

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Electrical Power Engineering		
Type and level of studies		Undergraduate Academic Studies		
The name of the course		Electrical Drives Project Design		
Lecturer (for lectures)		Petronijević P. Milutin		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)		Filipović R. Filip		
Number of ECTS		5	Course status (obligatory/elective)	Elective
Prerequisites	None			
Course objectives	Acquiring the basic knowledge about project design of modern electric drives in power and control part. Project planning and preparation of technical documentation.			
Course outcomes	At the end of this course, students will be able to: understand process of project design a complete electric drives system for industrial applications; comprehensive study of a complex electric drive system with protection, control and functional features; carry out a mid level electric drives project.			
Course outline				
Theoretical teaching	Project planning. Basic national and international laws, standards and directives. Device designations. Application of CAE software's in electric drives (EDs) project design. EDs power part design: calculations, protection, equipment selection. Basic protection equipment: fuses, circuit breakers, relays, functional safety. Selection and design of EDs control part: local control, remote control. Selection of main fieldbus components and network topology. Selection of PLC components and modules. Multi-motor drives project design.			
Practical teaching (exercises, OFE, study and research)	Practice exercises are guide students through an electric drive project design phases: planning, calculations, basic design, single- and multi-lines diagrams, bill of quantities, connection diagrams and cabinet design. PLC drawing and overview. Project report generation. Students are using modern SW applications (EPLAN, AutoCAD, Simaris) for project design and calculation. In Laboratory, students learn about practical application of modern converters in controlled EDs.			
Textbooks/references				
1	G. Dotlić, "Power engineering (through standards, laws, rulebooks and technical recommendations)", SMEITS, Belgrade, 2013 (in Serbian).			
2	B. Jeftenic, et al, " Electric Drives - workbook", Academic Mind, Belgrade, 2003 (in Serbian)			
3	Z. Stojkovic, "Computer- Aided Design in Power Engineering - Application of Software Tools", Springer, 2012			
4	Jens Weidauer, Richard Messer, "Electrical Drives Principles · Planning · Applications · Solutions", Publicis Publishing, Erlangen, 2014.			
5	B. Jeftenic, M. Bebic, S. Statkic, "Multi-motor Drives", Academic Mind, Belgrade, 2011 (in Serbian)			
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	0	3	0	0
Teaching methods	Lectures with application of demonstrative aids – slides and CAE software's presentations. With lecturer guiding, students solve practical, industry related, problem, make project documentation and finally, present project design. Study visiting to industry facilities is also being organized.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam		Points
Activity during lectures		Written exam		
Exercises	20	Oral exam		40
Colloquia				
Projects	40			