SYLLABUS

Name: ***Distributed Systems and Cloud Computing (InfAAu-IOT>SM2DSCC19)***
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 be familiarized with cloud services supporting Bi Data analytics.

Description:

ECTS: 1
Total workload: 30 hours (30 contact hours)
Forms of contact hours:
Lecture 15h
Laboratory 15h
Students' own work: preparation for tests, reviewing materials, preparation of reports, preparation for classes, elaboration of measurement results

In the 2nd semester, 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.

Lecture:
1. Introduction to Big Data. 5V model
2. Big data usage scenarios
3. Architecture of Big Data systems
4. Programming models in the big data ecosystem
5. Scalable big data calculations
6. Big Data Storage Systems (HDFS)
7. Big data analytics platforms (Hadoop, Hive, Pig, Spark)

Labs:
1) Data models and NoSQL databases in the cloud
2) Working with managed relational databases
3) Data formats and Hadoop/Hive/Spark platform

Bibliography:

J. Aven (2017) Hadoop in 24 Hours, Sams Teach Yourself. Sams Publishing; 1 edition (April 17, 2017)
B. Bengfort, J. Kimm (2016) Data Analytics with Hadoop: An Introduction for Data Scientists 1st Edition, O'Reilly Media; 1 edition (June 18, 2016)

Learning outcomes:

Knowledge
He knows and understands the basic concepts of big data analytics (test or oral talk) - K2A_W06

Student can administer advanced systems of data analysis (laboratory reports) - K2A_W11

Student understands programming models for various Big Data platforms (test or oral talk) - K2A_W14

Skills
Student can elaborate and implement computer program for the chosen platform of big data analysis (laboratory report) - K2A_U12

Social competence
He is ready to take on a selected role in an ongoing IT project and cooperate in the group while solving a complex problem (laboratory report) - 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

Lab
Lab attendance and assessment min. 3 for the exercise done, passing all exercises with a positive grade (min. 3).

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	