UML.	Practical work. Test. Exam

**Evaluation criteria of study results**

Criterion	%
Tests	30
Practical works	30
Exam	40
Total:	100

**Study subject structure**

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	2.0	0.0	1.0		*	