

Specialty: **8.05010202 “Systems Programming”**

Semester 1.

№	<i>Course unit title</i>	<i>ECTS</i>	<i>Control</i>	<i>Learning outcomes of the course unit</i>
1	Network Information Technologies	4,5	Credit	The student is able to: <ol style="list-style-type: none"> 1. carry out the integration of local computational networks into a unified information system; 2. ensure the reliability of information systems using network technologies; 3. design distributed databases; 4. perform the network monitoring.
2	Computer Systems and Networks Design	4	Exam	The student is able to: <ol style="list-style-type: none"> 1. choose network protocols and equipment necessary for information security; 2. choose the method of access to data transfer channel; 3. provide computers interaction in a network environment, taking into account a number of additional requirements; 4. develop applications using the means of transport protocol, authentication protocols and confidential data transfer protocols; 5. analyze the efficiency of the computer network; 6. create virtual private networks; 7. develop network authentication, authorization and accounting services.
3	Computer Systems of Artificial Intelligence	4	Exam	The student is able to: <ol style="list-style-type: none"> 1. determine the optimal structure and type of expert systems for different subject areas; 2. design logical connections graph for the expert systems of production type; 3. develop expert systems of production type; 4. apply the tools that are used for expert systems development, testing and optimization.
4	Software Design Technologies	6	Exam, Course Project	The student is able to: <ol style="list-style-type: none"> 1. identify and design the architectural layers of enterprise software systems using basic design patterns; 2. use modern software technology in the development of enterprise web applications; 3. use the latest tools and software libraries used for testing software systems; 4. provide the necessary security and scalability use of the application using modern technologies.

5	English (for professional purposes)	6	Credit	<p>The student is able to:</p> <ol style="list-style-type: none"> 1. make a presentation about the research; 2. talk about timing, handouts and questions within the presentation; 3. get the audience's attention; 4. refer to other points of the presentation about the research; 5. introduce visuals to the presentation; 6. translate scientific articles.
6	Intellectual property	1,5	Credit	<p>The student is able to:</p> <ol style="list-style-type: none"> 1. freely orient in national and international legislation in the sphere of intellectual property; 2. interpret and reveal the basic concepts, institutions and categories of intellectual property; 3. practically apply norms of law; 4. establish a fact of violation of the rights of the proprietors of effective protective documents and applicants on the objects for intellectual property rights; 5. correctly determine the problems of intellectual property and legislation in this sphere and possible ways of their overcoming.
7	Health in the Industry	1,5	Exam	<p>The student is able to:</p> <ol style="list-style-type: none"> 1. assess the activity dynamics efficiency and justify the proposals for improving safety management; 2. formulate requirements for safety management on a particular company or its branch unit; 3. monitor the implementation of safety rules when performing basic manufacturing operations.
8	Civil Protection	1	Credit	<p>The student is able to:</p> <ol style="list-style-type: none"> 1. identify remits and make the decisions on civil protection within certain powers; 2. carry out identification and research the conditions of emergencies occurrence and development, and ensure coordinated actions to prevent them at the entities according to professional duties; 3. instantly select and apply methods of forecasting and assessment of the situation in the area of the accident; 4. determine the composition of forces, means and resources to deal with the emergency; 5. provide quality training facilities management staff on civil protection, assistance and advice to employees of the organization (division) of the practical issues of protection in

				emergencies.
9	Physical Education	4	Credit	

Semester 2.

№	Course unit title	ECTS	Control	Learning outcomes of the course unit
1	Modern Methods of Scientific Research	4	Exam	The student is able to: 1. apply the basics of descriptive statistics; 2. apply the principles of discrete probability in IT; 3. apply empirical methods and tools for software engineering; 4. own the methods and technologies of data organization and usage.
2	IP Telephony System Research	4	Exam	The student is able to: 1. perform the installation and configuration of IP telephony server, configuring IP phones; 2. configure dial plan of IP telephony server and IVR (on the example of Asterisk PBX); 3. write AGI scripts for functional expansion of IP telephony server; 4. analyze VoIP network traffic.
3	Parallel and Distributed Computing Methods and Tools	3	Credit	The student is able to: 1. use the methods, standards and tools for multi-threaded application development for multiprocessor systems with shared memory; 2. use the methods, standards and tools for application development for multicomputer systems with distributed memory; 3. use parallel programming means of functional programming languages; 4. create metacomputing environment on the base of existing allocated resources; 5. configure and manage computing resources of grid-environment using modern middleware; 6. organize distributed computing using the resources of Ukrainian national grid-infrastructure.
4	User Interfaces Design and Research	5	Credit	The student is able to: 1. analyze the task in terms of the semantics of the subject area; 3. optimize user interfaces by constructing iterative lifecycle of interface design; 4. develop effective user interfaces taking into account user features; 5. use modern methods and techniques for usability testing.

5	Philosophical Problems of Scientific Knowledge	3	Credit	The student is able to: 1. apply acquired knowledge in professional task solving; 2. analyze problems; 3. own methods of research; 4. substantiate the authenticity of knowledge.
6	Pedagogy and Psychology of High School	3	Credit	The student is able to: 1. apply the basic principles of training and education in forming the content of training and education; 2. gain the basic skills of analysis of educational situations; 3. select and use appropriate to teaching situations methods of training and education; 4. choose between effective teaching and directive style of communication; 5. solve pedagogical conflicts in different situations; 6. diagnose psychological features of students which need formation and development; 7. analyze the current state and the main trends of education in Ukraine and abroad, the ways of integrating of national education system into the European and world educational systems.
7	English (for professional purposes)	6	Credit	The student is able to: 1. summarize the main points of the presentation about their research; 2. use phrases for effective conclusions; 3. deal with the questions concerning the information given in the presentation; 4. use the vocabulary and expressions needed when giving a presentation about their research; 5. translate scientific articles.
8	Higher Education and the Bologna Process	1	Credit	The student is able to: 1. use the European credit transfer system in the teaching process.
9	Physical Education	4	Credit	

Semester 3.

No	<i>Course unit title</i>	<i>ECTS</i>	<i>Control</i>	<i>Learning outcomes of the course unit</i>
1	Logic and Formal Systems	2	Credit	The student is able to use: 1. the laws of logic, contradictions, feasible and equivalent formula; 2. predicates and quantifiers;

				<ul style="list-style-type: none"> 3. equivalent and identically true predicate; 4. predicate calculus language; 5. formal and informal axiomatic theories; 6. formal propositional calculus.
2	Modern Architectures and Tools for Corporate and Global Networks Construction	3	Exam	<p>The student is able to:</p> <ul style="list-style-type: none"> 1. choose the protocols and network equipment needed to build enterprise networks; 2. analyze the effectiveness of the interaction of several sub-networks within a corporate network or WAN.
3	Case-Technologies for Information Computer Systems Visual Design	3	Credit	<p>The student is able to:</p> <ul style="list-style-type: none"> 1. describe and model the concept of a system's identification and its boundaries with the outside world; 2. describe and apply various structured analysis and design techniques; 3. critically evaluate the modelling process by establishing consistency between the output of the different modelling techniques; 4. apply available automated CASE tools for diagrammatic modelling and documentation consistency; 5. contribute to the work of a group working on analysis and design tasks; 6. consider the social aspects of undertaking systems analysis and design in commercial and other institutional environments.
4	Knowledge Modelling and Artificial Intelligence	3	Credit	<p>The student is able to:</p> <ul style="list-style-type: none"> 1. develop subject area models; 2. develop methods for subject areas research; 3. carry out a comparative analysis of the developed methods; 4. apply methods of knowledge representation and processing to solve scientific and applied problems.
5	Multimedia, Internet and Intranet Technologies in the Educational and Scientific Work	2	Credit	<p>The student is able to:</p> <ul style="list-style-type: none"> 1. arrange the mass student access to educational online resources; 2. use the technologies for testing of students using distributed web applications; 3. convey web conferences and webinars; 4. organize the reverse informational links between students and the University; 5. make scientific search on the Internet using methods of deep parameterized search relevant scientific information.
6	Modern Architectures and Microprocessor Systems Design Tools	3	Exam	<p>The student is able to:</p> <ul style="list-style-type: none"> 1. analyze the problem in terms of a systematic approach to the computer systems design; 2. classify microprocessor systems for architectural features; 3. isolate in modern architecture elements and mechanisms that are basic and first applied; 4. develop microprocessor based system taking into account architecture features within

				the requirements of the job; 5. test and calculate the performance of microprocessor system.
7	English (for professional purposes)	6	Credit	The student is able to: 1. summarize the main points of the presentation about their research; 2. use phrases for effective conclusions; 3. deal with the questions concerning the information given in the presentation; 4. use the vocabulary and expressions needed when giving a presentation about their research; 5. translate scientific articles.