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SYLLABUS

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EUROPEAN SCHOOL OF BUSINESS

Methods and tools of computer information technology

2023

SYLLABUS

Course Name	
	Methods and tools of computer information technology

Lecturer (s)	
	Oleksandr Nesterenko, professor at the Department of Information Technology, Doctor of Science (Techn.), professor

Lecturer's profile	
	https://business.ieu.edu.ua/kafedry/kafedra-informatsiinykh-tekhnolohii#zzz-001

Consultations	
online consulting	–
offline consulting	Wednesday 3 p.m. – 5 p.m. https://meet.google.com/sww-grmx-cii

Contact number	
	+380977572796

E-mail	
	oleksandr_nesterenko@ieu.edu.ua

Discipline page	
	https://dist.ieu.edu.ua/course/view.php?id=118

Form of final control	test	def. test	exam
	☐	☒	☒

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1	Brief discipline annotation

The Methods and tools of computer information technology discipline is aimed at training Bachelors of knowledge area: 12 Information technology, specialty: 121 Software engineering. It is one of the fundamental natural science disciplines for future software developers.

2	Background for studying discipline

The discipline program is based on complete general secondary education or Junior specialist's degree.

3	Goal and objectives of the discipline

The goal of the discipline is to provide students with knowledge of principles of creating information technologies and processes taking place during information processing, as well as abilities and skills in working with basic information technology tools used in office and scientific activities.

Objectives of the discipline:
• to expand students' knowledge about the contemporary information worldview and new areas of information technology development;
• to introduce different types of information systems and information technologies to students;
• to reveal the role and importance of information technologies in social development;
• to provide students with the understanding of core principles of creating information technologies and systems;
• to provide students with knowledge, abilities and skills in controlling information technology tools;
• to develop the ability to work with a specific class of software;
• to develop skills in applying obtained knowledge to solve typical tasks of information technology selection and application.

4	Learning outcomes

After learning the discipline, students should
know:
• the computer structure, general operation principles of its key devices;
• the role, functional capabilities and utilization rules of primary system software;
• the role, functional capabilities and utilization rules of general-purpose application programs;
• functional capabilities of basic Internet services, rules of information seeking and processing on the web;
• best practices in using information technologies in various sectors (science, management, mechanical engineering, construction, marketing, etc.).
be able to:
• use a computer, basic system and application programs to solve practical problems;
• conduct basic maintenance of the personal computer and its devices using service programs;
• use software tools to draw up documents, presentations, conduct calculations;
• apply database operation technologies, process and analyze data.

5	ECTS credits

8 ECTS credits / 240 academic hours

6	Course Content

Sections and topics	Type of classes/hours		
	Lectures	Laboratory work	Individual work
Section 1. Content section 1. Basic concepts of informatics			
Topic 1.1. Introduction to the discipline	1		
Topic 1.2. Key terms of information technology	1		4
Topic 1.3. Data, information, solution	1	2	4
Topic 1.4. Theoretical basics of computing equipment	1	2	4
Content section 2. Hardware and software			
Topic 2.1. Hardware	1	2	4
Topic 2.2. Software	1	2	4
Topic 2.3. Computer networks	2		4
Section 2. Content section 3. Information technologies for office and scientific activities			
Topic 3.1. Key functions of office apps	0.66		4
Topic 3.2. Text editor	0.66		4
Topic 3.3. Spreadsheet operation software	0.66	6	4
Topic 3.4. Database management systems	0.66	4	4
Topic 3.5. Multimedia tools and computer graphics	0.66	2	4
Topic 3.6. Modeling tools	0.66	2	4
Content 4. Information systems			
Topic 4.1. Enterprise management information systems	2	2	6
Topic 4.2. Decision making systems and data analysis tools	2	2	6
Topic 4.3. Embedded systems	2	2	6
Topic 4.4. Artificial intelligence technologies.	2		6

7	List of obligatory tasks

1. To learn basic operations in numeral systems used in computing equipment.
2. To learn the rules of transforming logical expressions.
3. To define an algorithm via processes taking place in the computing machine.
4. Principle of microprocessor functioning by the example of performing a simple program.
5. To analyze data using spreadsheets and databases.
6. Architectural scheme of the information system.
7. Principles of creating embedded systems and artificial intelligence tools.

8	List of selective tasks

1. To conduct research of the chosen subject area based on data analysis. Describe the particularities of the examined subject area, core necessary data, the decision making process using the chosen data, required actions to seek hidden knowledge of the subject area in the data according to research objectives.
2. To solve problems on the transformation of logical expressions.
3. To overview free/open source software features.

9	Discipline features

Period of teaching	Semester	International disciplinary integration	Year of study	Courses: general training/ professional training/elective
1 semesters	2	available	1	Professional training

10	Hardware and software

Personal computer, Windows and Linux OS, office software packages, GlobalLogic platform for developing embedded systems.

11	Assessment system and requirements

As part of discipline teaching, one carries out the current and final control of students' knowledge. The final grade is given according to the total rating of students.
The results of the current control of students' knowledge is assessed in general between 0 and 60 scores.
Students are admitted to the final control if they fulfil the requirements of the training program and obtain at least 36 scores for the current learning activity.
Final assessment of students' knowledge is conducted in the form of exam.
The maximum amount of scores that can be obtained during the exam is 40 scores.
The overall score of the discipline is 100. The total grade for the discipline is given according to the national and European scale.

12	Discipline policy

Teaching of the discipline is based on cutting-edge educational technologies aimed at increasing the level of students' interest in the course, providing theoretical and practical knowledge of the discipline.
To activate the learning and cognitive activity of students, the discipline includes the consolidation of knowledge obtained at the lecture and acquisition of practical skills in lecture topics during laboratory classes.

13	Absence policy

Scores are not given for missed lectures. If students miss a laboratory work, they should perform all tasks of the missed laboratory work before the next laboratory work and present the results to the lecturer.

Students who have missed classes without valid reasons and have not participated in current control activities are not admitted to the final semester control. In this case, a mark 'non-admission' is put in the exam record on the day of the exam.

Repeated taking of the exam of the discipline is appointed in case of accomplishing all types of educational, individual work stipulated by the working program of the academic discipline and is carried out according to the approved schedule of academic failure liquidation.

14	Policy of late task performance

Tasks and laboratory works submitted later are assessed with a lower grade. The grade is reduced by one point for each week of lateness.

15	Academic integrity policy

Participants in the educational process rely on the academic integrity principles. One should provide references to sources of information when using someone else's ideas, statements, data, as well as verified information.

16	Recommended sources of information

Primary:
1. Nalyvaiko N.Y. Informatics. Study guide. K.: Center of educational literature. 2019. 576 p.
2. Informatics. 10th grade: level of standard : textbook for secondary school / Y. Y. Ryvkind [et al.] ; edited by M. Zhurovskyi. – Kyiv : Heneza, 2010.
3. Matviienko M.P., Rozen V.P., Zakladnyi O.M. Computer architecture. K.: Lira-K Publishing house, 2013. 264 p.
4. Operating systems: study guide / M.F. Bondarenko, O.H. Kachko. Kh.: SMITH Company, 2008. 432p.
5. Habrusiev V.Y., Lapinskyi V.V., Nesterenko O.V. Fundamentals of operating systems: Core, process, flow. Ternopil: Bohdan, 2007. 94 p.
6. Information systems and technologies in economy. Textbook / Edited by Ph.D. in Economics V. S. Ponomarenko. K.: Academy Publishing center, 2002. 542 p.
7. Fundamentals of information technologies and systems: textbook / V. A. Pavlysh, L. K. Hlinenko, N. B. Shakhovska. Lviv: Lviv Polytechnic, 2018. 620 p.
8. Nesterenko O.V. Enterprise management information systems / Study guide. – Kyiv: UkrSC ITD, 2019. – 135 p.
9. Nesterenko O.V., Falovskyi O.O., Kovtunets O.V. Intelligent systems and technology. Introductory course / Study guide. – K.: National Academy of Management, 2017. – 90 p.
10. Nesterenko O.V., Savenkov O.I., Falovskyi O.O. Decision making intelligent systems / Study guide. Edited by Bidiuk P.I. – K.: National Academy of Management, 2016. – 188 p.
Additional
1. Glushkov V.M. Fundamentals of paperless informatics. – M.: Nauka, 1982. – 552 p.
2. Pryima S.M. Mathematical logic and algorithm theory: Study guide – Melitopol: MMD Publishing house, 2010. – 196 p.
3. Hlynskyi Y.M. Informatics workshop. Study guide. – Lviv, 2008.
4. Burov Y. Computer networks / Y. Burov. – Lviv : BaK, 1999. – 468 p.
5. Hlynskyi Y.M. Internet: networks, HTML and telecommunications. Lviv: SPD Hlynskyi, 2009.- 238 p.

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16	Recommended sources of information

6. Ramskyi Y.S. Learning Internet search engines. – K.: National Pedagogical Dragomanov University, 2004. – 59 p.

7. Rudenko V.D. Databases in information systems. Study guide for students of pedagogical universities. – Kyiv: Phoenix, 2010. – 240p.

 Internet resources

1. Microsoft website. – Available at: https://www.microsoft.com/uk-ua/
2. Online textbooks for students. - Available at: https://stud.com.ua/informatika/
3. IT website. - Available at: https://dou.ua/
4. Information technologies. Analytical materials Journal. - Available at: http://it.ridne.net/
5. Globallogic website. - Available at: https://www.globallogic.com.ua

17	Tips on successful study during the course

Note: examine lecture materials and perform tasks and laboratory works synchronously with the curriculum. Thus, your abilities and insistence will be the key to success!