



RTU Course "Automated Electrotechnological Processes"

11103 Industriālās elektronikas un elektrotehnol.katedra

General data

Code	EEP408
Course title	Automated Electrotechnological Processes
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Power and Electrical Engineering
Responsible instructor	Ivars Raņķis
Academic staff	Viesturs Bražis Aivars Pumpurs
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	Planned
Abstract	The subject is meant for full and part-time study, the type of RTU students of bachelor study program "Computer control of electrical technologies". Subject examines the process automation system for the establishment of principles. Deals with electrical heating installations, induction heating equipment, welding equipment and electrogalvanic plant automation systems modeling.
Goals and objectives of the course in terms of competences and skills	Main goal is to learn the basic principles of process automation, to teach students to carry out the technological process control system, automation system, to teach the test with computer model assistance.
Structure and tasks of independent studies	Automation systems for electrotechnologic processes. Computer modeling of electrotechnologic processes. Requirement for students to show modeling results describing at the beginning of the next instruction. Electrotechnologic processes automation systems for a model framework and algorithm analysis. Requirement for students to set out the automation system and the synthesis of the principle at the beginning of the next instruction.
Recommended literature	1. J.Greivulis, I.Raņķis Iekārtu vadības elektroniskie elementi un mezgli, Avots,1997.-288 lpp. 2. I.Raņķis, V.Bražis. Elektrotehnoloģiskās iekārtas. R., 2007. 3. Автоматизация технологических процессов пищевых производствЕ.Б.Карпин и др. – М.:Пищ.пром.,1977.- 430 стр. 4. James A. Rehg, Glenn J. Sartori. Industrial electronics, Upper Saddle River (N.J.) ;Columbus (O.) : Pearson/Prentice Hall, 2006.- 862.lpp.
Course prerequisites	Regulation Theory, Industrial electronic equipment.

Course outline

Theme	Hours
Automation modes and algorithms of electrotechnological processes	2
Automation systems in general construction of electrotechnological processes	2
Continuous process automation systems of electrotechnological processes	4
Temperature control system of electrothermal equipment	4
Welding Process Automation	2
Electric arc furnace automation	2
Electrogalvanic plant automation	2
Choice of automation system parameters	2
Programmable logic controller applications for automation equipment of electrotechnological processes	2
Modeling framework of electrotechnological processes	6
Closed-regulating systems computer models	4

Learning outcomes and assessment

Learning outcomes	Assessment methods
Able to check automation system of electrical technologies with help of computer modeling.	Learn the essence of the matter, sufficiently deep understanding of electrotechnological processes automation system design and creation.
Able to carry installations of automation systems for electrothermal heating.	Learn the essence of the matter, positive responses counted at test.
Able to carry out installations for welding automation systems.	Learn the essence of the matter, positive responses counted at test.
Be able to carry out arc furnace automation tasks.	Learn the essence of the matter, positive responses counted at test.

Able to carry out complex tasks with PLC automation assistance.	Learn the essence of the matter, positive responses counted at test.
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Study subject structure

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