

# Warsaw University of Technology | Doctoral School No. 3

Course offered in the Doctoral School No. 3  
– Spring semester of the 2021/2022 academic year

TITLE
AVR microcontrollers -- Theory and Applications
CONDUCTING UNIT
Doctoral School No. 3
SCIENTIFIC DISCIPLINE
Automation, electronic and electrical engineering
IMPLEMENTING UNIT
105000 - Faculty of Physics
FULL DESCRIPTION
<p>This course covers programming of AVR microcontrollers in C language. At first some basics of programming ATmega devices will be shown: registers, memory, arithmetic etc. The main goal of this lecture is to present applications of AVR microcontrollers like measuring temperature, humidity, light intensity, registering data etc. Lecture will be based on theoretical explanations and live programming of AVR microcontrollers.</p> <p>In order to get a credit participants will have to prepare a source code in C language solving a proposed problem. For example: performing Fast Fourier transform, measuring some physical quantity and analyzing the data, controlling mechanical devices (e.g. servos, motors).</p> <p>The lecture will be conducted remotely.</p>
LITERATURE
<p>* Elliot Williams, AVR Programming: Learning to Write Software for Hardware, Make Community, LLC; 1st edition (March 4, 2014)</p> <p>* Filip Sala, Marzena Sala-Tefelska Wprowadzenie do mikrokontrolerów AVR. Od elektroniki do programowania, Helion (2021)</p> <p>* Tomasz Francuz, Język C dla mikrokontrolerów AVR. Od podstaw do zaawansowanych aplikacji, Helion (2011)</p>
LEARNING OUTCOMES
Participants will understand programming of microcontroller devices and know how to make useful measuring devices.

ASSESSMENT METHODS AND CITERIA; COURSE COMPLETION FORM		
In order to get a credit participants will have to prepare a source code in C language solving a proposed problem.		
LANGUAGE OF THE COURSE		ECTS CREDITS
English		3
TYPE OF CLASSES	NUMBER OF HOURS	COURSE INSTRUCTOR
Lecture	30	Filip Sala, dr inž.