

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Basis of the construction of electronic circuits		Code 1010321361010326952
Field of study Electrical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty Measurement Systems in Industry and	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: 30 Classes: - Laboratory: - Project/seminars: 15		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. Grzegorz Wiczyński email: grzegorz.wiczynski@put.poznan.pl tel. 616652639 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 electronics. Basic knowledge in the scope of electronic analog circuits.
2	Skills	Ability of the efficient self-education in the area concerning the design and construction of electronic circuits
3	Social competencies	Awareness of the necessity of broadening of the competencies in the field of electrical engineering and willingness to cooperate in a team
Assumptions and objectives of the course: - Knowledge of the basis of design, assembly and starting of electronic circuits. - Knowledge of properties and application possibilities of analog transducers.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Well-ordered knowledge in the scope of structure and operation principles of electronic, optoelectronic and simple analog elements and devices. - [K_W14 ++] 2. Knowledge of the typical engineering technologies in the scope of the field of studies. - [K_W18 +]		
Skills: 1. Ability do design a simple electrical circuit to be used in various applications. - [K_U03 +++] 2. Ability to use the literature sources accessible in the printed and electronic versions. - [K_U05 +] 3. Ability to use electrical devices properly, in accordance with the general requirements and technical documentation - [K_U23 +]		
Social competencies: 1. Understanding the needs and the knowledge of possibility of learning by whole life (studies of second and third degree and postgraduate) - [K_K01 +] 2. Ability to think and act enterprisingly in the area of electrical engineering - [K_K04 +]		
Assessment methods of study outcomes		

<p>Lectures:</p> <ul style="list-style-type: none"> - evaluation of the knowledge related to the content of lectures (test, computational and problem questions), awarding projects marks) - continuous estimation in all classes (awarding attendance in lectures, activity and quality of perception). <p>Projects:</p> <ul style="list-style-type: none"> - continuous estimating with the tests, - awarding the skill increase in using the known principles and methods, - the evaluation of knowledge and skills connected with realization of a team or individual project, and the prepared reports.

Course description

Passive and active elements used in construction of electronic circuits: basic parameters and selection of these elements.
 Supply of electronic circuits.
 Galvanic solution.
 Data transmission.
 Mechanical elements of electronic circuits: cases, cooling, shielding.
 Diagnostics and testing of electronic circuits.
 Principles of safety during the project classes.
 Plan and realization of a simple electronic circuit.
 Diagnostics and testing of the made electronic circuit.
 Preparation of the documentation of a made project task.

Basic bibliography:

1. U. Tietze, Ch. Schenk, Układy półprzewodnikowe, WNT, Warszawa 2001
2. J. Zakrzewski, Czujniki i przetworniki pomiarowe, Wyd. Politechniki Śląskiej, Gliwice 2004
3. Z. Kulka, M. Nadachowski, Analogowe układy scalone, WKŁ, Warszawa 1985.
4. J. Rydzewski, Pomiary oscyloskopowe, WNT, Warszawa 2007

Additional bibliography:

1. A. Guziński, Liniowe elektroniczne układy analogowe, WNT, Warszawa 1994.
2. Z. Kulka, A. Libura, M. Nadachowski, Przetworniki analogowo-cyfrowe i cyfrowo-analogowe, WKŁ, Warszawa 1987
3. S. Bolkowski, Elektrotechnika, Wydawnictwa Szkolne i Pedagogiczne, Warszawa 2009
4. E. Romer, Miernictwo przemysłowe, PWN, Warszawa 1970
5. S. Tumański, Technika pomiarowa, WNT, Warszawa 2007

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	30
2. Participation in projects	15
3. Participation in consulting with the lecturer	13
4. Realization of the final projects	15
5. Preparation to the credit	10

Student's workload

Source of workload	hours	ECTS
Total workload	83	3
Contact hours	55	2
Practical activities	30	1