

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Programowanie obiektowe**
 Name in English: **Object-oriented programming**
 Main field of study (if applicable): **Industrial Control Engineering**
 Specialization (if applicable): **Automation of Machines, Vehicles and Apparatus**
 Level and form of studies: **2nd level, full-time**
 Kind of subject: **obligatory**
 Subject code: **APR013223**
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	15		15		
Number of hours of total student workload (CNPS):	30		60		
Form of crediting:	crediting with grade		crediting with grade		
For group of courses mark (X) final course:					
Number of ECTS points:	1		2		
including number of ECTS points for practical (P) classes :			2		
including number of ECTS points for direct teacher-student contact (BK) classes:	0.70		1.40		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Basic knowledge on creating algorithms.
2. Basic ability to create computer algorithms.
3. It has the skills related to programming PC.
4. He understands a need to participate in activities to improve their skills and acquire new knowledge.

SUBJECT OBJECTIVES

- C1. Familiarize students with the theoretical knowledge of the object-oriented programming.
- C2. Familiarize students with a basic working knowledge on computer programming using tools based on object-oriented programming.
- C3. The acquisition and consolidation of social competences including emotional intelligence involving the ability to work in a group of students with a view to effective problem solving. Responsibility, honesty and fairness in the procedure observance in force in academia and society.

SUBJECT LEARNING OUTCOMES*relating to knowledge:*

PEU_W01 He knows what it is object-oriented programming and knows the basic features.

PEU_W02 He knows how to use object-oriented programming to write a computer program solves the given algorithm.

relating to skills:

PEU_U01 He can write a program in the selected language of object oriented programming by using appropriate programming methods.

PEU_U02 He can analyze the written program to find and fix bugs of its operation.

relating to social competences:

PEU_K01 The acquisition and consolidation of competence in the independent and creative thinking.

PROGRAMME CONTENT

Form of classes - lecture		Number of hours:
Lec 1	Introductory lecture. Basic definitions. Object oriented programming - introduction.	2
Lec 2	The modifier const references. Description of data structures and their use.	2
Lec 3	The functions, classes and methods. Constructors and destructors.	2
Lec 4	Class functions and their templates.	2
Lec 5	Inheritance - basic principles of use. Methods and directions of projection.	2
Lec 6	Handling Exceptions in object-oriented programming. Rules of respect names.	2
Lec 7	Graphic elements in object-oriented programming.	2
Lec 8	Written test.	1
Total hours:		15

Form of classes - laboratory		Number of hours:
Lab 1	Introduction to the rules and regulations of internal safety lab. General familiarization with laboratory equipment and development environment.	2
Lab 2	Introductory exercise: description of the environment, making the sample project.	2
Lab 3	Writing programs with complex data types, operators and object-oriented programming elements.	2
Lab 4	Writing programs using the procedures of control the program sequence with elements of object-oriented programming.	2
Lab 5	Writing programs using a graphical user interface and object-oriented programming elements.	6
Lab 6	Pass of the labs.	1
Total hours:		15

TEACHING TOOLS USED

- N1. Lecture using modern multimedia techniques.
- N2. Individual work, preparation for exercise.
- N3. Consultation.
- N4. Traditionally carried out laboratory.
- N5. Lecture - final test.
- N6. Laboratory - pass of labs.

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT

Evaluation <i>F - forming (during semester) P - concluding (at semester end)</i>	Educational effect number	Way of evaluating educational effect achievement
F1(W)	PEU_W01 PEU_W02	Pass written.
P(W)	P=F1	
F1(L)	PEU_U01 PEU_U02	Activity in laboratory classes.
F2(L)	PEU_U01 PEU_U02	Assesment of written programs.
F3(L)		Evaluation of the final report.
P(L)	$P=0,2 \cdot F1 + 0,6 \cdot F2 + 0,2 \cdot F3$	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

- [1] Liberty J., Siddhartha R., Bradley J., C++ dla każdego. Poznaj język C++ w 21 dni, Wyd. Helion, Gliwice 2011
- [2] Prata S., Język C++. Szkoła programowania. Wyd. V., Wyd. Helion, 2006
- [3] Stroustrup B., Język C++, Wyd. WNT, Warszawa 2002
- [4] Bjarne S., Programming: principles and practice using C++, Upper Saddle River, NJ : Addison-Wesley, cop. 2009.

SECONDARY LITERATURE:

- [1] Huzar Zb., Information systems modelling and analysis, Wyd. Wrocław University of Technology, 2011
- [2] McLaughlin B., Pollice G., West D., Analiza i projektowanie obiektowe, Wyd. Helion 2010

SUBJECT SUPERVISOR

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