RTU Course "Air Traffic Control Radio Systems"

15E02 Avionikas katedra

General data

Code	TAA304
Course title	Air Traffic Control Radio Systems
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate 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, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, RU
Possibility of distance learning	Not planned
Abstract	Subject “ATC radio systems" is based on the study of the ground avionic equipment, which is necessary for air traffic management. Studying covers such issues as ground primary and secondary radars, radio technical landing system and short-range navigation system ground equipment, ATC automated systems, dispatcher job facility.
Goals and objectives of the course in terms of competences and skills	To gain knowledge of aviation ground radio electronic equipment and operational principles tasks. To be able to analyze ground radio electronic system characteristics, structural and functional circuitry, structural features of individual nodes. To be able to apply this knowledge to radio electronic systems analysis. To acquire practical skills in ground radio electronic equipment and systems for the control of technical parameters.
Structure and tasks of independent studies	Individual work on the theme: "Aviation ground radio electronic technical equipment condition monitoring." Work with technical literature.
Recommended literature	1. Fundamentals of Air Traffic Control. Michael S. Nolan. 2009, 672 p.; 2. Air Traffic Control Handbook. David J Smith, 2010, 208 p.; 3. Air traffic control. Ian Allan, 2005, 111 p.; 4. Aeronautical Radio Communication Systems and Networks. Dale Stacey, John Wiley & Sons, Ltd., 2008, 350 p.; 5. Radar Fundamentals. I. Faulconbridge, Argos Press, 2002, 287 p.; 6. Radar Handbook. M. I. Skolnik, Barnes & Noble, 2008, 1328 p.
Course prerequisites	Background knowledge in physics, electrical engineering, electronics.

Course outline

Theme	Hours
Air Traffic Control (ATC) classification of ground-electronics equipment.	2
The landing radar.	4
The airport monitoring radar.	4
The tacks monitoring radar.	6
Secondary radar.	4
The aerodrome monitoring radar.	4
Meteorological radars.	4
Instrument Landing System (ILS) ground equipment.	6
The navigation system VOR / DME ground equipment.	6
ATM automated systems.	4
Dispatcher equipment, information displaying and recording system.	4

Learning outcomes and assessment

Learning outcomes	Assessment methods
A student knows radio navigation and radio location theoretical basis and is able to use them in studying of the ground radio electronic equipment.	Exam.
A student knows and is able to describe ground radio navigation and radio location equipment and systems, tasks and operational principles.	Exam.
A student is able to analyze ground radio electronic equipment structures and functional circuitry.	Exam.
A student is able to analyze ground radio electronic equipment technical parameters.	Exam.
A student knows and is able to describe ground radio electronic equipment standard node structure.	Laboratory work defense question. Exam.
A student is able to control ground radio navigation and radio location equipment and systems work under laboratory conditions.	Independent work and laboratory work defense questions. Exam.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	4.5	2.5	0.0	0.5		*	