



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Information Technologies

Course

Field of study

Management and production engineering

Area of study (specialization)

Year/Semester

1/1

Profile of study

Level of study

First-cycle studies

Form of study

part-time

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

12

Laboratory classes

12

Other (e.g. online)

Tutorials

Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

Roman Konieczny PhD

email: roman.konieczny@put.poznan.pl

ph. 61 6652718

Fculy of Mechanical Engineering

ul. 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



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. 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:

Forming rating

In the field of lectures:

- based on answers to questions about the material discussed in previous lectures.

In the field of laboratories:

- based on an assessment of the current progress of task execution.

Summary rating

In the field of lectures, verification of assumed learning outcomes is carried out by:

- assessment of knowledge and skills indicated in a written test which checks theoretical knowledge and its practical application
- the test consists of 5 open questions and one problem-related issue
- a pass requires 50% correct answers.

In the scope of laboratories, verification of assumed learning outcomes is carried out by:

- assessment of student's preparation for individual laboratory classes and assessment of skills related to the realization of laboratory exercises,
- ongoing assessment, rewarding the increase in the skill of using studied principles and methods,
- assessment of practical skills during the individual tasks performed on the computer workstation.

Programme content

Lecture:

- Applying information technology in science and technology. Digital representation of information.
- Functional and structural model of computer. Organization of data processing in digital systems.
- System and utility software. Methods of description of algorithms. Correctness of the algorithm.



Data structures, operations on data.

- Basic numerical and graphical algorithms.
- Customizing the application using Visual Basic for Applications.
- Computer networks.
- Security of data in computer systems.

Laboratory classes:

- Using spreadsheets in computational and data presentation tasks.
- 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. M. Gonet, Excel w obliczeniach naukowych i technicznych, Wydawnictwo Helion, Gliwice, 2009

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	30	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) ¹	45	1,5

¹ delete or add other activities as appropriate