RTU Course "Automatic Control Systems of Aircraft"

15E02 Avionikas katedra

General data

Code	TAA406
Course title	Automatic Control Systems of Aircraft
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Professional
Field of study	Transport
Responsible instructor	Trifonovs-Bogdanovs Pjotrs
Academic staff	Trifonova-Bogdanova Tatjana
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	Aircraft automatic control system structure schemes. Aircraft automatic control system operating modes. Helicopter automatic control system operating principles.
Goals and objectives of the course in terms of competences and skills	To acquire aircraft automatic control system design, structure and operating principles. To understand characteristics of an aircraft, dynamics of adjustment processes. To develop skills to analyze an aircraft parameters, control processes.
Structure and tasks of independent studies	To independently prepare reports in different aircraft automatic control system algorithms and structure schemes. Work with professional literature. Classes in Aviation Institute's specialized room.
Recommended literature	1. Jan Moir and Allan Seabridge, Civil Avionics Systems, John Wiley & Sons, Ltd, 2006. 396. lpp. 2. Г.Разорёнов. Системы управления летательными аппаратами. Москва. Машиностроение. 2003г. 582 стр.
Course prerequisites	Aircraft aerodynamics. Math.

Course outline

Theme	Hours
Aircraft movement dynamics. Forces and moments.	2
Lengthwise movement of the aircraft model.	6
Aircraft lateral motion model.	6
Aircraft angular motion automatic adjustment.	6
Aircraft flight speed stabilization.	4
Aircraft flight route automatic control.	8

Learning outcomes and assessment

Learning outcomes	Assessment methods
A student knows the forces and moments acting on aircraft in different flight mode.	Pract. works: Aircraft flight dynamics, exam.
A student is able to draw up aircraft flight model.	Pract. works: Aircraft flight dynamics, exam.
A student is able to optimize aircraft automatic control system for structural schemes in different flight modes.	Individual work, seminars, exam.
A student is able to analyze aircraft parameters of the automatic adjustment process.	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		*	