Załącznik Nr 5 do Zarz. Nr 33/11/12

COURSE DESCRIPTION

1. Course title: FUNDAMENTALS OF COMPUTER PROGRAMMING	**2. Course code** FoCP

3. Validity of course description: 2017/2018

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

5. Mode of studies: intramural studies

6. Field of study: Macrofaculty	RAU

7. Profile of studies:

8. Programme:

9. Semester: I

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

11. Course instructor: dr inż. Piotr Fabian

12. Course classification: common courses

13. Course status: compulsory

14. Language of instruction: English

15. Pre-requisite qualifications: general skills in logical thinking and mathematics

16. Course objectives: The course provides the knowledge required to understand, design and write computer programs in the C language. The aim of the course is to lay a solid foundation of good software engineering and programming language practice. The program contains: introduction to imperative programming in C language (basic knowledge required to create and understand programs as well as skills essential for good software engineering and programming practice), basic algorithms and data structures and some advanced problems and techniques essential for programmers. Lectures are illustrated with slides with many sample programs. They are supported by laboratories, which give students an opportunity to create programs on their own.

17. Description of learning outcomes:

Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1	Is able to apply mathematical knowledge to formulate, analyze and solve simple problems related to computer science	Written test	Lecture	K1A_W3, K1A_W12
2	Can write, run and test programs in selected development environment	Practical exercises	Laboratory	K1A_U10
3	Designs and analyzes simple algorithms using basic programming techniques and data structures	Computer program	Laboratory	K1A_U10
4	Applies different types of data representation according to the situation (numbers, arrays, text)	Computer program	Laboratory	K1A_U10
5	Constructs software based on project technical documentation, prepares documentation	Computer program	Laboratory	K1A_U3

18. Teaching modes and hours

Lecture / BA /MA Seminar / Class / Project / Laboratory

Sem. 1 - Lecture 30 hours, Laboratory 30 hours

19. Syllabus description:

Lecture:

1.   Introduction.

2.   The first program.

3. Development environments

4. Variables, basic types.

5. Operators and expressions.

6. Instructions and program control.

7. The structure of a program.

8. Functions.

9. Memory management.

10. Arrays and pointers, memory allocation.

11. Structures and unions. Dynamic data structures.

12. The preprocessor, separate compilation.

13. Header files and libraries..

Laboratory:

Small programming exercises; one individual programming assignment.

20. Examination: —

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21. Primary sources:

1. B. W. Kernighan, D.M. Ritchie, The C Program¬ming Language (ANSI C), Prentice-Hall.
2. Also available in Polish: B. W. Kernighan, D.M. Ritchie, Język ANSI C, WNT.
3. B. Stroustrup, The C++ Programming Language. Addison-Wesley, Reading, MA. Also available in Polish: Język C++, WNT.

22. Secondary sources:

1. The Computer Programming 2 course (http://platforma.polsl.pl/rau2/course/view.php?id=90)
2. The C++ Resources Network (http://www.cplusplus.com/)

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30 / 15
2	Classes	- / -
3	Laboratory	30 / 15
4	Project	/
5	BA/ MA Seminar	/
6	Other	- / -
	Total number of hours	60 / 30

24. Total hours: 90

25. Number of ECTS credits: 3

26. Number of ECTS credits allocated for contact hours: 1

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

26. Comments: —

Approved:

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