# Electronics - course description

General	information
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General Information	
Course name	Electronics
Course ID	06.5-WE-ELEKTP-Electronics-Er
Faculty	Faculty of Computer Science, Electrical Engineering and Automatics
Field of study	Electrical Engineering
Education profile	academic
Level of studies	First-cycle Erasmus programme
Beginning semester	winter term 2021/2022

#### Course information

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Semester	3
ECTS credits to win	6
Course type	obligatory
Teaching language	english
Author of syllabus	dr inż. Piotr Mróz

### Classes forms

The class form	Hours per semester (full-time)	Hours per week (full-time	) Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Exam
Laboratory	30	2	-	-	Credit with grade

#### Aim of the course

Student can maintain movement of the electronic circuits for automation and measurement.

#### Prerequisites

Principles of electronic. Principles of metrology.

#### Scope

Electronic elements. Voltage and current in electronic circuits. Rules related to voltage and current. Resistors, capacitors, induction elements, diodes, optoelectronic elements, transistors - allowed and characterictic parameters.

Usage of electronic elements. Voltage dividers and filters. Usage of optoelectronic elements to signalisate states of devices and galvanic separatoin of signals.

Transistor amplifier to control executing elements.

Operational amplifiers. Basic operational amplifiers and their usage. Parameters of operational amplifers. Basic circuits with operational amplifiers. Usage of operational amplifiers in automation and measurement.

#### Teaching methods

Lecture: work with source documents, discussion, problem lecture.

Labolatory: work with source document, discussion, simulation, practical work, laboratory excercices.

## Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols Methods of verification	The class form
Student is conscious that electronic circuits built from modern integrated circuits are better than those built from discreet elements.	<ul> <li>an exam - oral, descriptive, test and other</li> </ul>	• Lecture
Student understands and analyses the work of simple electronic circuits.	<ul> <li>an exam - oral, descriptive, test and other</li> </ul>	• Lecture
Student can choose electronic elements and integrated circuits to make electronic circuits.	<ul> <li>an exam - oral, descriptive, test and other</li> </ul>	• Lecture
Student can create the simplest electronic circuits.	<ul> <li>an ongoing monitoring during classes</li> </ul>	• Laboratory
Student can use electronic elements and integrated circuits to make electronic circuits.	<ul> <li>an ongoing monitoring during classes</li> </ul>	<ul> <li>Laboratory</li> </ul>

Lecture: the condition to pass is getting a positive mark from the exam. The exam might be oral or paper form.

Laboratory: the condition to pass is getting a positive mark from all of the laboratory exercises.

Final mark = 50% lecture + 50% laboratory

## **Recommended reading**

1. Horowitz P., Hill W.: Sztuka elektroniki, Wyd. Komunikacji i Łączności, Wydanie 7, Warszawa, 2003.

## Further reading

1. Chwaleba A., Moeschke B., Płoszyński G., Elektronika, Wyd. Szkolne i Pedagogiczne, Wydanie 6, Warszawa, 1998.

2. Datasheets of components and electronic circuits, manufacturers websites.

### Notes

Modified by dr inż. Piotr Mróz (last modification: 15-07-2021 18:29)

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