



RTU Course "Design and Maintenance of Telecommunications Networks"

13105 Pārāides sistēmu katedra

General data

Code	RDE410
Course title	Design and Maintenance of Telecommunications Networks
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Electronics and Telecommunications
Responsible instructor	Pēteris Gavars
Academic staff	Aleksandrs Čerņakovs-Neimarks Vjačeslavs Bobrovs
Volume of the course: parts and credits points	1 part, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, EN
Possibility of distance learning	Not planned
Abstract	The course deals with projecting of transmission systems. Students identify and define tasks, structure, and content of a project. Topics include principles of electricity supply and powering, maintenance tasks and management, parameters and methods, condition, control means and parameters of communication systems, remote control systems.
Goals and objectives of the course in terms of competences and skills	The goal of the course: to acquire the theoretical knowledge of lines of communication and to develop practical skills necessary to design and construct communication lines. The objectives: to be able to perform loop measurements, to evaluate the results, and to draw conclusions; to be able to demonstrate knowledge of loop element construction and application in telecommunications networks.
Structure and tasks of independent studies	Independent survey of literature and problem solving activities. Theoretical rationale provided for each laboratory work, processing of the results, and writing laboratory reports. Elaboration and defence of the term paper. Workshops and preparation of independent work.
Recommended literature	1. Roger L. Freeman. Fundamentals of Telecommunications. Springer verlag, 2006. 563 p. 2. Būvniecības likums; 3. Elektronisko sakaru likums; 4. 2006.04.04. Ministru kabineta Noteikumi nr.256. Elektronisko sakaru tīklu ierīkošanas un būvniecības kārtība; 5. Aizsargjoslu likums;
Course prerequisites	The knowledge of the theory of motive systems and transmission systems, as well as in mathematics and physics at the Bachelor level.

Course outline

Theme	Hours
Laws and regulations of the Republic of Latvia regarding design and construction of electronic comm. networks.	4
Electronic communications backbone and access networks.	4
Voice telephony access network solutions.	4
Sound and image broadcasting network solutions.	4
Data transmission network solutions.	4
Internet access network solutions.	4
Network deployment options and features.	4
Materials and components of access networks.	4
Network security techniques, methods and elements.	4
Construction requirements and characteristics of electronic communications networks.	4
Maintenance Methods of electronic communications networks.	4
Safety at work and protection of personnel involved in construction and maintenance of electronic communications networks	4
Laboratory works.	32

Learning outcomes and assessment

Learning outcomes	Assessment methods
Students are able to independently solve all the assigned tasks using the knowledge gained. Students are able to demonstrate knowledge of communications systems engineering and maintenance principles, as well as are able to independently carry out loop parameter measurements. Students are able to us	Students are able to demonstrate their understanding of various issues regarding communications system design and maintenance.
Students are able to demonstrate understanding of communications system design and maintenance principles, and to recognize their application in telecommunications networks.	Seminars, term paper, laboratory work and examination.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	4.0	6.0	3.0	2.0	0.0		*	