SYLLABUS OF A MODULE

Polish name of a module	**Zaawansowane programowanie obiektowe**
English name of a module	**Advanced object programming**
ISCED classification - Code	0613
ISCED classification - Field of study	Software and applications development and analysis
Languages of instruction	*English*
Level of qualification	*first degree*
Number of ECTS credit points	*5*
Examination	*written exam*
Available in semester	*autumn only*

Number of hours per semester:

Lecture	Tutorial	Laboratory	Seminar	Project	Others
30 E	0	30	0	0	0

MODULE DESCRIPTION

Module objectives

C1. a student acquires the advanced object programming knowledge of modern C++
C2. a student acquires the advanced object programming skills of modern C++
C3. a student acquires social competence

PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Fundamentals of programming
2. Programming methods
3. Object-oriented programming

LEARNING OUTCOMES

EU1. a student acquired the advanced object programming knowledge of modern C++
EU2. a student acquired the advanced object programming skills of modern C++
EU3. a student acquired social competence

MODULE CONTENT

Type of classes – lectures	Number of hours
W1: memory model, expression value categories, references	8
W2: move semantics, value semantics, comparison operators	8
W3: call expressions, containers	7
W4: unique_ptr, shared_ptr, weak_ptr	7
Type of classes– laboratory	**Number of hours**
L1: memory model, expression value categories, references	8
L2: move semantics, value semantics, comparison operators	8
L3: call expressions, containers	7
L4: unique_ptr, shared_ptr, weak_ptr	7

TEACHING TOOLS

1. lecture, lab class
2. colloquia, written exam

WAYS OF ASSESSMENT (F – FORMATIVE, S – SUMMATIVE)

F1. colloquia
S1. written exam

STUDENT'S WORKLOAD

#	Forms of activity	Average number of hours required for realization of activity
1. Contact hours with teacher		
1.1	Lectures	30
1.2	Tutorials	0
1.3	Laboratory	30
1.4	Seminar	0
1.5	Project	0
1.6	Consulting teacher during their duty hours	2
1.7	Examination	0
	Total number of contact hours with teacher:	62
2. Student's individual work		
2.1	Preparation for tutorials and tests	0
2.2	Preparation for laboratory exercises, writing reports on laboratories	24
2.3	Preparation of project	0
2.4	Preparation for final lecture assessment	0
2.5	Preparation for examination	18
2.6	Individual study of literature	21

Total number of hours of student's individual work:	63
Overall student's workload:	125
Overall number of ECTS credits for the module	**5**
Number of ECTS points that student receives in classes requiring teacher's supervision:	2,5
Number of **ECTS** credits acquired during practical classes including laboratory exercises and projects :	2,2

BASIC AND SUPPLEMENTARY RESOURCE MATERIALS

1. Scott Meyers, Effective Modern C++, O'Reilly, 2014
2. Bjarne Stroustrup, The C++ Programming Language, Addison-Wesley, 2013
3. Draft of the C++ standard
4. for an example of high-performance, object-oriented, large-scale simulations please see "Generic Dijkstra for optical networks" by Ireneusz Szcześniak, Andrzej Jajszczyk, Bożena Woźna-Szcześniak, Journal of Optical Communications and Networking, vol. 11, issue 11, pp. 568 - 577, November 2019

MODULE COORDINATOR (NAME, SURNAME, INSTITUTE, E-MAIL ADDRESS)

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