COURSE DESCRIPTION CARD - SYLLABUS

Course name
Information Engineering [S1Eltech1>Inf2]

Course

Field of study
Electrical Engineering

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
practical

Level of study
first-cycle

Course offered in
polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
30

Laboratory classes
15

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

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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

Understanding theoretical and practical issues related to the use of selected elements and information systems. Acquiring the ability to develop projects in the area of local computer networks and simple databases (relational model). Introduction to the theoretical and practical aspects of the basics of visual programming in the .NET environment (C # language in engineering issues).

Course-related learning outcomes

Knowledge:

1. has knowledge of the principles of computer components,
2. has knowledge of the principles of designing and implementing relational databases (relationship model - entity, transformation into a relational database schema, normalization),
3. has knowledge of the elements and principles of computer network design,
4. has knowledge of the basics of programming in a high level language,
5. 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. has the ability to prepare a simple computer program in a high-level language.

Social competences:
1. has the ability to design and build simple database systems,
2. has the ability to prepare a simple computer program in a high-level language,

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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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, practical checking of programming skills in C ++. Individual elements evaluated according to the points system with different weights, 50% of the maximum number of points required to pass.

Programme content

Lecture: basics of construction and operation of information media, increasing security and speed of data processing in server solutions (multiprocessor technologies, SATA SAS standard, RAID technology), basics of parallel computer architecture and parallelization of calculations, computer networks (data transmission in local networks, active and passive networks) network equipment, topologies, network technologies, internet (structure, IP addressing, services, access methods), elements of LAN network design (wired, radio and hybrid), databases: modeling - ER diagrams, relational database model (basic concepts, algebra relational, designing relationship structures and their relationships, basics of SQL, MS Access), basics of programming on the .NET platform - MS Visual C # language, elements of object-oriented programming, security issues in computer networks.
Laboratory classes: basics of programming in C ++ (syntax, implementation of simple algorithms).

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) tasks.

Bibliography

Basic
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.
Additional
1. Elmasri R., Navathe S. B.: Wprowadzenie do systemów baz danych, Helion, Gliwice 2005.
2. PerryS. 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	95	4,00
Classes requiring direct contact with the teacher	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	50	2,00