SYLLABUS

Name: ***Advanced IoT Hardware (InfAAu-IOT>SM3AIH19)***
Name in Polish:
Name in English: ***Advanced IoT Hardware***

Information on course:

Course offered by department: Faculty of Automatic Control, Electronics and Computer Science
Course for department: Silesian University of Technology

Default type of course examination report:

ZAL

Language:

English

Course homepage:

https://platforma2.polsl.pl/rau2/course/view.php?id=1039

Short description:

The objective of the course is to deliver to the students the latest and up-to-date knowledge on advanced hardware platforms of Internet of Things devices. That includes theoretical and practical approaches.

Description:

Method of conducting classes: P
ECTS: 1
Total hours: 25h (15h contact hours / 10h student's own work hours)
Project: 15h

Student's own work:
Work on the project, preparation of presentation, preparation of report.

Project:
Preparation of a hardware project of the Internet of Things based on a selected, advanced IoT platform.

Teaching methods, including distance learning:
Meetings in average every two weeks with reporting on the progress of the project. Meetings can be held using electronic meeting systems. Project meetings are mandatory.

Bibliography:

[1] A. Kapitonov, D. Dobriborsci, I. Pantiukhin, V. Chernov, R. Sell, R. Puks, M. Kingsepp, A. Nikitenko, K. Berkolds, A. Vagale, R. Rumba, Piotr Czekalski, Krzysztof Tokarz, Oleg Antemijczuk, Jarosław Paduch, R. Sell, S. Distefano, R. Dautov, R. Di Pietro, A. Longo Minnolo. „Introduction to the IoT", 2019, http://iot-open.eu/download/io1-introduction-to-the-iot/
[2] "ITU Internet Reports 2005: The Internet of Things." http://www.itu.int/osg/spu/publications/internetofthings/
[3] "Special Report: The Internet of Things", in "the institute", IEEE 2014, http://theinstitute.ieee.org/static/special-report-the-internet-of-things
[4] "Towards a definition of the Internet of Things (IoT)", IEEE 2015
[5] Standard for an Architectural Framework for the Internet of Things (IoT) http://grouper.ieee.org/groups/2413/
[6] Ovidiu Vermesan, Peter Friess (eds.): Digitizing the Industry, Internet of Things Connecting the Physical, Digital and Virtual Worlds, River Publishers Series in Communications, 2016
[7] Vision and Challenges for Realising the Internet of Things, CERP-IoT 2010, http://www.internet-of-things-research.eu/pdf/IoT_Clusterbook_March_2010.pdf
[8] Salim Elbouanani, My Ahmed El Kiram, Omar Achbarou: "Introduction To The Internet Of Things Security. Standardization and research challenges", 2015 11th International Conference on Information Assurance and Security (IAS), IEEE 2015
[9] Video and reading materials available at distance learning platform: course IOTOPEN2x: IoT Networking and Fog Layer Devices
[10] Video and reading materials available at distance learning platform: course IOTOPEN3x: Data Management, Data Security and Robot Operating System as a Common Tool for IoT

Learning outcomes:

the student knows issues related to the Internet of Things closely related to the field of study and the IoT specialization - K2A_W02

the student knows theoretically based detailed issues in the field of the Internet of Things - K2A_W06

the student knows development trends and the most important new achievements in the field of the Internet of Things - K2A_W09

the student knows the basic methods, techniques and tools used in programming and using Internet of Things devices - K2A_W11

K2A_U13 - the student is able to design - in accordance with the given specification - an Internet of Things device or system

Assessment methods and assessment criteria:

The semester credit consists of systematic progress reporting, presentation of a multimedia presentation about the project, presentation of the finished and working project and creation of a final report.

The final grade is calculated based on a weighted average:
25% - project implementation,
25% - project report,
25% - presentation of the project's operation,
25% - multimedia presentation.

The syllabus is valid from the academic year 2025/2026, and its content is not subject to change during the semester.

Course credits in various terms:

Informatics, full-time master degree studies 3 sem. (InfAAu-SM3)			
Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	1	2020/2021-Z	