Z1-PU7	WYDANIE N1	Strona 1 z 3

(pieczęć wydziału) **COURSE DESCRIPTION**

1. Course title: JAVA IN THE INTERNET AND MOBILE DEVICES	**2. Course code:** JAVA

3. Validity of course description: 2018/2019

4. Level of studies: 1st cycle of higher education

5. Mode of studies: intramural studies

6. Field of studies: INFORMATICS

7. Profile of studies: general academic

8. Specialty: -

9. Semester: V

10. Faculty teaching the course: Faculty of Automatic Control, Electronics, and Computer Science

11. Course instructor: dr inż. Krzysztof Dobosz

12. Course classification: common courses

13. Course status: obligatory

14. Language of instruction: English

15. Prerequisite qualification:
Fundamentals of Computer Programming, Computer Programming, Algorithms and Data Structures, Software Engineering.

16. Course objectives:
The aim of the course is theoretical and practical introduction to Java language and the development of portable software applications for platforms based on virtual machines, paying attention to the mechanisms used in web and mobile applications.

17. Description of learning outcomes:

No.	learning outcomes description	method of assessment	teaching methods	learning outcomes reference codes
1	Student is able to develop Java software and prepare a documentation	written test, computer application	lecture, laboratory	K1A_W09, K1A_W11, K1A_U03, K1A_U23
2	Student is able to define unit tests	written test, computer application	lecture, laboratory	K1A_U15
3	Student is able to design a user interface	written test, computer application	lecture, laboratory	K1A_W15, K1A_U26
4	Student is able to develop applications running on client-server model	written test, computer application	lecture, laboratory	K1A_U24
5	Student is able to develop web services	written test, computer application	lecture, laboratory	K1A_U24

| 6 | Student is able to develop database applications | SP, CL | WM, L | K1A_U27 |

18. Teaching modes and hours

    lecture: 30   **laboratory:** 30

19. Syllabus description:

Lectures:

- The idea of Java technology. Virtual machine. Security. System platforms based on virtual machines. Compilation and running of software on various platforms. The idea of portable desktop, Internet and mobile applications.
- A general description of Java. Built-in data types. Language syntax. Differences in relation to C++.
- Implementation of the idea of object-oriented programming in Java. Abstract classes, interfaces. Handling exceptions. The latest language extensions.
- Software verification, unit testing, JUnit library.
- Multithreaded programming. Starting and managing threads. Synchronization.
- Methods of communication implementation, sockets and streams, serialization.
- Java Servlets specification and Java Server Pages in creating components for web servers
- Designing graphical user interfaces.
- Communication with database servers.
- Collections and design patterns in Java applications
- Integration of the virtual machine bytecode with the machine's physical processor code.
- Distributed programming
- Java Enterprise Edition platform
- Programming of mobile devices.

Laboratory:
- Compilation and running applications. Generating documentation.
- Object-oriented programming in Java and unit testing
- Development of web server components
- Client-server communication
- Database applications
- GUI design

During practical exercises, students perform individual tasks including issues practiced during laboratory classes. Selected topics are implemented in the form of applications for mobile devices.

20. Written exam: no

21. Primary sources:

- JDK 10 Documentation (https://docs.oracle.com/javase/10/)
- Java Platform, Standard Edition & Java Development Kit, Version 10 API Specification (https://docs.oracle.com/javase/10/docs/api/index.html?overview-summary.html)
- Android Developers/GettingStarted (https://developer.android.com/training/index.html).

22. Secondary sources:

- Eckel B. Thinking in Java. 4th Edition, MindView Inc. 2006.

23. Total workload required to achieve learning outcomes

No.	teaching mode	contact hours / student workload hours
1	lecture	30 / 30
2	classes	/
3	laboratory	30 / 30
4	project	- / -
5	BA/MA seminar	- / -
6	other (exam)	- / -
	total number of hours	60 / 60

24. Total hours: 120

25. Number of ECTS credits:[1] 4

26. Number of ECTS credits for contact hours: 2

27. Number of ECTS credits for in-practice hours (laboratory, classes, project): 2

26. Comments: -

approved:

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(date, instructor's signature)   (date, signature of the Director of the Faculty Unit*)*

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1   1 ECTS – 30 h