Economy of the IT Industry and the Entrepreneurship
Syllabus

1. Requisites of the Course

Cycle of Higher Education	*First cycle of higher education (bachelor's degree)*
Field of Study	*12 Information Technologies*
Speciality	*121 Software engineering*
Education Program	*Software Engineering of Multimedia and Information Retrieval Systems*
Type of Course	*Elective*
Mode of Studies	*full-time*
Year of studies, semester	*4 year (1 semester)*
ECTS workload	*4 credits (ECTS)., including 54 hours of classroom work, and 66 hours of self-study.*
Testing and assessment	*Credit*
Course Schedule	*http://rozklad.kpi.ua/*
Language of Instruction	*English*
Course Instructors	**Lecturer**: PhD, Associate Professor, Lesya Lyushenko, email LyushenkoL@gmail.com **Teacher of practical work**: PhD, Associate Professor, Lesya Lyushenko, email LyushenkoL@gmail.com
Access to the course	*MS Teams. Access to registered users.*MS Teams.

Outline of the Course

1. Course description, goals, objectives, and learning outcomes

The study of the discipline "Economics of the IT industry and the Entrepreneurship" provides students with a systematized and economic and knowledgeable knowledge, as the basis for the formation of modern economic culture of the individual; allows you to form the skill and independent analysis and assessment of the most common economic phenomena, connections, principles of effective management; the opportunity to form and develop the competencies of a socially mature creative person capable of conscious social economic choice.

The purpose of studying the discipline "Economics of the IT industry and the Entrepreneurship" is to obtain theoretical and practical economic knowledge regarding: the use of modern methods of studying economic processes and phenomena in the field of IT, enterprise economics in a competitive environment and the rapid development of the IT industry, knowledge of the methodological principles of macroeconomic analysis of the external environment for the development of the enterprise in the IT market.

The subject of the discipline "Economics of the IT industry and the Entrepreneurship" are methods of analysis and assessment of the most common economic phenomena, connections, principles of effective management in the IT industry; the activities of the enterprise, the process of developing and making economic decisions; the mechanism of formation and use of the main factors of production and economic resources of the enterprise.

The study of the discipline "Economics of the IT industry and the Entrepreneurship" forms among students: general competencies (GC)

GC 02 Ability to apply knowledge in practical situations.

GC 05 Ability to learn and use modern knowledge.

GC 06 Ability to search, process and analyze information from various sources.

GC 07 Ability to work within a team.

and professional competencies (PC)

PC 9 Ability to estimate and take into account economic, social, technological and environmental factors affecting the field of professional activity.

PC 22 Ability to create innovative startup projects, calculate basic technical and economic indicators and develop business models of multimedia software and information retrieval systems innovative startup projects that have commercial potential for investment.

The study of the discipline "Economics of the IT industry and the Entrepreneurship" forms the following program learning outcomes (PLO) for students in the educational program:

PLO 02 To know the professional ethics code, understand the social significance and cultural aspects of software engineering and adhere to them in professional activities.

PLO 04 To know and apply professional standards and other regulatory documents in the field of software engineering.

PLO 22 To know and be able to apply methods and tools of project management.

PLO 23 To be able to document and present the software development results.

PLO 24 To be able to calculate the software systems economic efficiency.

PLO 30 To know and to be able to develop business plans for investment projects of developing and implementing multimedia and information retrieval systems software that have commercial potential for investment.

PLO 33 To be able to organize a software product management complete cycle.

PLO 34 To be able to create innovative startup projects of designing multimedia and information-search systems software that have commercial potential for investment.

PLO 35 To be able to develop and analyze business models of innovative startup projects of developing multimedia and information retrieval systems software that have commercial potential for investment.

PLO 36 To be able to manage the creation and implementation of software projects in accordance with international standards.

2. Prerequisites and post-requisites of the course (the place of the course in the scheme of studies in accordance with curriculum)

Successful study of the discipline "Economics of the IT industry and the Entrepreneurship" is preceded by the study of the disciplines "Group Dynamics and Communications" of the curriculum for the preparation of bachelors in the specialty 121 Software Engineering.

Theoretical knowledge and practical skills obtained during the assimilation of the discipline "Economics of the IT industry and the Entrepreneurship" ensure the successful "Diploma design" of the curriculum for the preparation of bachelors in the specialty 121 Software Engineering.

3. Content of the course

The discipline "Economics of the IT industry and the Entrepreneurship" involves the study of the following topics:

Topic 1. Fundamentals of economic knowledge

Topic 2 Macroeconomics. IT industry

Topic 3. Microeconomics. IT industry

Topic 4. Fundamentals of entrepreneurship in the field of IT

Modular test work

Credit

4. Coursebooks and teaching resources

Basic reading:

1. *William Boyes, Michael Melvin Microeconomics. Cengage Learning; 2015: 528 p.ISBN-10: 1285859480, ISBN-13: 978-1285859484.*
2. *Dan Richards, Manzur Rashid, Peter Antonioni Macroeconomics For Dummies USA edition 2016: 416 p. ISBN-10: 1119184428, ISBN-13: 978-1119184423*
3. *Henry Hazlitt Economics in One Lesson: The Shortest and Surest Way to Understand Basic Economics Currency paperback edition. 1988: 218 p. ISBN-10: 0517548232, ISBN-13: 978-0517548233*
4. *Eric Ries The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Currency; 1st Edition. 2011: 336 p. ISBN-10: 9780307887894, ISBN-13 : 978-0307887894*
5. *Christopher D. Piros, Jerald E. Pinto ,Economics for Investment Decision Makers: Micro, Macro, and International Economics. Wiley. 2013: 800 p. ISBN-10 : 1118105362, ISBN-13: 978-1118105368*
6. *Clayton M. Christensen The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail (Management of Innovation and Change). Harvard Business Review Press. 2013: 288 p.ISBN-10: 142219602X, ISBN-13: 978-1422196021*

Further reading:

7. *Leslie Lipschitz, Susan Schadler Macroeconomics for Professionals: A Guide for Analysts and Those Who Need to Understand Them. Cambridge University Press 2019: 308 p. ISBN-10: 1108449832, ISBN-13: 978-1108449830*
8. *William F. Samuelson, Stephen G. Marks, Jay L. Zagorsky Managerial Economics. Wiley. 2021: 560 p. ISBN-10: 1119554918, ISBN-13: 978-1119554912*
9. *Samuel Bowles Microeconomics: Behavior, Institutions, and Evolution (The Roundtable Series in Behavioral Economics). Princeton University Press. 2010: 264 p. ISBN-10: 0691145849, ISBN-13: 978-0691145846*
10. *Kathrin Meier Mastering Corporate Life: A Guide to Serenity and Success at Work. River Grove Books. 2023: 244 p. ISBN: 1632996294*
11. *Allan Dib Page Marketing Plan Paperback Page Two 2018 232 p ISBN-10: 1989025013, ISBN-13: 978-1989025017*
12. *Nathan Furr, Jeff Dyer, Clayton M. Christensen The Innovator's Method: Bringing the Lean Start-up into Your Organization Harvard Business Review Press. 2014:288 p. ISBN-10: 9781625271464, ISBN-13: 978-1625271464*

5. Methods of mastering the discipline (educational component)

№	Type of training session	Description of the training session
	Topic 1. Fundamentals of economic knowledge	
1	Lecture No1 Introduction to the course. (part 1) Lecture No2 Introduction to the course. (part 2)	Fundamentals of economic knowledge. Economic theory. The tasks of the economy. Microeconomics and Macroeconomics. Mesoeconomics and Megaeconomics. Criteria for the level of formation of economic thinking. Stages of historical development.
2	Lecture No2 10 principles of economics (part 1) Lecture No2 10 principles of economics (part 2)	Economic science considers all economic relations in society as a relationship of market exchange, abstracting from those aspects of activity that do not satisfy its conditions. Economics is the science of how society manages existing limited resources
	Topic 2. Macroeconomics. IT industry	
3	Lecture No2. Macro indicators. Measuring the cost of living. (part 1) Lecture No2. Macro indicators. Measuring National Income (Part 2)	Consumer price index. Problems of measuring the cost of living. Correction of economic parameters taking into account inflation. Revenues and expenditures in the economy. Measurement of GDP. The structure of GDP. GDP is real and nominal. CPI GDP deflator
4	Workshop No1. Macro indicators (part 1) Workshop No1. Macro indicators (part 2)	Calculations consumer price index, price growth rate. Calculation of GDP. Real and nominal GDP
5	Lecture No4. Economic theory of the social sector. Factors of influence. STEP (part 1) Lecture No4. Economic theory of the social sector. IT industry analysis (part 2)	Economic analysis of structured sectoral and country-wide activities regulated by an institutional system that corresponds to the economic, political and ideological structure (order) formed in this country.
6	Workshop No2. Choosing a case for research	Choosing an IT business project to study the economic feasibility of its implementation. Project entity description
7	Lecture No5. Supply and demand. How the market works (part 1) Lecture No5. Supply and demand. How the market works (part 2)	Supply and demand. Market forces of supply and demand. Political aspects of market protection. International markets. Features of supply and demand in international markets. International IT market.
8	Workshop No3. Social, technological, economic, political factors. STEP analysis. (part 1) Workshop No3. Social, technological, economic, political factors. STEP analysis. (part 2)	The influence of the economic, political and ideological structure on the enterprise. Factors of influence. STEP with. Strategy to overcome negative factors

		Topic 3. Microeconomics. IT industry	
9	Lecture No6. Supply and demand. Markets and Welfare (Part 1)

Lecture No6. Supply and demand. Markets and Welfare (Part 2) | The concept of model and modeling. The purpose of building a model. Principles and postulates of modeling. Types of modeling. Theory of similarity. | |
| 10 | Workshop No4. Stakeholder Analysis (Part 1)

Workshop No4. Stakeholder Analysis (Part 2) | Markets: international, industry, niche offers. Competitors. Suppliers. Analysis by 5 forces of Porter. Market behavior strategy. | |
| | | Topic 4. Fundamentals of entrepreneurship in the field of IT | |
| 11 | Lecture No7. Business behavior and market organization theory (part 1)

Lecture No7. Business behavior and market organization theory (part 2) | IT business in competitive markets: international, industry, local. Monopoly. Oligopoly. State policy on monopoly. The impact of globalization on the development of competitive IT markets. Monopolistic competition. | |
| 12 | Lecture No8. Economic Theory of the Public Sector (Part 1)

Lecture No8. Economic Theory of the Public Sector (Part 2) | Common goods. Shared resources. Political solutions to social problems. Regulation. Taxes. The emergence of the tax system. Taxes and efficiency. Taxes and social justice. Tax policy. | |
| 13 | Workshop number 5. Stakeholders. SWOT. Development strategy (part 1)

Workshop number 5. Stakeholders. SWOT. Development strategy (part 2) | Analysis of internal and external stakeholders in terms of SWOT. STEP analysis factors in terms of SWOT. Development strategy development. | |
| 14 | Lecture No 9. Labor Market Theory (part 1)

Lecture No 9. Labor market theory (part 2) | Market factors of production. Demand for labor. Labor offer. Balance in the labor market. Revenues and expenses. Discrimination. Distribution of income | |
| | | Modular test work | |
| | | Credit | |

6. Self-study

Discipline "Economics of IT industry and the Entrepreneurship" is based on independent preparation for classroom classes on theoretical and practical topics.

№	The name of the topic submitted for independent study	Number of hours	Resources
	Topic 1. Fundamentals of economic knowledge		
1	Lecture No1 Introduction to the course. (part 1)
Lecture No1 Introduction to the course. (part 2)	3	2,4,7

2	*Lecture No2 10 principles of economics (part 1)* *Lecture No2 10 principles of economics (part 2)*	*3*	*2,4,7*
	Topic 2. Macroeconomics. IT industry		
3	*Lecture No3. Macro indicators. Measuring the cost of living. (part 1)* *Lecture No3. Macro indicators. Measuring National Income (part 2)*	*3*	*1,2,7*
4	*Workshop No1 Macro indicators (part 1)* *Workshop No1 Macro indicators (part 2)*	*4*	*2,4,7*
5	*Lecture No4 Economic Theory of the Social Sector. Factors of influence. STEP analysis (part 1)* *Lecture No4 Economic Theory of the Social Sector. IT industry analysis (part 2))*	*3*	*3,4,9,10*
6	*Workshop No2 Choosing a case for research*	*2*	*5,4,10*
7	*Lecture No5 Supply and demand. How the market works (part 1)* *Lecture No5 Supply and demand. How the market works (part 2)*	*3*	*1,2,5*
8	*Workshop No3Social, technological, economic, political factors. STEP analysis. (part 1)* *Workshop No3Social, technological, economic, political factors. (part 1) STEP analysis.*	*4*	*6,9,11*
	Topic 3. Microeconomics. IT industry		
9	*Lecture No6 Supply and demand. Markets and Welfare (Part 1)* *Lecture No6 Supply and demand. Markets and Welfare (Part 2)*	*3*	*1,7,9*
10	*Workshop No4 (part 1). Stakeholder analysis* *Workshop No4 (part 2) Specific analysis*	*4*	*1,5,6*
	Topic 4. Fundamentals of entrepreneurship in the field of IT		
11	*Lecture No7 Business Behavior and Theory of Market Organization (part 1))* *Lecture No7 Business Behavior and Theory of Market Organization (part 2)*	*3*	*1,2,12*
12	*Lecture No8 Economic Theory of the Public Sector (part 1)* *Lecture No8 Economic Theory of the Public Sector (part 2)*	*3*	*2,7*
13	*Workshop No 5 Stakeholders. SWOT. Competitive analysis. Capabilities and Resources (Part 1).* *Workshop No 5 Stakeholders. SWOT. Competitive analysis. Features and resources. (part 2)*	*4*	*8,9,10,*
14	*Lecture No 9. Labor Market Theory (part 1))*	*3*	*1,2,3,7*

Lecture No 9. Theory of the labor market. (part 2)		
Modular test work	9	1-12
Credit	12	1-12

Politics and control

Policy of the discipline (educational component)

Attendance of lectures is mandatory.

Attendance at computer workshop classes can be episodic and, if necessary, consultation/defense of computer workshops.

Rules of conduct in the classroom: activity, respect for those present, disconnection of phones.

Adherence to the policy of academic integrity.

Rules for the protection of computer workshops: work must be done in accordance with the tasks and in accordance with the version.

Types of control and rating system for evaluating learning outcomes

During the semester, students perform 5 workshops. The maximum number of points for each computer workshop: 16 points.

Points are awarded for:
- quality of the workshop: 0-10 points;
- answer during the protection of the computer workshop: 0-3 points;
- timely presentation of work to the defense: 0-3 points.

Criteria for assessing the quality of performance:
10 points – the work was performed efficiently, in full;
5-9 points – the work is performed efficiently, in full, but has drawbacks;
1-4 points – the work has been completed in full, but contains significant errors;
0 points – the work is not completed in full.

Criteria for evaluating the answer:
3 points – the answer is complete, well-reasoned;
1 point – there are significant errors in the answer;
0 points – no answer or the answer is incorrect.

Criteria for assessing the timeliness of the submission of work to the defense:
3 points – the work is submitted to the defense no later than the specified period;
0 points – the work is submitted to the defense later than the specified period.

When returning work for revision, penalty points are awarded. For each return for revision, 2 penalty points are removed.

During the semester, lectures are given surveys on the topic of the current lesson. The maximum number of points for all surveys: 3 points. The number of surveys on the topic of the current lesson for one student is unlimited.

The maximum number of points for the implementation and defense of workshops:
16 points × 5 pract. = 80 points.

*The task for **the modular test consists** of 1 theoretical and 1 practical forquestions. The answer to each question is estimated at 10 points.*

Criteria for evaluating each test question:
9-10 points – the answer is correct, complete, well-reasoned;

7-8 points – the answer is correct, detailed, but not very well reasoned;
5-6 points – in general, the answer is correct, but has drawbacks;
3-4 points – there are minor errors in the answer;
1-2 points – there are significant errors in the answer;
0 points – no answer or the answer is incorrect.

The maximum number of points for a modular test:

10 points × 2 questions = 20 points.

The rating scale for the discipline is equal to:

R = RC = R pract+ RMKR = 80 points + 20 points = 100 points.

Calendar control: it is carried out twice a semester as a monitoring of the current state of fulfillment of the requirements of the syllabus.
At the first certification (8th week), the student receives "enrolled" if his current rating is at least 1-5 points (50% of the maximum number of points that a student can receive before the first certification).
At the second certification (14th week), the student receives "enrolled" if his current rating is at least 30 points (50% of the maximum number of points that a student can receive before the second certification).

Semester control: credit
Conditions of admission to semester control:
With a semester rating (R_C) of at least 60 points and I am enrolled in all the works of the workshop, the student receives a credit "automatic" in accordance with the table (Table of correspondence of rating points to grades on the university scale). Otherwise, he must perform a test paper.

A necessary condition for admission to the test work is the implementation and protection of all these workshops.

If a student does not agree with the grade "automatic", he may try to increase his grade by writing a test paper, while his points received for the semester are preserved, and of the two marks received by the student, the best ("soft" grading system is set).

Table of correspondence of rating points to assessments on a university scale:

Score	Score
100-95	Perfectly
94-85	Very good
84-75	Well
74-65	Satisfactory
64-60	Enough
Less than 60	Disappointing
Admission conditions not met	Not allowed

Additional information on the discipline (educational component)

The list of questions submitted for semester control is provided in Appendix 1.

Work program of the discipline (syllabus):

Compiled by Candidate of Technical Sciences, Associate Professor, L.A. Liushenko
Adopted by Computer Systems Software Department (protocol № 12 from 26.04.23)

Approved by the Faculty Board of Methodology (protocol № 10 from 26.05.23)

Appendix 1. The list of questions that are submitted for semester control

1. The emergence and main stages of development of economic knowledge
2. The subject of economic theory
3. Methods of economic research. Economic laws
4. Functions of economic theory. Economic policy
5. The economic needs of society are their essence and structure. The economic law of growing needs
6. Economic interests: essence, subjects, classification
7. The usefulness of the product. Marginal utility of the product
8. The essence and structure of social production
9. The main factors of social production and their relationship 6. Economic efficiency of resource use and its indicators
10. The concept of the market and the conditions of its functioning
11. Mechanism of market self-regulation
12. Structure and principles of market classification
13. Competition and monopoly in market economies
14. Contradictions of the mechanism of self-regulation of a market economy
15. The concept and essence of market infrastructure
16. Labor market. Labor exchange and its functions
17. Characteristics of the main structural elements of the market
18. The essence of finance and their role in a market economy
19. State budget and budget deficit
20. Taxes and tax system
21. Evolution of theoretical ideas on the role of the state in the economy
22. State regulation of the economy: subjects, objects and functions 2
23. Methods of state regulation of economic processes
24. Social policy of the state
25. Revenues of the enterprise and their classification
26. The essence, the mechanism of income generation
27. Pricing policy of the enterprise
28. Pricing methods.
29. Stages of enterprise income planning.
30. Formation of profits of the enterprise.
31. The essence of taxation of enterprises and the tax system