



## RTU Course "Aviation Electrical Machines and Devices"

15E02 Avionikas katedra

### General data

Code	TAA209
Course title	Aviation Electrical Machines and Devices
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Transport
Responsible instructor	Trifonovs-Bogdanovs Pjotrs
Academic staff	Fetisovs Dmitrijs
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN, RU, DE
Possibility of distance learning	Not planned
Abstract	Principle of operation, constructions and functioning of aviation servo-mechanisms and electrical devices. Servo-mechanism and electrical device modes of operation.
Goals and objectives of the course in terms of competences and skills	Acquire principles and construction of servo-mechanisms and electrical devices. Being able to analyze the work of servo-mechanisms and electrical devices in different situations.
Structure and tasks of independent studies	Independently prepare reports in different aircraft avionic systems. Servomechanisms and equipment construction and operation under different conditions. Working with the professional literature. Lessons in the Aviation Institute's specialized lecture hall.
Recommended literature	1. Electrical System for A&Ps. Coiorado. Jeppesen Sanderson. 1992g. 269 lpp. 2. A. Baltiņš, A. Kanbergs, S. Miesniece. Zemsprieguma elektriskie aparāti. Rīga. Jumava. 2007. g. 345 lpp. 3. Z. Bunžs, S. Miesniece. Bezkontakta komutācijas aparāti. Rīga. RTU. 2008g. 308 lpp. 4. J. Dirba, K. Ketners. Transporta elektriskās mašīnas. Rīga. RTU. 2001g. 367 lpp.
Course prerequisites	Physics, Mathematics.

### Course outline

Theme	Hours
Energy distribution in electrical devices.	1
Current line protection devices. Safety catch. Automatic switch.	4
Current line commutation devices. Switches. Relays. Contactors.	12
Ferromagnetic devices. Magnetic boosters and relays.	7
Semi-conductor switches. Transistor and thyristor switches.	11
Timing motor. Construction, service instruction. Tracking loop.	7
Servo-mechanism. Open and closed circuits.	6

### Learning outcomes and assessment

Learning outcomes	Assessment methods
The student knows the physical processes of servomechanism and equipment designs.	Lab. work: Aviation equipment structures. Exam.
The student understands the physical processes of servomechanism and apparatus circuitry.	Lab. work: Aviation equipment circuitry. Exam.
The student is able to analyze servomechanism and apparatus operation in different modes.	Individual work, seminars, exam.
The student is able to make conclusions about servomechanism and apparatus weaknesses.	Individual work, seminars, exam.

### Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	4.5	2.0	0.5	0.5		*	