



RTU Course "Avionic Systems"

15E02 Avionikas katedra

General data

Code	TAA533
Course title	Avionic 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	Smirnovs Igors
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	Gyroscopic stabilization force. Central gyrovertical kinematics scheme. Central gyrovertical operating modes. Error analysis. Heading sensor complexation. Heading structure scheme optimization. Heading system basic elements and analysis of the errors.
Goals and objectives of the course in terms of competences and skills	To learn central gyrovertical and heading system structure design and operating principles. To understand the central gyrovertical and heading system error performance. Develop skills to analyze the central gyrovertical heading system and a variety of modes and fault development.
Structure and tasks of independent studies	To independently prepare reports on different aircraft avionic system structure schemes and elements. 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. James W. Avionic Systema. Operation and Maintenance. Colorado: Jeppesen Sanderson, Inc. 1994. 318lpp. 3. P. Trifonov-Bogdanovs. Žiroskopiskās pilotāžas ierīces. RTU. Rīga. 2002g. 64 lpp.
Course prerequisites	Math. Aviation equipment and systems.

Course outline

Theme	Hours
Complexation of the heading sensors. The heading system structure schemes.	6
Heading system primary sensor operating modes.	8
Heading system sensor error model. Error dynamics.	6
Heading system circuitry.	8
Inertial Heading vertical. Structure schemes and working principle.	8
Inertial heading vertical sensors.	6
Inertial heading vertical circuitry.	6

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student knows heading system structure design and elements.	Pract. work: heading systems, exam.
The student is able to analyze heading system operation in different modes.	Pract. work: heading systems, exam.
The student is able to analyze heading system error in different modes.	Pract. work: heading systems, exam.
The student understands the heading vertical structure schemes and the elements.	Pract. work: heading vertical, exam.
The student is able to analyze heading vertical operation in different modes.	Pract. work: heading vertical, exam.
The student is able to analyze the heading vertical errors in different modes.	Pract. work: heading vertical, 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		*	