<table>
<tr><td colspan="3" align="center">STUDY MODULE DESCRIPTION FORM</td></tr>
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Name of the module/subject **Information Engineering**	Code **1010324341010320388**

Field of study **Electrical Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 4**

Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**

Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **part-time**

No. of hours	No. of credits **4**
Lecture: **14** Classes: **-** Laboratory: **15** Project/seminars: **-**	

Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**

Education areas and fields of science and art **technical sciences** **Technical sciences**	ECTS distribution (number and %**)** **4 100%** **4 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge of computer science, algorithmization and programming in high-level languages.
2	**Skills**	OS support Windows class. Concepts of programming in C + +. Ability to develop simple algorithms and cooperation in a team (group of laboratory).
3	**Social competencies**	Awareness of the importance of work informatics tools in electrical engineering, the ability to expand their competences.

Assumptions and objectives of the course:

Understanding the theoretical issues related to the selected media information. Familiar with the structure, operation and design of local area networks. Practical skills to create a database in MS Access (application forms, reports, SQL - query). Learning a visual programming - object in the environment. NET (language MS Visual C #).

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. describe the basic principles of local area networks, characterize the general structure and capabilities of the Internet, change the types of storage media and explain the basic principles of their actions - [K_W11+++]

2. define the required elements of the database system, explain the principles of database design of the relational model, explain the features of the visual programming - [K_W11+++]

Skills:

1. review the basic principles of construction and operation of local area networks and computer equipment used in the field of storage media - [K_U04++]

2. develop simple programs like Windows Forms in Visual C #, design and implement a relational database model for engineering applications - [K_U06++, K_U13++]

Social competencies:

1. can justify the need for informatics tools to improve efficiency in the work of electrical engineer and improve the economic importance of the company - [K_K04++, K_K01+]

Assessment methods of study outcomes

Lecture:

? assess the knowledge and skills listed on the written exam :(semester 1, 2, 3 and 2) with a combined: test and problematic (check basic troubleshooting skills in the use of computer networks and computer equipment in the work of engineer and design a simple database systems).

Laboratory:

? rewarding practical knowledge gained during the previous laboratory,

?practical test programming knowledge in C++,

?assess the knowledge and abilities related to the implementation software projects.

Get extra points for the activity in the classroom, and in particular for:

? ability to work within a team practice performing the task detailed in the laboratory,

? use of elements and techniques that go beyond the material in the field of the lecture and laboratory exercises,

? a esthetic care of projects.

Course description

Fundamentals of design and operation of storage media, computer networks (data transmission in local networks, active and passive equipment network topologies, networking technologies, internet (structure, IP addressing services, access method), LAN design elements (wire, radio, and hybrid), practical application of database design - MS Access environment (creating tables, relationships, queries using SQL), programming basics. NET (language MS Visual C #), basics of object-oriented programming, the practical implementation of an application in C#.

Basic bibliography:

1. Garcia-Molina H., Ullmann J.D., WidomJ. , 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.

5. Kowalski P.: "Podstawowe zagadnienia baz danych i procesów przetwarzania", MIKOM, Warszawa 2005.

6. Bilski T.: "Pamięć. Nośniki i systemy przechowywania danych", WNT, Warszawa 2008.

Additional bibliography:

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. Sportack M.: "Sieci komputerowe. Księga eksperta", Helion, Gliwice 2004.

Result of average student's workload

Activity	Time (working hours)
1. participation in class lectures	14
2. participation in laboratory classes	15
3. participate in the consultations on the lecture	5
4. implementation of the project	10
5. preparation laboratory	7
6. prepare for the exam	40
7. assessment of laboratory	2
8. prepare for the completion of laboratory	5
9. participation in the exam	2

Student's workload

Source of workload	hours	ECTS
Total workload	100	4
Contact hours	38	1
Practical activities	39	2