COURSE DESCRIPTION CARD - SYLLABUS

Course name
Information Technology

Course

Field of study
Mechatronics

Year/Semester
1/1

Area of study (specialization)

Profile of study
general academic

Level of study
First-cycle studies

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	15	0
Tutorials	**Projects/seminars**	
0	0	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:
prof. dr hab.inż. Wojciech Szeląg,

Wydział Automatyk, Robotyki i Elektrotechniki,
ul. Piotrowo 3, 60-965 Poznań,

pokój 611

Responsible for the course/lecturer:

Prerequisites

The student starting this course should have basic knowledge of: computer science, mathematics, computer hardware, computer operation, Windows operating system and basic utility software. He should also have the ability to obtain information from the indicated sources and be ready to cooperate in a team

Course objective

Provide basic knowledge in the field of computer science, construction and operation of microcomputers. Mastering the ability to develop algorithms and the basics of programming in C ++ and the ability to use application software and Internet resources.

Course-related learning outcomes

Knowledge

Has a structured and theoretically founded general knowledge in the field of key information technology issues necessary for a mechatronics engineer.

Skills

The student knows how to use application software and use databases and Internet resources, formulate simple algorithms and programs in C ++, use information technologies in the practice of an engineer.

Social competences

Ability to think and act responsibly and individually in the area connected with usage of computer software to increase work efficiency of an electrical engineer and improve enterprise economical significance. Ability to learn, ability to manage confidently different situations concerning exploitation of computer hardware and software.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: Written test verifying both theoretical knowledge and practical skills. Additional points for activity during lectures, in particular for: preparing answers for questions provided by the lecturer; preparing solutions for problems provided by the lecturer, careful elaboration of tasks within self-study, efficient and brilliant solving of current problems.

Computer Laboratory: Test and awarding the knowledge necessary for the implementation of subsequent laboratory exercises. Continuous assessment during each class of the student's activity and the increase in his knowledge and skills, as well as social competences related to teamwork. Assessment of the report on the performed exercise. Extra points for activity during classes.

Programme content

History of computer science, its application areas and research directions. Information encoding, working principles of digital systems, structure of computer system. Operating systems, computer networks. Internet, intranet. Algorithms and data structures. Chosen algorithms of analytically solvable mathematical and physical problems, and sorting's algorithms. Introduction to programming languages. Basics of programming in C ++. Practical use of selected packages of utility programs.

Teaching methods

Applied methods of education: a) lecture with multimedia presentation (including: drawings, photographs, animations, sound, films) supplemented by examples given on the board, b) interactive lecture with questions to students or specific students, c) student activity is taken into account during the course of the assessment, d) initiating discussions during laboratory exercises.

Bibliography

Basic

1. Cormen T., Leiserson C., Rivest R., Wprowadzenie do algorytmów, WNT, Warszawa, 2007.

2. Gręboszl J., Symfonia C++ standard: programowanie w języku C++ orientowane obiektowo. T. 1/2, Instytut Fizyki Jądrowej im. H. Niewodniczańskiego, Polska Akademia Nauk, Kraków, 2006.

3. Metzger P., Anatomia PC, Helion, 2007.

4. Matulewski J., Visual Studio 2013, Helion 2013.

Additional

1. Wróblewski P., Algorytmy, struktury danych i techniki programowania, Helion 2015.

2. Stasiewicz A., Ćwiczenia C++11 Nowy standard, Helion, 2012.

3.Wojtuszkiewicz K., Urządzenia techniki komputerowej. Cz.1. Jak działa komputer, PWN, 2011.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work: literature studies, preparation for tests/exam [1]	20	1,0

[1] delete or add other activities as appropriate