RTU Course "Application of Computers in Electrical Equipment Design"

11103 Industriālās elektronikas un elektrotehnol.katedra

General data

Code	EEP342
Course title	Application of Computers in Electrical Equipment Design
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	Iļja Galkins
Academic staff	Andrejs Stepanovs
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
Maximum auditorium capacity	12
Maximum number of students per semester	60
Abstract	The students are taught a electronic hardware design phases, described the software "ORCAD" and how they will be forced to realize all the broad stages of design.
Goals and objectives of the course in terms of competences and skills	Teach to work with the software "ORCAD," so that all should to carry out extensive planning stages.
Structure and tasks of independent studies	In semester will be assigned homeworks. Students will be admitted to the exam only by fulfilling the homeworks.
Recommended literature	1) Kraig Mitzner „Complete PCB Design Using ORCAD Capture and Layout", Elsevier Inc., 2007 2) Kraig Mitzner „Complete PCB Design Using ORCAD Capture and PCB Editor", Elsevier Inc., 2009 3) В.Д. Разевиг, «Система проектирование Orcad 9.2», СОЛОН-Р, 2001 4) С.А. Кузнецова, А.В. Нестеренко, А.О. Афанасьев, «Orcad 10.0 Проектирование печатных плат», Горячая линия-Телеком, 2005
Course prerequisites	Computer knowledge, industrial electronics.

Course outline

Theme	Hours
Introduction and general description of the program package ORCAD	2
The program ORCAD CAPTURE - editor of the principial electrical schemes	2
Graphical schematic signe editor and library of graphic schematic symbols	2
Creation of electrical projects with ORCAD CAPTURE editor help	2
Creation of the principial electrical schemes with help of the ORCAD CAPTURE editor	2
Processing of project and principial electrical schemes with help of ORCAD CAPTURE	2
Simulation of electronic circuit with ORCAD PSPICE help	4
Applications of ORCAD basic elements	2
Shell Library Building	4
Creation of printed cards by program ORCAD LAYOUT	2
Connections realization (cards tracing)	4
Postdesign processing of files using ORCAD LAYOUT	2
Demo (printed cards production on milling table)	2

Learning outcomes and assessment

Learning outcomes	Assessment methods
Being able to create a principial electric circuit with the editor ORCAD CAPTURE.	Homework . Test on completed homework.
Being able to create a library of graphical schematic terms.	Homework . Test on completed homework.
Being able to create a asked electronic components housing library.	Homework . Test on completed homework.
Being able to place electronic components on the plates and frames to make the project of printed card and provide drawin of tracks in manual and automatic way using program ORCAD LAYOUT.	Homework . Test on completed homework.
Being able to generate Gerber files.	Homework . Test on completed homework.
Study results summary.	Exam. During the exam, the student is required to demonstrate that he is able to independently go to meet the learning outcomes in a limited time (2-3 hours).

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		*	