



**SUMY
STATE
UNIVERSITY**



Programme Handbook 2016

Education and Research Institute for Business Technologies «UAB»

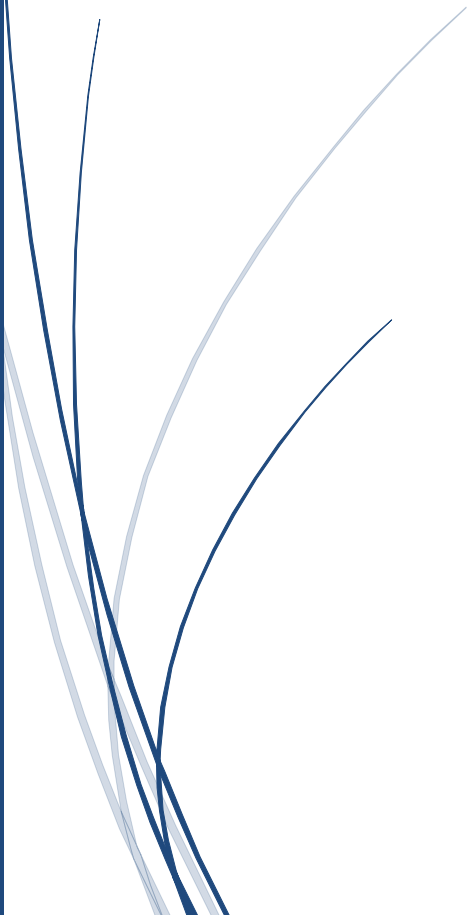
Department of Economic Cybernetics,

Economic Cybernetics

Validated by Sumy State University, Sumy, Ukraine

Economic Cybernetics

Master's Programme



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PART 1. THE STUDY PROGRAMME PROFILE

General information	
Full official name of the higher educational establishment	Sumy State University
Full name of the structural unit	Education and Research Institute for Business Technologies «UAB» Department of Economic Cybernetics
The higher education degree and the name of the qualification	Master in Economic Cybernetics
The official name of the study programme	Economic Cybernetics
The diploma type and the volume of the study programme	Master's degree, unitary, 90 ECTS credits, training period – 1,5years
Availability of accreditation	Accreditation commission. Ukraine. Certificate – ND-IV, No. 1980507. Validity – 01.07.2026.
Cycle / Level of Higher Education	Second level of higher education (Law of Ukraine «On Higher Education»), NQF – 7 level, QF-LLL – 7 level, FQ-EHEA – second cycle
Prerequisites	Bachelor's degree
Language(s) of teaching	Ukrainian
The duration of the study programme	Until 01.07.2026.
Internet address of the permanent description of the study programme	http://cyber.uabs.sumdu.edu.ua
The purpose of the study programme	
The programme is designed in accordance with the mission and strategy of the University and is aimed at the development of students' in-depth theoretical knowledge and practical skills in the field of information technology and computer simulation, mathematical modeling and forecasting of socio-economic processes. They will be able to apply modern mathematical methods, models and information technologies in socio-economic research, assess possible risks, socio-economic implications of managerial decisions, use scientific approaches to formulate and substantiate effective strategies in economic activity, develop scenarios and strategies for the development of socio-economic systems.	

Characteristics of the study programme	
Subject area of the study programme	Social and behavioral sciences: Economics
Orientation of the study programme	Educational-professional. Emphasis is on the use of economical and mathematical methods and models and new information technologies for solving socio-economic problems.
The main focus of the study programme and specialization	General education in the field of economic cybernetics. The programme is based on the modern scientific research in the field of economic cybernetics, takes into account the specifics of the implementation of information systems and technologies and economic and mathematical modeling in enterprise management. Key words: economic-mathematical modeling, information technologies, information systems.
Features of the programme	The programme is aimed at mastering the fundamental and practical knowledge of information technologies and computer systems, skills of their practical application in various fields of economy.
Eligibility of graduates for employment and further education	
Suitability for employment (according to the National Classifier of Ukraine)	«Analyst of consolidated information», code CP 2433.2; «Economist», code CP 2441.2; «Economist-statistician», code CP 2122.2; «Statistician», code CP 4122; «Specialist in project and program management in the field of material (non-material) production», code CP 2447.2; «Database Administrator», code CP 2131.2; «Researcher (economics)», code CP 2441.1; «Teacher of higher educational institution», code CP 2310.2; «Computer Communications Analyst», code CP 2131.2; «Computer Database Analyst», code CP 2131.2; «Computer Systems Engineer», code CP 2131.2; «Programmer engineer», code CP 2132.2; «Applied Programmer», code CP 2132.2; «System Programmer», code CP 2132.2; «Programmer (database)», code CP 2132.2.
Further training	The ability to study programmes of the third level of higher education in economics programmes, interdisciplinary programmes related to economy.
Teaching and assessment	
Teaching and learning	Student-centered learning, problem-oriented learning, self-study, research-based learning. Teaching is conducted in the form of lectures, multimedia lectures, seminars, practical classes, laboratory works. There is self-study work with the possibility of consulting with a teacher, individual classes, group project work.
Assessment	The study programme provides for formative (written and oral comments and tutorials of teachers in the process of learning) and summative (written examinations in academic courses, evaluation of the current work during the study of individual

	educational components (written essays, presentations, testing), defense of practice reports, defense of coursepapers (projects), public defense of master's work.
EC Programme competences	
Integral competence	The ability to identify and solve complex economic tasks and problems, to take appropriate analytical and managerial decisions in the field of economics or in the process of learning that involves the application of economical and mathematical methods, models and modern information technologies and is characterized by uncertainty of conditions and requirements.
General competences (GC)	<p>General competencies determined by the standard of the higher education specialty:</p> <p>GC1. The ability to think critically and generate new ideas. GC2. The ability to abstract thinking, analysis, synthesis, and the establishment of interconnections between phenomena and processes. GC3. The ability to demonstrate leadership skills, motivate people. GC4. The ability to communicate professionally. GC5. The ability to innovate. GC6. The ability to design and manage projects. GC7. The ability to act consciously and socially responsible on the basis of ethical considerations and principles of academic integrity. GC8. The ability to conduct research and present the results.</p> <p>Additional general competences defined by the university:</p> <p>GC9. The ability to communicate effectively in a foreign language. GC10. The ability to work in a team. GC11. The ability to make informed decisions.</p>
Professional competences of the specialty (PC)	<p>Professional competencies determined by the standard of the higher education specialty:</p> <p>PC1. The ability to apply scientific, analytical, methodical tools for managing economic activity. PC2. The ability to communicate effectively in a foreign language in the sphere of economy. PC3. The ability to collect, analyze and process statistical data, scientific and analytical materials that are necessary for solving complex economic problems. PC4. The ability to use modern information technologies and economic and mathematical methods and models for the study of economic and social processes. PC5. The ability to understand the key trends of socio-economic and demographic development. PC6. The ability to formulate professional tasks in the field of economics, choose the appropriate directions and appropriate methods for their solution, taking into account the available resources. PC7. The ability to substantiate managerial decisions on effective</p>

	<p>development of business entities.</p> <p>PC8. The ability to assess possible risks, socio-economic consequences of managerial decisions.</p> <p>PC9. The ability to apply a scientific approach to the formation and substantiation of effective strategies in economic activity.</p> <p>PC10. The ability to develop scenarios and strategies for the development of socio-economic systems.</p> <p>PC11. The ability to plan and develop projects in the field of economics, carry out its informational, methodical, material, financial and personnel support.</p> <p>Additional professional competences determined by the study programme:</p> <p>PC12. The ability to create and implement modern information systems at enterprises of different spheres of activity.</p> <p>PC13. The ability to assess the effectiveness of local and corporate information systems for functional characteristics, according to various methods.</p> <p>PC14. The ability to create and evaluate models of economic processes both analytically and with the use of universal software tools and analytical platforms used to analyze data.</p> <p>PC15. The ability to systematically analyze economic objects and processes on the basis of the created models, interpret the obtained results and based on the conclusions drawn, to make grounded managerial decisions at all levels of the economic management hierarchy, to understand their consequences.</p>
Programme learning outcomes (PLO)	
<p>Programme learning outcomes determined by the standard of the higher education specialty:</p> <ol style="list-style-type: none"> 1. To formulate, analyze and synthesize solutions of scientific and practical problems at the abstract level by decomposing them into constituents. 2. To demonstrate skills to make decisions independently, leadership skills and ability to work in a team. 3. To demonstrate communication skills in professional and academic circles in official and foreign languages. 4. To do research, generate new ideas, innovate. 5. To substantiate and manage projects or complex actions. 6. To demonstrate high social responsibility and adhere to the principles of academic integrity. 7. To evaluate the results of their own work and be responsible for personal professional development. 8. To select and use necessary scientific, methodological and analytical tools for managing economic activity. 9. To collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems. 10. To substantiate solutions in conditions of uncertainty requiring the application of new approaches and economic-mathematical modeling and forecasting. 	

11. To apply modern information technology in socio-economic research.
12. To formulate new hypotheses and scientific tasks in the field of economics, choose the appropriate directions and appropriate methods for their solution, taking into account available resources.
13. To substantiate managerial decisions on effective development of business entities.
14. To evaluate possible risks, socio-economic implications of managerial decisions.
15. To apply scientific approaches to the formation and substantiation of effective strategies in economic activity.
16. To develop scenarios and strategies for the development of socio-economic systems.
17. To organize the development and implementation of projects in the field of economics, taking into account informational, methodological, material, financial and human resources.

Additional programme learning outcomes identified by the study programme:

18. To communicate effectively, provide complex comprehensive information in abridged form orally and / or in writing using modern information and communication technologies and appropriate business language, including foreign ones.
19. To create and implement modern information systems at enterprises of different spheres of activity.
20. To evaluate the efficiency of local and corporate information systems by functional characteristics, according to different methods.
21. To create and evaluate models of economic processes both analytically and with the use of universal software and analytical platforms used for data analysis.
22. To analyze economic objects and processes on the basis of the created models, to interpret the obtained results and to make managerial decisions on the basis of the conclusions made at all levels of the economic management hierarchy.

Resource support for the implementation of the programme

Personnel support	<p>The main composition of the teaching staff of the study programme consists of the teaching staff of the department "Economic Cybernetics" of ERI BT «UAB». For teaching separate courses in accordance with their competence and experience the teaching staff of Foreign Languages Department of ERI BT «UAB» is involved.</p> <p>The courses of the study programme "Economic Cybernetics" are coordinated by 9 lecturers: 2 professors, 4 associate professors and 3 senior lecturers. The Coordinator of the study programme, which carries out general management of it, is Kostiantyn Grytsenko. All lecturers are qualified for the pedagogic position in the second-level study programme. Staff academic education level, broad spectrum of scientific activities, teaching experience, initiative to apply effective teaching methods, productivity in various fields of scientific research and education, ability to coach students in study planning and career decisions ensures successful achievement of programme goals and objectives.</p>
Material and technical support	<p>The Economic Cybernetics study programme is provided with one 50-seat lecture room and two 100-seat lecture rooms with image projector and smart screens installed in each room, 12 computer classes with a total of 171 work places and a dealing</p>

	<p>room. For teachers and students convenience there are also 5 laptops, which can be used elsewhere. If there is a need, other Institute premises can be employed. All the premises and equipment meet hygienic norms and safety requirements. Classroom work space capacity is sufficient. EC technical staff provides maintenance and support for all installed equipment and ensures that it is fully compatible and safe.</p>
Information, educational and methodological support	<p>The hardware and software of the computer classes that support the implementation of Economic Cybernetics programme are Microsoft, iGrafx, AnyLogic, Statistica, etc. The Sumy State University uses licensed Microsoft operating systems and application software packages. The number of current licenses for software products exceeds 23 thousand.</p> <p>The university has a well-established system of library and information support for all categories of readers. The Library Information System gives an opportunity to access the necessary information through the site of the Central Library (http://library.sumdu.edu.ua). Electronic resources of free access are available on the library's website and can be accessed from any computer (http://library.sumdu.edu.ua/index.php?option=com_content&view=article&id=31&lang=uk).</p> <p>The library collection of printed monographs and journals, as well as electronic books, and e-journals ensure the achievement of the expected Economic Cybernetics programme outcomes. Through the library's website, students have access to educational resources of the top world universities (the Massachusetts Institute of Technology, Princeton University, Harvard University, etc.), to open educational resources (Coursera, Open Yale Courses, etc.) and to the restricted subscriptions and databases. Students can use the Electronic SSU repository both on-site and online (http://essuir.sumdu.edu.ua). These resources can be effectively used by the EC study programme participants for teaching/learning purposes. Electronic version of educational and methodological complexes for each of the courses of the master's programme provided on the website of the Economic Cybernetics department (http://cyber.uabs.sumdu.edu.ua).</p>
Academic mobility	
Internal academic mobility	The project is under development.
International academic mobility	The project is under development.
Teaching foreign applicants for higher education	The project is under development.

PART 2. CURRICULUM MAP

Course title	Number of credits ECTS	Semester
Compulsory part		
<u>Foreign language for professional purpose</u>	5	1
<u>Applied Econometrics</u>	5	1
<u>Modeling in the Management of Socio-Economic Systems</u>	10	1
<u>Information Management</u>	5	1
<u>Efficiency of Information Systems</u>	5	1
<u>Mathematical Methods and Models of the Market Economy</u>	5	2
<u>Methodology of Scientific Research in the Information Economy</u>	5	2
<u>Corporate Information Systems</u>	10	3
Professional (prediploma) practice	6	3
Preparation and defense of Master`s Thesis	9	3
Elective part		
<u>Dealing Information Systems</u>	5	2
<u>Data Mining</u>	5	2
<u>Actuarial Calculations</u>	10	2
<u>Information Systems and Technologies in Banking</u>	5	3
Total	90	

PART 3. MODULE NARRATIVES

Title	Foreign language for professional purpose
Level	7
Semester	1
Person responsible for the module	Phd, Khodtseva A.
Lecturer	Khodtseva A.
Language	English
Relation to curriculum	Compulsory
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 48 ,self-study – 102
Type teaching, contact hours	The module is delivered in the form of training sessions – 48 contact hours. Integrated approach is used with a special focus on the development of reading skills and strategies
Recommended pre-requisites	Developing Business Contacts, Presentations, Meetings, Writing for Professional Purposes
Aims	To develop students' skills, knowledge and competences in English to enable them to communicate effectively in their professional environment; to enable students to develop an ability to extract relevant information from different text types on business-related topics
Module objectives / Learning outcomes	<p>By the end of the module students will be able to:</p> <p>Language Skills</p> <p>Listening</p> <ul style="list-style-type: none"> • understand main ideas and identify relevant information in extended discussions, debates, formal talks, conversations etc. • comprehend different registers: how people talk to friends, strangers, colleagues, employers, and people of different ages and social status for different purposes <p>Speaking</p> <ul style="list-style-type: none"> • participate appropriately in extended discussions, debates, talks, conversations etc., on business-related topics and in common social settings (e.g. coffee break, party, etc.) • respond appropriately to speaker's attitude / point of view • adjust to changes of direction, style and emphasis normally found in conversation • give clear prepared individual presentation on wide range of topics within their professional field <p>Writing</p> <ul style="list-style-type: none"> • write detailed assignments and reports in standard format <p>Reading</p> <ul style="list-style-type: none"> • understand authentic texts related to economics and computer science • read and interpret graphs, charts, drawings, diagrams, etc. • make use of accompanying information, e.g. headings, pictures to predict information • distinguish between factual/non-factual information, important/less important items, relevant/irrelevant information, explicit/implicit information • guess the meanings of unfamiliar words by using contextual clues • draw inferences and conclusions

	<ul style="list-style-type: none"> • understand text organisation and linguistic/semantic aspects (cohesion, discourse/semantic markers and their function) • read at different speeds for different purposes • read with some degree of critical awareness, choosing appropriate information <p>Information Location</p> <ul style="list-style-type: none"> • locate specific information using library catalogue, Contents and Index page, reference books and dictionaries, Internet • predict information (using clues, such as headings, sub-heading, by-lines, etc.) in business discourse <p>Organisation and self-awareness</p> <ul style="list-style-type: none"> • organise study resources effectively (e.g. dictionaries, reference books, Internet resources) • want to read by providing accessible and motivating material, though not too difficult to discourage the learner <p>Language knowledge</p> <p>By the end of the module students should have a working knowledge of:</p> <ul style="list-style-type: none"> • grammatical structures needed to understand wide range of texts on economic issues • language forms appropriate to formal and colloquial academic and professional registers • a good range of relevant vocabulary (including terminology) <p>Sub-skills to be acquired:</p> <ul style="list-style-type: none"> • scanning texts for specific information • skimming texts for gist • inferring meaning from context and learning to tolerate a degree of uncertainty in the meaning of words
Content	<p>TEXT TYPES:</p> <ul style="list-style-type: none"> • textbooks • newspapers • magazines • specialist journals • Web-based sources • advertising materials • professional correspondence <p>TOPICS AND NOTIONS</p> <p>1. Business or pleasure? This topic is about corporate entertaining and making conversation. There is a strong focus on fluency and students practice the business skills of socializing. The grammatical focus is on tenses and the lexical focus is on aspects of conversational English. Students read short texts on corporate events and then share information in order to select an appropriate event for specific clients.</p> <p>2. Technological world. This is a discussion topic on technology. It begins by looking at attitudes to technology and finding out if students technophiles (love technology) or technophobes (hate it). There is a text which gives some surprising information about how technology has advanced in recent years and students read some different points of view about gadgets and give their own opinions.</p> <p>3. The role of IT technologies in the globalization of deceit. This topic deals with the globalization of deceit and the role of IT technologies in this process. Students will read the text about</p>

	<p>imitating property and they will know that digitization and the internet have made it easier than ever to mass reproduce and distribute quality counterfeit products. The music industry in particular claims to be losing millions because of file sharing systems which allow the downloading of music free of charge. The grammatical focus is on conditionals 1-3.</p> <p>4. Communication policies, IT technologies and information overload.</p> <p>This topic deals mostly with communication. Effective communication policies ensure that vital information flows through the company to all the various members of the staff. Developments in IT and telecommunications have changed the way people communicate, making it possible to contact people at any time through email, voicemail and mobile phones. This has sometimes led to an information overload, where businesspeople spend more time reading and listening to messages than acting upon them. Reading an article "Coping with info glut". The grammatical focus is on reported speech.</p> <p>5. Innovation.</p> <p>The topic deals with innovation which has become a critical factor for commercial success. Business can innovate in a number of different ways; by launching products with new features, by providing improvements to existing services, by introducing more effective business practices and by finding new markets and sources of supply. Launching an innovation involves a degree of risk but, if successful, an entrepreneur can produce better returns as margins will be high especially when competitors' products become obsolete as a result. . Reading: Inside Procter and Gamble's innovation machine. The grammatical focus is on past modals.</p> <p>6. Shaping the future.</p> <p>The topic looks forward to the future. Students discuss the likelihood of a number of predictions on how technology could change the future of society. They focus on the language of predicting and talking about the future before making their own predictions. Students read different texts in which futurologists offer radically different visions of the future and then exchange information and ideas.</p> <p>7. Digital transformation of businesses and services.</p> <p>The individual project of students covers the problems of cyber security, digital accessibility, digital economy, robotics and society, Web Science, etc.</p>																
<p>Assessment tasks</p> <p>Type of assessment tasks Summative assessment tasks which lead to the award of credit or Formative assessment tasks which are required for progression (expressed as a %)</p>	<table border="1"> <thead> <tr> <th data-bbox="612 1532 1023 1570">Activity</th> <th data-bbox="1023 1532 1299 1570">Further details</th> <th data-bbox="1299 1532 1445 1570">%</th> </tr> </thead> <tbody> <tr> <td data-bbox="612 1570 1023 1805">module test</td> <td data-bbox="1023 1570 1299 1805">aims to ensure that students have met module aim and objectives, includes listening, reading, use of English and writing tasks</td> <td data-bbox="1299 1570 1445 1805">20</td> </tr> <tr> <td data-bbox="612 1805 1023 1872">individual project</td> <td data-bbox="1023 1805 1299 1872">written report and oral presentation</td> <td data-bbox="1299 1805 1445 1872">10</td> </tr> <tr> <td data-bbox="612 1872 1023 1939">class work</td> <td data-bbox="1023 1872 1299 1939">case-studies discussions, etc.</td> <td data-bbox="1299 1872 1445 1939">50</td> </tr> <tr> <td data-bbox="612 1939 1023 2029">self-study</td> <td data-bbox="1023 1939 1299 2029">tests on professional English</td> <td data-bbox="1299 1939 1445 2029">20</td> </tr> </tbody> </table>	Activity	Further details	%	module test	aims to ensure that students have met module aim and objectives, includes listening, reading, use of English and writing tasks	20	individual project	written report and oral presentation	10	class work	case-studies discussions, etc.	50	self-study	tests on professional English	20	
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self-study	tests on professional English	20															
Assessment tasks	LISTENING																

	<ul style="list-style-type: none"> • gap filling • multiple matching • multiple choice <p>READING</p> <ul style="list-style-type: none"> • Summary completion • Matching headings to paragraphs • Multiple choice • Matching causes and effects <p>SPEAKING</p> <ul style="list-style-type: none"> • a 'mini-presentation' or presentation on a business theme (giving information, expressing and justifying opinions) • a discussion on a business-related topic (expressing and justifying opinions, speculating, comparing, agreeing and disagreeing) <p>WRITING</p> <ul style="list-style-type: none"> • report: describing, summarising • proposal: describing, summarising, recommending, persuading
Recommended Teaching/Learning Materials	<ol style="list-style-type: none"> 1. Professional English in Use (for Computers and the Internet). Esteras S.R., Fabre E.M. – Cambridge University Press, 2012. 2. In Company (Upper-Intermediate). Powell M. – Oxford: Macmillan Publishers Ltd., 2008. . 3. Market Leader (Intermediate) Cotton D., Falvey D., Kent S. – Pearson Education Limited. 2006. 4. Intelligent Business (Upper Intermediate). Coursebook. Trappe T., Tullis G. – Pearson Education Limited, 2006. 5. Intelligent Business (Upper Intermediate). Skills book. Johnson C, Barrall I. – Pearson Education Limited, 2006
Site where delivered	
Date of first approval	2015
Date of last revision	2016
Date of approval of this version	2016
Title	Applied Econometrics
Level	7
Semester	1
Person responsible for the module	Prof., Kuzmenko O.
Lecturer	Kuzmenko O.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 80 hrs (lectures – 32 hrs; laboratory sessions – 48 hrs), private study – 70 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 32 hrs; laboratory sessions: 48 hrs
Recommended pre-requisites	“Economic mathematical modeling”
Aims	To provide students with the theoretical knowledge and practical skills required to the application of economic and mathematical methods and models for the study of economic phenomena and processes in the state; forecasting of future scenarios for the development of economic agents; formation of the analytical basis that makes it possible to take effective managerial decisions; rational substantiation of the construction of stage-by-stage

	effective strategies of economic growth of the state		
Module objectives / Learning outcomes	<p>On completion of this module the student should be able to:</p> <p>LO1. Demonstrate skills to make decisions independently, leadership skills and ability to work in a team.</p> <p>LO2. Do research, generate new ideas, innovate.</p> <p>LO3. Select and use the necessary scientific, methodological and analytical tools for managing economic activity.</p> <p>LO4. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems.</p> <p>LO5. Substantiate solutions in conditions of uncertainty requiring the application of new approaches and economic-mathematical modeling and forecasting.</p> <p>LO6. Formulate new hypotheses and scientific tasks in the field of economics, choose the appropriate directions and appropriate methods for their solution, taking into account available resources.</p> <p>LO7. Apply scientific approaches to the formation and substantiation of effective strategies in economic activity.</p> <p>LO8. Analyze economic objects and processes on the basis of the created models, to interpret the obtained results and to make managerial decisions at all levels of the economic management hierarchy on the basis of the conclusions drawn.</p>		
Content	<p>Subject of the course: methodological and methodical foundations and instruments of applied econometrics. Contents of the course by topics:</p> <p>Topic 1 “Processing of the input mass of economic data”</p> <p>Topic 2 “Features of determining the relationship between the indicators of financial activity of economic entities”</p> <p>Topic 3 “Analysis of indicators of financial system development”</p> <p>Topic 4 “Assessment of the qualitative characteristics of the activities of financial system entities”</p> <p>Topic 5 “Research of the socio-economic phenomena and processes on the basis of structural modeling”</p> <p>Topic 6 “Rating evaluation of business entities using taxonomic approach”</p> <p>Topic 7 “Multivariate analysis of financial processes”</p> <p>Topic 8 “Optimal structure formation of different types of portfolios of financial intermediaries”</p> <p>Topic 9 “Methods of financial forecasting”</p> <p>Topic 10 “Specific methods of modeling”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	COURSEWORK	Short answer test	20
	Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Reports of laboratory sessions	60
		Individual or group project proposal	20
	PRACTICAL		
	Oral assessment, practical skills assessment		
	OTHER		
	Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills		
Assessment tasks	100% coursework based on three elements:		

	<p>1) Short answer unseen test on scientific, methodological and analytical tools used to manage economic activity (20% – LO3)</p> <p>2) A reports of laboratory sessions. Demonstrating knowledge of processing and analysis of statistical data, creation and evaluation of models for the formalization of economic phenomena and processes (60% – LO2, LO3, L04, L05, L07, L08)</p> <p>3) A design work (individual or group project output). This will be formalization of the current state of an economic phenomenon or process, further study of its behavior by constructing various econometric models, forecasting further behavior of an economic phenomenon or process (20 % – LO1, LO2, L04, L06, L07).</p>
Reading list	<p>1. Ashley R. Fundamentals of Applied Econometrics. – Wiley, 2012. – 736 p.</p> <p>2. Asteriou D., Hall S.G. Applied Econometrics, 3rd Edition. – Palgrave, 2015. – 500 p.</p> <p>3. Козьменко, О.В. Економіко-математичні методи та моделі (економетрика) : навчальний посібник / О.В. Козьменко, О.В. Кузьменко. – Суми : Університетська книга, 2014. – 406 с.</p> <p>4. Лещинський, О.Л. Економетрія: Навч. посіб. для студ. вищ. навч.закл. / О.Л. Лещинський, В.В. Рязанцева, О.О. Юнькова. – К. : МАУП, 2003. – 208 с.</p>
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39
Date of first approval	2014
Date of last revision	2016
Date of approval of this version	2016
Title	Modeling in the Management of Socio-Economic Systems
Level	7
Semester	1
Person responsible for the module	Prof., Oliinyk V.
Lecturer	Oliinyk V.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	10 credits ECTS
Workload	300 hours, contact hours – 80 hrs (lectures – 48 hrs; laboratory sessions – 32 hrs), private study – 220 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 48 hrs; laboratory sessions: 32 hrs
Recommended pre-requisites	“Modeling the economy“
Aims	To provide students with the theoretical knowledge and practical skills required to collection, analysis and processing of scientific and analytical materials that are necessary for solving complex economic problems; use of the simulation method for theoretical and practical analysis of the constructed model; economic forecasting, prediction of economic processes development; development of managerial decisions at all levels of the economic hierarchy; to highlight the main properties of socio-economic systems in order to choose the type of models and the practical use of simulation results.
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Formulate, analyze and synthesize solutions of scientific and practical problems at the abstract level by decomposing them into components.

	<p>LO2. Select and use the necessary scientific, methodological and analytical tools for managing economic activity.</p> <p>LO3. Substantiate solutions in conditions of uncertainty requiring the application of new approaches and economic-mathematical modeling and forecasting.</p> <p>LO4. Apply modern information technology in socio-economic research.</p> <p>LO5. Work out scenarios and strategies for the development of socio-economic systems.</p>		
Content	<p>Subject of the course: modeling of socio-economic processes, trends in modeling of managerial processes. Contents of the course by topics:</p> <p>Topic 1 “Methodological basis of system modeling”</p> <p>Topic 2 “Structure of the dynamic model of the system”</p> <p>Topic 3 “Modeling of latency in AnyLogic. Built-in functions”</p> <p>Topic 4 “System dynamics in the tasks of modeling the behavior of economic and business processes”</p> <p>Topic 5 “Methodology of discrete-event modeling”</p> <p>Topic 6 “Discrete-event modeling of traffic flows and networks”</p> <p>Topic 7 “Fundamentals of agent modeling”</p> <p>Topic 8 “Stochastic modeling”</p> <p>Topic 9 “Collection and analysis of simulating results”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	WRITTEN Written exam	Final semester assessment, which contains theoretical and practical tasks	40
	COURSEWORK Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Short answer test	10
		Reports of laboratory sessions	40
		Individual or group project proposal	10
PRACTICAL Oral assessment, practical skills assessment			
OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills			
Assessment tasks	<p>100% coursework based on three elements:</p> <p>1) Short answer unseen test on formulation, analysis and synthesis of solutions of scientific and practical problems at the abstract level (10% – LO1)</p> <p>2) Reports of laboratory sessions. Demonstrating knowledge of carrying out of researches, substantiation of decisions in conditions of uncertainty requiring application of economic-mathematical modeling and forecasting (40% – LO2, LO3)</p> <p>3) A calculation and graphic work (individual or group project output). This will be an application of modern information technologies in solving a certain task in the field of economy in conditions of uncertainty (10 % – LO3, LO4, LO5)</p>		
Reading list	1. Ruth M., Hannon B. Modeling Dynamic Economic Systems, 2nd		

	<p>Edition. – Springer, 2012. – 325 p.</p> <p>2. Siegfried R. Modeling and Simulation of Complex Systems. A Framework for Efficient Agent-Based Modeling and Simulation. – Springer, 2014. – 207 p.</p> <p>3. Островський П.І., Гострик О.М., Добрунік Т.П., Радова О.В. Моделювання економічних процесів: Навчальний посібник. – Одеса: ОНЕУ, 2012. – 132 с.</p> <p>4. Присенко Г.В., Равікович Є.І. Прогнозування соціально-економічних процесів: Навч. посібник. – К.: КНЕУ, 2005. – 360с.</p> <p>5. Петров Е.Г., Новожилова М.В. Методи і засоби прийняття рішень у соціально-економічних системах: Навчальний посібник / За ред. Є.Г. Петрова. – К.: Техніка, 2004 – 256 с.</p>
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39/item/42-999
Date of first approval	2013
Date of last revision	2016
Date of approval of this version	2016
Title	Information Management
Level	7
Semester	1
Person responsible for the module	Phd, Koibichuk V.
Lecturer	Koibichuk V.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory sessions – 16 hrs), private study – 102 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Students will be working in two groups during laboratory sessions. Lectures: 32 hrs; laboratory sessions: 16 hrs
Recommended pre-requisites	“Information systems in economics”, “Management of information projects”
Aims	Formation of basic knowledge on the application of principles and methods in the field of information resources management, integrated assessment of the effectiveness of local and corporate information systems by functional characteristics, according to different methods
Module objectives / Learning outcomes	<p>On completion of this module the student should be able to:</p> <p>LO1. Formulate, analyze and synthesize solutions of scientific and practical problems at the abstract level by decomposing them into components.</p> <p>LO2. Do research, generate new ideas, innovate.</p> <p>LO3. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems.</p> <p>LO4. Apply modern information technologies in socio-economic research.</p>
Content	Subject of the course: mechanisms, standards, methods and tools for the implementation of the main functions and tasks of information management; management of operation of information

	<p>systems, methods of construction of operational services. Contents of the course by topics:</p> <p>Topic 1 “The essence, goals, objectives and features of information management”</p> <p>Topic 2 “Information needs and information provision of entities of enterprise management”</p> <p>Topic 3 “International standards and methodologies of managing information activities”</p> <p>Topic 4 “Information resources management: concepts, technologies, tools”</p> <p>Topic 5 “Information systems as a base component of information management”</p> <p>Topic 6 “Architecture of information system of enterprise”</p> <p>Topic 7 “Strategic planning of information systems”</p> <p>Topic 8 “Service-oriented approach to organization of the activity of the enterprise information systems service”</p> <p>Topic 9 “The organizational structure of the information systems service”</p> <p>Topic 10 “Management of information systems service”</p> <p>Topic 11 “Management of the interaction of information systems service with users of information resources and technologies”</p> <p>Topic 12 “Means of automation of management of information systems service”</p> <p>Topic 13 “Management of information security of enterprises”</p> <p>Topic 14 “Economic effectiveness of information management”</p>		
<p>Assessment tasks</p> <p>Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)</p>	<p>Activity</p>	<p>Further details</p>	<p>%</p>
	<p>WRITTEN Written exam</p>	<p>Written exam</p>	<p>12</p>
	<p>COURSEWORK Implementation and defense of laboratory works, execution of individual project</p>	<p>Performance of laboratory works; development of a personal website based on the materials of the work performed</p>	<p>50</p>
	<p>PRACTICAL Oral assessment and presentation, practical skills assessment</p>	<p>Defense of laboratory works in oral form, drawing up the report in written form</p>	<p>36</p>
	<p>Comprehensive modular control</p>	<p>Test tasks</p>	<p>2</p>
<p>Assessment tasks</p>	<p>100% coursework based on four elements:</p> <p>1) Short answer test for assessing the quality of theoretical material submitted for self-study (15% – L01);</p> <p>2) Reports of laboratory sessions for checking the practical tasks and answers to questions submitted for the defence of laboratory work (35% – L01; L02; L03);</p> <p>3) Individual project: development of the concept of an Internet resource of the company in the field of information business (25% – L02; L03; L04);</p> <p>4) Individual writing work for a comprehensive check of the level of assimilation of course material (35% – L01; L02; L03; L04).</p>		
<p>Reading list</p>	<p>1. Bytheway A. Investing in information: The Information Management Body of Knowledge. – Geneva: Springer, 2014. – 280 p.</p>		

	<p>2. Shwalbe K. Information technology project management, 7th Edition. – Cengage Learning, 2014. – 600 p.</p> <p>3. Інформаційні системи в економіці: монографія / за заг. ред. д-ра екон. наук, проф. С.В. Устенка – К.:КНЕУ, 2012. – 425 с.</p> <p>3. Гушко С. В. Управлінські інформаційні системи: навчальний посібник / С.В. Гушко, А.В. Шайкан. – Львів: «Магнолія 2006», 2013. – 320 с.</p> <p>4. Матвієнко О.В. Основи інформаційного менеджменту: навчальний посібник / О. В. Матвієнко. – К.: Центр навчальної літератури, 2004. – 128 с.</p>
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39/item/42-998
Date of first approval	2015
Date of last revision	2015
Date of approval of this version	2016
Title	Efficiency of Information Systems
Level	7
Semester	1
Person responsible for the module	Phd, Yarovenko H.
Lecturer	Yarovenko H.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory session – 16 hrs), private study – 102 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory work. Students will be working in two groups during laboratory work. Lectures: 32hrs; laboratory work: 16hrs
Recommended pre-requisites	“Information systems in economics”, “Management of information projects”, “Economy of enterprises”
Aims	To provide students with the theoretical knowledge and practical skills required to realize an estimate of the efficiency of local and corporate information systems by functional characteristics, by different methods; justification the management decisions for the effective development of business entities; using the modern information technologies and the economic, mathematical methods and models for the study of the economic and social processes; collection, analysis and processing statistical data, scientific and analytical materials that are necessary for solving complex economic problems.
Module objectives / Learning outcomes	<p>On completion of this module the student should be able to:</p> <p>LO1. Justify the management decisions for the effective development of business entities</p> <p>LO2. Collect, analyze and process statistical data, scientific and analytical materials that are necessary for solving complex economic problems</p> <p>LO3. Use the modern information technology in the socio-economic researches</p> <p>LO4. Realize an estimate of the efficiency of local and corporate information systems by functional characteristics, by different methods</p>
Content	Subject of the course: methods, tools and processes for estimating the efficiency of the creation and operation of information systems. Contents of the course by topics:

	<p>Topic 1 “Methodology for estimating the efficiency of information systems”</p> <p>Topic 2 “Statistical justification of the efficiency of information systems used in business”</p> <p>Topic 3 “The concept of total cost of ownership”</p> <p>Topic 4 “Methods for estimating the efficiency of information systems based on the analysis of cash flows”</p> <p>Topic 5 “Heuristic methods for estimating the efficiency of information systems”</p> <p>Topic 6 “Probabilistic methods for estimating the efficiency of information systems”</p> <p>Topic 7 “Estimating the efficiency of the IT service company”</p> <p>Topic 8 “Perspectives for the development of methods, models and tools for estimating the efficiency of information systems”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	WRITTEN Written exam	Final semester assessment which contains theoretical and practical tasks	40
	COURSEWORK Written assignment, reports of laboratory sessions, individual or group project task	Short answer test	10
		Reports of laboratory sessions	30
		Individual or group project task	20
	PRACTICAL Oral assessment, practical skills assessment		
OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills			
Assessment tasks	<p>100% coursework based on three elements:</p> <p>1) Short answer test. Formation, analysis and synthesis information for justification the management decisions (10% – LO1)</p> <p>2) Reports of laboratory sessions. Using the modern information technologies and collection, analysis statistical data and analytical materials for estimating the efficiency of local and corporate information systems (30% – LO2, LO3, LO4)</p> <p>3) An individual or group project output. Calculation and estimating the efficiency of the different kinds of information systems with using different methods, information technologies and data (20 % – LO2, LO3, LO4, LO5)</p>		
Reading list	<p>1. An Introduction to Efficiency and Productivity Analysis / Christopher J. O'Donnell, Dodla Sai Prasada Rao, George Edward Battese, Timothy J. Coelli. – Springer, 2011. – 367 p.</p> <p>2. Jorg Becker, Patrick Delfmann. Reference Modeling: Efficient Information Systems Design Through Reuse of Information Models / Jorg Becker, Patrick Delfmann. – Phusica-Verlag Heidelberg, 2007. – 148 p.</p> <p>3. Анисифоров А.Б., Анисифорова Л.О. Методики оценки эффективности информационных систем и информационных технологий в бизнесе: учебное пособие. – Санкт-Петербург, 2014. – 97 с.</p> <p>4. Лазарева С.Ф. Економіка та організація інформаційного бізнесу: навчальний посібник. – К.: КНЕУ, 2002. – 667 с.</p> <p>3. Кузьмин Е.В. Эффективность информационных технологий:</p>		

	конспект лекций. – Самара: ГОУВПО ПГУТИ, 2013. – 179 с. 5. Скрипкин Г.К. Экономическая эффективность информационных систем. – М.: ДМК Пресс, 2002. – 256 с.
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39
Date of first approval	2015
Date of last revision	2016
Date of approval of this version	2016
Title	Mathematical Methods and Models of the Market Economy
Level	7
Semester	2
Person responsible for the module	Phd, Syniavska O.
Lecturer	Syniavska O.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory sessions – 16 hrs), private study – 102 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 32 hrs; laboratory sessions: 16 hrs
Recommended pre-requisites	“Applied econometrics”, “Modeling in the management of socio-economic systems”
Aims	To provide students with the theoretical knowledge and practical skills required to using the scientific and methodical tools for management of economic activity; collecting, analyzing and processing scientific and analytical materials that are necessary for solving complex economic problems; using the economic and mathematical methods and models for the study of economic and social processes; using the scientific approach to the formation and substantiation of effective strategies in economic activity.
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Formulate, analyze and synthesize solutions of scientific and practical problems at the abstract level by decomposing them into components. LO2. Do research, generate new ideas, innovate. LO3. Select and use the necessary scientific, methodological and analytical tools for managing economic activity. LO4. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems. LO5. Analyze economic objects and processes on the basis of the created models, to interpret the obtained results and to make managerial decisions at all levels of the economic management hierarchy on the basis of the conclusions drawn.
Content	Contents of the course by topics: Topic 1 “Methodological principles of mathematical modeling of processes, objects and phenomena of a market economy” Topic 2 “Mathematical models and methods of economic development analysis at micro, meso- and macroeconomic levels” Topic 3 “Evolutionary mathematical methods and models for the analysis and forecasting of economic changes” Topic 4 “Modeling and analysis of adaptive and rational expectations at different levels of management” Topic 5 “Mathematical modeling of economic security at different

	<p>levels of management”</p> <p>Topic 6 “Mathematical methods and models of indicative planning and diagnostics of probable bankruptcy of the enterprise”</p> <p>Topic 7 “Diagnostics of bankruptcy of the enterprise using mathematical tools of fuzzy logic”</p> <p>Topic 8 “Mathematical models of anti-crisis indicative planning by methods of analysis of hierarchies”</p> <p>Topic 9 “Mathematical methods and models of analysis of processes of innovative development of enterprise”</p> <p>Topic 10 “Mathematical modeling of functioning and evaluation of strategies for the development of small enterprises”</p> <p>Topic 11 “Mathematical methods and models of evaluation of system characteristics of the enterprise: maneuverability, viability, reliability, risk, tension, inertia”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	WRITTEN Written exam	Final semester assessment, which contains theoretical and practical tasks	40
	COURSEWORK Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Short answer test	20
		Reports of laboratory sessions	30
		Individual or group project proposal	10
	PRACTICAL Oral assessment, practical skills assessment		
OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills			
Assessment tasks	<p>100% coursework based on three elements:</p> <p>1) Short answer unseen test for assessing the quality of theoretical material submitted for self- study (20% – LO1; LO3);</p> <p>2) Reports of laboratory sessions for checking the practical tasks and answers to questions submitted for the defence of laboratory work (30% – LO1; LO2; LO3; LO4; LO5)</p> <p>3) Individual project proposal in a form of solving tasks for different incoming economic conditions (10% - LO3; LO4; LO5);</p>		
Reading list	<p>1. Principles of economics, macroeconomics. – Homewood: Irwin, 1991. – 97 p.</p> <p>2. Kohler, H. Economics. – Lexington: D.C. Heath and company, 1992. – 1060 p.</p> <p>3. Математичні методи і моделі ринкової економіки: Навчальний посібник. – Х.: ВД «ІНЖЕК», 2010. – 456 с.</p> <p>4. Кігель В. Р. Математичні методи ринкової економіки : навч. посібн. для вищ. навч. закл. – К.: Кондор, 2003. – 159 с.</p> <p>5. Пинегина М. В. Математические методы и модели в экономике : учебн. пособ. для вузов / М. В. Пинегина. – М. : Экзамен, 2004. – 127 с.</p>		
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39		
Date of first approval	2013		
Date of last revision	2016		

Date of approval of this version	2016
Title	Methodology of Scientific Research in the Information Economy
Level	7
Semester	2
Person responsible for the module	Phd, Grytsenko K.
Lecturer	Grytsenko K.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory sessions – 16 hrs), private study – 102 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 32 hrs; laboratory sessions: 16 hrs
Recommended pre-requisites	“Applied econometrics”, “Modeling in the management of socio-economic systems”
Aims	To provide students with the theoretical knowledge and practical skills required to application of scientific and methodical tools for management of economic activity; collection, analysis and processing of scientific and analytical materials that are necessary for solving complex economic problems; the use of economic and mathematical methods and models for the study of economic and social processes; formulation of professional tasks in the field of economics, the selection of appropriate directions and appropriate methods for their solution, taking into account available resources; application of scientific approach to the formation and substantiation of effective strategies in economic activity
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Formulate, analyze and synthesize solutions of scientific and practical problems at the abstract level by decomposing them into components. LO2. Select and use the necessary scientific, methodological and analytical tools for managing economic activity. LO3. Do research, generate new ideas, innovate. LO4. Substantiate solutions in conditions of uncertainty requiring the application of new approaches and economic-mathematical modeling and forecasting. LO5. Formulate new hypotheses and scientific tasks in the field of economics, choose the appropriate directions and appropriate methods for their solution, taking into account available resources. LO6. Demonstrate skills to make decisions, leadership skills and teamwork skills. LO7. Demonstrate high social responsibility and adhere to the principles of academic integrity. LO8. Evaluate the results of the work and be responsible for personal professional development.
Content	Subject of the course: general patterns, methods and ways of scientific research, organization of work of a scientist. Contents of the course by topics: Topic 1 “Science as a sphere of activity and productive power of the society” Topic 2 “Theoretical principles of methodology and logic of scientific researches” Topic 3 “Scientific problem, hypothesis, paradigm”

	<p>Topic 4 “Information support of scientific research” Topic 5 “Organization of scientific research” Topic 6 “Features of methodology and structure of economic research” Topic 7 “Instrumentation of economic research” Topic 8 “Economic substantiation of macroeconomic phenomena” Topic 9 “Development and design of research results” Topic 10 “Using the methodology of scientific research in the process of preparation of the master's degree thesis”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	WRITTEN Written exam	Final semester assessment, which contains theoretical and practical tasks	40
	COURSEWORK Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Short answer test	10
		Reports of laboratory sessions	40
		Individual or group project proposal	10
	PRACTICAL Oral assessment, practical skills assessment		
OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills			
Assessment tasks	<p>100% coursework based on three elements: 1) Short answer unseen test on formulation, analysis and synthesis of solutions to scientific and practical problems at the abstract level; the choice of the necessary scientific, methodological and analytical tools for managing economic activity (10% – LO1, LO2) 2) Reports of laboratory sessions. Demonstrating knowledge of carrying out of researches, substantiation of decisions in conditions of uncertainty requiring application of economic-mathematical modeling and forecasting (40% – LO3, LO4) 3) A calculation and graphic work (individual or group project output). This will be solving a certain task in the field of economy in conditions of uncertainty and limited resources (10 % – LO3, LO4, LO5, LO6, LO7, LO8)</p>		
Reading list	<p>1. Gerard Guthrie. Basic Research Methods: An Entry to Social Science Research. – SAGE Publications India Pvt Ltd, 2010. – 222 p. 2. Saunders M., Lewis P., Thornhill A. Research Methods for Business Students, 6th Edition. – Financial Times Press, 2012. – 728 p. 3. Стеченко Д.М., Чмир О.С. Методологія наукових досліджень: підручник / Д.М. Стеченко, О.С. Чмир. – К.: Знання, 2007. – 317 с.</p>		
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39/item/42-999		
Date of first approval	2015		
Date of last revision	2016		
Date of approval of this version	2016		

Title	Corporate Information Systems
Level	7
Semester	3
Person responsible for the module	Phd, Yarovenko H.
Lecturer	Yarovenko H.
Language	Ukrainian
Relation to curriculum	Compulsory
Credit point	10 credits ECTS
Workload	300 hours, contact hours – 80 hrs (lectures – 48 hrs; laboratory session – 32 hrs), private study – 220 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory works. Students will be working in two groups during a laboratory work. Lectures: 48hrs; laboratory work: 32hrs
Recommended pre-requisites	“Technologies for design and administration of databases and data warehouses”, “Support and decision-making systems”, “Information management”, “Efficiency of information systems”
Aims	To provide students with the theoretical knowledge and practical skills required to realize a justification the management decisions for the effective development of business entities; applying scientific, analytical, methodological tools for managing economic activities; using the modern information technologies and the economic, mathematical methods and models for the study of the economic and social processes; planning and developing projects in the field of economics; creation and implementation the modern information systems at enterprises of various fields of activities
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Form, analyze and generalize the solutions of scientific and practical problems at the abstract level by decomposing them into components. LO2. Organize the development and implementation of projects in the field of economics with information, methodological, material, financial and personnel support. LO3. Justify the management decisions for the effective development of business entities. LO4. Use the modern information technologies in socio-economic researches. LO5. Create and implement the modern information systems at enterprises of various fields of activities.
Content	Subject of the course: the methodology of designing, developing and practical application of corporate information systems with the use of modern means of information and communication technologies. Contents of the course by topics: Topic 1 “State and prospects of development of information systems of business management”, Topic 2 “Corporate information systems that are built with the concept MRP”, Topic 3 “Corporate information systems that are built with the concept MRPII”, Topic 4 “ERP system“, Topic 5 “Architecture of corporate information systems”, Topic 6 “Supply chain management system”, Topic 7 “Procurement, sales and after-sales service management system”, Topic 8 “Warehouse management system“, Topic 9 “Accounting and reporting system”, Topic 10 “DocFlow system”, Topic 11 “WorkFlow system”, Topic 12 “Product data management”, Topic 13 “E-commerce system”, Topic 14 “Data warehouse system”, Topic 15 “Data mining system”, Topic 16 “OLAP system”, Topic 17 “Internet - solutions in the corporate information systems”,

	Topic 18 “Intranet and the company's internal portal”, Topic 19 “Strategy of development of the corporate information systems”		
Assessment tasks Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	Activity	Further details	%
	WRITTEN Written exam	Final semester assessment which contains theoretical and practical tasks	40
	COURSEWORK Written assignment, reports of laboratory sessions, individual or group project task	Short answer test	10
		Reports of laboratory sessions Individual or group project task	30 20
	PRACTICAL Oral assessment, practical skills assessment		
OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills			
Assessment tasks	100% coursework based on three elements: 1) Short answer test. Formation, analysis and synthesis of solutions of scientific and practical problems at the abstract level (10% – LO1) 2) Reports of laboratory sessions. Using the modern information technology for researching economic problems and developing new information systems (30% – LO2, LO3, LO4, LO5) 3) An individual or group project output. Investigation and solution of an economic task as part of the corporate information system (20 % – LO2, LO3, LO4, LO5)		
Reading list	1. Applegate Lynda M. Corporate information systems management / Lynda M. Applegate, McFarlan F. Warren, James L. McKenney . – 4 ed . – Chicago; Bogota; Boston etc. : Irwin, 1996. – 796 p 2. Boczko T. Corporate Accounting Information Systems / T. Boczko. – Financial Times/ Prentice Hall, 2007. – 955 p. 3. Managing Corporate Information Systems Evolution and Maintenance / Khaled Khan, Yan Zheng. – Idea Group Publishing, 2005. – 300 p. 4. Інформаційні системи в економіці: монографія / за заг. ред. д-ра екон. наук, проф. С.В. Устенка – К.: КНЕУ, 2012. – 425 с. 5. Гушко С.В. Управлінські інформаційні системи: навчальний посібник. – Львів: «Магнолія 2006», 2013. – 320 с. 6. Татарчук М.І. Корпоративні інформаційні системи: навчальний посібник. – К. : КНЕУ, 2005. – 291 с.		
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39		
Date of first approval	2015		
Date of last revision	2015		
Date of approval of this version	2017		
Title	Dealing Information Systems		
Level	7		
Semester	2		
Person responsible for the module	Phd, Syniavska O.		
Lecturer	Syniavska O.		
Language	English		

Relation to curriculum	Elective		
Credit point	5 credits ECTS		
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory sessions – 16 hrs), private study – 102 hrs		
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 32 hrs; laboratory sessions: 16 hrs		
Recommended pre-requisites	“Money and credit”, “International economics”, “Information management”, “Efficiency of information systems”		
Aims	To provide students with the theoretical knowledge and practical skills required to think critically and generate new ideas; abstract thinking, analysis, synthesis, and establishment of interconnections between phenomena and processes; do research and present the results; communicate in another language; apply scientific, analytical, methodical tools for managing economic activity; collect, analyze and process statistical data, scientific and analytical materials that are necessary for solving complex economic problems; understand the key trends of socio-economic and demographic development; assess possible risks, socio-economic implications of managerial decisions.		
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Demonstrate skills to make decisions independently, leadership skills and teamwork skills. LO2. Select and use the necessary scientific, methodological and analytical tools for managing economic activity. LO3. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems. LO4. Communicate effectively, provide complex comprehensive information in abridged form orally and / or in writing using modern information and communication technologies and appropriate business language, including foreign.		
Content	Contents of the course by topics: Topic 1 “Organizational principles of dealing operations” Topic 2 “Interbank market trading” Topic 3 “Spot foreign exchange trading” Topic 4 “Making deals by means of dealing software” Topic 5 “Fixed deposit dealing” Topic 6 “Outright foreign exchange trading” Topic 7 “Trading in FX swap market” Topic 8 “Making decisions based on fundamental and technical analysis”		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	WRITTEN Written exam	Final semester assessment, which contains theoretical and practical tasks	40
	COURSEWORK Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Short answer test	15
		Reports of laboratory sessions	20
		Individual or group project proposal	10
		Individual writing work	10
	Answers at lectures	5	
	PRACTICAL Oral assessment, practical		

	skills assessment		
	OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills		
Assessment tasks	100% coursework based on five elements: 1) Short answer test for assessing the quality of theoretical material submitted for self- study (25% - L03); 2) Reports of laboratory sessions for checking the practical tasks and answers to questions submitted for the defence of laboratory work (35% - L01; L02; L03); 3) Individual project proposal in a form of an analytical review of macroeconomic indicators and financial markets in different countries (15% - L02; L03; L04); 4) Individual writing work for checking the advanced notes of the individual work (15% - L03; L04); 5) Answers at lectures for checking the advanced lecture notes according to the subject of the course (10% - L01; L04).		
Reading list	1. Taylor F. Mastering Foreign Exchange & Currency Options / F. Taylor. – London: Prentice Hall Financial Times, 2003. – 399 p. 2. Anthony S. Foreign Exchange in Practice / S. Anthony. – New York, Palgrave Macmillan, 2003. – 392 p. 3. Steiner B. Foreign Exchange and Money Markets / B.Steiner. London: Butterworth Heinemann, 2002. – 331 p. 4. Фондовый рынок: курс для начинающих / пер. с англ. – М.: Альпина Паблишер, 2002.– 277 с.		
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39		
Date of first approval	2014		
Date of last revision	2016		
Date of approval of this version	2016		
Title	Data Mining		
Level	7		
Semester	2		
Person responsible for the module	Phd, Grytsenko K.		
Lecturer	Grytsenko K.		
Language	Ukrainian		
Relation to curriculum	Elective		
Credit point	5 credits ECTS		
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory sessions – 16 hrs), private study – 102 hrs		
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 32 hrs; laboratory sessions: 16 hrs		
Recommended pre-requisites	“Applied econometrics”		
Aims	To provide students with the theoretical knowledge and practical skills required to application of analytical tools for managing economic activity; the use of economic and mathematical methods and models for the study of economic and social processes; collection, analysis and processing of statistical data necessary for solving complex economic problems; creation and evaluation of models of economic processes using the analytical platforms used for data analysis		

Module objectives / Learning outcomes	<p>On completion of this module the student should be able to:</p> <p>LO1. Select and use the necessary scientific, methodological and analytical tools for managing economic activity.</p> <p>LO2. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems.</p> <p>LO3. Create and evaluate models of economic processes both analytically and with the use of universal software tools and analytical platforms used to analyze data.</p> <p>LO4. Demonstrate skills to make decisions independently, leadership skills and teamwork skills.</p> <p>LO5. Demonstrate high social responsibility and adhere to the principles of academic integrity.</p> <p>LO6. Evaluate the results of the work and be responsible for personal professional development.</p>		
Content	<p>Subject of the course: methodological and methodical foundations and instruments of data mining. Contents of the course by topics:</p> <p>Topic 1 “Fundamentals of data mining”</p> <p>Theme 2 “Overview of algorithms and information systems of data mining”</p> <p>Topic 3 “Primary data analysis”</p> <p>Topic 4 “Cluster analysis”</p> <p>Topic 5 “Associative analysis”</p> <p>Topic 6 “Forecast modeling using decision trees”</p> <p>Topic 7 “Forecast modeling using regression analysis”</p> <p>Topic 8 “Forecast modeling using neural networks”</p> <p>Topic 9 “Comparison of models”</p> <p>Topic 10 “Scoring models”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	COURSEWORK Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Short answer test Reports of laboratory sessions Individual or group project proposal	30 40 30
	PRACTICAL Oral assessment, practical skills assessment		
	OTHER Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills		
Assessment tasks	100% coursework based on three elements: 1) Short answer unseen test on scientific, methodological and analytical tools used to manage economic activity (30% – LO1) 2) Reports of laboratory sessions. Demonstrating knowledge of processing and analysing statistical data, creation and evaluation of models of economic processes using analytical platforms used for data analysis (40% – LO2, LO3) 3) A calculation and graphic work (individual or group project output). This will be a research of a certain economic process by various methods of data mining, comparison of the obtained models		

	and choice of the best model (30 % – LO2, LO3, LO4, LO5, LO6)
Reading list	<ol style="list-style-type: none"> 1. Glenn J. Myatt, Wayne P. Johnson. Making Sense of Data: A Practical Guide to Exploratory Data Analysis and Data Mining, 2nd Edition. – New York: John Wiley & Sons, 2014. – 248 p. 2. Gordon S. Linoff, Michael J.A. Berry. Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management, 3rd Edition. – New York: John Wiley & Sons, 2011. – 888 p. 3. Georges J. Applied Analytics Using SAS Enterprise Miner Course Notes. – Cary, NC: SAS Institute Inc., 2010. – 694 p. 4. Developing Credit Scorecards Using Credit Scoring for SAS Enterprise Miner 12.1. – Cary, NC: SAS Institute Inc., 2012. – 42 p. 5. Lawrence S. Data Analysis Using SAS Enterprise Guide / S. Lawrence. – Cambridge University Press, 2009. – 400 p. 6. James B. Statistics Using SAS Enterprise Guide / B. James. – Cary: SAS Institute Inc, 2007. – 785 p. 7. Барсегян А.А. Анализ данных и процессов. – СПб.: БХВ-Петербург, 2009. – 512 с. 8. Ситник В.Ф. Інтелектуальний аналіз даних (дейтамайнінг): навчальний посібник. – К.: КНЕУ, 2007. – 376 с. 9. Черняк О.І. Інтелектуальний аналіз даних: підручник. – К.: Знання, 2014. – 599 с.
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39/item/42-992
Date of first approval	2014
Date of last revision	2016
Date of approval of this version	2016
Title	Actuarial Calculations
Level	7
Semester	2
Person responsible for the module	Phd, Roienko V.
Lecturer	Roienko V.
Language	Ukrainian
Relation to curriculum	Elective
Credit point	10 credits ECTS
Workload	300 hours, contact hours – 80 hrs (lectures – 48 hrs; laboratory sessions – 32 hrs), private study – 220 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 48 hrs; laboratory sessions: 32 hrs
Recommended pre-requisites	“Probability theory and mathematical statistics”, “Modeling in the management of socio-economic systems”
Aims	To provide students with the theoretical knowledge and practical skills required to collection, analysis and processing of statistical data necessary for the detection of regularities in the development of economic processes, the use of analytical tools for managing the activities of an insurance company, the use of mathematical tools for assessing the level of insurance risks; the use of economic and mathematical methods and models for the construction of an optimal insurance and investment portfolio, the use of methodological tools for effective management of economic entities.
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Select and use the necessary scientific, methodological and

	<p>analytical tools for managing economic activity.</p> <p>LO2. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems.</p> <p>LO3. Substantiate solutions in conditions of uncertainty requiring the application of new approaches and economic-mathematical modeling and forecasting.</p> <p>LO4. Formulate new hypotheses and scientific tasks in the field of economics, choose the appropriate directions and appropriate methods for their solution, taking into account available resources.</p> <p>LO5. Assess the potential risks, socio-economic implications of management decisions</p> <p>LO6. Create and evaluate models of economic processes both analytically and with the use of universal software and analytical platforms used for data analysis.</p>		
Content	<p>Subject of the course: fundamental methodological approaches, mathematical models and methods regulating relations between insurers and policyholders. Contents of the course by topics:</p> <p>Topic 1 “Objectives and tools for actuarial calculations”</p> <p>Topic 2 “General principles of risk modeling in insurance”</p> <p>Topic 3 “Analysis and risk management in insurance”</p> <p>Topic 4 “Model of individual claims”</p> <p>Topic 5 “Model of collective claims”</p> <p>Topic 6 “Static models of the insolvency of the insurance company”</p> <p>Topic 7 “Dynamic models of the insolvency of the insurance company”</p> <p>Topic 8 “Determining the insurance premium in life insurance”</p> <p>Topic 9 “System of insurance reserves”</p> <p>Topic 10 “Models of risk management by means of reinsurance”</p> <p>Topic 11 “Modeling of financial activities of insurance companies”</p> <p>Topic 12 “Equity models of the insurance market”</p>		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	COURSEWORK	Short answer test	20
	Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Reports of laboratory sessions Individual or group project proposal	60 20
	PRACTICAL		
	Oral assessment, practical skills assessment		
	OTHER		
	Set exercises assessing application of knowledge, analytical, problem-solving or evaluative skills		
Assessment tasks	<p>100% coursework based on three elements:</p> <p>1) Short answer unseen test on methodical and analytical tools used to manage the activities of an insurance company (20% – LO1)</p> <p>2) Reports of laboratory sessions. Demonstrating knowledge of processing and analysis of statistical data, construction of economic and mathematical models for the identification of patterns of process development, determination of the level of insurance risk, construction of forecasting development models (60% – LO2, LO3, LO5, LO1)</p>		

	3) A calculation work (individual or group project output). This will be determination of the risk of the insurer and the insured depending on the terms of the contract and calculation of the insurance premium (20 % – LO4, L06).
Reading list	<p>1. Kaas R., Goovaerts M., Dhaene J., Denuit M. Modern Actuarial Risk Theory, 2nd Edition. – Springer-Verlag, 2009. – 381 p.</p> <p>2. Sherris M. Principles of Actuarial Science. – South Melbourne, Vic.: Cengage Learning Australia, 2010. – 247 p.</p> <p>3. Understanding actuarial practice / Stuart A. Klugman, editor. – Society of Actuaries. – 2012. – 529 p.</p> <p>4. Кузьменко О. В. Актуарні розрахунки: навчальний посібник / О.В. Козьменко, О.В. Кузьменко. – Суми: Університетська книга, 2011. – 224 с</p> <p>5. Ковтун І.О. Основи актуарних розрахунків: навчальний посібник / І.О. Ковтун, М.Г. Денисенко, В.Г. Кабанов. – К. : "ВД "Професіонал", 2008. – 480 с.</p>
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/2016-11-09-11-44-39
Date of first approval	2016
Date of last revision	2016
Date of approval of this version	2016
Title	Information Systems and Technologies in Banking
Level	7
Semester	3
Person responsible for the module	Phd, Yaremenko N.
Lecturer	Yaremenko N.
Language	Ukrainian
Relation to curriculum	Elective
Credit point	5 credits ECTS
Workload	150 hours, contact hours – 48 hrs (lectures – 32 hrs; laboratory sessions – 16 hrs), private study – 102 hrs
Type teaching, contact hours	The module will be delivered in the form of lectures and laboratory sessions. Lectures: 32 hrs; laboratory sessions: 16 hrs
Recommended pre-requisites	“Information management”, “Efficiency of information systems”
Aims	To provide students with the theoretical knowledge and practical skills required to practice the use of modern information technology for the processing of banking information, the creation and implementation of modern information systems in banks, as well as the planning and development of projects in the banking sector.
Module objectives / Learning outcomes	On completion of this module the student should be able to: LO1. Create and implement modern information systems at enterprises of different spheres of activity. LO2. Organize the development and implementation of projects in the field of economics, taking into account informational, methodological, material, financial and personnel support. LO3. Apply modern information technology in socio-economic research.
Content	Contents of the course by topics: Topic 1 “Information systems and technologies in banking institutions” Topic 2 “Bank operational day” Topic 3 “Requirements for banking information systems” Topic 4 “Remote banking services system” Topic 5 “Electronic payment system of the National Bank of

	Ukraine” Topic 6 “The International Electronic Banking Interbank Settlement System SWIFT” Topic 7 “Automation of mass payments” Topic 8 “E-mail of the National Bank of Ukraine”		
Assessment tasks	Activity	Further details	%
Type of assessment tasks Summative assessment tasks which lead to the award of credit or which are required for progression (expressed as a %)	COURSEWORK Written assignment, reports on the implementation of laboratory work, calculation and graphic work (individual or group project output)	Short answer test Reports of laboratory sessions Individual or group project proposal	30 40 30
	PRACTICAL Oral assessment, practical skills assessment		
	OTHER Set exercises assessing application of knowledge, analytical or evaluative skills		
Assessment tasks	100% coursework based on three elements: 1) Short answer test for assessing the quality of theoretical material submitted for self- study (30% - L01; L02; L03); 2) Reports of laboratory sessions for checking the practical tasks and answers to questions submitted for the defence of laboratory work (40% - L01; L02; L03); 3) Individual project proposal in a form of an analytical review of different types of information systems in terms of the possibility of their use in the banking sector (30% - L03).		
Reading list	1. Information System for Banks: 2nd Edition / Indian Institute of Banking & Finance. – Paperback, 2017. – 648 p. 2. Єрємона Н.В. Банківські інформаційні системи: навч. посібник. – К.: КНЕУ, 2000. – 220 с. 3. Компьютеризация банковской деятельности / Г. А. Титаренко, В. М., Суворова И. Ф., Возгилевич и др. Под ред. Г. А. Титаренко. – М.: Финстатинформ, 1997. – 304 с. 4. Рогач І.Ф., Сендзюк М.А., Антонюк В.А. Інформаційні системи у фінансово-кредитних установах: навчальний посібник. – 2-е вид.,перероб і доп. – К.: КНЕУ, 2001. – 239 с. 5. Інформаційні системи і технології у фінансових установах: навчальний посібник/ А.В. Олійник, В.М. Шацька. – Львів: Новий Світ-2000, 2006. – 436 с.		
Site where delivered	http://cyber.uabs.sumdu.edu.ua/ua/navchannya/		
Date of first approval	2014		
Date of last revision	2016		
Date of approval of this version	2016		