COURSE DESCRIPTION CARD - SYLLABUS

Course name
Object oriented programming [N2Eltech2>PO1]

Course

Field of study
Electrical Engineering

Year/Semester
1/1

Area of study (specialization)
Lighting Engineering

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
10

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

A student beginning this course should have basic knowledge of computer science and programming. Additionally, he or she should have abstract thinking skills, be able to acquire information from indicated sources and show readiness to cooperate in a team.

Course objective

To teach students theoretical and practical issues of high-level programming with elements of object-oriented programming, to acquire skills to create applications in Microsoft Visual Studio environment (in C# language). Developing students' skills of solving problems that occur during design and implementation of technical applications.

Course-related learning outcomes

Knowledge:
The student knows the principles of high-level programming. The student has knowledge of object-

oriented programming, which is useful in creating technical applications.

Skills:
The student is able to use tools for programming with the use of object-oriented programming elements. The student is able to program in the C# language.

Social competences:
Awareness of the speed of development of information technology and the related need to update knowledge. Is able to independently search for information in literature and 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 a final colloquium consisting of several dozen questions (closed) in the eKursy system, scored depending on their level of difficulty. Passing threshold: 50% of points.

Students can also earn additional points for activity during classes.

The final topics on which the questions are based will be given during the lecture or made available to students in the "eKursy" system.

The retake will be held in oral mode.

Programme content

Presentation of basic issues related to object-oriented programming in the Visual Studio C# environment. Issues of representing physical reality in data structures.

Course topics

1. Overview of the MS Visual Studio environment
2. Enumeration type, explicit and implicit conversion
3. Creating a class and an object
4. Fields, methods, encapsulation
5. Constructors, destructor, operator, static elements
6. Readonly fields
7. Properties
8. Static elements of classes
9. Operator overloading
10. Inheritance
11. Encapsulation in inherited classes (protected)
12. Polymorphism
13. Abstract classes and methods
14. Interfaces, extensions

Teaching methods

Multimedia presentation, illustrated with examples given on the board and computer animations, initiating discussions during the lecture.
Additional materials are placed in the "eKursy" system.
Lectures are enriched with instructional films.

Bibliography

Basic:
1. Troelsen, Andrew; Japikse, Phiplip. Język C# 6.0 i platforma .NET 4.6. Red. . Warszawa: Wydawnictwo Naukowe PWN, 2017, 1465 s. ISBN 978-83-01-19832-9
2. Chłosta, Paweł. Aplikacje Windows Forms .Net w C#. Red. . Warszawa: Wydawnictwo Naukowe PWN, 2006, 318 s. ISBN 83-01-14830-6

3. Rodenburg, Jort. Koduj jak profesjonalista C#. Red. . Warszawa: Promise, 2022, 466 s. ISBN 978-83-7541-459-2
4. Trey Nash, Accelerated C# 2010, Apress, 2010
5. C# language specification: https://github.com/dotnet/csharplang/tree/main/spec

Additional:
1. Sharp, John. Microsoft Visual C# 2017 Krok po kroku. Red. . Warszawa: Promise, 2019, 937 s. ISBN 978-83-7541-362-5
2. Stasiak, Andrzej; Dąbrowski, Włodzimierz; Wolski, Michał. Modelowanie systemów informatycznych w języku UML 2.1. Red. . Warszawa: Wydawnictwo Naukowe PWN, 2009, 196 s. ISBN 978-83-01-21108-0

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	10	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	0,50