

COURSE TITLE: ARDUINO PROTOTYPING PLATFORM

Institute/Division: Faculty of Electrical and Computer Engineering, E-13
Number of contact hours: 45
Course duration: 1 semester (Fall)
ECTS credits: 6

Course description:

The course comprises lectures, laboratory exercises and individual project. The aim of the course is to present the ARDUINO platform and discuss the possibilities of prototyping of basic control systems. Theoretical introduction covers the basics of programming and electronics.

The topics of the lectures include:

- 1) Rapid prototyping as a tool to ease design process;
- 2) Introduction to ARDUINO IDE in exemplary realizations;
- 3) Electronic concept of the prototyping platforms like ARDUINO UNO and RASPBERRY PI;
- 4) Basics syntax of programming language;
- 5) Advanced tools used to program sophisticated tasks;
- 6) Platform expansions- communication with the world;
- 7) Comparison of ARDUINO with other prototyping platforms (RASPBEERY PI, ESP32);
- 8) House controller – application of ARDUINO platform in sensing and control;
- 9) House controller – basic concept;
- 10) House controller – idea development;

During laboratory lessons students prepare models utilizing the ARDUINO prototype platform (or similar) and the necessary peripheral electronic elements.

The individual project will include preparation of a standalone home control system based on the ARDUINO platform (or similar).

Literature: Selected reviews from scientific literature.
Course type: Lectures (20h), laboratory (20h) and project (5h)
Assessment method: Project, laboratory exercises and written exam.
Target group: Students in Computer Science, Control and Electrical Eng.
Contact Person: pawel.krol@pk.edu.pl