SYLLABUS

Name: ***Computing Technologies and Information Processing (ZIPAOZ>SI1CTaIP22O)***
Name in Polish:
Name in English: ***Computing Technologies and Information Processing***

Information on course:

Course offered by department: Faculty of Organization and Management
Course for department: Silesian University of Technology
Term: Winter semester 2023/2024
Cordinator of course edition: Dr inż. Mateusz Naramski
Dr hab. Agnieszka Kowalska-Styczeń prof. PŚ
Vasyl Lytvyn

Default type of course examination report:

ZAL

Language:

English

Course homepage:

https://platforma.polsl.pl/roz/course/view.php?id=1082

Short description:

The main premise of the subject is the understanding the basic concepts and main theoretical and practical issues in the field of computer science and information technology along with the ability to use information technology tools in the field of production engineering

Description:

LECTURES:
1. Introduction to Computer Science and Information Technology (basic definitions, elements of history)
2. Information coding and processing (number systems, character and text coding, number, image and sound coding)
3. Computer structure and hardware components
4. Operating Systems (tasks performed by the operating system, history elements, mobile systems)
6. Computer networks and the Internet (LAN and WAN networks, Internet, Intranet, Extranet, use of telephone networks, wide area network technologies, mobile technology, social media)
7. Data security (security of stored and processed data, malware, antivirus and security software, data security and encryption, security of online transactions)
8. Legal issues (copyrights, licenses, legality of software, personal data protection)
(From 2023/24 cycle):
9. Basic programming issues - construction of algorithms, types of languages, solving basic computational problems and programming tasks.
10. Methods, tools and programming languages in the Internet environment
11. Front-end technologies (hypertext markup language, CSS and JS style sheets)
12. Back-end technologies (php and mysql) and CMS systems

LABORATORIES
1. Data analysis and processing (Use of commercial and non-commercial applications in the automation of computational processes, conditions and multivariate in the analysis of the computational process, pivot tables and their importance in multi-faceted data analysis, data visualization, optimization)
2. Presentation graphics (creating automatic multimedia presentations, personalized presentation designs)
3. The use of a word processor to automate work in multi-page and shared documents (style management, advanced page management, automatic tables of contents, drawings, tables, etc., integration with external data sources, mail merge)
4. The use of Microsoft Visual Basic in office applications to create unconventional solutions

Bibliography:

PL:
• Wrycza S.: Informatyka ekonomiczna. Podręcznik akademicki, Polskie Wydawnictwo Ekonomiczne , 2010.
• Kisielnicki J.: Zarządzanie i informatyka, Wydawnictwo Placet, 2014 Warszawa.
• Informatyka w zarządzaniu w przykładach i zadaniach z wykorzystaniem arkusza kalkulacyjnego MS Excel, praca zbiorowa pod red. Iwony Zdonek, Wydawnictwo Politechniki Śląskiej, Gliwice 2011.
• Hysa B., Piekoszewska B., Rakowiecka K., Sobota M., Sołtysik-Piorunkiewicz A., Zdonek D., Zdonek I.: Laboratorium z podstaw informatyki w zarządzaniu. Część II: Wprowadzenie do MS Windows; MS Word,Wydawnictwo Politechniki Śląskiej, Gliwice 2003
EN:
• Gonzalez, T., Diaz-Herrera, J., & Tucker, A. (Eds.). (2014). Computing Handbook: Computer Science and Software Engineering (Vol. 1). CRC Press.
• Tucker, A. B. (Ed.). (2004). Computer science handbook. CRC press.

Additional items:
PL:
• Zawiła-Niedźwiecki J. (red.): Informatyka gospodarcza, tom 1, Wydawnictwo C.H. Beck, Warszawa 2010
• Kowalczyk G.: Word 2013 PL. Kurs, Helion 2013
• Walkenbach J.: Excel 2016 PL. Biblia, Helion 2016
EN:
• Microsoft MS Excel Manuals: https://support.microsoft.com/en-us/excel

Learning outcomes:

Knowledge: knows and understands:
1. Selected issues of computer science and informatics and the basics of signal analysis and data processing methods. (K1A_W3)
2. The student has a basic knowledge of the principles of operation of information and computer systems and knows the possibilities and limitations of the most commonly used solutions. (K1A_W3)
3. The student knows legal issues related to copyright, software legality and personal data protection. (K1A_W7)

4. The student has knowledge of information security, threats and methods of securing and restoring information. (K1A_W7)

Skills: can:
1. use the acquired knowledge - formulate and solve complex and unusual problems and perform tasks in an innovative way in changing and not entirely predictable conditions by:
- properly select sources and information derived from them, evaluate, critically analyze and synthesize this information, (K1A_U4)
- selection and use of appropriate methods and tools, including advanced information and communication techniques (K1A_U3)
2. The student is able to solve tasks and problems in the field of management and production engineering using various types of programs, applications and Internet tools (spreadsheets, text editors, presentation programs), as well as create his own simple tools (K1A_U3)
3. The student is able to solve complex and unusual problems in the field of management and production engineering with the use of appropriately selected information systems and information and communication techniques (K1A_U3, K1A_U7).

Social competence: is ready to:
1. Critical evaluation of knowledge and received content (K1A_K1)
2. The student has the ability to communicate effectively in business using modern IT tools (K1A_K1)
3. The student has the ability to search for necessary information on the Internet and transform it into useful knowledge, and in addition constantly improves his qualifications (K1A_K1)

Assessment methods and assessment criteria:

Lecture:
Written credit in the form of a multiple-choice test, active participation in classes. Passing criterion: obtaining more than 50% correct answers.

Lab:
Passing criterion: obtaining more than 50% of the maximum possible number of points.

Information on course edition:

Default type of course examination report:

ZAL

Short description:

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Number of hours of classes with direct participation of academic teachers or other persons conducting classes and students:
Lecture: 30h
Laboratory: 30h

The number of hours devoted to the student's own work
Preparation for passing the lecture: 30h
Own work in the laboratory: 60h

Total hours: 150
Number of ECTS credits: 6
including
The number of ECTS points obtained during classes conducted with the direct participation of academic teachers or other persons teachers and students: 2

Details of classes and study groups

lecture (15 hours)

Study groups details

missing study groups details

laboratory classes (30 hours)

The classes homepage
https://platforma.polsl.pl/roz/course/view.php?id=1082
Assessment methods and assessment criteria:
Lecture: Written credit in the form of a multiple-choice test, active participation in classes. Passing criterion: obtaining more than 50% correct answers. Lab: Final test - solving problems in electronic form. Passing criterion: obtaining more than 50% of the maximum possible number of points.

Study groups details

missing study groups details

Element of course groups in various terms:

Course group description	First term	Last term
missing group description in English (ZIPAOZ>SI-1-22-O)	2022/2023-Z	

Course credits in various terms:

<without a specific program>			
Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	4	2022/2023-Z	