

CAUCASUS UNIVERSITY



Graduate Program in
Information Technology Management
(Delivered in English)



Program Name	Information Technology Management		
Program Name in Georgian	ინფორმაციული ტექნოლოგიების მენეჯმენტი		
Degree level	Master's		
Type of the educational program	Academic		
Language of Instruction	English		
Expected Qualification			
The First Part			
In English:	Master of Information Technology Management	0619	
In Georgian:	ინფორმაციული ტექნოლოგიების მენეჯმენტის მაგისტრი	0619	
The Second Part			
In English:	Research Master of Information Technology Management		
In Georgian:	ინფორმაციული ტექნოლოგიების მენეჯმენტის კვლევის მაგისტრი		
Date of Program Approval	3 December 2020;		
Academic head of the Program	Prof. Maksim Iavich, PhD.		
Program Volume in Credit Hours	In order to obtain the qualification determined by the first part of the program, the student must acquire 60 ECTS¹ credits. The standard duration of study is one year, and the permissible duration is two years. The the first part of the program envisages learning courses of a narrow sphere and of free components: <u>Learning courses of narrow sphere (54 ECTS credits):</u> – Mandatory learning courses - 42 ECTS credits – Optional learning courses - 12 ECTS credits <u>Learning courses of free component (6 ECTS credits):</u> – Free credits - 12 ECTS credits In order to obtain the qualification determined by the second part of the program, the student must acquire 60 ECTS credits. The standard duration of study is one year, and the permissible duration is two years. The the first part of the program envisages learning courses of a narrow sphere and of free components: <u>Learning courses of narrow sphere (48 ECTS credits):</u> – Optional learning courses - 18 ECTS credits – Master Thesis - 30 ECTS credits <u>Learning courses of free component (12 ECTS credits):</u> – Mandatory learning course of university - 6 ECTS credits – Free credits - 6 ECTS credits		

¹ 1 ECTS equals 25 hours, which includes contact hours and independent work (midterm and final examinations, as well as homework assignments).

Program Description

Admission Requirements

The persons applying for the first part of the master's program need:

- To have a Bachelor's degree in relevant or related field (engineering, business administration, natural sciences).
- To pass the General Masters Examination held by the Legal Entity of Public Law - The National Assessment and Examinations Center.
 - Enrollment in the program without passing the general master's exam is carried out in accordance with the rules established by law.
 - Mobility to the program is allowed in accordance with procedures set by the relevant law.
- Successfully pass the entrance exam (includes components of English comprehension and writing according to B2 level and general logical and quantitative reasoning questions; A person may be exempted from this condition if there is a language proficiency document (IELTS-6.0, TOEFL-78, other relevant B2 level international certificate or other circumstances set by university regulation))
- Successfully pass the oral exam with the Caucasus School of Technology's Master's Admission Commission. The topics of the exams and evaluation criteria will be posted on the university's website.

The persons applying for the second part of the master's program need:

- To have a Master's degree in ICT field
- Successfully pass the entrance exam (includes components of English comprehension and writing according to B2 level and general logical and quantitative reasoning questions; A person may be exempted from this condition if there is a language proficiency document (IELTS-6.0, TOEFL-78, other relevant B2 level international certificate or other circumstances set by university regulation))
- Successfully pass the oral exam with the Caucasus School of Technology's Master's Admission Commission. The topics of the exams and evaluation criteria will be posted on the university's website.
- Mobility to the program is allowed in accordance with procedures set by the relevant law.

General Information

During the program development it was taken into the consideration the experience of foreign universities, having the degree programs in the similar filed; The recommendations of leading specialists and professors of the partner universities (Tallinn University of Technology; Upper Austria University of Applied Sciences (Hagenberg); Kaunas University Of Technology), obtained through the exchange visits of school administration and professors, invoved in the program development, in the partner universities and also from the consultation meetings with the representatives of those universities carried out at the Caucasus University. The feature of the program is the in-depth examination of a number of issues that have been selected in light of current and growing demands on information technology managers both in the Georgian labor market and internationally as well.

The program curriculum has a technical focus and gives good understanding of business operations and strategy. Students will learn how IT must be aligned with the strategy of the organization, and how to make appropriate choices about architecture in relationship to overall organization goals.

The teaching process of the program is based on modern methodologies of practice-oriented teaching taking into account the elements of scientific research. It focuses on in-depth learning of the disciplines enriched with the latest scientific or practical information management technologies. Compatible with modern international standards, the program enables the student to acquire deep theoretical knowledge in the field and to master good practical skills. The thoughtful proportion of the theoretical and practical components of the program provides the basis for a graduate to pursue a career as a prospective IT Management specialist, both in Georgia and abroad.

Program Objectives

The objectives of the first part of the program are to:

- Prepare highly qualified managers who will possess modern knowledge and skills in strategic and operational management within the field of information technology, enabling them to successfully plan, implement, and develop information technology-related projects and services in various types of organizations.
- Foster the development of professionals with high ethical standards who are capable of effective communication in multidisciplinary environments, possess leadership skills, and are committed to continuous professional development in the face of global technological changes

The objectives of the first part of the program are to:

- Develop research, analytical, and innovative thinking skills for graduates that will enable them to develop new technological solutions, address complex challenges, and contribute to the sustainable development of the ICT sector.
- Educate professionals with high ethical standards, capable of effective communication in a multidisciplinary environment, possessing leadership skills, and ready for continuous professional improvement in the context of global technological changes.

Learning Outcomes

Upon completion of the first part of the master's degree program, the graduate will acquire the following competencies:

1. Comprehensively analyzes the latest theories and practices in the information technology field, evaluates their impact on organizational strategy formation, and critically comprehends global digital transformation trends.
2. Strategically plans, evaluates, and implements complex information systems and technological solutions, utilizing innovative approaches and in-depth analytical skills to achieve organizational goals.
3. Independently assesses cybersecurity challenges, develops comprehensive strategies to protect organizational assets, considering legal, ethical, and technological aspects.
4. Ensures the functioning and optimization of corporate information systems, as well as the effective management of organizational resources through the use of information technologies.
5. Creates new or significantly improved products, services, processes, or business models by utilizing knowledge, ideas, and technologies in the field of information technology.
6. Independently plans personal professional development, continuously mastering new technologies and methodologies, possessing the ability and desire for lifelong learning, and actively participating in the field's development.

Upon completion of the second part of the master's degree program, the graduate will acquire the following competencies:

1. Creates and implements research projects involving the development of new methodologies and technological solutions, applying modern research methods and scientific research ethics principles.
2. Creates new or significantly improved products, services, processes, or business models by utilizing knowledge, ideas, and technologies in the field of information technology.
3. Independently plans personal professional development, continuously mastering new technologies and methodologies, possessing the ability and desire for lifelong learning, and actively participating in the field's development.

Building a Career

The program gives students the chance to advance to IT Leadership positions through gaining strong set of technical and managerial skills which are necessary to succeed in the IT field today.

Program graduates will have an opportunity to work in a variety of environments such as academia, research, industry, media, government, private and business organizations. Examples of job titles of program graduates may include: Information Systems consulting officer, Chief Information Officer, Chief Technical Officer, Project Manager, Network Manager/Analyst, Business Analyst, Database Administrator, IT Infrastructure Manager etc.

On the Georgian labor market employers are the university's partner organizations, as well as other big or small business companies, banking sector, international companies, educational institutions, telecommunication organizations etc.

Study Continuation Opportunities

- Graduates of the first part of the program can continue their studies toward 120 ECTS Master's programs in the ICT field, in accordance with applicable legal regulations.
- Graduates of the second part of the program are eligible to pursue doctoral studies both in Georgia or abroad, in accordance with applicable legal regulations.

Program Curriculum (The First Part)

№	Course Code	Course Prerequisite	Course Name	Year		
				I		ECTS
				Semester		
				I	II	
Learning Courses of Narrow Sphere						
Mandatory Learning Courses - 42 ECTS						
1.	ITSM 5141.12		<u>IT Service Management</u>	×		6
2.	MIS 5141.12		<u>Management Information Systems</u>	×		6
3.	MNG 5141.12		<u>Strategic Management</u>	×		6
4.	DBM 5141.12		<u>Database and Data Warehouse Management</u>	×		6
5.	OSM 5241.12		<u>Operating Systems in Corporation</u>		×	6
6.	ERP 5241.12		<u>ERP Systems</u>		×	6
7.	ISSC 5241.12		<u>Information Systems Security</u>		×	6
Optional Learning Courses - 12 ECTS						
8.	EGOV 5141.12		<u>Electronic Governance</u>	×		6
9.	DPM 5141.12		<u>Digital Product Management</u>	×		6
10.	CYD 5141.12		<u>Digital Governance and Cyber Diplomacy</u>	×		6
11.	FIN 5141.12		<u>Finances for IT Managers</u>	×		6
12.	TMK 5141.12		<u>Strategic Marketing for Technology and Innovation</u>	×		6
13.	CSEC 5141.12		<u>Cyber Security for Managers</u>	×		6
14.	DCN 5241.12		<u>Data Communications and Networking</u>		×	6
15.	CLD 5241.12		<u>Cloud Technologies</u>		×	6
16.	PM 5241.12		<u>Project Management</u>		×	6
17.	AIEN 5241.12	DBM 5141.12	<u>AI Engineering</u>		×	6
18.	DMT 5241.12	MNG 5141.12	<u>Decision Making Theory</u>		×	6
19.	ICHM 5241.12	MNG 5141.12	<u>Innovation & Change Management</u>		×	6
20.	HRM 5241.12		<u>Human Resource Management</u>		×	6
21.	PRW 5241.12		<u>Professional Internship ²</u>		×	12
Learning Courses of Free Component						
Free Credits - 6 ECTS						
22.			Free Course ³	×		
ECTS Credits			Per Semester	30	30	
			Per Year	60		

² Professional Internship is compulsory for students who do not hold employment relevant to their specialization.

³ Students can take courses as 'Free Courses' from other Master's degree programs and/or from the elective courses within this program.

Program Curriculum (The Second Part)

№	Course Code	Course Prerequisite	Course Name	Year			ECTS
				I			
				Semester			
				I	II		
Learning Courses of Narrow Sphere							
Mandatory Learning Courses – 30 ECTS							
1.	MTH 5141.22	WRT 5141.22	<u>Master's Thesis</u>		×	30	
Optional Learning Courses - 18 ECTS							
2.	SENG 5141.22		<u>Software Engineering</u>	×		6	
3.	DSC 5141.22		<u>Foundations of Data Science</u>	×		6	
4.	CYW 5141.22		<u>Cyber Warfare</u>	×		6	
5.	DEN 5141.22		<u>Data Engineering</u>	×		6	
6.	MCPT 5141.22		<u>Modern Cryptography</u>	×		6	
7.	STAT 5141.22		<u>Statistics for Managers</u>	×		6	
<u>Learning Courses of Free Component</u>							
Mandatory Learning Course of University - 6 ECTS							
8.	WRT 5141.22		<u>Academic Writing & Research Methods</u>	×		6	
Free Credits - 6 ECTS							
9.			Free Course ⁴	×			
ECTS Credits			Per Semester	30	30		
			Per Year	60			

⁴ Students can take courses as 'Free Courses' from other Master's degree programs and/or from the elective courses within this program.

IT Service Management

The course describes the importance of information technology infrastructure and information technology services in organizations, the process approach, the basic outline of infrastructure management, the terms and concepts used in IT infrastructure management.

Objective of course is to teach students about the established ITSM practice in the wider context of: Customer experience Value Streams Digital transformation New ways of working: Lean, Agile, DevOps

Upon completion of the course, the student:

- Evaluates information technology, service management;
- Uses information technology management methodology and terminology;
- Uses IT process approaches and modern and international approaches to IT service design and strategies;
- Evaluates the quality of information technology services;
- Develops IT service delivery / service strategy.
- Able to design and manage IT service delivery / service processes, manage information security.
- Develops services and service strategies and manages change;
- Develops strategies for service operation and improvement;
- Identifies ways to improve IT service delivery / service processes.

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Management Information Systems

The course reviews:

- The role of information systems in society, in modern organizations.
- Information technology and software part of information systems,
- The impact of information systems on business processes and decision making.
- Modern international standards and libraries.

The aim of the course is to become well acquainted with the role of information systems in the modern environment, to see career opportunities in the field of information systems.

After completing the course, the student:

- Understands the role of information systems in the organization;
- Uses in-depth knowledge of information systems concepts;
- Understands the importance of information systems in developing an organization strategy;
- Uses in-depth knowledge of information systems hardware and business concepts;
- Distinguishes between individual components of information systems;
- Uses international information systems standards and libraries;

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Strategic Management

This Course presents a broad overview of the basic concepts and fundamentals in Strategic management. Students will be exposed to a number of frameworks and models to better understand and analyze the macro-environment, the industry environment, and organizational resources. This course includes deepened study of Theoretical and methodological aspects of strategic management, moreover, contemporary issues of strategic management. Course contains study of strategy formulation, implementation and evaluation. Furthermore, factors influencing competitive advantage, value chain, detailed analysis of strategic management process.

The objective of the course is to give students deep knowledge of the principles and concepts by which a firm manages the formulation and implementation of its strategies. This course aims to teach students systematic economic and managerial thinking based on advanced approaches to business. Also this course aims to provide students with the knowledge of theoretical - methodological basis of Strategic Management; Strategy formation, implementation and realization of the study; Strategic decision.

Upon completion of the course, the student:

- Demonstrates a deep and systematic knowledge of the principles of strategic vision, mission and goal formation;
- Uses in-depth and systematic knowledge of outdoor and indoor scanning tools;
- Sees and understands ethical issues in strategy formation;
- Plans and implements organizational strategy and changes;
- Independently develops a business plan, allocates resources and plans the actions of all functional departments;
- Be able to use research results to make strategic decisions
- Evaluates and analyzes strategic alternatives for decision making;
- Prepares a written project and submits it using business terminology;
- Describes opinions on the advantages of the chosen method and creates and presents analytical and research papers;
- Identifies his / her professional interests, understands the peculiarities of the learning process, strategically plans the learning and self-development process;

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Database and Data Warehouse Management

The course allows students to deepen their knowledge in database and data warehouse management. The theoretical and practical knowledge gained during the course will be useful for both beginners and professionals in this field.

The aim of the course is to gain knowledge in the administration of relational databases and to master the effective methods of planning, creating and operating databases.

After studying the course, the student:

- Effectively plans databases;
- Uses knowledge of proper database management;
- Understands the peculiarities of database administration;
- Administers and manage databases;
- Installs and configure a database server;
- Uses the latest approaches, modern skills and technological means while performing the work;
- Effectively integrates IT-based solutions with the consumer environment.

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Operating Systems in Corporation

Operating System represents middle layer between programs and computer hardware. To better understand function of Operating System and its design, its mandatory to know computer hardware basics, organization and architecture. In this course will be discussed next topics:

- Different types of operating Systems;
- Purpose of Operating Systems;
- Its core components and working principles;
- Server Operating Systems;
- Difference between Client and Server Operating systems;
- Their purpose in corporate environment;
- Interacting with Operating System through Command Line and Graphical User Interface;
- Desktop environment customization;

This course is mainly oriented to Linux Operating System but also includes Windows Server Operating System too. It includes Operating System installation instructions and understanding its core functionalities with primary goal to deploy secure server systems in future;

Upon completion of the course the student:

- Understands the functionality of Linux and Windows Server operating systems;
- Uses knowledge of operating system utilities and file systems;
- Uses system / network administration and monitoring tools;
- Manages software packages on Linux using yum;
- Configures and administers the operating system;
- Configures individual and group user accounts;
- Evaluates and maintains the quality of work performed;

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ERP Systems

The course provides an overview of Enterprise Resource Planning software systems and their role within an organization. It explains why such systems are valuable to businesses. Understand what business processes is. What is business modeling and data models? The course introduce what is the steps of implementation ERP software. How to research vendors of ERP. The course will also provide an overview of discussion on various business cases in which ERP concepts can be applied, understand how Enterprise Resource Planning software is used to optimize business processes. Understand how fragmented information systems fail to support business decision and how integrated information systems can help a company prosper by providing business managers with accurate, consistent, and current data.

Upon successful completion of the subject the student:

- Effectively implements and develops ERP system;
- Understands the role of technology tools in managing the organization's work processes and increasing efficiency;
- Understands the importance of using ERP, SCM, CRM systems in the organization;
- Takes into account technological, operational and business challenges in implementing ERP system;
- Demonstrates in-depth knowledge of the various phases of ERP system implementation;

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Information Systems Security

The course contains the issues of information/cyber security, cryptography, risk identification/assessment, and other security techniques. The basic security objectives such as data confidentiality, integrity, availability, authentication, authorization, and access control are examined and also, cryptographic techniques to realize these objectives are introduced. The basic philosophy of secure development is also examined. In addition, the ideas behind the hacking, cracking and social engineering will be discussed in the context of ethics and their place in Information/Cyber Security.

The main goal of this course is to provide students with foundation knowledge of information/cyber security, its governance and particularly, to give them an understanding of the basic concepts of information security (confidentiality, integrity, and availability), main techniques of hacking, threats analysis, and risk assessment.

Upon completion of the course, the student:

- Uses data encryption methods;
- Understands which threat is currently real, what information / cyber security serves and its basic principles and methods to ensure secure creation.
- Understands how to oppose seizures and treatment methods alike, appreciates their importance and uses security mechanisms in modern technologies.
- Detects attack methods and types of malware (viruses, worms, backdoors, logic bombs, BotNet);
- Uses attack knowledge to access the system (DoS, DDoS);
- Takes into account security issues during software product development or IT infrastructure configuration;
- Defines and analyzes the importance of security;
- Analyzes and develops conclusions on methods of solving security problems;
- Compares different types and methods of hacking and draws relevant conclusions.

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Electronic Governance

Information and communication technologies (ICT) is a rapidly evolving and growing field that plays a special role in the world economy, society formation, administration and management. The purpose of e-government is to provide government-provided services to users (citizens, businesses, non-governmental and governmental sectors) in the form of the most convenient e-services, facilitates interaction of users of these services with government, reduce bureaucracy and costs, and facilitate citizen involvement in the decision-making process. To achieve these goals, strategic planning and result-oriented implementation are essential, using successful examples from around the world.

The course covers the history of e-government development in several successful countries around the world, describes strategic planning methodology and best practices, pays special attention to the use of monitoring and evaluation tools, normative database analysis and introduction of basic principles of information security, as well as open / transparent governance and e-democracy. The goal of the course is to give the student theoretical knowledge about the essence of e-government, key principles, different structures, stages and models. Introduce the audience to the best international practices of the creation and development of e-services, the history of e-government, the strategy for the creation of e-government, the relevant regulatory framework. Introduce modern monitoring and evaluation tools, provide knowledge on open, transparent governance and e-democracy.

The goal of the course is to give the student theoretical knowledge about the essence of e-government, key principles, different structures, stages and models. Introduce the audience to the best international practices of the creation and development of e-services, the history of e-government, the strategy for the creation of e-government, the relevant regulatory framework. Introduce modern monitoring and evaluation tools, provide knowledge on open, transparent governance and e-democracy.

The aim of the course is to develop the basic skills necessary for the student to participate in the development and analysis of an e-government strategy, including the ability to meet the basic requirements of information security, the ability to analyze the achievements, opportunities and challenges of e-government in different countries.

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Digital Product Management

The course is focused on methodological knowledge of digital product management and includes such issues as existing approaches to digital product creation and development, prototyping, and more.

Upon completion of the course the student:

- Describes the necessary steps for creating and developing a digital product,
- Uses in practice modern approaches related to digital product creation and development
- Uses the necessary frameworks for digital product production
- Designs and prototypes a digital product
- Creates a product strategy and executes it
- Manages the digital product based on user experience.

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Digital Governance and Cyber Diplomacy

The course provides current insights and practical experience in digital governance and its associated aspects. Digital governance is becoming increasingly relevant both for the proper development of the global Internet space and for its safe and stable operation. The course also covers the modern cybersecurity landscape and the evolving challenges we face today. Cybersecurity has become a key component of both international and national security, emerging as a pressing issue with growing importance. It is now an integral part of foreign policy.

Addressing cyber threats extends beyond the technical realm of securing infrastructure architecture. It involves the development of comprehensive cybersecurity strategies and policies, the establishment of a robust legal framework, fostering international relations and cooperation, raising public awareness, and promoting education in this area. Scientific research also plays a crucial role in advancing cybersecurity. In essence, cybersecurity has evolved into a critical element of the broader foreign policy process, with multi-faceted efforts required to counter the increasing threats in the digital age.

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Finances for IT Managers

This course equips IT managers with the fundamental financial knowledge and tools necessary to understand the necessary financial information, make analysis, draw the right conclusions and make the optimal decision. It covers key financial concepts, budgeting, cost-volume-profit analysis, investment analysis, and the financial implications of IT projects. Students will learn to translate technical decisions into financial terms and effectively communicate with finance professionals.

It is essential for any manager to understand financial information and statements as one of the main subjects in a business environment;

The IT manager should have the ability to analyze and evaluate projects financially in order to select the best among the alternatives;

A large part of the tasks assigned to IT managers in companies are of a financial nature. Knowledge of finance will help the IT manager to better understand and solve these problems;

Financial institutions create a large employment market for IT managers. Financial education will help the manager to adapt quickly and work effectively in these types of companies.

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Strategic Marketing for Technology and Innovation

Marketing is the functional area that has to be performed in any type of organization. It is true that the intensity of marketing activities can vary from industry to industry and from country to country, but still they do exist at a minimum level. In order to understand all the underpinnings of this field we will discuss theories, problems and practices of marketing in the local and international context. At the same time, with the help of cases and exercises students will be able to understand how to use topics covered in the practice. Priority in discussion will be provided to startups and technological companies.

Main objective of the Course is to develop students' analytical skills with respect to developing marketing plans and strategies for the companies they work for, or technological startups they establish considering the situation in the environment they operate. Students will assess how to integrate the marketing mix elements and other marketing topics in the company strategy. In addition, students will assess individual case studies addressing different marketing problems.

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Cyber Security for Managers

The work of a business organization today without the use of cyber security is impossible. It is used not only to perform daily functions, but also to provide engagement and proper awareness, being a key direction in communication. The risks increase in proportion to the increasing use of cyberspace. Unfortunately, there is no immunity to cyber threats. The course will teach the students the legal framework of the world and Georgia, the threats and challenges in cyberspace, the history of cyberdomain use in modern conflicts, as well as the basics of cyberspace security for business or government sectors.

The aim of the course is to teach students how to use cyber security in governmental, political, geopolitical and business spheres. The graduates' knowledge embodies principles which will outlast today's cyber security environment.

Upon successful completion of the training course the student:

- Uses general terms and concepts of cyber security;
- Understands international conventions in the field of cyber security;
- Analyzes the threats in modern cyberspace;
- Aware of insider threats;
- Uses knowledge of the basics of cyber security management;
- Uses cyber elements in modern conflicts;
- Uses cyberspace for information-psychological impact, terrorism and cyber security issues;
- Uses the basic postulates of creating a cybersecurity strategy for business;

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Data Communications and Networking

One of the most important developments in computing in the last ten years is the widespread interconnection of computers. Data Communications and Networks, explores this exciting technology. This course examines the underlying technology that makes data communication possible. The course will cover various transmission media, digital and analog signals, modulation, multiplexing, circuit switching, error control and flow control. The course will also cover many real-world examples of data communication, including modems, DSL, Ethernet, wireless LANs, and cell phones. The course focuses on the design of individual networks, but it does finish with a brief overview of internetworking and the TCP/IP internet protocol.

This course provides an in-depth knowledge of data communications and networking requirements including networking and telecommunications technologies, hardware, and software. Emphasis is upon the analysis and design of networking applications in organizations. Management of telecommunications networks, cost-benefit analysis, and evaluation of connectivity options are also covered. Students learn to evaluate, select, and implement different communication options within an organization

After successfully complete this course student:

- Analyzes the business needs of an organization and applies the correct networking solutions;
- Uses high-level technical background which allows them to conceptualize a network and specify its components;
- Designs and documents a large network, convey that design to managers in an understandable way;
- Works with network engineers and technicians to ensure the successful implementation and ongoing maintenance of a network.

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Cloud technologies

Cloud technologies have changed the way consumers interact with data and applications. Instead of hard data carriers or network servers, data and applications can be stored remotely, which can be accessed anytime, anywhere via the Internet. What is important is the extent to which cloud technologies are changing the face of corporate IT and the IT specialist's work environment.

The course will discuss: definition of cloud computing, private, public and hybrid cloud, cloud types IaaS PaaS, SaaS, advantages and challenges of cloud technologies and architecture, application availability, security and error correction, next generation cloud applications, cloud services management.

The aim of the training course is to provide students with knowledge about modern distribution systems in order to be able to use them in accordance with the needs of the organization.

After completing the course, the student:

- Describes the basics of cloud technologies;
- Determines cloud computing needs;
- Describes the principles of different types of cloud technologies;
- Chooses the cloud platforms corresponding to the organization's requirements;
- Manages cloud services;
- Uses cloud services development tools;
- Determines economic calculations and business needs;
- Introduces new initiatives for the development of the organization.

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Project Management

The project management course is built according to the international standard PMBOK 6th by PMI and ICB 4.0 by IPMA. The course is adapted to the current and future activities of Master's grade students.

The course includes theoretical and practical important issues, review of exercises, and preparing relevant plans; gained theoretical and practical knowledge at each lecture will be reinforced in the form of independent work - through the development of individual projects (Project-Based learning).

The major objective of the course is to teach the most necessary topics of project management, theoretical as well as practical. After completion of the course, students will know the principles of project management, projects phases' identification and integration, preparation of the most necessary project documentation, planning, implementation, control, and monitoring processes.

Upon completion of the course students own following generic (transferrable) and field-specific competencies:

- Uses modern project methods and software
- Uses of modern software: MS Project, Trello and Telegram in practice
- Describes principles of project phasing, phase management, coordination and integration;
- Prepares all necessary project documents and plans;
- Uses project implementation, control and monitoring methods;
- Uses principles of Human Resources Management (RACI, RAM, Histograms and Levels)
- Uses project risk management methods;
- Performs project monitoring, control (including the EVM method) and closure.
- Realizes the importance of projects to the organization and the specificity of its management in organizations with different structures
- Understands the importance of using different methods when managing a project
- Understands the importance of using software for efficient use of resources, effective management and successful management of several projects.

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AI Engineering

Timeliness

Foundation models (such as GPT-4, Llama 3, Gemini, and others) are already radically transforming business processes. The job market is rapidly demanding engineers capable of designing, evaluating, and optimizing such systems.

Interdisciplinary Course

This course integrates software architecture, data engineering, machine learning, and Ethical AI, providing students with a comprehensive perspective.

Practical Component

Theoretical lectures will be translated into laboratory assignments on Microsoft Copilot Studio, where students will build and publish real-world chatbots, RAG services, and applications. Students may also have the opportunity to solve real problems for partner companies/organizations or the university and propose solutions.

Students learn to design, build, evaluate, and iterate production-ready AI systems powered by large foundation models. The course blends theory from the book with weekly Copilot Studio labs that mirror industry workflows (prompting, orchestration, finetuning, and deployment).

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Decision Making Theory

Decision making is an integral part of professional life. Study course in decision making theory is based on scientifically proven and successfully applied theories from research disciplines like behavioral economics and cognitive psychology.

A goal of the study course is to introduce students with a main normative and descriptive decision theories; to equip students with skills of applying rational decision-making model in practice; to show students cognitive errors prevailing in decision-making and ways to avoid them; and to explain students a principle-based negotiation methodology, which will help in fast and peaceful agreement achievement.

After completion of the course, student:

- Explains human bounded rationality in decision making process, its causes, and ways to eliminate these causes.
- Develops and applies a rational decision-making model.
- Applies rational decision-making principles in negotiations and to use these principles in practice to achieve desired results.
- Describes the principles of choice architecture in both, private and public sectors, and ability of indirectly influencing human decisions to increase effectiveness.

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Innovation & Change Management

We hear a lot about the importance of innovation in business and our daily lives. Starting from: “there are only two functions of business: marketing and innovation to “innovation is the only way to win” and etc.” Innovation mania escalated to a level when it started to get on some people’s nerves.

However, we know that those organizations that are constantly successful at managing innovation outperform their peers in terms of growth, financial performance, and employment. Managing innovation requires skills and knowledge that are significantly different from the standard management toolkit. Throughout the course, a clear systematic and integrated framework is provided which will guide students to identify and manage innovation. Throughout the course, a clear systematic and integrated framework is provided which will guide students to identify and manage innovation.

Upon completion of the course student:

- Obtains a strong evidence-based knowledge of the understanding the process of managing innovation
- Develops an understanding of practical, experienced tested processes, models, and tools.

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Human Resource Management

In nowadays fast moving and highly competitive environment, attaining and maintaining its core competency is critically important for every organization. In order to deal with the fierce competition, organizations should/must constantly develop, be innovative and keeping up with the novelties on the market. However, successful ones recognize that having the Human Capital as core competencies differentiates them from their competitors and is a key determinant of competitive advantages. It holds all the other assets, such as financial and physical ones, together and guides their use to ensure long-term organizational effectiveness. Human Resource Management is one of the most important strategic functions of the organization. Learning course covers following topics: Environment of Human Resources Management; HR Planning, Jobs and Labor; Training and Development; Talent Management; Performance Management; Compensation and Benefits; Reward and Recognition; Employee Relations.

The main objective of the course is to help students better understand the concept of Human Resource Management. Give them all the necessary skills to address various HR related issues. Emphasize importance of HRM both on strategic and operational levels. As the Human Capital is one of the key determinants of the competitive advantage, properly managed it helps organizations to accomplish goals effectively and efficiently. HRM course is of strategic importance and was specially designed for management students, as the part of their jobs responsibilities includes people management.

After completing the course, student:

- Overcomes potential challenges in Human Resource Management;
- Engages both on strategic and operational level of HRM;
- Attracts and retains talents;
- Develops reward and recognition system;
- Plans training and development activities;
- Manages performance appraisal processes;
- Assesses risks related to HRM processes.

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Professional Internship

The aim of the course is to enable the student to apply the knowledge gained in the class to practice in a real organization. Deepen knowledge in a specific direction. Get acquainted with the management of information technologies and their specifics, master the practical skills necessary to work in the departments of information technologies. The student will be able to form their own attitude towards a specific activity and seize the opportunity to choose directly before taking on a future job commitment;

Upon completion of the professional internship program, the student will be able to find employment easily and quickly. The course aims to deepen students' theoretical knowledge in the field of information technology management, to teach the fundamental principles of information technology management, various systems.

The aim of the course is to develop postgraduate students:

- Ability to pay attention to real-world situations and scientific news, as well as to constantly update knowledge;
- Ability to effectively apply the knowledge gained in the field of information technology management in practical activities and other skills necessary for specialty activities;
- Ability to defend objectivity, good faith, justice, human rights, information security, social and democratic values in practical work in the field of information technology management;

Upon successful completion of this course the student:

- Understands the role of information technology in society and in the organization;
- Selects, implements and effectively uses the technological solutions necessary for the success of the organization;
- Formulates problems in the organization and solves these problems in practice;
- Selects and uses modern business technologies, taking into account the specifics of the organization;
- Sees the need to make the necessary changes in the organization and implements them effectively and in innovative ways;
- Evaluates and maintains the quality of work performed;
- Makes effective and solid solutions to the problem;
- Uses the principles of group work in the implementation of practical projects;
- Takes leadership responsibilities and works as a team;
- Convincingly conveys his / her conclusions to colleagues and stakeholders.
- Evaluates the progress of one's own knowledge;
- Describes the possibilities of constantly updating the acquired knowledge;
- Understands legal, professional, ethical and social responsibilities related to technology.

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Master's Thesis

A master's thesis is a completed work that should reflect the graduate's ability to conduct research or practical work. The master's thesis should reflect the student's level of knowledge, research, information processing, and job performance, independent and group work skills in accordance with the requirements set by the academic program.

During the public discussion of the submitted paper, the master student should present the work done by him / her and demonstrate the ability to participate in the discussion.

The master's thesis must be performed without spelling, stylistic and grammatical errors, according to the established form and rule.

The volume, format, style and other technical data of the master's thesis are determined by the master's thesis.

The aim of the research component of the master's educational program is to develop the student's ability to conduct research independently in the selected field, to present the achieved results and to present his / her reasoning in a public.

As a result of completing the master's thesis, the student:

- Investigates and analyzes information from various sources;
- Uses critical thinking and self-criticism skills;
- Accurately identifies and identifies problems and develops reasoned solutions;
- Uses modern research tools and methodologies to solve the problem;
- Plans and implements research and practical projects;
- Develops original and creative ideas;
- Creates practically valuable research paper using existing knowledge and research-oriented competencies;
- Communicates in a reasoned and understandable language;
- Adheres to legal and ethical norms;
- Considers the need to expand the knowledge gained;
- Uses time management skills

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Software Engineering

Modern software engineering is one of the fastest growing fields, where innovations are introduced very frequently. The course includes sharing practical experience in this field and discussing modern approaches. Students will study the stages of creating both small and large projects/products, their methodologies and approaches to solving the problems they face.

The goal of the course is to provide students with the necessary knowledge to understand and plan all stages of creating software products, from creating a "scope" to giving the product its final form.

After completing the course, the student:

- Uses software engineering methods and Methodologies;
- Describes the steps necessary for creating software products and Technologies;
- Plans and implements milestones for software engineering tasks;
- Makes decisions together with the team for software engineering tasks;
- Effectively engages in group projects, participates and effectively distributes functions.

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Foundations of Data Science

We live in the world of big data. “Data Science” is at the heart of making sense out of big data, which is a critical ingredient for innovation and sustainable growth in private, governmental, and not-for-profit organizations. “Data Science” has emerged as a field that encompasses elements of statistics, computer science, and domain-

specific knowledge. This course is about introductory statistics and follows recommendations of GAISE (Guidelines for Assessment and Instruction in Statistics Education) to:

- Teach statistical thinking
- Focus on conceptual understanding
- Integrate real data with a context and a purpose
- Foster active learning
- Use technology to explore concepts and analyze data. Choice of the technology is open source statistical software R.
- Use assessments to improve and evaluate student learning

High level goal of the course is to produce statistically educated students, which means that students should develop the ability to think statistically. Achieving this goal, along with mastering main statistical methods, will require a solid understanding of statistical concepts and principles that underlie such methods. Therefore, the more specific goal of the course is to convey a knowledge of statistical concepts, main statistical methods of data analysis and principles behind statistical methods.

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Cyber Warfare

The aim of the course is to give the student knowledge about the general aspects of cyber security, the concept of cyber war, cyber operations; How important is the provision of cyber security for the national security of the country? introduces the analysis of defensive and offensive cyber operations; critical infrastructure challenges

Upon successful completion of the course the student:

- Discusses the basic principles of cyber security, the basics of cyber operations, different types of cyber warfare;
- Describes the main types of cyber-attacks and threats, as well as the role of artificial intelligence in cyber operations;
- Determines the role of cyber security in the organization's activities;
- Addresses cyber threats and cyber warfare policy issues.

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Data Engineering

The Data Engineering course is designed to provide students with a comprehensive and thorough understanding of the field of Data. The course focuses on building a strong foundation and general understanding, making it suitable for both beginners and those with some prior experience. The course covers a range of topics, including data concepts and environments, data mining, and the ETL process. In the section on data concepts and environments, students will learn about the different types of data and the various environments in which data can be stored, processed, and analyzed. The section on data mining will cover techniques for collecting, cleaning, and organizing data, as well as methods for identifying patterns and trends in large datasets.

The course will also review different data engineering tools, including those used for data storage, data processing, and data analysis. Students will learn how to choose the right tool for a given task and how each tool can be used effectively. The ETL process is a crucial component of data engineering, and the course will cover this topic in depth. Students will learn about the various stages of the ETL process, including data extraction, data transformation, and data loading, as well as the different tools and techniques used at each stage.

Finally, the course will briefly cover the key concept of data analysis and data visualization, which are essential skills for data engineers. Students will learn how to perform data analysis using various techniques and tools, as well as how to present their findings through effective data visualization.

By the end of the course, students will have a good foundation of data engineering and the skills necessary to succeed in this field.

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Modern Cryptography

The course will teach students symmetric and asymmetric cryptography. After completing the course, students will know which cryptographic schemes must be used and also the rules for using these schemes. Students will be introduced to the challenges of the modern cryptography and current scientific research directions. The course

will also introduce students to post-quantum cryptography, introduce them to the problems in this field and the methods of solving them.

The goal of the course is to introduce students to modern cryptography and the methods of using it. Students will learn which cryptographic schemes must be used and will also learn the rules for using these schemes. Students will learn about the challenges of modern cryptography and the directions of current scientific research. The aim of the course is also to introduce students to post-quantum cryptography, problems in this field and to involve students in the process of scientific research

Upon successful completion of the subject the student:

- Identifies software security issues;
- Uses modern risk analysis terminology;
- Justifies the need for knowledge of security issues;
- Assess security risks;
- Develops safety methods to eliminate common errors;
- Builds protection mechanisms in the software;
- Enhances the security of software systems;
- Selects the best approaches and standards when developing a technological solution or application;

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Statistics for managers

This course provides the basic knowledge of statistical analysis that is essential for a manager when making a decision, which covers the various aspects of planning, problem identification and solution, decision making. The course covers the basic descriptive methods needed to run a business and teaches the basics of statistical inference, model building and forecasting, data distribution and evaluation, and quality management. Exercises from real business situations are used to validate the material.

The aim of the course is to teach students the basic concepts of quantitative and qualitative analysis, the essence of social and statistical research, basic statistical tables and diagrams, their construction and use, basic statistical quantitative indicators and their applications, basic probabilistic-statistical models, research methods and Applications in daily life.

Upon completion of the training course, the student:

- Understands statistical processing of data, which helps to find ways to solve individual problems;
- Describes research methods and approaches.
- Works independently and conduct research independently, using the latest methods and approaches
- Draws reasoned conclusions as a result of critical analysis and synthesis of complex and incomplete information;
- Passes conclusions, arguments and research results to the academic or professional community through information technology

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Academic Writing & Research Methods

The course aims to equip the student with both theoretical knowledge and practical skills, which are necessary to conduct research in accordance with the requirements of the master's degree. The course develops the student's knowledge of how to apply research methodology and theoretical knowledge of methods in the research planning process. The student learns how to plan a research project and explore important issues in the field. The student learns the structure of research, the requirements of academic language, and the logical sequence of a research project. The student acquires the competence that is essential for a novice researcher.

The aim of the course is to provide students with knowledge and skills which are necessary to plan the stages and develop the structure for valid and reliable research. Throughout the course a major emphasis will be made on the principles of planning a scholarly piece of work; students will learn how to plan their research and present a final edited version of their study; they will develop knowledge and skills how to develop a research topic into a real piece of research, outline research methodology and methods in order to successfully complete their research project. Students will review the principles of citation and referencing and the specificity of APA referencing style as well as the requirements determined for an MA thesis. Students will analyse how to form research questions and hypothesis. Throughout the course students will learn discuss how to describe research methodology and methods in a research proposal. The course will help students acquire knowledge and skills which are necessary to plan a piece of research at MA level.

Upon successful completion of the course a student:

- Understands how important it is to use specific terms and concepts properly and consistently in a research context;
- Uses a scholarly language properly and consistently;
- Reviews scholarly and professional literature and while doing so observes APA standards and requirements for citation and referencing;
- Realizes the requirements and aspects which are necessary to plan urgent quantitative or qualitative research with much practical value;
- Defines a research problem and formulates a research title;
- Writes a research design (plan);
- Writes clearly formulated research questions;
- Identifies and finds reliable and valid information in libraries, the Internet and other electronic databases.

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