

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Design and simulation of electronic systems		Code 1010322331010326095
Field of study Electrical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty Measurement Systems in Industry and	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: - Classes: - Laboratory: - Project/seminars: 30		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 hab. inż. Andrzej Odon email: andrzej.odon@put.poznan.pl tel. 616652599 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge in the scope of electrotechnics and metrology. Basic knowledge in the scope of electronics, including analog and digital electronic circuits.
2	Skills	Ability of the efficient self-education in the area concerned with the module
3	Social competencies	Awareness of the necessity of competence broadening and ability to show readiness to work as a team
Assumptions and objectives of the course: - Skills in the scope of design and analysis of the electronic analog and digital circuits with application of computer assistance to simulate these circuits.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Ability to explain the principles and techniques of measurement signals acquisition and processing for the modern applications in industry and biomedical engineering - [K_W12 +++] 2. Ability to describe the application areas and potential of the modern measurement systems - [K_W18 +]		
Skills: 1. Ability to design creatively the modern measurement systems, using the possibilities offered by presently available technologies, taking into account the limitations of the knowledge and technique status - [K_U01 +, K_U09 +++, K_U15 +]		
Social competencies: 1. Ability to think and act enterprisingly in the area of the moderne measurement systems - [K_K01 +] 2. Understanding a need of the broad populatrization of the knowledge in the area of simple and complex measurement systems used in industry and biomedical engineering - [K_K02 +]		
Assessment methods of study outcomes		
Projects: - continuous evaluation, at all classes, and awarding the skill increase in the use of the known principles and methods, - evaluation of the knowledge and skills related to a given group or independent project and evaluation of the prepared reports.		

Course description		
<p>Updating 2017: Methods of education are orientated to students to motivate them to participate actively in education process by discussion and reports.</p> <p>Projects: Groups of students work as teams. Discussion on different methods and aspects of problem solutions. Detailed reviewing of particular projects documentation with:</p> <ul style="list-style-type: none"> - Design and analysis of properties of the selected electronic systems and carrying out the simulation studies using specialized programming environments. - Making the circuit diagrams by the use of MultiSIM environment. - Application of the MultiSIM environment for the DC, AC, frequency and time analysis of electronic circuits. 		
<p>Basic bibliography:</p> <ol style="list-style-type: none"> 1. T. Bogart, J. Beasley, G. Rico, Electronic Devices and Circuits, Prentice-Hall, Inc., New Jersey 2001. 2. U. Tietze, Ch. Schenk, Układy półprzewodnikowe, WNT, Warszawa 2001. 3. K. Baranowski, A. Welo, Symulacja układów elektronicznych, Wydawnictwo MIKOM, Warszawa 1996. 		
<p>Additional bibliography:</p> <ol style="list-style-type: none"> 1. A. Król, J. Moczko, PSPICE ? Symulacja i optymalizacja układów elektronicznych, Wydawnictwo Nakom, Poznań 1999. 2. J. Porębski, P. Korohoda, PSPICE ? program analizy nieliniowej układów elektronicznych, WNT, Warszawa 1994. 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in projects classes	30	
2. Participation in consulting with lecturers	8	
3. Realization of projects	38	
Student's workload		
Source of workload	hours	ECTS
Total workload	70	3
Contact hours	42	2
Practical activities	68	3