



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Information technology

### Course

Field of study

Electrical Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

10

Laboratory classes

10

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

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Faculty of Control, Robotics and Electrical

Engineering

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Responsible for the course/lecturer:

### Prerequisites

Students starting this course should have basic knowledge of computer science, algorithmization and programming in high-level languages, be familiar with the principles of programming in C ++.

### Course objective

Acquaintance with the structure, operation and design of local wired and radio computer networks.

Acquiring practical skills in creating a database in an MS Access environment. Learning visual-object programming in the .NET environment (MS Visual C #).



### Course-related learning outcomes

#### Knowledge

1. has knowledge of the elements and principles of computer network design,
2. has knowledge of the basics of programming in a high level language,
3. has knowledge of the use of computers and parallel calculations in engineering practice.

#### Skills

1. has the ability to design and build simple database systems,
2. is able to verify the basic assumptions of the construction and functioning of local computer networks and the computer equipment used in the field of information media,
- 3, has the ability to develop a simple computer program in a high-level language.

#### Social competences

1. can justify the need for IT tools to increase the efficiency of the work of an electrical engineer and improve the economic importance of the enterprise,
2. is aware of the importance of modern information systems in business processes of the enterprise,

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: assessment of knowledge and skills demonstrated during the combined exam: test and problem (checking the ability to solve basic IT problems in the field of using computer equipment in the work of an engineer and designing database systems), individual elements evaluated according to the points system with different weights, 50% of the maximum number of points required to pass.

Laboratory classes: awarding practical knowledge acquired during previous and current laboratory exercises, developing a simple database system, practical checking of programming skills in C #. Individual elements evaluated according to the point system with different weight, 50% of the maximum number of points required to pass.

### Programme content

Lecture: basics of construction and operation of information media, computer networks (data transmission in local networks, active and passive network equipment, topologies, network technologies, internet (construction, IP addressing, services, access methods), basics of designing LAN networks (cable, radio) and hybrid), security issues in computer networks.

Laboratory classes: practical use of database design principles - MS Access environment (creating tables, associations, using SQL queries), programming basics on the .NET platform (MS Visual C #), basics of object-oriented programming, practical implementation of applications in C #.

### Teaching methods



Lecture: multimedia presentation (including drawings, photos, animations, sound, movies) supplemented with examples given on the board, lecture conducted in an interactive way with the formulation of questions for a group of students or specific students indicated, during the lecture initiating discussions, taking into account various aspects issues presented, including: economic, ecological, legal, social, etc., presenting a new topic preceded by a reminder of related content known to students in other subjects;

Laboratory classes: demonstrations, independent programming (computational) and database tasks.

### Bibliography

#### Basic

1. Garcia-Molina H., Ullmann J.D., Widom J., Systemy baz danych, Helion 2011.
2. Sosinsky B., Sieci komputerowe Biblia, Helion 2011.
3. Lis M.: SQL. Ćwiczenia praktyczne, Helion, Gliwice 2011.
4. Boduch A.: Wstęp do programowania w języku C#, Helion, Gliwice 2006.

#### Additional

1. Elmasri R., Navathe S. B.: Wprowadzenie do systemów baz danych, Helion, Gliwice 2005.
2. Perry S. C.: C# i .NET. Core, Helion, Gliwice 2006.
3. Dobrzycki A., Kasprzyk L., Skórcz K., Tomczewski A., Optimization of the number and the distribution of high-frequency signal sources in radio networks, Przegląd Elektrotechniczny - 2015, R. 91, nr 6, s. 92-95.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	70	3,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation for laboratory classes, preparation for exam) <sup>1</sup>	45	2,0

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