COURSE DESCRIPTION CARD - SYLLABUS

Course name
Information technology [S1MiTPM1>TI]

Course

Field of study
Materials and technologies for automotive industry

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Basic computer science information at secondary school level. Basic computer skills with Windows. Ability to independently search for information on the Internet, proactive attitude when solving problems

Course objective

The course aims to familiarise students with the design and basic functions of personal computers, the types and capabilities of operating systems and software used to prepare scientific papers and analyse and present laboratory results. Practical knowledge and skills in multimedia techniques will also be imparted, taking into account issues of auditory and visual perception.

Course-related learning outcomes

Knowledge:
1 Explain the structure and function of the basic components of a computer, and explain how computers process information.
2. Explain the functions and demonstrate the differences and similarities between personal computer operating systems in use today.
3. Present and discuss the principles of presenting scientific results, including literature references and

building graphs.
4. Know the types of computer software licenses.
5. Knows the principles of creating and using bitmap and vector graphics.
6. Knows the principles of safe computer use, avoiding unwanted software and encrypting data.

Skills:
1 Be able to prepare a correctly formatted document that is a research paper, including literature references, images, formulae tables and indexes.
2. Is able to independently prepare and present a multimedia presentation on a scientific topic, including tables, formulae, images.
3. Be able to create scientific charts and analyse the data contained in them using specialised software.
4. Prepare publication quality bitmap graphics.
5. Prepare in publication quality vector graphics.

Social competences:
1. Engage in solving IT problems independently.
2. Recognise the need to use computer software ethically in accordance with its licences.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - Credit test in the last class with 5-10 questions
Laboratory exercises: 2-3 practical skills tests using computer and software.

Programme content

Lecture:
-exposure to the history of computing
-types of computers
-methods of encoding and processing data by computers
-review of operating systems
-basic types of applications used on PCs
-types of licences and principles of software licensing and sales
-principles of ergonomics when working with computers
-computer dangers: unwanted software, hacking, protecting against them
-operation and principles of operation of the PP university network
-Internet: history and current status.
-Protocols used in communication via the Internet.
-Safety of using the Internet.
-Vector and raster computer graphics. Differences and applications.
-Processing vector and raster graphics. Optimising file size.
-Vector and raster computer graphics. Differences and applications.
Labs:
-advanced document creation - LibreOffice
-calculation and processing of measurement results - LibreOffice
-imaging and analysis of measurement results - Originlab Origin
-Basics of correct scientific presentation, creating it using LibreOffice
-Raster processing. Optimisation of file size.
-Creating vector graphics.
-Vectoring bitmap graphics.

Course topics

1. Preparation of scientific publications
2. Engineering calculations in a spreadsheet, basic functions of Origin
3, 4, 5 . Advanced Origin features, charting and data analysis
6, 7. Vector and bitmap graphics
8. Test

Teaching methods

Lecture: multimedia presentation, presentation illustrated with examples on the board.
Laboratory exercises: practical exercises, conducting experiments, modeling, discussion, team work.

Bibliography

Basic:
1. Silberschatz A., Galvin P.B., Gagne G., Podstawy systemów operacyjnych WNT 2006.
2. Origin - Podręcznik użytkownika Gambit 2004.
3. Maria Sokół, Piotr Rajca, Internet - ćwiczenia praktyczne, Helion 2006.
4. Roland Zimek, Łukasz Oberlan, ABC grafiki komputerowej Helion 2005
5. Jacek Lembas, Rafał Kawa, Wstęp do informatyki , PWN 2020.

Additional:
Current issues of computer magazines.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00