



RTU Course "Means of Aviation Telecommunications"

15E02 Avionikas katedra

General data

Code	TAA308
Course title	Means of Aviation Telecommunications
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Transport
Responsible instructor	Smirnovs Igors
Academic staff	Fetisovs Dmitrijs Tretjakovs Sergejs
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	The subject "Means of Aviation Telecommunications" is based on the ground aviation communication equipment studying. Studying covers such issues as communication equipment tasks, radio transmitter and receiver structural and functional circuitry, operating principle, design, technical specification and control methods. Subject deals with the microwave range and satellite communication systems, ground communication transmission lines and antennas.
Goals and objectives of the course in terms of competences and skills	To gain knowledge about the tasks of ground communication equipment and its structure fundamentals, to understand communication equipment operating principles. To be able to perform ground communication radio transmitter and receiver structural and functional electrical circuit analysis. To gain knowledge of ground communication equipment design and technical specifications, to be able to apply knowledge of certain equipment for the analysis. To acquire practical skills in communication equipment technical parameters.
Structure and tasks of independent studies	An independent work on the theme "Aviation communications radio transmitter and receiver technical parameter control methods". Work with technical literature.
Recommended literature	1. D.S. Stacey. Aeronautical Radio Communication Systems and Networks. Wiley-Blackwell, 2008, 350 p. 2. R. Read. The essence of Communications Theory. Prentice Hall Europe, 2005, 285 p. 3. Mike Tooley and David Wyatt. Aircraft Communications and Navigation Systems: Principles, Operation and Maintenance. Burlington, MA 01803, USA, 2007, 374 p. 4. Len Buckwalter. Avionics Training. Systems, Installation and Troubleshooting. Publ.: Avionics Communication, 2007, 278 p. 5. Wasson J.W. Avionic Systems. Operation & Maintenance. Colorado: Jeppesen Sanderson, Inc. 2004, 318 p.
Course prerequisites	Background knowledge in physics, electrical engineering, electronics.

Course outline

Theme	Hours
Aviation telecommunication structure.	2
Ground very high frequency (VHF) range radio transmitters.	6
Ground very high frequency (VHF) range radio receivers.	6
Ground high frequency (HF) band radio transmitters.	6
Ground high frequency (HF) band radio receivers.	6
Microwave range communications equipment.	6
Satellite communication equipment.	6
Ground communication transmission lines.	4
Ground communications system antennas.	6

Learning outcomes and assessment

Learning outcomes	Assessment methods
A student knows ground aviation communication equipment and construction basics, is able to apply knowledge in communication equipment analysis.	Exam.
A student is able to describe the tasks of ground communication equipment and its operating principles.	Exam.
A student is able to analyze ground communication radio transmitter and receiver structural and functional circuitry.	Laboratory work defence question. Exam.
A student knows and is able to analyze ground communication equipment technical parameters.	Exam.
A student knows and is able to describe communication radio transmitter and receiver standard node structure.	Laboratory work defence question. Exam.

A student knows ground communication equipment working control methods and is able to control technical parameters of equipment in the laboratory.	Independent work and laboratory work defence questions. Exam.
----------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	4.5	2.5	0.0	0.5		*	