



RTU Course "Electric Drive of Aircraft Mechanisms"

15E02 Avionikas katedra

General data

Code	TAA409
Course title	Electric Drive of Aircraft Mechanisms
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
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN, RU, DE
Possibility of distance learning	Not planned
Abstract	Structure of actuating mechanisms. Characteristics and modes of operation of electrical machinery. Alternating and direct current electric drives. Discrete electric drive.
Goals and objectives of the course in terms of competences and skills	Acquire the skills to analyze the operation of electrical machinery under various conditions. Acquire the skills to analyze the operation of electrical power units under various conditions.
Structure and tasks of independent studies	Independently prepare presentations on the aircraft electrical machinery design topic, design of aggregates and their operation in various modes. Work with the professional literature. Lesson in the Aviation Institute's specialized lecture hall.
Recommended literature	1. Elektrical Systems. Colorado: Jeppesen Sanderson, Inc. 1992. 269 lpp. 2. Moir I., Seabridge A. Civil Avionics Systems. Wiley-Blackwell. 2006. 396 lpp. 3. Dirba J., Ketnetrs K. un citi. Transporta elektriskās mašīnas. – Rīga: RTU, 2001. 328 lpp. 4. Решетов С.А. и др. Электрооборудование воздушных судов. М.: транспорт, 1990. 320 стр.
Course prerequisites	Physics, Mathematics.

Course outline

Theme	Hours
Structure and mechanisms of actuating electric drives.	6
Electromechanical characteristics and modes of operation of control devices in aviation.	5
Direct current electric drive control. Transitional processes. Damping control.	5
Alternate current electric drive control. Transitional processes. Damping control.	5
Control of actuating mechanism from a computer. Discrete electrical drive.	6
Thermal modes of aviation electric drives.	2
Selection of electric motors for aviation actuating mechanisms.	3

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student understands the physical processes of the typical aircraft electrical machinery.	Lab. works: Typical electrical machinery design and circuitry in aviation. Exam.
The student knows the aviation electrical machinery design and adjustment methods.	Lab. works: Aviation electrical machinery. Exam.
The student understands operating of new aviation electric drive devices.	Work: Structures and operation of new electric drive devices in aviation. Exam.
The student is able to analyze the operation of DC electrical power in different modes.	Individual work, seminars. Exam.
The student is able to analyze the operation of AC electrical power in different modes.	Individual work, seminars. Exam.

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		*	