



RTU Course "Aircraft Pilotage Complex and Flight Management Systems"

15E02 Avionikas katedra

General data

Code	TAA537
Course title	Aircraft Pilotage Complex and Flight Management Systems
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, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	The pilotage complex tasks. The elements of the pilotage complex. The mathematic model of the gyrohorizon, gyrohorizon errors. Correction devices of the gyrohorizon. The mathematic model of the vertical gyro. Vertical gyro errors. The aircraft turnkey needle errors. Pilotage complex structural scheme analysis and synthesis. Operator as the functional element of the aircraft flight control. Analysis and synthesis of the structural scheme of the flight management systems.
Goals and objectives of the course in terms of competences and skills	To acquire an operation of the aerobatic complex. To acquire an integral operation of the aerobatic complex. To be able to analyze development of the errors in time.
Structure and tasks of independent studies	Independently prepare reports on the topic: Aerobatic complexes of different aircrafts. Algorithms and structure schemes of director management system. Work with the specialized literature. Lessons in the Aeronautical institute special auditorium.
Recommended literature	1. Moir I., Seabridge A. Civil Avionics Systems. Wiley-Blackwell. 2006. 396 p. 2. Private Pilot Manual. Canada. Jeppesen Sanderson. Inc. 2001. 132 p. 3. P. Trifonov-Bogdanovs. Žiroskopiskās pilotāžas ierīces. RTU. Rīga. 2002g. 64 lpp. 4. П. Трифонов-Богданов. Инерциальные навигационные системы полуаналитического типа. РАУ. 1998г. 107 стр.
Course prerequisites	Math, Aviation equipment and systems.

Course outline

Theme	Hours
Structure scheme of an aerobatic complex. Tasks and operation of the elements.	4
Horizontal situation indicator. Operation modes and mathematical model.	6
Errors of horizontal situation indicator. Correction equipment.	8
Operational algorithm and mathematical model of gyro bank equipment.	8
Altitude and speed system. Algorithm and errors of the channel.	10
Operator as element of management process. It characteristics.	6
Structure scheme, laws of operation and elements of the half analytical management system.	6

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student understands the construction and operation of the aerobatic complex elements.	Practical work: Elements of aerobatic complex. Exam.
The student is able to analyze the error development in time of different aircraft aerobatic complexes.	Individual work, seminars. Exam.
The student knows abilities of the human-operator in director management system structure.	Practical work: Human in aerobatic complex. Exam.
The student is able to analyze operation of aerobatic complex and director management systems in different modes.	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		*	