



RTU Course "Methods and Systems of Radio Navigation of Aircraft"

15E02 Avionikas katedra

General data

Code	TAA521
Course title	Methods and Systems of Radio Navigation 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	Smirnovs Igors
Academic staff	Fetisovs Dmitrijs
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	The subject "Aircraft navigation methods and systems" is based on the theoretical background of navigation and aircraft navigation equipment studying. Studying covers such issues as navigation devices and system design principles, characteristics, navigation equipment and systems analysis and assembling techniques. Subject also considers aviation navigation devices and system technical parameters control methods.
Goals and objectives of the course in terms of competences and skills	To gain knowledge of navigation theoretical foundation, to understand navigation devices and systems, tasks and operational principles. To be able to analyze the structure of radio equipment and operational schemes and their advantages and disadvantages. Understand and be able to explain navigation information assembling sensor advantages, data processing algorithms for complex navigation systems. to know navigation systems and devices technical parameters control methods, their characteristics, advantages and disadvantages.
Structure and tasks of independent studies	Independent work on the theme: "Aircraft navigation system remoteness and operation area calculation".
Recommended literature	1. Aviation Electronics. By Keith W. Bose, Jeppesen. Sanderson Training prod, 2006, 384 p.; 2. Radio Navigation. JAA ATP, Volume 3, Jeppesen, 2007, 304 p.; 3. Wasson J.W. Avionic Systems. Operation & Maintenance. Colorado: Jeppesen Sanderson, Inc. 2004, 318 p.; 4. Henderson M.F. Aircraft Instruments & Avionics for A&P Technicians. Colorado: Jeppesen Sanderson, Inc. 2001. 212 p.; 5. Civil Avionics Systems. I. Moir, A. Seabridge, 2002, 416 p.
Course prerequisites	Background knowledge in physics, electrical engineering, electronics.

Course outline

Theme	Hours
Radio navigation devices and systems design principles.	2
Radio navigation equipment and systems characteristics.	4
Radio navigation devices and systems analysis methods.	4
Aircraft integrated navigation system design basics.	4
Radio navigation distance measuring devices and systems.	6
Radio navigation angle measurement systems.	4
Short-range navigation and landing systems.	4
Long range navigation system.	4

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student knows the theoretical foundations of radio navigation and is able to apply knowledge of navigation devices and systems analysis.	Individual work and final examination question.
The student knows and is able to set out aircraft radio navigation equipment and systems, tasks and operational principles.	Individual work and final examination question.
The student knows the basics of complex navigation system construction and is able to explain advantages of navigation sensors package.	Final examination question.
The student is able to analyze radio navigation equipment structure and functional circuitry.	Practical work and final examination question.
The student knows, is able to analyze and compare the radio navigation device and system technical parameters.	Final examination question.
The student knows radio navigation equipment working test methods and is able to assess the completeness and efficiency of these methods.	Practical work and final examination question.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	2.0	3.0	1.5	0.5	0.0		*	