



## RTU Course "Functional Units of Aviation Electronics"

15E02 Avionikas katedra

### General data

Code	TAA238
Course title	Functional Units of Aviation Electronics
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
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	Studying of "Aviation electronics functional assemblies" based on the type of electronics assemblies, which are used in aviation electronic devices and systems. The studying covers such issues as the role of electronics assemblies, schematics, operating principles, characteristics, examples of their use in avionics and further developments.
Goals and objectives of the course in terms of competences and skills	Acquire knowledge of key avionics components, understand the role of aviation equipment and systems, learn to analyze aviation electronic devices and systems and the principal functional circuitry.
Structure and tasks of independent studies	Work with literature. Independent work on the theme: "Aircraft avionics devices principal electrical circuit analysis".
Recommended literature	1. Aviation Electronics. By Keith W. Bose, Jeppesen. Sanderson Training products, 2006, 384 p. 2. M. Tooley. Aircraft Digital Electronic and Computer Systems: Principles, Operation and Maintenance. Oxford OX2 8DP, 2007, 198 p. 3. J. Grevulis, I. Rankis. Iekartu vadības elektroniskie elementi un mezgli. Rīga, „Avots”, 2004, 288 lpp. 4. Ю. Опадчий и др. Аналоговая и цифровая электроника. Москва, Горячая линия – Телеком, 2002, 768 с.
Course prerequisites	Background knowledge in math, physics, electrical engineering, electronics.

### Course outline

Theme	Hours
Operational amplifiers.	4
Analog voltage comparators.	4
Electronic amplifier.	8
Electrical signal generators.	4
Digital to analog converter.	2
Analog to digital converter.	4
Aviation avionic equipment power supplies.	6

### Learning outcomes and assessment

Learning outcomes	Assessment methods
The student knows the appropriate electronic sub-assembly tasks and technical parameters, is able to assess the validity of a given assembly set task.	Final examination questions.
The student is able to display the appropriate electronic assembly function (principle) electric scheme and to explain its principles.	Laboratory work and final examination questions.
The student knows the electronic assemblies working test methods, is able to implement them in practical work.	Laboratory work and final examination questions.
The student is able to cite relevant examples of the use of electronic assembly of aviation electronic equipment and systems, is able to analyze the claims of assembly parameters.	Final examination questions.
The student is able to analyze aviation electronic devices and systems, functional and fundamental circuitry.	Laboratory work and final examination questions.

### Study subject structure

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