



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Object oriented programming

### Course

Field of study

Electromobility

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

D.Sc. Leszek Kasprzyk

Responsible for the course/lecturer:

Institute of Electrical Engineering and  
Electronics

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### 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.



### 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.

### Teaching methods

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
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. Kuczmariski, 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	25	1,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for laboratory and tutorials, preparation for tests) <sup>1</sup>	10	0,5

<sup>1</sup> delete or add other activities as appropriate