INTERNATIONAL EUROPEAN UNIVERSITY
Education and Research Institute "European Business School"
Department of Information Technology

Approved by
The Scientific and Methodical Council of the
University, protocol dd._____, 2023,
No. _____

Chair of SMC _____

WORKING PROGRAM OF THE ACADEMIC DISCIPLINE:

INFORMATION TECHNOLOGY IN ENTERPRISE MANAGEMENT

to train students of the second (Master) level
(full-time and part-time mode of study)

Knowledge area: 07 Management and Administration

Specialty: 073 Management

Educational program: Management and Business Administration

Discipline status: Compulsory

Kyiv – 2023

The working program of the Information technology in enterprise management academic discipline is based on the Management and Business Administration educational and professional program for the second (Master) level of the 073 Management specialty approved by the University Academic Council on May 26, 2022, protocol No. 4.

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Guarantor of the educational program: Yuliia Remyha, PhD in Economics, associate professor

The working program of the academic discipline is reviewed and approved by the Department of Information Technology, protocol dd. August 31, 2023, No. 1.
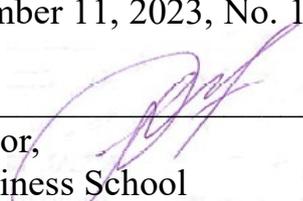
Head of the Department   O.V. Nesterenko,
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The program is reviewed and approved by the Academic Council of the European Business School, protocol dd. September 11, 2023, No. 1.

Chair of the Academic Council _____ Y.S. Remyha,
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INTRODUCTION

The **program of the Information technology in enterprise management academic discipline** is designed according to the Higher Education Standard of Ukraine (hereinafter referred to as the Standard) of the knowledge area: 07 Management and Administration, specialty: 073 Management.

Discipline description (annotation). This academic discipline is one of the professional disciplines for training managers.

Criteria	Knowledge area, training program, educational level	Discipline characteristics	
		full-time mode of study	part-time mode of study
Number of credits – 3	**Knowledge area: 07 MANAGEMENT AND ADMINISTRATION**	**Compulsory**	
Sections – 1	**Specialty: 073 MANAGEMENT**	Year of training	
Content sections – 1		1st	1st
Individual research task:		Semester	
		1st	1st
Total amount of hours – 90		Lectures	
		8 hours	2 hours
Weekly load: class hours – 2 independent work of students – 6		Practical and laboratory classes	
		24 hours	4 hours
	Educational level: Master	Independent work	
		58 hours	84 hours
		Type of control:	
		Pass/Fail test	Pass/Fail test

Subject matter of the academic discipline: principles and models underlying information technologies and systems used in enterprise management processes.

Interdisciplinary links: The academic discipline is not related to other disciplines.

1. GOAL AND OBJECTIVES OF THE ACADEMIC DISCIPLINE

1.1. The **goal** of the Information technology in enterprise management discipline is to make students learn the key terms, categories, and theoretical issues concerning the construction of using information technology and enterprise management systems (EMIS).

1.2. **Key objectives** of the Information technology in enterprise management discipline:

- to learn the basic analysis of enterprise management processes in the subject area;
- to understand the necessity of applying international recommendations and models and their selection;
- to know the particularities of data presentation and organization;
- to acquire skills in constructing EMIS, knowledge of architecture of this kind of systems and user interface features;
- to develop the ability to work with a particular class of information technology;
- to examine the examples of EMIS implementation in different sectors;
- to develop skills in applying acquired knowledge to solve typical management tasks.

1.3. **Competencies and learning outcomes** encouraged by the discipline (interrelation with the statutory content of student training stipulated in learning outcome terms of the Standard).

According to the Standard requirements, the discipline provides students with the following *competencies*:

Integral competence	Ability to solve complicated specialized tasks and practical problems in management characterized by complexity and uncertainty of conditions.
General competencies	Understanding of the role of information and knowledge in enterprise operations. Understanding of the processes occurring in the computer's program environment. Ability to apply knowledge in practical management situations.
Specialized (professional, subject) competencies	Ability to take into account the regularities of information processes in management activities. Skills in analyzing and assessing information in terms of its properties, practical and personal significance. Ability to think algorithmically and logically. Understanding of possibilities of applying methods and tools of information technology in practice.

Specification of competencies according to the National Qualifications Framework descriptors in the Competency matrix form:

Competency matrix

No.	Competence	Knowledge	Skills / Abilities	Communication	Autonomy and responsibility
Integral competence					
1.	Ability to solve complicated specialized tasks	Theories of designing operating systems	To use information technologies,	Software interaction	Independent design and

	and practical problems in management characterized by complexity and uncertainty of conditions.	and interaction with application software	basic system and application software to solve practical problems		testing on the production site
General competencies					
2.	Understanding of the processes occurring in the operating system when processing information with application software. Ability to use knowledge in practical programming situations. Ability to search, process and analyze information for application in programming.	structure of modern information systems, general principles of their functioning	apply operations of interaction with the OS environment in when developing application programs	Relation between theoretical and practical knowledge	Monitoring of information processing processes
Specialized (professional, subject) competencies					
3.	Understanding of concepts of processes and multitasking Ability to think algorithmically and logically. Understanding of possibilities of applying methods of operating systems in practice.	basics of multiprogramming of virtualization and distributed computing, relevant rules and functions of application programming	the use of software tools in the operating environment	Application of parallel work technologies	Description of information processes

Integrated final program learning outcomes encouraged by the academic discipline:

Program learning outcomes   Master's qualifying paper

Learning outcomes:
After learning the discipline, students should
know:
- the concept of management information system;
- features of information systems in management, their components;
- features of economic information and its classification;

– methodology and technology of design and development of information systems;

– means of creating and maintaining information systems and technologies at enterprises;

– industrial standards of information systems such as MRP, MRPII, ERP, CSRP, CRM;

– decision support systems;

– characteristics of integrated information systems;

be able to:

– analyze information flows at the enterprise;

– reengineer existing business processes of the enterprise;

– apply models of the life cycle of information system development;

– apply industrial IS standards to automate management processes of the enterprise;

– form electronic document management systems;

– determine characteristics and requirements for an integrated information system.

2. INFORMATION CAPACITY OF THE ACADEMIC DISCIPLINE

The Information technology in enterprise management discipline consists of 90 hours, 3 ECTS credits.

TOPIC 1. INFORMATION PROCESSES OF ENTERPRISE MANAGEMENT

TOPIC 2. ARCHITECTURE OF MODERN EMIS

TOPIC 3. DATA ANALYSIS INFORMATION TECHNOLOGY

TOPIC 4. INFORMATION MANAGEMENT SYSTEMS IN PUBLIC AUTHORITIES

3. STRUCTURE OF THE ACADEMIC DISCIPLINE

Topics	Amount of hours				
	Total	Lectures	Practical classes/ seminars	Laboratory works	Independent work
				including	
1	2	3	4	5	
Topic 1. Information processes of enterprise management	20	2	2		16

Topic 2. Architecture of modern EMIS	26	2	8		16
Topic 3. Data analysis information technology	30	2	12		16
Topic 4. Information management systems in public authorities	14	2	2		10
Total	90	8	24		58
Consultations					
Pass/Fail test	2				
Total hours	92				

4. TOPICS OF LECTURES

No.	Lecture topics and the list of key questions
1	INFORMATION PROCESSES OF ENTERPRISE MANAGEMENT 1.1. Introduction to the discipline 1.2. Concept of organizational systems management 1.3. Tasks of organizational systems management 1.4. Information uncertainty in organizational systems 1.5. Technological aspects of enterprise management 1.6. Information management standards 1.7. Role and place of EMIS in management improvement 1.8. EMIS components 1.9. International management techniques
2	ARCHITECTURE OF MODERN EMIS 2.1. Concept of information system architecture 2.2. Business architecture 2.3. EMIS IT architecture 2.4. Functional architecture 2.5. Functional support for management systems 2.6. Electronic document management 2.7. Features of Automatic Process Control System (APCS) architecture 2.8. World leaders in control system supplies
3	DATA ANALYSIS INFORMATION TECHNOLOGY 3.1. Concept of data analysis 3.2. Brief historical overview 3.3. Data analysis and storage technology 3.4. Application areas of intelligent data analysis technology 3.5. Data analysis tasks 3.6. Classification tasks 3.7. Clustering task 3.8. Prediction task 3.9. Search for associative rules 3.10. Visualization task
4	INFORMATION MANAGEMENT SYSTEMS IN PUBLIC AUTHORITIES 4.1. Key concepts and definitions 4.2. Brief historical overview 4.3. E-government

	4.4. Informatization of public authorities 4.5. Management systems of public authorities 4.6. Electronic document management systems of public authorities

5. TOPICS OF LABORATORY AND PRACTICAL CLASSES

No.	Practical work (computer workshop)	Amount of class hours
1	Preparation and processing of data for decision-making.	2
2	Models in decision support systems.	4
3	Working with Excel lists.	4
4	Summary tables in Excel.	4
5	Data storage and processing in the MS Access database control system.	4
6	Working with the CRM system.	4
7	Data processing of the State Statistics Service of Ukraine.	2
	Total	24

6. INDEPENDENT WORK

No.	Topics for independent learning	Amount of independent work hours
1. Information processes of enterprise management		
1	Key tasks and functions of organizational management at the enterprise.	8
2	Basic management techniques at the enterprise.	8
2. Architecture of modern EMIS		
3	Business architecture and IT architecture of enterprise management	8
4	Functional support of the enterprise's EMIS.	8
5	Solutions by the world's leading manufacturers to design EMIS at the enterprise.	8
3. Data analysis information technology		
6	Identification of data used and generated in enterprise activities in the selected field of activity	8
7	The use of the Excel environment and specialized software packages for statistical calculations, analysis and graphical presentation of data.	8
4. Information management systems in public authorities		
8	Functional support of EMIS at the enterprise	8
9	Review of solutions for the creation of management systems in public authorities	8
		72

7. TRAINING METHODS

Teaching the Information technology in enterprise management discipline, one uses information and practical training methods: classical lectures, laboratory and practical classes using simulation laboratory workshops, as well as consultations on the accomplishment of independent work of students, written assignments.

Methods of learning and cognitive activity: explanatory and illustrative method, reproductive method, problem presentation method, partially exploratory or heuristic method, research method.

Methods of stimulation and motivation of learning and cognitive activity: inductive and deductive teaching methods; methods of stimulation and motivation of learning.

8. CONTROL METHODS

The plan of the Information technology in enterprise management discipline implies carrying out of current and final control.

Current control is the assessment of the level of knowledge, skills and abilities of students carried out during the educational process by conducting a written survey at the end of sections (module colloquium). Final control is carried out in the form of an exam.

9. FORM OF STUDENT PERFORMANCE FINAL CONTROL

The form of final control is the **Pass/Fail test** taken on-campus (or in the form of computer test in case of a specific situation) in the period stipulated by the Dean's office or according to the individual schedule stipulated by the curriculum.

10. SCORING SYSTEM

Scoring during the semester

No.	Type of activity	Number of points per didactic unit	Number	Total points
1	Attendance of lectures	1.25	4	5
2	Accomplishment of practical works	4	7	28
3	Accomplishment of independent tasks	3	9	27
Maximum grade				60

General assessment of student knowledge due to current control

The results of current control of student knowledge are assessed in general ranging from **0** to **60** points.

Students are allowed to final control if they fulfil the requirements of the training program and obtain at least **36** points for the current learning activity.

Allocation of assessment points during final control in the academic discipline

Grade in points for final assessment	Grade according to the national scale
35-40	Excellent
21-34	Good
10-20	Satisfactory
less than 10	Fail

Assessing the answer to the particular question, one takes into account the following gaps and mistakes:

– untidy preparation of work (nonconventional abbreviations, unclear handwriting, use of pencils instead of clear inks) (minus **2** points);

– incorrectness in certain economic categories and definitions (minus **4** points).

Assessment criteria for answers to theoretical questions of the exam card:

1. The full answer to the question rated as ***excellent*** should correspond to the following requirements:

– detailed, comprehensive representation of the content of the given problem;

– full list of economic categories and laws required to reveal the question;

– ability to carry out a comparative analysis of various theories, concepts, approaches and make logical conclusions and generalizations;

– ability to apply methods for the scientific analysis of economic phenomena, processes and characterize their features and forms of appearance;

– demonstration of the ability to express and reason your own attitude to alternative views on this question;

– use of relevant actual and statistical data, knowledge of dates and historical periods that prove key points of the answer.

2. The answer to the question is rated as ***good*** if:

– the answer for the highest grade does not reveal at least one of the above-mentioned points (if it is definitely required to reveal the question comprehensively), or if:

– revealing the question correctly in general according to the above-mentioned requirements, one makes some mistakes while using digital materials.

3. The answer to the question is rated as ***satisfactory*** if:

– the answer for the highest grade does not reveal four and more points specified in its requirements (if they are required to reveal the question comprehensively);

– there are four or more gaps characterizing individually assessment criteria;

– conclusions made during the answer do not correspond to correct or generally defined ones with the absence of evidence for opposite facts given in the answer;

– the character of the answer gives reason to state that persons fail to understand the question properly or do not know the correct answer, and that is why fail to answer in actual fact, making serious mistakes.

The overall final grade in points according to the national and ECTS scales is put into the examination and test register, academic card and credit book of students.

National and ECTS grading scale

Sum of points for all types of educational activities	ECTS grade	Grade according to the national scale	
		for exam, term paper, practical training	for Pass/Fail test
90-100	A	excellent	pass
82-89	B	good	
74-81	C	good	
66-73	D	satisfactory	
60-65	E	satisfactory	
30-59	FX	fail with possible repeated pass	fail with possible repeated pass
1-29	F	fail with obligatory repeated learning of the discipline	fail with obligatory repeated learning of the discipline

11. METHODICAL SUPPORT:

– working program of the discipline;
– electronic course on the e-learning platform;
– plans of lectures, practical classes and independent work of students;
– key points of discipline lectures;
– methodical guidelines to laboratory and practical classes for students;
– methodical materials for independent work of students;
– list of questions for the Pass/Fail test.

12. RECOMMENDED READING

Primary:

1. Glushkov V.M. Fundamentals of paperless informatics. M.: Nauka, 1982. 552 p.
2. Bidiuk P.I., Korshevniuk L.O. Designing computer information systems for decision support (textbook). K.: Educational and Research Institute for Applied System Analysis of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", 2010. 340 p.
3. Nesterenko O.V. Information systems of enterprise management / Textbook. Kyiv: Ukrainian Scientific Center for Information Technology Development, 2019. 135 p.
4. Nesterenko O.V. Fundamentals of constructing automated information and analytical systems of public authorities. K.: Naukova Dumka, 2005. 628 p.
5. Yermoshenko M.M., Nesterenko O.V., Shtuler I.Y. Information technology of marketing data analysis: Textbook. Kyiv: National Academy of Management, 2021. 141 p.

6. Informatization of social systems management: Organizational and legal issues of theory and practice: Textbook / V.D. Pavlovskyi, R.A. Kaliuzhnyi, V.S. Tsymbaliuk, et al.; Edited by M.Y. Shvets, R.A. Kaliuzhnyi. K.: IAPM, 2003. 336 p.

7. Dovhyi S.O., Kopiika O.V., Cherepin Y.T. Principles of regional informatization. [Edited by S.O. Dovhyi]. K.: Tyrazh Publishing and printing center, 2004. 304 p.

Additional:

1. Integrated production management: Organizational and technological aspects of enterprise management / V.I. Arkhangelsky, I.I. Bogayenko, G.G. Grabovsky, N.A. Ryumshin, ed. by V.I. Arkhangelsky. K.: Tekhnika, 2005. 328 p.

2. Larichev O.I. Theory and methods of decision-making. M: Logos, 2000. 296 p.

3. Glushkov V.M. Introduction to automatic control systems. K.: Tekhnika, 1972. 312 p.

4. Glushkov V.M., Valakh V.Y. What is the Nationwide Automated System? M.: Nauka, 1981. 160 p.

5. Klebanova T.S., Moldovskaia Y.V., Chang Hongwen. Models and methods of coordination in large-scale economic systems. Kharkiv: Business Inform, 2002. 148 p.

Information resources
1. https://www.microsoft.com/uk-ua/
2. https://stud.com.ua/informatika/
3. https://dou.ua/
4. http://it.ridne.net/
5. Vernadsky National Library of Ukraine: http://www.nbuv.gov.ua
6. Ministry of Digital Transformation of Ukraine: https://thedigital.gov.ua/