



RTU Course "Basics of Aviation Devices and Systems"

15E02 Avionikas katedra

General data

Code	TAA701
Course title	Basics of Aviation Devices and Systems
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	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 flight parameters and navigation coordinates systems. Aircraft measurement equipment (altimeter, variometer, gyroscope, artificial horizon, speed measurement) operating principle, construction, main features. Equipment measurement errors and correction devices.
Goals and objectives of the course in terms of competences and skills	Acquire principles and construction of aviation systems. Being competent in operating principles of aviation devices. Being able to analyze the work of aviation devices in different modes.
Structure and tasks of independent studies	Structural and kinematical schemes of different aircraft devices and systems. Their operating principles. Work with manuals. Work in specialized lecture halls of the Aviation Institute.
Recommended literature	1. Helfrick A. Principles of Avionics. Avionics Communications Inc. 2007.426 lpp. 2. Moir I., Seabridge A. Civil Avionics Systems. Wiley-Blackwell. 2006. 396 lpp. 3. P.Trifonovs-Bogdanovs. Žiroskopiskās pilotāžas ierīces. RTU. Rīga.2002g.102 lpp.
Course prerequisites	Physics, Mathematics.

Course outline

Theme	Hours
Aircraft flight parameters. Navigation coordinates systems.	2
Aircraft measurement equipment classification.	2
Altimeter. Operating principle. Construction.	5
Flight speed measurement devices. Fundamental schemes.	4
Variometer. Variometer fundamental scheme. Operating principle. Construction.	4
Gyroscope. Main features. Operating principle. Construction.	5
Artificial horizon. Operating principle. Construction.	4
Magnetic and gyroscopic route measurement devices. Compass correction devices.	4
Inertial system operating principle.	2

Learning outcomes and assessment

Learning outcomes	Assessment methods
Understanding of physical processes in devices of typical measurement systems and electrical circuits.	Lab. work: Construction of aviation measurement system devices and electrical circuits.
Understanding of operation of modern aviation devices.	Work: Separate studying of modern aircraft measurement devices and their operational schemes.

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		*	