



## RTU Course "Electro, Pneumo and Hydro automatics"

15326 Mašīnbūvniecības un industriālā dizaina katedra

### General data

Code	MRA353
Course title	Electro, Pneumo and Hydro automatics
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Mechanics, Mechanical Engineering, Machine Building
Responsible instructor	Kaņeps Jānis
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV
Possibility of distance learning	Not planned
Abstract	The energy supply and processing elements of electric, pneumatic and hydroautomatic (EPH) systems, information input elements, signal processing and executive elements, the structure and operating principle. Types of equipment operation algorithm. Operational algorithm realization with pneumatic, hydraulic and hard logic electrical elements. Programmable controller (PLC) design and management programmes for the system's algorithm. Computer aided selection, calculation, and system performance modeling of the electric, pneumatic and hydroautomatic system components.
Goals and objectives of the course in terms of competences and skills	
Structure and tasks of independent studies	
Recommended literature	<ol style="list-style-type: none"> <li>1. J.Kaņeps: Elektro pneimo un hidroautomātika: Lekciju konspekts un mācību palīgmateriāli. DVD disks. – Rīga: RTU, 2010. (tiek papildināts un atjaunots katru mācību gadu).</li> <li>2. P.Croser: Pneimatika: pamatlīmenis TP 101: mācību grāmat. – Rīga, Festo Didactic KG, 2003. – 203 lpp.</li> <li>3. D.Merkle, B.Štraiders, M.Toms: Hidraulika: pamatlīmenis TP 501: mācību grāmata. – Rīga: Festo SIA, 1992. – 283 lpp.</li> <li>4. P.Lielpēters, R.Dorošenko, Ē.Geriņš: Fluidtehnika. – Rīga: RTU, 2005. – 183 lpp.</li> <li>5. А.Наземцев: Гидравлические и пневматические системы. Ч. 1. Пневматические приводы и средства автоматизации: Учебное пособие. – Москва: Форум, 2004. – 240 с.</li> <li>6. А.Наземцев, Д.Рыбальченко: Гидравлические и пневматические системы. Ч. 2. Гидравлические приводы и системы. Основы: Учебное пособие. – Москва: Форум, 2007. – 304 с.</li> <li>7. W.Depert, K.Stoll: Pneumatische Steuerungen. – Würzburg: Vogel, 1994. – 289 s.</li> <li>8. M. Galal Rabie: Fluid Power Engineering. - McGraw-Hill, 2009. – 420 p.</li> </ol>
Course prerequisites	

### Course outline

Theme	Hours
	2
	4
	2
	2
	2
	4
	2
	4
	4
	2
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	2
	4
	2
	4

### Learning outcomes and assessment

Learning outcomes	Assessment methods


***Study subject structure***

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	4.5	2.0	0.0	1.0		*	