

## SYLLABUS

Name: Wireless Sensor Network (AESAu-E>SI7M-WSob24)

Name in Polish:

Name in English: Wireless Sensor Network

### 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

### Short description:

Course objectives: This course consists of two parts: lecture and discussion class. The aim of the lecture session is to make students understand the basic concepts, basic technologies and related applications of internet of things and wireless sensor networks. The aim of the discussion session is student-oriented and ppt presentation is carried out, discusses the related issues for wireless sensor networks technology and application.

### Description:

ECTS: 2

Total workload: 50 (30 contact hours / 20 student's own work hours)

Lecture: 15h

Laboratory: 15h

Student's own work: preparation for classes

### Lecture:

1. Introduction, main contents of this part: Internet of Things; wireless sensor network.
2. Key technologies of wireless sensor Networks I, main contents of this chapter: Challenges faced by wireless sensor networks; key technologies of wireless sensor networks; design ideas and typical algorithms of major key technologies.
3. Key technologies of wireless sensor Networks II, main contents of this chapter: Fault type and fault tolerance technology; attack types and security techniques; collaborative optimization of wireless sensor network performance.
4. Wireless Sensor Network special Report, main contents of this chapter: Vehicle Ad hoc network; underwater wireless sensor network.

### Discussion:

1. Topics related to wireless sensor network technology and application will be discussed.

### Bibliography:

1. Limin Sun, Wireless Sensor Networks, Tsinghua University Press Beijing 2005 ISBN:9787302106937.
2. Ian.F.Akyildiz, Mehmet Can Vuran, Wireless Sensor Networks, published by John Wiley & Sons in 2010 ISBN:9780470515181.
3. Ruchuan Wang, Lijuan Sun, Haiping Huang, et al. Wireless Sensor Network Technology and Its Application, Beijing Posts and Telecommunications Press 2011 ISBN:9787115249876.

### Learning outcomes:

At the completion of the course, students:

1. knows the impact of wireless sensor networks on the objective world and society, and can apply the basic principles in the process of perception, processing and transmission of wireless sensor networks to understand the physical nature of some phenomena in practice (K1A\_W1)
2. masters the basic methods of literature retrieval, data inquiry, research and use modern information technology to obtain relevant information in the field of wireless sensor networks. Exercise students' expression skills and interpersonal skills, and to make students to initially have the ability to basic communicate, compete and cooperate (K1A\_U6)
3. On the basis of existing knowledge and domestic and foreign references, through in-depth analysis and research of problems in existing schemes, engineering problems can be improved and adjusted, or innovative design schemes and implementation methods can be proposed by students (K1A K1)

### Assessment methods and assessment criteria:

The condition for passing the course is to complete assignment, PPT report, Final report

### Course credits in various terms:

<without a specific program>			
Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	2	2024/2025-Z	