STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Information Engineering	**1010321331010320388**

Field of study	Profile of study (general academic, practical)	Year /Semester
Electrical Engineering	**(brak)**	**2 / 3**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**

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

No. of hours	No. of credits
Lecture: **-** Classes: **-** Laboratory: **15** Project/seminars: **-**	**2**

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

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**2 100%**
Technical sciences	**2 100%**

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, relational database system and programming in high-level languages.
2	**Skills**	Development of simple algorithms, basic knowledge of programming in C++. Design a simple database. Collaboration in a team (group laboratory project).
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 practical issues related to the design of relational databases. The implementation of an exemplary project in MS Access including creating tables and relationships, forms and SQL queries. Gain practical skills in the use of C # (. NET).

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

Knowledge:

1. define and describe the required elements of the database system for a specific project issues - [K_W11+++]
2. describe the general principles of programming in MS Visual C #, select a set of required software elements (controls) to carry out simple projects of engineering (input interface, calculation, output interface) - [K_W11+++]

Skills:

1. design and implement an MS Access database for engineering applications, use basic SQL queries, use a basic forms and controls in MS Access - [K_U06++]
2. support MS Visual C # environment, design and make simple computing applications such as Windows Forms in MS Visual C # - [K_U04+++]

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

Laboratory:

? rewarding practical knowledge gained during the previous laboratory,

? Practical test programming skills in Visual C # (. NET),

? assess the knowledge and skills related to the implementation software projects (database project).

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,

? aesthetic care of projects.

Course description

Conceptual design, relational database model (design and implementation of relationships and their connections, the basics of SQL, the environment MS Access - forms, queries, reports), the basics of programming. NET into MS Visual C # (syntax, operations on arrays, basic indicators and their use, graphical presentation of results - graphs), basic object-oriented programming.

Basic bibliography:

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

2. Lis M.: "SQL. Ćwiczenia praktyczne", Helion, Gliwice 2011.

3. Boduch A.: "Wstęp do programowania w języku C#", Helion, Gliwice 2006.

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

5. Garcia-Molina H., Ullmann J.D., WidomJ. , Systemy baz danych, Helion 2011

6. Sosinsky B. , Sieci komputerowe ? Biblia, Helion 2011

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 laboratory classes	15
2. participate in the consultations on the lecture	5
3. implementation of the project	5
4. preparation laboratory	7
5. assessment of laboratory	3
6. prepare for the completion of laboratory	7

Student’s workload

Source of workload	hours	ECTS
Total workload	42	2
Contact hours	23	1
Practical activities	37	1