



RTU Course "Microprocessor Aviation Technologies"

15E02 Avionikas katedra

General data

Code	TAA311
Course title	Microprocessor Aviation Technologies
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
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 "Microprocessor Aviation Technologies" - the content and structure of the corresponding document PART 66 (maintenance of aircraft, Category B2) fifth module requirements. The item is intended for studying typical aircraft digital electronic systems - the system task, the composition, the operation principle, and the procedures for using the test with a built-in test system.
Goals and objectives of the course in terms of competences and skills	Gain knowledge about the typical aircraft digital electronic systems; to be able to use this knowledge of the aircraft digital system maintenance process.
Structure and tasks of independent studies	Work with literature and technical documentation. Independent work on the theme: "Electronic digital system built-in test systems (BITE)."
Recommended literature	<ol style="list-style-type: none"> 1. Module 5. Licence By Post. EASA 66. Books 1-6. HP20 1QA UK. 2008. 2. Wasson J.W. Avionic Systems. Operation & Maintenance. Colorado: Jeppesen Sanderson, Inc. 2004, 318 p. 3. Michael H. Tooley, David Wyatt. Aircraft Digital Electronic and Computer Systems: Principles, Operation and Maintenance: Butterworth-Heinemann Ltd, 2006, 210 p. 4. Suematsu Y. Introduction to Personal Computer Based Controllers. Tokyo: Ohmsha, Ltd., 2002, 256 p. 5. J. Greivulis, I. Raņķis. Iekārtu vadības elektroniskie elementi un mezgli. Rīga: Avots, 2004, 288 lpp.
Course prerequisites	Background knowledge in physics, electrical engineering, electronics.

Course outline

Theme	Hours
Electronic digital display layout aircraft cockpit.	2
Electronic Flight Instrument System (EFIS).	4
EFIS symbol generator.	2
Engine Indication and Crew Alert System (EICAS).	4
Electronic Centralized Aircraft Monitoring (ECAM).	4
Digital Flight Data Recording System (DFDR).	2
Digital Air Data Computer (DADC).	2
Flight Management System (FMS).	6
Fly-By-Wire (FBW).	4
Information Management System (IMS).	2

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student knows and is able to tell a typical aircraft electronic digital tasks and composition.	Final examination question.
The student knows and is able to tell a typical aircraft electronic digital display deployment in a cockpit.	Final examination question.
The student is able to represent typical digital charts, explain each node in the task and their interaction.	Final examination question.
The student knows and is able to explain all signs on digital displays.	Practical work and final examination question.
The student knows and is able to explain all elements of task switching on the digital control panel.	Practical work and final examination question.
The student knows and is able to explain the digital operating modes, each mode features.	Final examination question.
The student knows and is able to explain each digital system uptime testing procedures with the built in system test (BITE).	Practical work and final examination question.
The student is able to use the acquired knowledge in practical work.	Practice's 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		*	