

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Control Engineering and computing science in industry and		Code 1010321271010324814
Field of study Electrical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 4 / 7
Elective path/specialty Electrical and Computer Systems in	Subject offered in: polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 1 Classes: - Laboratory: 1 Project/seminars: -		No. of credits 3
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 3 100% 3 100%
Responsible for subject / lecturer: Dr inż. Jerzy Frąckowiak email: jerzy.frackowiak@put.poznan.pl tel. 616652382 Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of automation, control theory, and microcontrollers.
2	Skills	The ability to understand and interpret the messages conveyed and effective self.
3	Social competencies	Awareness of the need to broaden their competence.
Assumptions and objectives of the course: Synthesis of selected industrial control systems, development of control programs for PLCs, their start-up and testing.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. architecture, instruction set, timers, counters, interrupts PLC Siemens S7-200 - [K_W07+]		
2. selected PLC programming languages - [K_W07+]		
Skills:		
1. use the knowledge gained to create algorithms control and write application programs - [K_U04+]		
2. capacity for independent thinking and creative action - [K_U04+]		
Social competencies:		

Assessment methods of study outcomes
Lecture: - Final test.
Laboratory: - The development of the control algorithm, the design and the control sample run of the control system.

Course description		
PLCs, their architecture, interrupts, timers, counters, PWM generators and PTO, the list of commands, PLC programming languages??, synthesis of control systems in terms of traditional and SFC control algorithms sample of industrial systems, the SFC diagrams and control programs.		
Basic bibliography:		
1. Mikulczyński T., Samsonowicz Z.: "Automatyzacja dyskretnych procesów produkcyjnych", WNT, Warszawa 1997. 2. Seta Z.: "Wprowadzenie do zagadnień sterowania", Wydawnictwo Mikom, Warszawa 2002. 3. Kamiński K.: "Programowanie w Step 7 Microwin", GRYF, Warszawa 2006. 4. Dokumentacja sterownika S7-200 firmy Siemens.		
Additional bibliography:		
1. Bubnicki Z.: "Teoria i algorytmy sterowania", Wydawnictwo Naukowe PWN, Warszawa 2002.		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in lectures	15	
2. consultations for lectures	3	
3. credit lecture	2	
4. participation in laboratory classes	15	
5. preparation of projects	10	
6. consultation for laboratory classes	5	
7. preparation for the completion of lectures	10	
8. preparation laboratory	8	
Student's workload		
Source of workload	hours	ECTS
Total workload	68	3
Contact hours	40	2
Practical activities	38	1