FACULTY OF ELECTRICAL ENGINEERING

SUBJECT CARD

Name in Polish:	**Programowanie obiektowe**
Name in English:	**Object programming**
Main field of study (if applicable):	**Electrical Engineering**
Specialization (if applicable):	
Level and form of studies:	**1st level, full-time**
Kind of subject:	**optional**
Subject code:	**ELR052510**
Group of courses:	**NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):			15		
Number of hours of total student workload (CNPS):			60		
Form of crediting:			crediting with grade		
For group of courses mark (X) final course:					
Number of ECTS points:			2		
including number of ECTS points for practical (P) classes :			2		
including number of ECTS points for direct teacher-student contact (BK) classes:			1.40		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Knowledge of structured programming.
2. Abilities of handling computer.
3. Abilities of programming in the C language,

SUBJECT OBJECTIVES

C1. Writing programs according to rules of the object-oriented programming.
C2. Developing programs with the use of the C++ language.

SUBJECT LEARNING OUTCOMES

relating to knowledge:

relating to skills:

PEU_U01 The student is able to use the idea of the object-oriented programming.
PEU_U02 The student is able to write programs in the C++ language.

relating to social competences:

PEU_K01 The student can independently develop computer programs.

PROGRAMME CONTENT

	Form of classes - laboratory	Number of hours:
Lab 1	Introduction. Object programming. Creating objects.	2
Lab 2	Implementation of member functions – static functions, inline functions, constant functions.	2
Lab 3	Friend function and operator functions. Constructors and destructors.	2
Lab 4	Function and operator overloading.	2
Lab 5	Inheritance	2
Lab 6	Polymorphism.	2
Lab 7	Templates.	2
Lab 8	Utilization of different elements of the C++ language.	1
	Total hours:	**15**

TEACHING TOOLS USED

N1. Preparation in the form of reports.
N2. The C++ programming environment.
N3. Study consultations.

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT

Evaluation *F – forming (during semester)* *P – concluding (at semester end)*	**Educational effect number**	**Way of evaluating educational effect achievement**
F1(L)	PEU_U01 PEU_U02	entrance tests, oral answers, activity at the classes
F2(L)	PEU_U01 PEU_U02 PEU_K01	reports from the classes
P(L)	0.3 F1 + 0.7 F2	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Meyers S., Skuteczny nowoczesny C++, Promise, Warszawa 2016.
[2] Prata S., Język C++ Szkoła programowania, Helion, Gliwice 2013.
[3] Stroustrup B., Język C++. Kompendium wiedzy, Helion, Gliwice 2014.

SECONDARY LITERATURE:

[1] Kubiak M.J., C++. Zadania z programowania z przykładowymi rozwiązaniami, Helion, Gliwice 2017.
[2] Marius B., Nowoczesny C++. Zbiór praktycznych zadań dla przyszłych ekspertów, Helion, Gliwice 2019.
[3] Matlak M., Język C/C++ i obliczenia numeryczne. Krótkie wprowadzenie, Helion, Gliwice 2016.
[4] Rogers C., Jesse L., C++ w 24 godziny, Helion, Gliwice 2017.
[5] Wisnu A., C++. Struktury danych i algorytmy, Helion, Gliwice 2019.
[6] Zieliński J., Podstawy programowania w języku C++, Impuls, Kraków 2019.

SUBJECT SUPERVISOR

Kazimierz Wilkosz, kazimierz.wilkosz@pwr.edu.pl