



Syllabus Course Program



Information Systems and Technologies in Management

Specialty

073 – Management

Institute

Institute of Education and Science in Economics,
Management and International Business

Educational program

Business administration (in English)

Department

Management (204)

Level of education

Master's level

Course type

Mandatory, general training

Semester

1

Language of instruction

English

Lecturers and course developers

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Ph.D. (C.Sc.) in Economic Sciences, associate professor of Management department

Authored and co-authored over 30 scientific and methodological publications. Courses: Operations management, Logistics management, Information technology in management

[More about the lecturer on the department's website](#)

General information

Summary

The Information Systems and Technologies in Management course develops the knowledge and skills necessary to effectively manage business processes related to usage of information technologies, including computers, software and networks. During the course, students will learn how to organize, plan, implement, control and improve IT technologies in management, effectively achieve strategic objectives of the company with them.

Course objectives and goals

Mastering theoretical knowledge and practical skills in the field of information technologies in management. Formation of understanding of theoretical principles, categories, modern concepts and practical methods of utilization of modern technology in operational and administrative activities to achieve strategic objectives and goals.

Format of classes

Lectures, laboratory classes, self-study. Control work (Individual assignment). Differentiated grading.

Competencies

GC3. Skills in using information and communication technologies;

SC5. The ability to create and organize effective communications in the management process.

Learning outcomes

L08. To use specialized software and information systems for solving problems related to management of organizations

Student workload

The total volume of the course is 120 hours (4 ECTS credits): lectures - 16 hours, laboratory classes - 32 hours, self-study - 72 hours.

Course prerequisites

The prerequisites for this course are knowledge and practical skills, demonstrated by successfully passing the Unified Professional Entrance Exam in Management and Administration (Order of the Ministry of Education and Science of Ukraine No. 157 dated February 11, 2022).

Features of the course, teaching and learning methods, and technologies

Lectures are delivered interactively with the use of multimedia technologies. Laboratory classes focus on the use of modern information technology and popular software tools that are required in real-world situations. Learning materials are available to students via Microsoft Teams.

Program of the course

Topics of the lectures

Topic 1: Introduction to information technology (IT) in management

The role of IT in modern management. History of IT. Basic components of IT. IT infrastructure and architecture. Trends and innovations in IT.

Topic 2. Types of management information systems (MIS)

Transaction processing systems (TPS). Decision support systems (DSS). Executive information systems (EIS). Customer relationship management systems (CRM). Enterprise resource planning systems (ERP).

Topic 3. Development of management information systems

MIS development life cycle. Analysis and collection of requirements. System design and architecture. Testing and deployment of MIS.

Topic 4. MIS implementation strategies

Planning and management of MIS development and implementation projects. Change management during implementation. Training and support of users. Analyzing of MIS implementation performance.

Topic 5. Electronic document management

The concept of electronic document management, and its components. Advantages of electronic document management systems. Key features of electronic document management. Implementation of electronic document management.

Topic 6. Cybersecurity in management

The importance of cybersecurity in management. Common cyber threats and IT vulnerabilities. Best practices and cybersecurity policies. Legal and ethical issues of cybersecurity.

Topic 7. Artificial intelligence

The concept of artificial intelligence and machine learning. Application of artificial intelligence in business operations. Decision-making using artificial intelligence. Challenges and limitations of artificial intelligence. Future trends in artificial intelligence for management.

Topic 8: E-commerce

Concept and types of e-commerce. Business models of e-commerce. Technologies and platforms for e-commerce. Communication with consumers.

Topics of the workshops

No workshops are included in the plan.

Topics of the laboratory classes

Topic 1: Components of IT in management

Identification of hardware and software (case study).

Topic 2: IT infrastructure at the enterprise.

Determining the need for IT in the enterprise. Planning of IT infrastructure for enterprises in various industries.

Topic 3: Basics of database management.

Overview and basic functions of Microsoft Access. Creating a simple database for transaction processing.

Topic 4. ERP systems.

Overview of the ERP system on the example of Odoo. Installation, key modules. Conducting transactions and production planning in ERP.

Topic 5: Fundamentals of Agile methodologies. SCRUM.

Creating a kanban board for MIS module development processes. Prioritization of tasks. Distribution of tasks and roles, organization of communications in the team.

Topic 6. Project management software.

Adaptation of the developed kanban board to the project management software environment (Jira, Trello).

Topic 7. Business process modeling software.

Creating graphical models of business processes using software (Camunda Modeler, yEd Graph Editor, Visio)

Topic 8. Strategic planning of MIS implementation.

Development of a MIS implementation strategy. Development of a Gantt chart.

Topic 9: Analysis of management information in Microsoft Excel

Excel functions for analyzing and aggregating management data. Power Query, Power Pivot.

Topic 10. Analyzing management information in Microsoft Power BI

Using Microsoft Power BI to analyze and aggregate management data.

Topic 11. Cybersecurity at the enterprise

Identification of potential cybersecurity problems in the enterprise (case study).

Topic 12: Cybersecurity of a manager

Development of an action plan for personal cybersecurity of the manager.

Topic 13: Using artificial intelligence (AI) in management

Introduction to the principles of machine learning. Creating a decision tree for management automation.

Topic 14: Using AI to analyze and forecast management information

Data analysis and decision making using Weka software. Comparison of algorithm performance..

Topic 15: E-commerce planning.

Planning of e-commerce infrastructure for companies.

Topic 16. Analysis of e-commerce performance indicators.

Analysis of e-commerce performance indicators.

Self-study

The course involves studying additional materials on the topics of the lectures. Also, the course includes performing an individual assignment control work related to testing of theoretical knowledge. The result is presented in the form of a written paper. Students are recommended additional materials (videos, articles) for independent study and analysis.

Also, as an alternative assignment to the topic “Cybersecurity in Management” (topic 6, lab. work 12), it is recommended to take an [online course on cybersecurity](#) on the Diia.Osvita platform.

Course materials and recommended reading

1. Lacher, M. (2023). Business Computers 365 Version 2.0. Minnesota State Community & Technical College, 268. <https://open.umn.edu/opentextbooks/textbooks/business-computers-365-lacher>

2. Taherdoost, H. (2023). An overview of trends in information systems: emerging technologies that transform the information technology industry. Cloud Computing and Data Science, 1-16.

<https://ssrn.com/abstract=4626736>

3. Roy, S.; Daniel, C.; and Agrawal, M. (2023). Fundamentals of Information Technology: Textbook.

https://digitalcommons.usf.edu/dit_tb_eng/19

4. Bourgeois, D., Smith, J., Wang, S., & Mortati, J. (2019). Information Systems for Business and Beyond.

<https://digitalcommons.biola.edu/open-textbooks/1>

5. Haseeb, M., Hussain, H. I., Ślusarczyk, B., & Jermsittiparsert, K. (2019). Industry 4.0: A solution towards technology challenges of sustainable business performance. *Social Sciences*, 8(5), 154.
6. Bharadiya, J. (2023). The Impact of Artificial Intelligence on Business Processes. *European Journal of Technology*, 7(2), Article 2. <https://doi.org/10.47672/ejt.1488>
7. Alsaqqa, S., Sawalha, S., & Abdel-Nabi, H. (2020). Agile Software Development: Methodologies and Trends. *International Journal of Interactive Mobile Technologies (ijIM)*, 14(11), Article 11. <https://doi.org/10.3991/ijim.v14i11.13269>
8. Excel help & learning. Import and analyze data (2024). <https://support.microsoft.com/en-us/office/import-and-analyze-data-ccd3c4a6-272f-4c97-afbb-d3f27407fcde>
9. Get started with Power BI Desktop (2023) <https://learn.microsoft.com/en-us/power-bi/fundamentals/desktop-getting-started>
10. Online course (educational series) "Attention! Cyber fraudsters" Diia.Osvita. <https://osvita.diia.gov.ua/courses/attention-cyber-fraudsters>

Assessment and grading

Criteria for assessment of student performance, and the final score structure

100% of the final grade consists of the final assessment (70%) and the continuous assessment (30%).

Final assessment: report on the individual task (30%), testing (two online tests) (40%);

Continuous assessment: completion of tasks during laboratory classes (30%)

Grading scale

Total points	National	ECTS
90-100	Excellent	A
82-89	Good	B
75-81	Good	C
64-74	Satisfactory	D
60-63	Satisfactory	E
35-59	Unsatisfactory (requires additional learning)	FX
1-34	Unsatisfactory (requires repetition of the course)	F

Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management. Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/>

Approval

Approved by



Head of the department
Olena PROKHORENKO

August 28, 2024

Guarantor of the educational program



Pavlo BRIN

August 28, 2024