RTU Course "Introduction to Electronics and Telecommunications Branch"

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General data

Code	RDE710
Course title	Introduction to Electronics and Telecommunications Branch
Course status in the programme	Compulsory/Courses of Limited Choice; Courses of Free Choice
Responsible instructor	Vjačeslavs Bobrovs
Academic staff	Vairis Janovskis Jānis Braunfelds Svitlana Matsenko
Volume of the course: parts and credits points	2 parts, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, EN
Annotation	The study course contains information about Riga Technical University (RTU) and the Faculty of Electronics and Telecommunications, history, study programmes and organization of studies, memory characteristics and active learning, as well as Electronics and Telecommunications history and development trends. The study course also covers topics related to the latest telecommunications, electronics and telematics elements, systems, technologies and solutions. Students will be divided into groups during the study course. Each of them will carry out practical works covering essential topics in the Electronics and Telecommunications industry. The study course also includes guest lectures led by representatives of Latvia's leading companies and organizations, recognized in Europe.
Goals and objectives of the course in terms of competences and skills	The objective of the study course is to provide necessary theoretical and practical foundations in Electronics and Telecommunications. The tasks of the study course: •to acquaint with RTU and the Faculty of Electronics and Telecommunications and its history; •to acquaint with the usage of ORTUS; •to acquaint with the history of the field and its development trends; •to acquaint with the organization of studies, memory characteristics, and active learning; •to present with innovative solutions in the world; •to introduce with modern technologies and solutions in the field of electronics and telecommunications; •to promote the development practical works covering essential topics in the Electronics and Telecommunications industry.
Structure and tasks of independent studies	Students must study course materials available in ORTUS system. Students should prepare for control works, exam and practical works.
Recommended literature	Obligātā/Obligatory: 1.John Tysoe. "A History of Telecommunications", Bookstorm, 2020. 2.Erik Dahlman. "5G NR: The Next Generation Wireless Access Technology",2020. 3.Sabiedrisko Pakalpojumu Regulēšanas Komisija. Elektronisko sakaru pakalpojumu kvalitātes pārskats par 2020. gadu. 2020. 4.Qusay F. Hassan, Atta ur Rehman Khan, Sajjad A. Madani, Internet of Things: Challenges, Advances, and Applications 1st Edition, 2018. 5.Waldemar Wójcik, Jan Sikora, Recent Advances in Information Technology, 2017 6.Afif Osseiran, Jose F. Monserrat, Patrick Marsch, Nokia5G Mobile and Wireless Communications Technology, Cambridge University Press, 2016. 7.Robert J. Pond, Jeffrey L. Rankinen, Introduction to Engineering Technology, 8th Edition, 2015 8.HWgroup. STE2 User Manual. 2016. 9.Ubiquiti Networks. NanoBeam M Datasheet. 2018. 10.Ubiquiti Networks. Amplifi. 2017. Papildu/Additional: 1.Taylor & Francis Group, "Optical Fiber Sensors – Advances Techniques and Applications", CRC Press, 2015. 2.Dandy G.C., Daniell, T.M., Foley, B.A. and Warner R.F, Planning and Design of Engineering Systems. Third Edition, 2017. 3.Avraham Shtub, Yuval Cohen, Introduction to Industrial Engineering 2nd Edition, 2017 4.J. Laferrière. G. Lietaert. R. Taws. S. Wolszczak, JDSU, "Reference Guide fo Fiber Optic Testing", 2012.
Course prerequisites	Computer skills.

Course contents

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Study course overview and requirements. Information about ORTUS virtual learning environment.	4	4	0	0
Faculty of Electronics and Telecommunications study process organization and the study programme.	4	4	0	0
Telecommunications and electronics technology and solutions overview.	10	10	0	0
Guest lectures from companies and organizations in the field.	6	6	0	0

Preparation for practical work	8	8	0	0
Control work.	6	6	0	0
Practical works.	40	40	0	0
Exam.	2	2	0	0
Total:	80	80	0	0

Learning outcomes and assessment

Learning outcomes	Assessment methods
Understands RTU and ETF study process and active studies approach.	Test.
Understands telecommunications and electronics development tendencies and knows the main components and realization of communications systems.	Test.
Understands the main terminology of telecommunications and electronics for practical works.	Test.
Understands and practically uses communication and sensor systems and evaluates the quality and performance of its operation.	Report on practical work and exam.

Evaluation criteria of study results

Criterion	%
Tests	20
Practical works	40
Exam	40
Total:	100

Study subject structure

Part	CP	Hours per Week			Tests			Tests (free choice)		
		Lectures	Practical	Lab.	Test	Exam	Work	Test	Exam	Work
1.	2.0	1.0	1.0	0.0		*			*	
2.	2.0	1.0	1.0	0.0		*			*	