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Assessment methods of study outcomes

Lectures:

- 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).

Projects:

- 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 solation.

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 mede 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	18
2. Participation in projects	9
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	65	2
Contact hours	40	2
Practical activities	30	1