



RTU Course "Aviation Communication Systems and Nets"

15E02 Avionikas katedra

General data

Code	TAA408
Course title	Aviation Communication Systems and Nets
Course status in the programme	Compulsory/Courses of Limited Choice; Courses of Free Choice
Course level	Post-graduate Studies
Course type	Professional
Field of study	Transport
Responsible instructor	Smirnovs Igars
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	"Aviation communication systems and networks" based on studying aircraft communications equipment and systems. The study covering such issues as communication devices and systems, mission, structure and functional circuitry, operating principle, design, technical specification and control methods. The subject is dealt with aircraft data bus that supports data exchange between the avionic equipment and systems (ARINC) and between the aircraft and ground services (ACARS).
Goals and objectives of the course in terms of competences and skills	Acquire knowledge of the communication equipment design basis, understand the aircraft communication system and network tasks and operational principles. Able to perform analysis of aircraft, communication equipment and systems, structure and functional circuitry. Acquire knowledge of the communication equipment design and technical specifications, apply this knowledge of certain equipment for the analysis. Acquire practical skills in communication devices and system technical parameters.
Structure and tasks of independent studies	Independent work with literature and technical documentation. Independent work on the theme: "Aviation communication systems technical parameters control methods".
Recommended literature	1. Aviation Electronics. By Keith W. Bose, Jeppesen. Sanderson Training products, 2006, 384 p.; 2. Wasson J.W. Avionic Systems. Operation & Maintenance. Colorado: Jeppesen Sanderson, Inc. 2004, 318 p.; 3. Civil Avionics Systems. I. Moir, A. Seabridge, 2002, 416 p.; 4. R. Read. The essence of Communications Theory. Prentice Hall Europe, 2005, 285 p.
Course prerequisites	Physics, electrical engineering, electronics.

Course outline

Theme	Hours
Aviation radio communication frequency ranges.	2
Aircraft audio systems.	2
Aircraft radio communication transmitter design principles.	2
Aircraft radio communication receiver design principles.	2
Very high frequency (VHF) communication system.	8
High frequency (HF) communication systems.	4
Satellite communication systems.	4
Aircraft emergency transmitter.	1
Aircraft crews conversation registrant.	1
Aircraft data bus. ARINC specifications.	4
ARINC communication and reporting (ACARS).	2

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student knows the aircraft communication equipment construction law and is able to use it in the communication system and network analysis.	Final exam question.
The student is able to describe the aircraft communication equipment, systems and networking tasks, and operating principles.	Final exam question.
The student is able to analyze the communication equipment structure and functional circuitry.	Final exam question.
The student knows and is able to analyze the technical parameters of the communication devices and system.	Final exam question.
The student knows and is able to describe the type of communication equipment sub-assemblies structures.	Laboratory work question.
The student is able to control the aircraft, communication equipment and systems, as well as to work under laboratory conditions.	Laboratory work question.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests			Tests (free choice)		
			Lectures	Practical	Lab.	Test	Exam	Work	Test	Exam	Work
1.	2.0	3.0	1.5	0.0	0.5		*			*	