RTU Course "Special Chapters of Electronic Engineering"

15E02 Avionikas katedra

General data

Code	TAA207
Course title	Special Chapters of Electronic Engineering
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	Šļenska Ņina
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	Explanations of the physical processes in semiconductor electronic circuits. Shows the electronic scheme calculation methods.
Goals and objectives of the course in terms of competences and skills	Study functioning of semiconductor electronic circuits in different modes. Study semiconductor electronic circuit calculation methods. Study functioning of integrated circuits.
Structure and tasks of independent studies	Independently prepare reports on the topic - Electronic circuits functioning in different modes. Performance analysis. Calculation methods. Working with the special literature. Lesson in the Aviation Institute's specialized lecture hall.
Recommended literature	1. Z.Bunžs, Elektronikas pamati, Rīga, RTU, 2010g. 164 lpp. 2. I.Raņķis, I.Buņina, Energoelektronika, Rīga, RTU, 2007g. 186 lpp. 3. Z.Bunžs, S.Miesniece. Bezkontaktu komutācijas aparāti. Rīga. RTU. 2008g. 308 lpp. 4. H. Muhammad, Power Electronics. London, Academic Press, 2001g. 895 lpp.
Course prerequisites	Physics, math, basics of electronics.

Course outline

Theme	Hours
Transistor pulse mode. Pulse amplifier.	3
Multivibrators. Triggers.	3
Integrators. Differentiator. Comparators.	2
Logical circuits.	6
Thyristors. Powerful field effect transistors.	3
Semiconductor switches.	7
Printed circuit boards.	2
Integrated circuits. Operation amplifier.	6

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student understands the physical processes of the transistor pulse, summarises.	Lab. works: Transistor pulse mode operation. Exam.
The student understands the physical processes in thyristor.	Lab. works: thyristor operation and characteristics. Exam.
The student is able to carry the electronic circuit analysis.	Seminars: Analysis of electronic circuits. Exam.
The student knows electronic circuit calculation methods.	Seminars: Analysis of electronic circuits. Exam.

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		*	