COURSE DESCRIPTION CARD - SYLLABUS

Course name
Electronical and electrical circuits designing

Course

Field of study
Automatic Control and Robotics
Area of study (specialization)

Level of study
First-cycle studies
Form of study
full-time

Year/Semester
4/7
Profile of study
practical
Course offered in
polish
Requirements
elective

Number of hours

Lecture
15
Laboratory classes
30
Other (e.g. online)

Tutorials
Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:
dr hab. inż. Paweł Drapikowski

Responsible for the course/lecturer:
mgr inż. Adam Bondyra

Prerequisites

The student starting the subject should have a basic knowledge of electronics and electrical engineering. One should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

Course objective

Familiarize students with the principles of electronic and electrical circuit design. Acquire the skills to

use programs to support the process ofdesigning and analysis of electronic and electrical circuits. Knowledge in reading and writing technical documentation.

Course-related learning outcomes

Knowledge

1. The graduate knows and understands typical engineering technologies, rules and techniques for constructing simple automation and robotics systems; knows and understands the principles of selecting actuators, computing units, as well as measuring and control elements and devices.

2. The graduate can assess the usefulness of routine methods and tools for the design of automation and robotics systems and select and apply the appropriate method and tools.

3. The graduate knows and understands the basic processes taking place in the life cycle of devices and selected security systems used in automation and robotics.

Skills

1. The graduate can prepare documentation concerning the implementation of an engineering task in Polish and in a foreign language.

2. The graduate can assess the usefulness of routine methods and tools for the design of automation and robotics systems and select and apply the appropriate method and tool.

3. The graduate can design simple electrical and electronic systems for various applications..

Social competences

1. The graduate is aware of the need for a professional approach to technical issues, meticulous familiarization with the documentation and environmental conditions

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:
Lecture: written exam (checking theoretical knowledge) on electronical and electrical circuits designing.
Design: Design review and assessment.

Programme content

Lecture. Symbols and general rules determining the correct documentationtechnical system / device. Ways of conducting electrical circuits together withnecessary calculations of their properties. Ways of making printed circuitsand control cabinets. Get acquainted with the available programs for creating and analysis of electronic and electrical circuits. Get acquainted with the processcreating electronic and electrical circuits.

Design: Self-made designing of electronic and electrical circuits.

Teaching methods

Lecture: multimedia presentation, illustrated with real-world examples of electronic and electrical circuits designing.

Design: designing of electronic and electrical circuits..

Bibliography

Basic

1. Cezary Zieliński, Podstawy projektowania układów cyfrowych, PWN 2012

2. Robert A. Pease, Projektowanie układów analogowych. Poradnik praktyczny, BTC 2005.

3. Harry Kybett, Earl Boysen, Elektronika dla każdego. Przewodnik, Helion.

Additional

1. David Cook, Budowa robotów dla początkujących. Wydanie II.

Breakdown of average student's workload

	Hours	ECTS
Total workload	70	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	25	1,0

[1] delete or add other activities as appropriate