STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Information Engineering**	Code **1010321321010320388**

Field of study **Electrical Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 2**

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

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

No. of hours Lecture: **30** Classes: **-** Laboratory: **15** Project/seminars: **-**	No. of credits **3**

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 %**)** **3 100%** **3 100%**

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**	Computer literacy. 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:

Knowledge of both theoretical and practical issues associated with the use of selected informatics components and systems used in the work of electrical engineer. Acquisition of the ability to assess the suitability of hardware elements and local area networks, and design a simple database systems. Familiar with the theoretical foundations of visual programming environments. NET - C # language. Mastering the basics of programming in C + + for engineering issues.

Update 2017: Security Issues in Computer Networks.

Applied methods of teaching: lectures - multimedia presentations (including drawings, photos, animations, sound, films) supplemented by examples given on the whiteboard, interactive lecture with questions to students or specific students, lecture initiate discussion, taking into account different aspects of the issues presented, including: economic, environmental, legal, social, etc., offer a new topic preceded by a reminder of the related content, known to students of other subjects; lab - demonstrations, self-perform programming tasks (computing).

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

Knowledge:

1. define the required elements of a relational database system, describe the basic principles of local area networks, characterized by the possibility of the Internet, change the types of media and explain the basic principles of their actions - [K_W11+++]

2. explain the need for a multiprocessor system, explain the advantages of visual programming - object, describe the basic elements of creating a Windows Forms application - [K_W11+++]

Skills:

1. develop simple algorithms and programs in C + +, design and implement a relational database model for engineering applications, verify the basic assumptions of the construction and operation of local area networks and computer equipment used - [K_U04+++, K_U06+]

2. evaluate the usefulness of specific tools electrical engineer at work - [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 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,

?aesthetic care of projects.

Course description

Fundamentals of design and operation of storage media, increasing the safety and speed of data processing server solutions (technologies, multiprocessor, standard SCSI, SAS, RAID technology), the basis of parallel computer architecture and parallelization of calculations, computer networks (data transmission in local networks, active and passive equipment network topologies, networking technologies: Ethernet, Token Ring, FDDI, 802.11, internet (structure, IP addressing services, access method), LAN design elements (wire, radio, and hybrid), database: conceptual, logical and physical modeling, relational database model (basic concepts, algebra relational, design structure relationships and their connections, the basics of SQL, MS Access), basic programming in C + + programming background. NET - into MS Visual C #, object oriented programming features.

Basic bibliography:

1. Boduch A.: &#34;Wstęp do programowania w języku C#&#34;, Helion, Gliwice 2006.

2. Lis M.: &#34;SQL. Ćwiczenia praktyczne&#34;, Helion, Gliwice 2011.

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

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

Additional bibliography:

1. Elmasri R., Navathe S. B.: &#34;Wprowadzenie do systemów baz danych&#34;, Helion, Gliwice 2005.

2. Perry S. C.: &#34;C# i .NET. Core&#34;, Helion, Gliwice 2006.

Result of average student's workload

Activity	Time (working hours)
1. participation in class lectures	30
2. participation in laboratory classes	15
3. participate in the consultations on the lecture	5
4. implementation of the project	5
5. preparation laboratory	7
6. prepare for the exam	15
7. assessment of laboratory	2
8. prepare for the completion of laboratory	10
9. participation in the exam	2

Student's workload

Source of workload	hours	ECTS
Total workload	91	3
Contact hours	54	2
Practical activities	39	1