POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Object oriented programming in electrical engineering

Course

Field of study	Year/Semester
Electrical engineering	1/1
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
Second-cycle studies	polish
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	15	
Tutorials	Projects/seminars	

Number of credit points
2

Lecturers

Responsible for the course/lecturer:

D.Sc. Leszek Kasprzyk

Institute of Electrical Engineering and Electronics

leszek.kasprzyk@put.poznan.pl

tel. +48 61 665 23 89

Responsible for the course/lecturer:

Prerequisites
Basic knowledge of computer science and programming. Ability to think abstractly.

Course objective
Understanding the theoretical and practical issues of high-level programming with elements of object-oriented programming, acquiring the ability to create applications in the environment of Microsoft Visual Studio (in C #)

Course-related learning outcomes
Knowledge
Knows the principles of high-level programming. Has knowledge of object-oriented programming useful when creating technical applications.

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Skills

Is able to use programming tools using elements of object-oriented programming.

Social competences

Can independently search for information in literature and the Internet, also in foreign languages.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during the lecture is verified during the final test consisting of 10-15 questions (closed and open). Passing threshold: 50% of points. Final issues, on the basis of which questions are prepared, will be sent to students by e-mail using the university e-mail system or through the Moodle system.Skills acquired as part of the laboratory are verified on the basis of the final test and individual activity during the classes. Passing threshold: 50% of points. Obtaining additional points for activity during classes (especially for: discussing additional aspects of the issue; effectiveness of applying the acquired knowledge when solving a given problem; ability to cooperate as part of a team practically performing a specific task in the laboratory; comments related to improving teaching materials; diligence)

Programme content

Lecture: Theoretical presentation of the basic issues of object-oriented programming, Visual Studio C # Express Edition environment, issues of representation of physical reality in data structures, object type declarations, fields and methods, readonly fields, static and ordinary object variables, constructors and destructors, properties, overload methods, operator overloads, encapsulation, inheritance, polymorphism and its application, classes and abstract methods, collections, graphic elements, the basics of creating printouts.

Laboratory: Implementation in the Visual Studio C # Express Edition environment of the issues presented in practical object-oriented programs using the following programming elements: object type declarations, fields and methods, readonly fields, static and ordinary object variables, constructors and destructors, properties, method overloading, operator overloads, encapsulation, inheritance, polymorphism and its application, abstract classes and methods, collections, graphic elements, basics of printout creation

Teaching methods

Lecture: multimedia presentation, illustrated with examples on the board, initiating discussions during the lecture. Additional materials are placed in the Moodle system.Laboratory: individual work in a computer laboratory, involving the implementation of given functions and computer programs, discussion, demonstrations.

Bibliography

Basic

1. J. Matulewski, Visual C# 2005 Express Edition. Od podstaw, Wyd. Helion, 2006

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2. D. Farbaniec, Microsoft Visual Studio 2012 : programowanie w C# Dawid Farbaniec., Wyd. Helion, 2013

3. S. C. Perry, C# i .NET, Wyd. Helion, 2006

4. Trey Nash, Accelerated C# 2010, Apress, 2010

5. R. Elmasri, S. B. Navathe, Wprowadzenie do systemów baz danych, Wyd. Halion, 2005

Additional

1. K. Kuczmarski, Kurs C++, Avocado Software, 2004

2. N.M. Josuttis, C++ Programowanie zorientowane obiektowo, Vademecum Profesjonalisty, Helion 2003

3. Internet

Breakdown of average student's workload

	Hours	ECTS
Total workload	70	2,0
Classes requiring direct contact with the teacher	40	2,0
Student's own work (literature studies, preparation for laboratory and tutorials, preparation for tests)[1]	30	1,0

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[1] delete or add other activities as appropriate