

1. Course title: BIG DATA, Hadoop ecosystem		2. Course code BG_HE		
3. Validity of course description: 2018/2019				
4. Level of studies: MSc programme				
5. Mode of studies: intramural studies				
6. Field of study: CONTROL, ELECTRONIC AND INFORMATION ENGINEERING (MACRO)		(FACULTY SYMBOL) RAU-2		
7. Profile of studies: ACADEMIC				
8. Programme: DATA SCIENCE				
9. Semester: 2				
10. Faculty teaching the course: Faculty of Automatic Control, Electronics and Computer Science				
11. Course instructor: dr hab. inż. Dariusz Mrozek				
12. Course classification: common courses				
13. Course status: compulsory / elective				
14. Language of instruction: English				
15. Pre-requisite qualifications: Databases, Theory of computer science, Computer architecture, Introduction to programming in Java, Computer programming, Programming for the Java Platform, Enterprise Edition				
16. Course objectives: The aim of the course is to provide students the knowledge necessary to understand Big Data concepts, platforms for processing Big Data (including Hadoop) and their architecture, data storage and transformation solutions, computational models applied on platforms for processing Big Data and developing solutions for Big Data analytics. .				
17. Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	Student understands basic ideas in the area of big data analytics.	Credit	Lecture	K2A_W09, K2A_W10,
2.	Student can administer advanced systems of data analysis.	Credit	Lecture	K2A_W24, K2A_W25
3.	Student can elaborate and implement computer program for the chosen platform of big data analysis.	Lab tasks	Lab classes	K2A_W11, K2A_W15, K2A_W16, K2A_W26
4.	Student can use advanced programming tools for processing big data.	Lab tasks	Lab classes	K2A_U03, K2A_U04
5.	Student is able to construct an algorithm for analysis of the chosen type of big data.	Lab tasks	Lab classes	K2A_U13, K2A_U14
6.				
7.				
8.				
18. Teaching modes and hours				
Lecture 15 / BA/MA Seminar / Class / Project / Laboratory 15				

19. Syllabus description:**Lecture:**

1. Introduction to Big Data. 5V model.
2. Architecture of the Hadoop ecosystem.
3. Programming models used in the Hadoop ecosystem.
4. Creating Hadoop clusters. Management modes.
5. Big data analytics in real word applications.
6. Setting up the Hadoop cluster and administering.
7. Other platforms for Big Data analytics.

Laboratory:

1. Hadoop cluster configuration and administering.
2. Storing and processing data in the Hadoop ecosystem.
3. Developing applications in the MapReduce model.

20. Examination: semester NO**21. Primary sources:**

J. Aven (2017) Hadoop in 24 Hours, Sams Teach Yourself. Sams Publishing; 1 edition (April 17, 2017)

22. Secondary sources:

B. Bengfort, J. Kimm (2016) Data Analytics with Hadoop: An Introduction for Data Scientists 1st Edition, O'Reilly Media; 1 edition (June 18, 2016)

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	15/15
2	Classes	15/15
3	Laboratory	/
4	Project	/
5	BA/ MA Seminar	/
6	Other	/
	Total number of hours	30/30

24. Total hours: 60**25. Number of ECTS credits:** 2**26. Number of ECTS credits allocated for contact hours:** 1**27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):**1**26. Comments:**

Approved:

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(date, Instructor's signature).....
(date, the Director of the Faculty Unit signature)