POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Information Technologies

Course

Field of study	Year/Semester
Management and production engineering	1/1
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	Polish
Form of study	Requirements
full-time	compulsory

Number of hours

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

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

Roman Konieczny PhD
email: roman.konieczny@put.poznan.pl
ph. +48 61 665 27 18
Faculty of Mechanical Engineering
Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Student has knowledge of information technology and the basics of computer science in secondary school level. Student is familiar with computer hardware and system software and use basic applications like: word processing, spreadsheet, presentation graphics program. Student can use internet technologies for communication and information acquiring.

Course objective

To familiarize students with the basic operations of computer hardware and software in the processes of data processing, transmitting, presenting and information security. Preparing students for the wide application of information technologies in engineering issues

Course-related learning outcomes

Knowledge

Student describes how information is represented in digital systems. Student can describe functional

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model of computer system, data processing organization and interface standards. Student defines the basic structures of algorithms and methods for describing algorithms. Student can describe the structure of computer networks, basic network services, computer network configuration and basic principles of data security in computer systems.

Skills

Student can use system software to support hardware and data organization and utility software for computational tasks and presentation of results. Can formalize simple algorithmic actions and describe them using Visual Basic. Can automate activities in application software using Visual Basic for Applications.

Social competences

Student is open to the implementation of modern information technology in science and technology. Student can use Internet technologies for communication, teamwork and information search. Student can acquire new knowledge on the subject.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

For the lectures:

Knowledge acquired as part of the lecture is verified on a written test. The test consists of 5 open questions and one problem-related issue. A pass requires 50% correct answers.

For the laboratories:

The student's preparation for laboratory classes and the assessment of skills acquired during laboratory exercises will be verified on the basis of self-performed tasks at the computer workstation, oral answers and written tests on the ability to use studied principles and methods.

Programme content

Lecture:

1. Applying information technology in science and technology. Digital representation of information.
2. Functional and structural model of computer. Organization of data processing in digital systems.
3. System and utility software. Methods of description of algorithms. Correctness of the algorithm. Data structures, operations on data.
4. Basic numerical and graphical algorithms.
5. Customizing the application using Visual Basic for Applications.
6. Computer networks.
7. Security of data in computer systems.

Laboratory classes:

1. Using spreadsheets in computational and data presentation tasks.
2. Programming computational algorithms using Visual Basic.

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3. Decision and iteration structures, written in Visual Basic.

4. Customizing the applications to specific needs using Visual Basic for Applications environment.

Teaching methods

Lecture: multimedia presentation illustrated with examples on the board, solving sample tasks by the lecturer

Laboratory exercises: practical exercises, performing tasks at a computer station

Bibliography

Basic

1. A. Hamrol (red.), Elementy informatyki dla inżynierów mechaników, Wydawnictwo Politechniki Poznańskiej, Poznań, 2001

2. M. Lewandowski, Więcej niż Excel 2007, Wydawnictwo Helion, Gliwice, 2010

Additional

1. T. Jankowski, Od podstaw VBA/ Excel, Wydawnictwo Mikom, Warszawa, 2004

2. T. Willis, B. Newsome, Visual Basic 2010. Od podstaw, Wydawnictwo Helion, Gliwice, 2011

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	32	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) [1]	18	1,0

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[1] delete or add other activities as appropriate