# SYLLABUS

**Name:** ***Distributed Systems and Cloud Computing (InfAAu-IOT>SM1DSCC19)***
**Name in Polish:**
**Name in English:** ***Distributed Systems and Cloud Computing***

## 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=946

**Short description:**

The aim of the course is to familiarize students with the concepts related to the processing and analysis of Big data, Big data processing platforms (including Hadoop, Hive, Pig, Spark) and their architecture, methods of data storage and transformation, computational models used on large data processing platforms and programming solutions for data analytics on these platforms. Students will learn about concepts related to cloud computing, its architecture, models, platforms, interoperability, and programming solutions operating in the cloud for various applications. Problems solved with the help of cloud computing will be presented. Students will be familiarized with service models and implementation models of cloud computing as well as selected services of a selected public cloud platform.

**Description:**

ECTS: 1
Total workload: 30 hours (20 contact hours, 10 students' own work hours)
Forms of contact hours:
Lecture 15h
Other (discussion): 5h
Students' own work: preparation for tests

In 1st semester, students will learn about concepts related to cloud computing, its architecture, models, platforms, interoperability, and programming solutions operating in the cloud for various applications. Problems solved with the help of cloud computing will be presented. Students will be familiarized with service models and implementation models of cloud computing as well as selected services of a selected public cloud platform.

Lecture:
1. Cloud computing, abstraction and virtualization
2. Data centers
3. Cloud architecture
4. Cloud programming models
5. Scalable calculations
6. Spaces of data storage in the cloud
7. Cloud computing platforms
8. Selected cloud computing platform services (including storage, compute, database, content delivery, networking)

**Bibliography:**

T. Erl, R. Puttini (2013) Cloud Computing: Concepts, Technology & Architecture. Prentice Hall; 1 edition (May 20, 2013)

**Learning outcomes:**

Knowledge: the student knows and understands
Student understands basic notions in the area of cloud computing (post-lecture test, oral talk) - K2A_W06, K2A_W11

Student understands the role of data centers, availability zones, regions, and other elements of global cloud infrastructure in modern IT systems (post-lecture test, oral talk) - K2A_W06

Student knows available platforms of computational cloud and can verify their usefulness for developing advanced IT systems (post-lecture test, oral talk) - K2A_W11, K2A_W14

Skills: student can
Student is able to use various tools for developing applications for cloud computing (post-lecture test, oral talk) - K2A_U12

Social competencies: the student is prepared to
cooperate in the group while solving a complex problem, gain additional knowledge from technical documentation and deepen the knowledge to upgrade his skills (post-lecture test, oral talk) - K2A_K06

**Assessment methods and assessment criteria:**

Lecture
A series of short quizzes after lectures or an oral exam.
Passing criteria: minimum 60% of correct answers

The syllabus is valid from academic year 2025/26 and its content cannot be changed 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 | |