

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Electronics		Code 1010331131010330033
Field of study Control Engineering and Robotics	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	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: 2 Classes: - Laboratory: 2 Project/seminars: -		No. of credits 5
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		ECTS distribution (number and %) 5 100%
Responsible for subject / lecturer: dr inż. Jan Deskur email: Jan.Deskur@put.poznan.pl tel. +48 61 665 2735 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	K_W02:
2	Skills	K_U01: K_U04:
3	Social competencies	K_K_02:
Assumptions and objectives of the course: Knowledge concerning principles of operation of the electronic circuits; the ability of analysis as well as designing the electronic circuits.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. K_W_12 - [K_W12]		
Skills: 1. K_U15 - [K_U15] 2. K_U20 - [K_U20] 3. K_U23 - [K_U23]		
Social competencies: 1. K_K04 - [K_K04]		

Assessment methods of study outcomes
- Lectures: written test , examination in semester 4 - Laboratory: attendance in exercises, evaluation of written reports on laboratory exercises.
Course description

<p>- Lectures: Passive electronic components. Semiconductor materials ; p-n junction. Diodes , its models and applications, Bipolar transistors, field effect transistors. Integrated circuits of small and medium scale of integration. Operational amplifiers. . Applications of operational amplifiers to analogue signal processing. Analogue controllers and filters. Electronic switches, S&H, DA and AD converters; switched capacitors devices. Selected problems of industrial electronics. Laboratory: diodes, transistors, operational amplifiers, filters; circuit-oriented simulation programs.</p>		
<p>Basic bibliography: 1. Lecture materials provided by the teacher in electronic form 2. Elektronika. Układy elektroniczne, Waldemar Nawrocki, WPP, Poznań 2010 3. Wprowadzenie do elektroniki i energoelektroniki, Marian P. Kaźmierkowski, Jerzy T. Matysik, Oficyna Wyd. Pol. Warszawskiej, Warszawa, 2005</p>		
<p>Additional bibliography: 1. Układy półprzewodnikowe, Ulrich Tietze, Christoph Schenk, WNT, Warszawa, 1996,2009 2. Elementy i układy elektroniczne w pytaniach i odpowiedziach, Mirosław Rusek, Jerzy Pasierbiński, WNT, Warszawa, 2006</p>		
<p>Result of average student's workload</p>		
<p>Activity</p>	<p>Time (working hours)</p>	
1. Lecturew	30	
2. Laboratory	30	
3. Preparation to laboratory excersises, elaboration of reports	30	
4. Home excersises	15	
5. Preparation to tests/examination	15	
6. Examination	5	
<p>Student's workload</p>		
<p>Source of workload</p>	<p>hours</p>	<p>ECTS</p>
Total workload	125	5
Contact hours	65	3
Practical activities	60	2