NATIONAL TECHNICAL UNIVERSITY OF UKRAINE
"IGOR SIKORSKY KYIV POLYTECHNIC INSTITUTE"

FACULTY OF MANAGEMENT AND MARKETING

P-CATALOG

SELECTED EDUCATIONAL DISCIPLINE

CYCLE OF PROFESSIONAL TRAINING

for applicants of the third (educational scientific) level of higher education (PhD degree) in specialty 051 "Economics"

APPROVED

Methodical council
Igor Sikorsky Kyiv Polytechnic Institute
(protocol № 5 from “06” 03. 2025

APPROVED:

FMM Academic Council
Igor Sikorsky Kyiv Polytechnic Institute
(protocol № 7 from "30" 01. 2025)

Kyiv – 2025

INFORMATION FOR APPLICANTS

We present to your attention the P-Catalog for selecting elective educational components of the Educational and Scientific Program "Economics" at the third (educational scientific) level of higher education (Doctor of Philosophy).

According to Section X, Article 62 of the Law of Ukraine "On Higher Education" (No. 1556-VII dated 01.07.2014), elective courses are disciplines of free choice for students at a specific level of higher education. They are aimed at ensuring general and specialized (professional) competencies in the chosen specialty. The volume of elective courses must be at least 25% of the total number of ECTS credits provided for this level of education.

According to the Regulations on the Implementation of the Right to Free Choice of Academic Disciplines by Students of Igor Sikorsky Kyiv Polytechnic Institute, students make their selections using the University's specialized information system (https://my.kpi.ua/).

Before choosing academic disciplines, students familiarize themselves with the procedure, deadlines, and specifics of enrolling in the proposed courses, as well as the conditions for forming study groups/streams for elective courses from the F-Catalog.

The P-Catalog contains an annotated list of courses offered for selection by postgraduate students (PhD) at the third (educational and scientific) level of higher education, in accordance with their curriculum for the upcoming academic year.

The results of the student's choice of academic disciplines are recorded in their individual study plan under the section "Selected Disciplines", in accordance with the Regulations on the Individual Study Plan for Higher Education Students at Igor Sikorsky Kyiv Polytechnic Institute.

The academic disciplines included in the student's individual study plan are mandatory for study.

All aspects related to the implementation of students' right to choose disciplines can be found in the Regulations on the Implementation of the Right to Free Choice of Academic Disciplines by Students of Igor Sikorsky Kyiv Polytechnic Institute (https://osvita.kpi.ua/node/185).

P-Catalog

Selective educational components

Educational and Scientific Program "Economics"

The total number of credits for the autumn semester of 2025–2026's selective educational components is 5 credits, the form of semester control - exam

(one component from the list)

№	Semester	Selective educational components	Number of credits
1	3	Economic Theories of Nobel Laureates	5
2	3	Economy of Industry 4.0	5
3	3	Circular Economy and Sustainable Development	5
4	3	Economics of War	5
5	3	Current Problems of the Economy in the Global Environment	5
6	3	Intellectual resources of economic systems	5

The total number of credits for the spring semester of 2025–2026's selective educational components is 4 credits, the form of semester control - test

(one component from the list)

№	Semester	Selective educational components	Number of credits
1	4	Experts in Teamwork	4
2	4	Transnationalization of the Global Economy	4
3	4	Economic and Mathematical Modelling of Research Space Objects	4
4	4	Modelling the Interaction of Economic Agents	4
5	4	Situational analysis in economics	4
6	4	Institutional Analysis of Economic Development	4

The total number of credits for the spring semester of 2025–2026's selective educational components is 5 credits, the form of semester control - exam

(one component from the list)

№	Semester	Selective educational components	Number of credits
1	4	Integration Processes in International Research	5
2	4	Economics of innovation and product development of TNCs	5
3	4	Strategic Potential of Economic Development	5
4	4	Digital Transformation of the Economy	5
5	4	Modern models and mechanisms of economic development	5
6	4	Regulation of Structural Changes in the Economy	5

Disciplines for graduate students to choose (3th semester, 5 credits, exam)

(one component from the list)

Discipline	**Economic Theories of Nobel Laureates**
Department	International Economics
Educational level	Third (educational and scientific)
Year of study	2 / 3 semester
Number of ECTS credits	5 credits / 150 hours (56 hours of classroom work, 94 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	Prerequisite for the study of the discipline are normative disciplines: "Philosophical principles of scientific activity", "World Economy", "Neoclassical models of economic processes", "Organization of scientific and innovative activities".
What will be studied?	The following issues will be studied in detail in the training sessions: The essence of the Nobel Prize in economics. Neo-Keynesian direction of Nobel laureates in economic theory. Neoclassical direction of Nobel laureates in economic theory. The development of neoliberalism in the economic theories of Nobel laureates. Neo-institutionalism in the economic theories of Nobel laureates. Formation of Nobel Prize winners in behavioral economics. The latest technologies of applied analysis in the economic theory of Nobel laureates. Nobel laureates of today and their economic theories.
Why it is interesting / necessary to study	The course will be useful to all those who intend to: systematically comprehend the scientific achievements of the world level in the field of economics, create opportunities, analyze and evaluate the impact of economic theories of Nobel laureates on the world economy; to practically apply the achievements of Nobel laureates in the world economy, as well as to analyze modern views on the economic theories of Nobel laureates and to study examples of their use at the micro level of states.
Why you can learn (learning outcomes)	-to apply the acquired knowledge of the basic economic theories of Nobel laureates in the process of scientific research; -to use the basic principles of economic theories of Nobel laureates for the development and adoption of management decisions at the level of the country, region or enterprise; - to determine the prospects for the development of countries, regions, enterprises, taking into account the basic provisions of economic theories of Nobel laureates.
How to use the acquired knowledge and skills (competencies)	Ability to use professional knowledge and practical skills in neoliberalism and neo-institutionalism in economic theories of Nobel laureates in order to use scientific, intellectual, industrial, information potential in the process of synthesizing knowledge of economic theories of Nobel laureates to make proposals to improve the efficiency of the domestic economy
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Economy of Industry 4.0**
Department	International Economics
Educational level	Third (educational and scientific)
Year of study	2 / 3 semester
Number of ECTS credits	5 credits / 150 hours (56 hours of classroom work, 94 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	Prerequisite for the study of the discipline are normative disciplines: "Philosophical principles of scientific activity", "World Economy", "Neoclassical models of economic processes", "Organization of scientific and innovative activities".
What will be studied?	Features of the development of economies during industrial revolutions and the societal transformation within the knowledge economy of the third decade of the 21st century. The role of technological intensity and knowledge-based industries in Industry 4.0 and the realization of their intellectual and entrepreneurial potential. Fundamental principles of enterprise evolution, from a startup to a successful large-scale transnational innovative corporation. Design of business and manufacturing structures and product lifecycle support based on Industry 4.0 principles. The influence of Millennials, Generation Y, and Generation Z on entrepreneurship development in the third decade of the 21st century. Optimization of investment resources and human capital utilization for sustainable business development. Strategic change planning and consideration of cyclical economic and societal processes.
Why it is interesting / necessary to study	This educational component provides PhD students with fundamental knowledge on the cyclical development of economies, industrial transformation, and startup growth based on Industry 4.0 principles, integrating elements of Industry 5.0 and Society 5.0.
Why you can learn (learning outcomes)	Upon completing the course, PhD students will be able to: - Navigate the spectrum of Industry 4.0 technologies to assess their commercialization potential, development prospects, and their impact on business valuation. - Ensure personal and business growth by integrating modern technologies from Industry 4.0 and Society 5.0. - Master analytical tools for assessing business performance in modern economic conditions based on Industry 4.0 principles. - Identify promising economic activities for medium- and long-term development, considering technological revolution trends.
How to use the acquired knowledge and skills (competencies)	Acquiring competencies in economic activities under Industry 4.0 conditions allows individuals to unlock their innovation potential and develop business structures aimed at ensuring a high quality of life and safety, adhering to the principles of sustainable development.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Circular economy and sustainable development**
Department	Economic cybernetics
Educational level	Third (educational and scientific)
Year of study	2 / 3 semester
Number of ECTS credits	5 credits / 150 hours (56 hours of classroom work, 94 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the knowledge gained in the study of the following disciplines: 'World Economy', "Philosophical foundations of scientific activity", "Neoclassical Models of Economic Processes".
What will be studied?	During the study of the discipline, the following issues will be considered: the concept and principles of the circular economy and green economic recovery; models of the circular economy; global economic decoupling; digitalisation in the circular economy: artificial intelligence, big data, blockchain, IoT; economic analysis of circular business models; sustainable business tools; ESG strategies: best practices; innovative strategies for energy and resource efficiency; financial mechanisms for implementing circular economy projects in a sustainable system.
Why it is interesting / necessary to study	Today, in the context of global trends in sustainable development, carbon neutrality, and the need for businesses to implement sustainable innovative solutions, the circular economy embraces the principles of zero waste production, is an alternative to linear production and consumption models, and stimulates new innovative business models based on resource efficient production and decarbonisation.
Why you can learn (learning outcomes)	Develop strategies to ensure the principles of the circular economy at different hierarchical levels; Develop projects and strategies for waste-free production at the enterprise; Evaluate the effectiveness of measures in the field of circular economy; Formulate strategic priorities for economic development, taking into account the needs of sustainable development; Develop plans for the implementation of circular practices, taking into account environmental, social and economic factors.
How to use the acquired knowledge and skills (competencies)	The acquired knowledge and skills allow future scientists to analyse, define and evaluate quantitative and qualitative indicators of the circular economy, taking into account sustainable development factors; develop projects in the field of circular economy and sustainable development; evaluate the effectiveness of projects and activities in the field of circular economy; justify the directions of resource-efficient development, taking into account global trends in decarbonisation; develop measures to improve the efficiency of economic activity, taking into account the best circular practices.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Economics of war**
Department	Economic cybernetics
Educational level	Third (educational and scientific)
Year of study	2 / 3 semester
Number of ECTS credits	5 credits / 150 hours (56 hours of classroom work, 94 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the knowledge gained in the study of the following disciplines: 'World Economy', "Neoclassical Models of Economic Processes", "Change Management and Business Transformation".
What will be studied?	During the study of the subject will be considered such issues as: theoretical and methodological foundations of the economy of the enterprise, industries and the country as a whole in the context of a full-scale military conflict; innovative and investment strategies for ensuring infrastructure revival and regional development in the post-war period; development priorities and key aspects of infrastructure security.
Why it is interesting / necessary to study	As a result of Russia's aggression, Ukraine will need about $500 billion to rebuild, and this is only an estimate of the destruction for 2024. Today, it is impossible to study the country's economy without taking into account martial law and the consequences of the war. The fall in GDP, industrial production, mass migration, and increased public debt also affect the country's financial strategy and tax policy. It is extremely important to understand the scale of losses, to be able to calculate damages and to model the recovery of interconnected complex dimensions - infrastructure, economic, social and environmental.
Why you can learn (learning outcomes)	The course provides for the mastery of economic processes in wartime conditions: infrastructure destruction, personnel shortages, tough tax policy and limited resources and allows you to learn: Organisation of operational activities and internal production relations at the enterprise in wartime; Develop a strategy for economic activity in the harsh conditions of war; Developing strategies and projects for reconstruction: infrastructural, economic, social and environmental, both during the war and in the post-war period; Estimate the costs of direct defence and security actions during the war.
How to use the acquired knowledge and skills (competencies)	The programme of the discipline is aimed at preparing applicants for research, information and analytical, organisational and managerial activities, the acquired knowledge and skills form a number of abilities to: analyse, identify and assess quantitative and qualitative changes in the country's economy and directly in the economic activities of enterprises during the war; develop projects to restore systems of institutions, processes, services and links between them; evaluate the effectiveness of projects and activities during the crisis state of hostilities; justify the directions of restoration
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Current problems of the economy in the global environment**
Department	Economics and Entrepreneurship
Educational level	Third (educational and scientific)
Year of study	2 / 3 semester
Number of ECTS credits	5 credits / 150 hours (56 hours of classroom work, 94 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the main provisions of the discipline “Neoclassical Models of Economic Processes”.
What will be studied?	Problems of world economy and modern tendencies of its development, macroeconomic problems of modern economy, problems of social sphere, ecological problems of industrial development, problems of agro-industrial complex in modern economy, problems of ensuring energy independence of Ukraine, actual problems of business development in Ukraine, financing of enterprises, economic security
Why it is interesting / necessary to study	Assessment of current trends in economic development allows to identify the causes and factors influencing the formation of trends of loss of stability and efficiency of economic systems, which provides scientists with information about sources of potential economic losses, and on this basis to develop proposals and develop appropriate economic tools to solve current economic problems
Why you can learn (learning outcomes)	In the process of studying the discipline, scientists acquire knowledge of a systematic approach to the analysis of major trends and prospects for the development of economic systems at the macro, meso, micro level; theoretical foundations and patterns of economic functioning, including transition processes; principles of making and implementing economic and managerial decisions
How to use the acquired knowledge and skills (competencies)	Acquired knowledge and skills allow future scientists to identify problems of an economic nature in the analysis of specific situations, suggest ways to solve them and evaluate the expected results; systematize and summarize information, prepare references and reviews on professional activities, edit, review, review texts; use basic and special methods of economic analysis of information in the field of professional activity; develop and justify options for effective solutions; critically evaluate the behavior of economic agents, development trends of economic objects.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Intellectual resources of economic systems**
Department	Economics and Entrepreneurship
Educational level	Third (educational and scientific)
Year of study	2 / 3 semester
Number of ECTS credits	5 credits / 150 hours (56 hours of classroom work, 94 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the main provisions of the discipline “Neoclassical Models of Economic Processes”.
What will be studied?	During the study of the subject will be considered such issues as: the essence of the concept “intellectual resources” and their specifics, the evolution of the genesis of economic systems; research the importance of intellectual resources of certain regions of Ukraine and the peculiarities of their use in modern conditions; patterns, principles and factors of influence intellectual resources on economic systems; methods for assessing the effectiveness of economic systems in conditions of uncertainty; European experience in providing intellectual resources to economic entities and the possibility of its implementation in Ukraine; trends and dynamics of economic systems development in Ukraine and tools for involvement innovation resources; the structure of economic behavior is based on the knowledge base of person, the ability to expand, improve and modernize it through integration into the existing system of information flows; capitalization of intellectual potential.
Why it is interesting / necessary to study	The subject provides necessary knowledge for learning the conceptual apparatus, methodology and applied tools for assessing the level of economic systems provision of intellectual resource by graduate students; acquisition of knowledge about the patterns and features of the formation of intellectual resources in Ukraine; obtaining information that allows to research the level of economic systems development; to gain practical skills in using methods to assess the level of intellectual resources of Ukraine, which in turn provides the formation of skills to develop effective strategies and tactics in the management of economic systems
Why you can learn (learning outcomes)	In the process of research, the subject, students acquire knowledge of theoretical and practical aspects of using methodological apparatus and tools for assessing the level of intellectual resources of regional economic systems.
How to use the acquired knowledge and skills (competencies)	Acquired knowledge and skills allow future scientists to analyze, determine and evaluate quantitative and qualitative economic and social parameters that characterize the level of intellectual resources of economic systems, evaluate the results of formation and using intellectual resources based on economic systems.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Disciplines for graduate students to choose (4th semester, 4 credits, test)

(one component from the list)

Discipline	**Experts in teamwork**
Department	International Economics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	4 ECTS credits / 120 hours (72 hours of classroom work, 48 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	Prerequisite for studying the discipline are normative disciplines: "Fundamentals of Economic Theory", "Fundamentals of Research", "Management", "Work Motivation", "Change Management and Business Transformation", "Business Economics", "Economics and Personnel Management".
What will be studied?	The following issues will be studied in detail in the classes: Groups and types of teams. Advantages and disadvantages of teamwork. Formation of teamwork: requirements, composition of participants, principles, specifics. Modern techniques and technologies for attracting employees to teamwork. Organization and planning of joint team work. Evaluation of the level of team performance and efficiency of experts. Improving the effectiveness of team work and team efficiency. Motivation of team robot workers. Expert opinion: decision-making by experts and documentation. Competences of experts in team management and competence profiles. The specifics of forming a team for examinations. Concordation of experts in the development of industry development strategies 4.0. Consolidation of experts - success in implementing effective Industry 4.0 programs. Software for conducting research, processing statistical data of examinations. Directions of formation and professional development of experts and team members. The following issues will be studied in detail in the classes: Groups and types of teams. Advantages and disadvantages of teamwork. Formation of teamwork: requirements, composition of participants, principles, specifics. Modern techniques and technologies for attracting employees to teamwork. Organization and planning of joint team work. Evaluation of the level of team performance and efficiency of experts. Improving the effectiveness of team work and team efficiency. Motivation of team robot workers. Expert opinion: decision-making by experts and documentation. Competences of experts in team management and competence profiles. The specifics of forming a team for examinations. Concordation of experts in the development of industry development strategies 4.0. Consolidation of experts - success in implementing effective Industry 4.0 programs. Software for conducting research, processing statistical data of examinations. Directions of formation and professional development of experts and team members.
Why it is interesting / necessary to study	Studying this course gives students the opportunity to gain and develop skills in teamwork and diagnose problems in the management and functioning of teams, as well as to learn about modern techniques and technologies for involving experts in teamwork.
Why you can learn (learning outcomes)	methods of analysis of the effectiveness of decisions made by team experts; methods of assessing the level of effectiveness of the team and the effectiveness of experts; principles of integration of innovation ecosystem into teams; methods of collaboration of expert teams in the professional development of experts from Industry 4.0; make effective management decisions on the specifics of professional development of experts and teamwork.
How to use the acquired knowledge and skills (competencies)	Ability to analyze various scientific concepts to develop effective management decisions in the functioning of a team of experts and to assess the economic efficiency of decisions made by the team; to form teams of experts taking into account the specifics of their activities (including international issues) and the competence profiles of its participants; select experts with professional qualities and abilities to integrate them into innovation ecosystems; increase their own efficiency as a leader or leader of a team of experts, taking into account the specifics of the formation and effective functioning of the team.
Information support	TThe information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Test

Discipline	**Transnationalization of the Global Economy**
Department	International Economics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	4 ECTS credits / 120 hours (72 hours of classroom work, 48 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	Prerequisite for the study of the discipline are normative disciplines: "Philosophical principles of scientific activity", "World Economy", "Neoclassical models of economic processes", "Organization of scientific and innovative activities".
What will be studied?	Features of the Functioning of Transnational Corporations in the Knowledge Economy of the Third Decade of the 21st Century. - Opportunities and limitations of the transnationalization process for startups. - Application of the principles of internationalization theory and appropriation theory in the development of transnational structures. - Classification and types of corporate associations in terms of optimizing the production and commercial capabilities of entrepreneurial structures. - Innovation and investment opportunities of multinational business structures based on the Fourth Technological Revolution. - Strategic change planning and strategic management in short-, medium-, and long-term economic cycles. - Marketing strategies for the production and commercial activities of transnational corporations (TNCs) in the 21st century. - Management of global supply chains and the international product life cycle of TNCs. - Recruitment, training, professional development, and career growth of personnel within transnational structures.
Why it is interesting / necessary to study	Educational Component and Learning Outcomes. The study of this educational component provides PhD students with knowledge about the development and functioning of transnational entrepreneurial structures and helps them develop skills in diagnosing business unit growth from a startup to a transnational corporation.
Why you can learn (learning outcomes)	Upon completion of the course, PhD students will be able to: - Identify opportunities for a startup to grow from a small enterprise into a transnational corporation. - Master methodologies for analyzing the production and commercial activities of large international business structures in modern economic conditions. - Identify innovation and investment opportunities for scaling a startup into a multinational business structure based on the knowledge economy. - Manage global supply chains and the international product life cycle of TNCs.
How to use the acquired knowledge and skills (competencies)	A strong understanding of the functioning of transnational corporations enables PhD students to analyze and comprehend the processes of business growth from a small enterprise to a large transnational corporation within the economic realities of the knowledge economy.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Test

Discipline	**Economic and mathematical modelling of research space objects**
Department	Economic cybernetics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	4 ECTS credits / 120 hours (72 hours of classroom work, 48 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The prerequisite for the course is the normative disciplines: 'Philosophical Foundations of Scientific Activity', "Neoclassical Models of Economic Processes", "Organisation of Scientific and Innovative Activity".
What will be studied?	The applicant has the opportunity to gain knowledge and experience in technologies for building solutions to models describing processes in the objects of the research space, management and their qualitative analysis, knowledge and skills sufficient to generate new ideas, solve complex problems in the professional field, the ability to solve complex economic problems in professional activities or in the process of study.
Why it is interesting / necessary to study	The need of the hour is to train specialists of a new quality - able to think creatively, quickly navigate the modern saturated information space, make non-standard decisions, learn and develop throughout life. The formation of such a technology is largely based on computer modelling of various processes necessary for human life, determining their advantages and disadvantages, carrying out thematic and cross-cutting analysis of results and data, as well as visualisation, which is one of the important components of this process.
Why you can learn (learning outcomes)	In the course of studying the discipline, students will learn: to study objects related to the research space; theoretical provisions for determining the types of research space; technologies for building solutions to models describing processes in research space objects, management and their qualitative analysis; technologies and methods for conducting complex applied research on various objects of the research space.
How to use the acquired knowledge and skills (competencies)	In the process of studying the discipline, students will acquire knowledge and be able to: synthesise the key characteristics of economic systems of different levels and analyse the behaviour of their subjects; create economic and mathematical models that describe the behaviour of objects of the research space; conduct applied research in socio-economic systems in which there is a research, using modern and reliable input information, as well as original methods of analysis.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Test

Discipline	**Modelling the interaction of economic agents**
Department	Economic cybernetics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	4 ECTS credits / 120 hours (72 hours of classroom work, 48 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the knowledge gained in the study of the disciplines: 'World Economy', "Neoclassical Models of Economic Processes".
What will be studied?	The course will address such issues as: nonlinear dynamic systems, control of dynamic systems, modelling of horizontal and vertical interaction of economic agents; three-sector model of the economy, interaction of economic sectors, solving problems of multi-criteria optimisation in the interaction of economic agents.
Why it is interesting / necessary to study	A solution to an important scientific problem is proposed, which is to develop economic and mathematical models of interaction between economic agents, taking into account new relevant factors and processes.
Why you can learn (learning outcomes)	In the course of studying the discipline, students will acquire knowledge and skills in the methodology, techniques and tools of economic and mathematical modelling. They will learn how to build models with economic agents that simulate various processes of interaction between them; determine the economic benefits of economic agents' interaction; analyse the factors of economic interaction; and justify optimal solutions for the behaviour of economic agents.
How to use the acquired knowledge and skills (competencies)	The programme of the discipline is aimed at preparing students for research, information and analytical, organisational and managerial activities, the acquired knowledge and skills form a number of abilities, namely the ability to build models of interaction between economic agents; ability to solve multi-criteria optimisation problems; ability to build models taking into account the behavioural aspects of agents.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Test

Discipline	**Situational analysis in economics**
Department	Economics and entrepreneurship
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	4 ECTS credits / 120 hours (72 hours of classroom work, 48 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the knowledge gained in the study of the discipline "Neoclassical Models of Economic Processes".
What will be studied?	During the study of the discipline will be considered such issues as: the essence of situational analysis in economics; basic approaches to determining the essence of situational analysis; analysis of parameters of economic system development; the place of situational analysis in crisis management; methods and tools of situational analysis in economics; the role of information in situational analysis; methods of situational analysis in economics; risks in situational analysis; situational analysis in business planning; evaluation of the results of situational analysis in the economy and management decisions; making managerial decisions based on the results of situational analysis; strategy and tactics in situational analysis.
Why it is interesting / necessary to study	The course provides graduate students with the necessary amount of knowledge to master the conceptual apparatus, methodology and applied tools for evaluating the results of the use of situational analysis in economics and management decisions; acquiring knowledge about the patterns and features of the formation of parameters of the economic system in Ukraine; obtaining information that allows to investigate the place of situational analysis in crisis management; analyze ways to gather information for situational analysis, as well as gain knowledge and practical skills in using situational analysis methods, which in turn provides skills in developing effective strategies and tactics in situational analysis.
Why you can learn (learning outcomes)	In the process of studying the discipline, students acquire knowledge of theoretical and practical aspects of the use of methodological apparatus and tools for assessing the effectiveness of situational analysis in economics.
How to use the acquired knowledge and skills (competencies)	Acquired knowledge and skills allow future scientists to analyze, determine and evaluate quantitative and qualitative economic and social parameters that characterize the level and effectiveness of economic system, conduct situational analysis using various techniques, evaluate the results of situational analysis in economics and management decisions, develop measures to increase the efficiency of economic development in Ukraine on the basis of strategy and tactics of situational analysis.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Test

Discipline	**Institutional analysis of economic development**
Department	Economics and Entrepreneurship
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	4 ECTS credits / 120 hours (72 hours of classroom work, 48 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The discipline is based on the main provisions of the disciplines “Neoclassical Models of Economic Processes”, “Change Management and Business Transformation”.
What will be studied?	During the study of the discipline will be considered such issues as: the essence of the concept of "institution" and the evolution of the genesis of institutional development; basic approaches to defining the category "institute"; stages of development of institutional economic theory; institutional structure of the market economy; transaction cost theory; institutional analysis of the development of economic systems; contract theory; property rights theory; institutional analysis of Ukraine's economic development; the process of forming institutes in Ukraine; evolution of property relations in Ukraine; administrative reforms in Ukraine; fiscal reform in Ukraine; development of innovation infrastructure in Ukraine; formation of the social component of the institutional environment in Ukraine.
Why it is interesting / necessary to study	The course provides graduate students with the necessary amount of knowledge to master the conceptual apparatus, methodology and applied tools for assessing the level of institutional development of the national economic system and change the structure of the institutional environment; acquisition of knowledge about the laws, principles and features of the formation and development of property relations in Ukraine; obtaining information that allows you to objectively analyze the preconditions and consequences of administrative reform, changes in the tax system and fiscal incentives, as well as mastering the latest tools for effective formation and use of resources for enterprise development in times of economic crisis; knowledge and practical skills to develop recommendations for improving the institutional environment in Ukraine.
Why you can learn (learning outcomes)	In the process of studying the discipline, students master the knowledge of theoretical and practical aspects of using the methodological apparatus and tools to assess the effectiveness of the institutional environment of business entities.
How to use the acquired knowledge and skills (competencies)	Acquired knowledge and skills allow future scientists to analyze the mechanisms of domestic institutional environment, determine and evaluate quantitative and qualitative economic and social parameters that characterize the level and efficiency of economic system, develop measures to improve the development of institutions in Ukraine in accordance with strategic economic goals.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Test

Disciplines for graduate students to choose (4th semester, 5 credits, exam)

(one component from the list)

Discipline	**Integration processes in international research**
Department	International Economics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	5 credits / 150 hours (72 hours of classroom work, 78 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	Prerequisite for the study of the discipline are normative disciplines: "Philosophical principles of scientific activity", "World Economy", "Neoclassical models of economic processes", "Organization of scientific and innovative activities".
What will be studied?	The following issues will be studied in detail during the training sessions: Scientific, technical and innovation policy of countries as an integration tool. Legislative support for scientific, technical and innovation activities. Transformation of international scientific cooperation in the context of globalization. Development and development of research infrastructure. Joint research networks. Landscape for the development of open science and innovation. Development of the European Research Area (ERA). Formation of interaction with scientific communities and civil society. Development of European partnerships.
Why it is interesting / necessary to study	The course will be useful to all those who intend to acquire knowledge about integration processes in international research in order to find and/or form international partnerships for joint scientific research and further commercialization of completed projects.
Why you can learn (learning outcomes)	Assess strategies for developing research potential in different groups of countries; Implement methods of open coordination and partnership management in research initiatives; Assess trends in the development of the European Research Area (ERA) and its implications for international cooperation; Identify and assess trends in social activity and interaction related to the implementation of scientific research; Analyse and use legislation regulating the transfer of technology and knowledge in order to improve research activities; Develop and implement models of innovative economic development that contribute to integration processes; Participate in international research training programs to promote cooperation; Assess mechanisms of state support for scientific and innovative activities at enterprises; Assess the volume of funding for international joint research projects and determine sources of their involvement.
How to use the acquired knowledge and skills (competencies)	Ability to determine the role and place of national innovation systems in integration processes; Ability to evaluate innovation policy in national and international contexts; Ability to navigate and interpret legislation related to scientific, technical and innovative activities at both the national and international levels;Ability to assess the effectiveness of intellectual property rights protection in stimulating innovation; Ability to understand the forms of interaction and integration of science and education; Ability to assess the position and potential of Ukraine in the European research space. Ability to understand the essence and role of research infrastructure in promoting scientific research and innovation. Ability to conduct case studies on successful international research cooperation initiatives. Ability to understand and implement the principles of the Open Science and Open Innovation paradigms in research practice. Ability to understand the functioning of European partnerships as policy instruments for research and innovation.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Economics of innovation and product development of TNCs**
Department	International Economics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	5 credits / 150 hours (72 hours of classroom work, 78 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	A prerequisite for studying the discipline are normative academic disciplines: "Philosophical foundations of scientific activity", "World economy", "Neoclassical models of economic processes", "Organization of scientific and innovative activity".
What will be studied	The following issues will be studied in detail in the classes: innovations in the international research space; TNC`s innovation economy; peculiarities of functioning of research centers and scientific institutions; cooperation mechanisms of international research groups; formation of transnational research structures; economic risks of innovation activities and strategies for their minimization; financing mechanisms for joint international scientific and applied projects; transformations in the consumption of goods under the influence of Industry 4.0 principles; mechanisms of integration of individual TNCs into the international research space; prospects and opportunities for international scientific cooperation in the field of innovation and product development; practical use of scientific developments and innovative solutions in the production of TNC`s products, sectoral features of TNC`s product development; the impact of crisis phenomena on the development process of TNC`s products; strategies for introducing innovative products of TNCs to international markets
Why it is interesting / necessary to study	The course will be useful for anyone who wants to understand the role of integration processes in the innovation policy of TNCs, understanding the specifics of innovation processes in global corporations and implementing best international practices, and the possibilities of selling developed products on foreign markets in conditions of international cooperation, as well as the peculiarities of financing research projects and groups, and know more about the peculiarities of operations in the cooperation of research groups from different countries
Why you can learn (learning outcomes)	to propose new solutions; to develop scientific projects that provide an opportunity to rethink the existing and create new integral knowledge and/or professional practice and solve significant both fundamental and applied problems of economic science, taking into account social, economic, environmental and legal aspects; to ensure the commercialization of scientific research results and the observance of intellectual property rights during product development
How to use the acquired knowledge and skills (competencies)	Identify, in-depth analysis and solve problems of a research nature in the field of new product development, taking into account economic risks and possible socio-economic consequences, evaluate and ensure the quality of the performed research; initiate, develop and implement complex innovative projects in the economy, show leadership and responsibility during their implementation; commercialize the results of scientific research and ensure compliance with intellectual property rights during product development
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Strategic potential of economic development**
Department	Economic cybernetics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	5 credits / 150 hours (72 hours of classroom work, 78 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The prerequisite for studying is the mastery of learning outcomes in the following disciplines: "World Economy", "Neoclassical Models of Economic Processes", "Change Management and Business Transformation"
What will be studied?	The structure of the discipline is revealed in the following topics: methodological aspects of adaptive economy in modern transformational conditions; regulation of the economy as the basis of its adaptation to the permanent transformations of modernity; management of digitization in the conditions of an adaptive economy; adaptive rationality and economic behavior in an evolutionary context; theory of adaptive expectations; system of adaptive management of the enterprise in conditions of uncertainty; economic security of the enterprise in the conditions of an adaptive economy; forecasting the activity of enterprises using adaptive models.
Why it is interesting / necessary to study	Activation of the strategic potential of economic development at the macro , meso , and micro levels forms the basis of its effective implementation based on differentiated resource components, which will ensure economic growth at all levels of the social hierarchy. Understanding the principles of determining and evaluating the strategic potential of the economic system and the use of science-based approaches to structuring and realizing the potential are factors that ensure the long-term competitive advantage of the state and its economic agents.
Why you can learn (learning outcomes)	While studying the discipline, applicants will learn : to apply methods of integration of elements of the strategic potential of economic systems to determine optimal management decisions regarding its activation and implementation; methods and areas of potential research using resource and effective approaches to ensure target, factor -production, system analysis taking into account the opportunities of the external environment; to investigate the systemic interaction of the state, the region and business to activate the strategic potential and opportunities for its implementation; take into account the best global practices regarding the activation of the strategic potential of economic development on the basis of sustainable development and the conceptual foundations of Industry 4.0, 5.0.
How to use the acquired knowledge and skills (competencies)	In the process of studying the discipline, students will acquire knowledge and be able to: evaluate the strategic potential of economic systems, taking into account resource and effective approaches; to determine and choose effective directions for the activation of strategic analysis, taking into account the results of the analysis of the current state and trends in the development of resources of economic systems; to model and forecast the strategic potential, taking into account the changing factors of the external environment and geopolitical transformations; develop sound strategies using a scenario approach to realizing the strategic potential of economic development.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Digital transformation of the economy**
Department	Economic cybernetics
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	5 credits / 150 hours (72 hours of classroom work, 78 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The prerequisite for the study of the discipline is the normative disciplines: 'Neoclassical models of economic processes', 'Change management and business transformation'
What will be studied?	The impact of digital technologies on economic processes; the essence and features of digital transformation of the economy; new business models in the context of digitalisation; the role of automation, artificial intelligence, blockchain and big data in the development of enterprises; digitalisation of the labour market and its impact on employment; digital tools in resource management; challenges of digital transformation, including cybersecurity, data protection and reducing the digital divide; analysis and implementation of digital solutions to improve the competitiveness of enterprises.
Why it is interesting / necessary to study	Understanding the basic principles and trends of digital transformation of the economy; mastering methods of analysing and assessing the impact of digital technologies on economic systems; gaining skills in working with digital platforms, automation technologies and big data analytics; developing skills to develop effective strategies for implementing digital solutions in enterprises and in economic policy.
Why you can learn (learning outcomes)	Theoretical foundations of digital transformation of the economy; methods of analysing digital solutions and their impact on the efficiency of enterprises; basics of developing digital strategies for business; skills in applying modern digital technologies in various sectors of the economy, including marketing, logistics, finance and human resources.
How to use the acquired knowledge and skills (competencies)	The acquired knowledge and skills allow future scientists to analyse and evaluate the possibilities of introducing digital technologies in business; adapt enterprises to the challenges of digital transformation; create innovative business models; develop and implement digital strategies to increase competitiveness; solve problems of resource optimisation, improve management and increase productivity in the digital economy.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Modern models and mechanisms of economic development**
Department	Economics and entrepreneurship
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	5 credits / 150 hours (72 hours of classroom work, 78 hours of independent work)
Language of study	English
Assumed knowledge and prerequisites	The prerequisite for the study of the discipline is the normative disciplines: ‘Neoclassical models of economic processes’, ’Change management and business transformation’
What will be studied?	Types of models of economic development of national economy, conceptual approaches to investment model of economic development, conceptual approaches of model "knowledge economy", model of accelerated economic growth, model of catching up economic growth, model of sustainable development, model of competitive economy, national models of economic development business models of the enterprise, general characteristics of the business model of the enterprise, approaches to the formation of the business model of enterprise development
Why it is interesting / necessary to study	The history of development of the countries of the world and their business testifies to use of various set of models and mechanisms which have allowed to reach an existing state of development. The ability to analyze the models of economic development of national economies and the corresponding models of enterprise development forms in potential scientists a systematic vision of development tools and ways to use them in macro and micro systems.
Why you can learn (learning outcomes)	In the process of studying the discipline students master the knowledge of a systematic approach to the analysis of models of economic systems of macro-, meso-, micro-level, theoretical foundations and patterns of economic development and relevant forms and tools for its provision
How to use the acquired knowledge and skills (competencies)	Acquired knowledge and skills allow future scientists to analyze the mechanisms of economic systems and business models of the enterprise, generalize the dominants of economic development and choose appropriate models for their implementation, to form mechanisms in accordance with strategic goals of economic development, to form business models.
Information support	The information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam

Discipline	**Regulation of structural changes in the economy**
Department	Economics and entrepreneurship
Educational level	Third (educational and scientific)
Year of study	2 / 4 semester
Number of ECTS credits	5 credits / 150 hours (72 hours of classroom work, 78 hours of independent work)
Language of study	Englisg
Assumed knowledge and prerequisites	The discipline is based on the main provisions of the disciplines “Neoclassical Models of Economic Processes”, “Change Management and Business Transformation”.
What will be studied?	During the study of the subject will be considered such issues as: the essence of the concept of “structural changes” and the evolution of the genesis of economic development; patterns, principles and factors that have influence for structural changes in the Ukraine economy; methods of assessing structural changes in the economy of certain regions of Ukraine under the influence of capitalization of intellectual potential; European experience in regulating structural changes in the economy and the possibility of its implementation in Ukraine; trends and dynamics of structural changes in the economy; features of the implementation of reforms in Ukraine; features of regulation of structural changes in Ukraine at the national and regional levels; development of innovation infrastructure in Ukraine.
Why it is interesting / necessary to study	The subject provides for postgraduate students the necessary knowledge for studding the conceptual apparatus, methodology and applied tools for assessing the level of structural changes in the national economic system and change the structure of the business environment; acquiring knowledge about the laws, principles and features of the formation and development of the regulating structural changes process in Ukraine; obtaining information that allows to make analyze of the preconditions and consequences of reforms that precede structural changes, as well as take the tools for effective formation and using of tools which regulate the development of enterprises, regions and national economy in conditions of dynamic changes its structure; knowledge and practical skills to develop recommendations for improving the mechanism for regulating structural changes in Ukraine.
Why you can learn (learning outcomes)	The studying of subject, students take the knowledge of theoretical and practical aspects of using the methodological apparatus and tools to assess the effectiveness of structural changes regulation in the economy of Ukraine.
How to use the acquired knowledge and skills (competencies)	Acquired knowledge and skills allow future scientists to analyze the mechanisms of domestic socio-economic environment development, determine and evaluate quantitative and qualitative economic and social parameters that characterize the level and efficiency of economic system, develop measures to improve the development of structural adjustment institutions in Ukraine according to the strategic goals of economic development.
Information support	TThe information support of the discipline consists of educational and teaching-methodical materials available in the "Electronic Campus" system (https://campus.kpi.ua), the Electronic Archive of Scientific and Educational Materials of Igor Sikorsky Kyiv Polytechnic Institute - ELAKPI (https://ela.kpi.ua), the "Sikorsky" Distance Learning Platform https://www.sikorsky-distance.org), scientific articles and conference proceedings (including author's) in open access
Semester control	Exam