



Національний технічний університет України
«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ
імені ІГОРЯ СІКОРСЬКОГО»



Department of Machine Design
Educational and Scientific Mechanical-Mechanical
Engineering Institute

Department of Intellectual Property
and Private Law
Faculty of Sociology and Law

Department of Chemical, Polymer and Silicate
Mechanical Engineering
Faculty of Engineering and Chemistry

Intellectual Property and Patent Science

Work program of the educational component (Syllabus)

Details of the educational component

Higher education level	<i>Second (Master's)</i>
Field of Knowledge	<i>G Engineering, Manufacturing and Construction</i>
Speciality	<i>G11 Mechanical Engineering (by specialization)</i>
Educational program	<i>OPP Engineering of Innovative Industry Equipment PEP Engineering of innovative industry equipment</i>
Status of the educational component	<i>Regulatory</i>
Form of study	<i>Full-time (daytime)</i>
Year of preparation, semester	<i>1st year, autumn semester</i>
Scope of the educational component	<i>3 credits, 90 hours; lectures – 30 hours; practical classes – 14 hours; independent work – 46 hours.</i>
Semester control / control measures	<i>Credit/ MCR/ express survey</i>
Class schedule	<i>http://roz.kpi.ua/</i>
Language of instruction	<i>Ukrainian</i>
Information about the course leader / teachers	<i>Head of the course Romashko A.S. (Department of Machine Design)</i> https://t.me/alromash <i>From the Department of Intellectual Property and Private Law according to the schedule</i> <i>Lecturer: Doctor of Technical Sciences, Senior Researcher, Prof. Mikulionok Ihor Olehovich,</i> i.mikulionok@kpi.ua, 066-748-65-65 <i>Practical: Doctor of Technical Sciences, Senior Researcher, Prof. Mikulionok Ihor Olehovich</i>
Course placement	<i>Part 1. Resource "Electronic Campus", Google Class, operational communication via Viber, WhatsApp or Telegram group</i> <i>Part 2. Resource "Electronic Campus", operational communication via e-mail or telegram</i>

Program of the educational component

1. Description of the educational component, its purpose, subject of study and learning outcomes

The educational component consists of two parts:

- **Part 1.** "Intellectual Property and Patent Science – 1. Intellectual Property Law" (provided by the Department of Intellectual Property and Private Law of the Faculty of Sociology and Law).
- **Part 2.** "Intellectual Property and Patent Science – 2. Patent Science and Acquisition of Rights" (provided by the Department of Machine Design of the Mechanical and Mechanical Engineering Institute).

The purpose of the educational component is to train a specialist who has basic competencies in intellectual property rights, in particular regarding the legislation and the system of legal protection of intellectual property in Ukraine, their criteria for legal protection and validity of property rights, valuation, commercialization, and contractual methods of disposal of intellectual property rights and protection of intellectual property rights, creation of intellectual property objects, implementation of patent research on the databases of Ukrpatent, regional offices and the World Intellectual Property Organization, acquisition of rights (state registration of rights) to objects of intellectual property rights.

The educational component forms students' **competencies**:

ZK02. Ability to learn and master modern knowledge. Ability to search, process and analyze information from various sources.

ZK04. Ability to be critical and self-critical.

ZK07. Ability to identify, pose, and solve problems.

SK03. Ability to create new equipment and technologies in the field of mechanical engineering, protect intellectual property.

SK04. Awareness of the promising tasks of modern production aimed at satisfying the needs of consumers, possession of trends in the innovative development of industry technologies.

SK05. Ability to develop and implement plans and projects in the field of industrial engineering and related activities, to carry out appropriate entrepreneurial activities.

The subject of the educational component is a set of legal norms that regulate social relations reflected in legislation, legal doctrine and judicial practice and which are related to the creation, protection of the results of intellectual creative activity and the protection of rights to them

After mastering the educational component, students must demonstrate the following **program learning outcomes**:

PRN08. Know the basic methods of collecting, processing, analyzing and systematizing scientific and technical information about existing equipment and creating and protecting new intellectual property objects.

2. Pre-requisites and post-requisites of the educational component (place in the structural and logical scheme of education according to the relevant educational program)

<i>List of educational components, or knowledge and skills, the possession of which is necessary for a higher education applicant for the successful assimilation of the educational component</i>	<i>List of educational components based on learning outcomes in this educational component</i>
Studied on the basis of a bachelor's degree	• Practice • Research practice • Master's thesis

3. Content of the educational component

Part 1. Intellectual property rights

Topic 1. Intellectual property system

Topic 2. Emergence and acquisition of rights to intellectual property objects

Topic 3. Protection of intellectual property rights

Topic 4. Agreements in the field of intellectual property

Topic 5. Commercialization of intellectual property rights.

Part 2. Patent Science and Acquisition of Rights

Topic 6. Creation and patent information research of objects of industrial property rights

Topic 7. Legal protection of the results of scientific and technical creativity

Topic 8. Legal protection of commercial designations

Topic 9. Legal protection of copyright and related rights

4. Training materials and resources

Part 1. Intellectual property rights

Basic literature

1. Intellectual Property Law: Textbook. Ed. S.B. Buletsy, O.I. Chepys. Uzhhorod: RIK-U, 2019. 488 p. (University library);
2. Intellectual Property Law: Textbook. Ed. O.I. Kharitonova. Kyiv: Yurinkom Inter, 2019. 539 p. (University library);
3. Intellectual Property and Copyright: Textbook/ I.M. Chistyakova and others. Kyiv: Karavela, 2019. 203 p. (University Library).
4. Verba I.I. Fundamentals of Intellectual Property [Electronic resource] : textbook / I. I. Verba, V. O. Koval; edited by S. V. Chikin; NTUU "KPI". – 2nd ed., revised and supplemented – Electronic text data (1 file: 2.20 Kbytes). – Kyiv: NTUU "KPI", 2013. – 262 p.: 23 ill. – Access mode <http://library.kpi.ua:8080/handle/123456789/2387>
5. Romashko A.S. International Treaties and Agreements in the Sphere of Intellectual Property: A Study Guide. / A.S. Romashko, I.I. Verba, V.V. Prygoda. – Ed.2nd Revision and Supplement. [Electronic resource] / - Kyiv: NTUU "KPI", 2015. – 186. Access mode: <http://ela.kpi.ua/handle/123456789/28002>.
6. Intellectual Property and Patent Science [Electronic resource] : textbook for students who study according to the programs of training masters / N. O. Bilousova, N. V. Gavrushkevych, M. A. Danylchenko, M. V. Dubnyak, N. D. Kohut, O. V. Lytvyn, A. S. Romashko, P. M. Tsybulev, O. Y. Yurchyshyn; Igor Sikorsky Kyiv Polytechnic Institute; edited by P. M. Tsybulev, A. S. Romashko. – Electronic text data (1 file: 6.03 MB). – Kyiv: KPI. Igor Sikorsky, 2021. \u2012 377 p. – Title from the screen. Access mode: <https://ela.kpi.ua/handle/123456789/44252>.

Further reading

1. Manual for judges on intellectual property /I.M. Benedysiuk et al. KYIV: K.I.S., 2018. 424 p. (in Russian).
2. Koval I.F. Commercialization of intellectual property rights. Kyiv: Yurinkom Inter, 2018. 272 p. (in Russian).
3. Yakubivskiy I.E. Acquisition, implementation and protection of property rights of intellectual property in Ukraine: monograph. Lviv: Ivan Franko National University of Lviv, 2018. 522 p. (in Russian).
4. Vakhoneva T.M. Copyright and related rights in Ukraine: textbook. Kyiv: Dakor Publishing House, 2016. 564 p. (in Russian).
5. Zhilinkova O.V. Contractual regulation of relations regarding intellectual property in Ukraine and abroad: monograph. Kyiv: Yurinkom Inter, 2015. 280 p. (in Russian).
6. Koval I. F. Protection of Rights in the Sphere of Industrial Property: Problems of Legislative Support and Law Enforcement: Monograph. Kyiv: Research Institute of Intellectual Property of the National Academy of Legal Sciences of Ukraine, Lazurit-Polygraph, 2011. 320 p. (in Russian).
7. Civil Code of Ukraine: scientific and practical commentary (explanations, interpretations, recommendations using the positions of higher courts, the Ministry of Justice, scientists, specialists). Vol. 6: Intellectual Property Law. Prof. I. V. Spasibo-Fateeva. Kh.: FOP Lysiak L.S., 2011. 592 p. (Comments and analytics).

Information resources

Web-site of the Verkhovna Rada of Ukraine. Legislation of Ukraine - <https://zakon.rada.gov.ua/>

Web-site Міністерства економіки України – <http://www.me.gov.ua/Tags/DocumentsByTag?lang=uk-UA&id=bb27fb37-4305-4686-9ea0-995d1c10f028&tag=DerzhavnaSluzhbaIntelektualnoiVlasnosti>

Web-site Ukrainian National Intellectual Property and Innovation Office (UKRNOIWI) <https://nipo.gov.ua/>

Web-site of the State Enterprise "Ukrainian Institute of Intellectual Property" - <https://ukrpatent.org>
Web-site of the State Organization "Ukrainian Agency for Copyright and Related Rights" - <https://uacr.org/>
Web-site of the World Intellectual Property Organization - <https://www.wipo.int/portal/en/index.html>

Part 2. Patent Science and Acquisition of Rights

Basic literature

1. *Intellectual Property and Patent Science [Electronic resource] : textbook for students who study according to the programs of training masters / N. O. Bilousova, N. V. Gavrushkevych, M. A. Danylchenko, M. V. Dubnyak, N. D. Kohut, O. V. Lytvyn, A. S. Romashko, P. M. Tsybulev, O. Y. Yurchyshyn; Igor Sikorsky Kyiv Polytechnic Institute; edited by P. M. Tsybulev, A. S. Romashko. – Electronic text data (1 file: 6.03 MB). – Kyiv: KPI. Igor Sikorsky, 2021. \u2012 377 p. – Title from the screen. <https://ela.kpi.ua/handle/123456789/44252>*
2. *Mikulionok I. O. Intellectual Property and Patent Science: 5th ed., revised and supplemented Kyiv : Igor Sikorsky Kyiv Polytechnic Institute, 2024. 248 p. URL: <https://ela.kpi.ua/handle/123456789/68179>*
3. *Mikulionok I. O. Registration of an application for an invention and applications for a utility model: a manual of the 4th ed., reworked and supplemented. Kyiv : Igor Sikorsky Kyiv Polytechnic Institute: Institute of Gas of the National Academy of Sciences of Ukraine, 2025. 202 p. URL: <https://ela.kpi.ua/handle/123456789/72376>*
4. *Intellectual Property and Patent Science. Patent Studies and Acquisition of Rights [Electronic resource] : Practicum /A. S. Romashko, O. Y. Yurchyshyn, M. A. Danylchenko et al. ; per row. Assoc. A. S. Romashko. – Electron. text. data (1 file: 5.12 Mb). – Kyiv: KPI. Igor Sikorsky, Polytechnic Publishing House, 2025. – 305 p. (in Russian).*

Further reading

1. *Kuznetsov Y.M. Patent Science and Copyright: Textbook – Kyiv: LLC "Kondor", 2005. – 428 p., 2nd edition, revised and supplemented, 2009. – 446 p. (in Russian).*
2. *Kuznetsov Y. M., Mikulionok I. O., Samoilenko O. V. Practicum on the discipline "Patent Science and Copyright". Textbook / Ed. Y.M. Kuznetsova. – Kyiv: NTUU "KPI", 2014. – 317 p. (in Russian).*
3. *Romashko A.S. International Treaties and Agreements in the Sphere of Intellectual Property: Teaching. Manual. / A.S. Romashko, I.I. Verba, V.V. Prygoda. – Ed.2-e reworked. and supplements. [Electronic resource] / - Kyiv: NTUU "KPI", 2015. – 186. Dostu-poo mode <http://ela.kpi.ua/handle/123456789/28002>*
4. *Romashko A.S. Trademark: Independent Search, Preparation for Registration, Monitoring Study. Manual. / A.S. Romashko, O.M. Kravets. – [Electronic resource] / - Kyiv: NTUU "KPI", 2016. – 170. Stamp Approved by the Academic Council of NTUU "KPI" dated June 30, 2016 Access mode: <http://ela.kpi.ua/handle/123456789/28006>*
5. *KRYKUN N.P., ROMASHKO A.S. Creative Activity in Creating Innovations and Risk Identification / "Project Management. Prospects for the Development of Project and Neuromanagement, Information Management Technologies, Technologies for the Creation and Use of Intellectual Property Rights, Technology Transfer": Collection of Scientific Papers on the Materials of the V International Scientific and Practical Internet Conference (March 23-24, 2023). UDUNT, UKRNET, NIDII OF THE NATIONAL ACADEMY OF LEGAL SCIENCES OF UKRAINE, Dnipro: Yurservice, 2023. 730 p. P.575-579. URL http://nmetau.edu.ua/file/zbirnik__materialiv__konf_udunt_2023.pdf#page=575*
6. *Alla Romashko, Hryhoriy Dorozhko, Oleksandr Kravets STANDARD BASIC PATENTS FOR NEW TECHNOLOGIES Theory and Practice of Intellectual Property No2, 2023. pp.74-84 <http://uran.inprojournal.org/article/view/282172>*
7. *Romashko A., Dorozhko G., Petrenko V. SEMICONDUCTOR PRODUCTS AND THEIR LEGAL PROTECTION. Legal Scientific Electronic Journal. 2024. № 3. Pp. 354–357 (in Russian). URL: http://www.lsej.org.ua/3_2024/86.pdf*
8. *Yurchyshyn O.Ya., Seminska N.V., Romashko A.S. ANALYSIS OF THE STATE OF INNOVATIVE SOLUTIONS IN THE FIELD OF PROSTHETICS / Innovation Economy. 2024. №1 [97]. C. 49-56. URL: <http://inneco.org/index.php/innecoua/article/view/1189>.*

Information resources

Web-site of the Verkhovna Rada of Ukraine. Legislation of Ukraine <https://zakon.rada.gov.ua/>
Web-site Міністерства економіки України – <http://www.me.gov.ua/Tags/DocumentsByTag?lang=uk-UA&id=bb27fb37-4305-4686-9ea0-995d1c10f028&tag=DerzhavnaSluzhbaIntelektualnoiVlasnosti>
Web-site Ukrainian National Intellectual Property and Innovation Office (UKRNOIWI) <https://nipo.gov.ua/>
Web-site of the State Enterprise "Ukrainian Institute of Intellectual Property" - <https://ukrpatent.org>

Educational content

5. Methods of mastering the educational component

Lectures

Names of content modules, topics	Classroom, year	S.S., year
Part 1. Intellectual property rights		
Topic 1. Lecture 1. Intellectual property system	2	2
Topic 2. Lecture 2. Emergence and acquisition of intellectual property rights	2	2
Practical lesson 1 from topics 1-2. Intellectual property system. Emergence and acquisition of rights to intellectual property objects	2	2
Topic 3. Lecture 3. Protection of intellectual property rights.	2	2
Topic 4. Lecture 4. Intellectual Property Agreements	2	2
Topic 5. Lecture 5. Commercialization of intellectual property rights.	2	2
Practical lesson 3 on topics 3-5. Protection of intellectual property rights. Agreements in the field of intellectual property. Commercialization of intellectual property rights.	2	4
Total hours for part 1:	14	16
Part 2. Patent Science and Acquisition of Rights		
Topic 6. Lecture 1. Creativity as a type of intellectual work. Methods of setting and solving creative problems on the example of invention. Stages of invention development. Risk-oriented thinking when creating an object.	2	1,0
Lecture 2. Patent information and documentation, patent research. Patent and Information Resources. Patent research. Patent Form	2	1,0
Practical lesson No. 1. Solving inventive problems. Patent information search.	2	2
Topic 7. Lecture 3. The procedure for acquiring rights to inventions and utility models	2	1,0
Practical lesson No. 2. Selection of analogues and selection of the nearest analogue, construction of the formula.	2	2,0
Lecture 4. Registration of an application for registration of rights to an invention (utility model)	2	1,0
Lecture 5. (continued)	2	1,0
Practical lesson No. 3. Registration of an application for registration of property rights to an invention (utility model).	2	3
Lecture 6. Procedure for Acquisition of Rights to Industrial Designs	2	1,0
Lecture 7. The procedure for acquiring rights to trade secrets and rationalization proposals. Scientific discovery, semiconductor product, plant varieties and certain aspects of their protection. Genetic resources and related traditional knowledge	2	1,0
Topic 8. Lecture 8. The concept of a firm (commercial) name and geographical indications Acquisition of trademark rights	2	1,0
Practical lesson No. 4. Registration of an application for registration of property rights to an industrial design and trademark	2	3
Lecture 9. (continued) Acquisition of rights to a geographical indication	2	1,0
Topic 9. Lecture 10. Features of copyright protection in Ukraine and the world State registration of copyright Peculiarities of Protection of Objects of Related Rights in Ukraine and the World Topic 10. Unfair competition is its types. Provisions on Unfair Competition in the Paris Convention and in Ukraine	2	1,0

Countering piracy, trolling and counterfeiting. Piracy and trolling in Ukraine and the world		
Parasitic marketing at events of a mass and cultural nature		
Practical lesson No. 5. Protection of trade secrets. Copyright registration.	2	2
Modular control work.	-	2
Passed	-	6
Total hours for part 2:	30	30
Together in parts 1 and 2:	44	46

Practical classes

No. s/p	Tasks that are submitted to practical classes
Part 1. Intellectual property rights	
Practical lesson 1	Intellectual property system. Emergence and acquisition of rights to intellectual property objects (2 hours) <u>Purpose:</u> educational: to generalize knowledge about intellectual property rights, the system of objects of intellectual property rights, subjects of rights to them and the content of their rights, the emergence and acquisition of rights to intellectual property objects; developmental: formation of logical legal thinking; educational: to cultivate a positive and respectful attitude to legal science. Questions to be repeated: Concepts: "intellectual property object" and "intellectual property right". Objects of intellectual property rights. Subjects of intellectual property rights. National legislation on intellectual property. International legislation on intellectual property. State system of intellectual property. Emergence of rights to copyright objects. Emergence of rights to objects of related rights. Acquisition of rights to objects of patent law and industrial Samples. Acquisition of rights to commercial designations. Emergence and acquisition of the right to other objects of intellectual property rights. Questions for analysis: - How do you understand the concepts of "creative activity" and "intellectual activity". Give examples. Justify the answer. - Which concept is broader – "author" or "subject of law"? Who can be the author – an individual or a legal entity? Justify the answer. - How do you understand the concepts of "emergence of intellectual property rights" and "acquisition of intellectual property rights"? Give examples. Justify the answer. - Can a personal letter written for another person be considered an object of copyright? Who has the right to dispose of such a letter – its author or the person to whom it is written? - Can there be objects of related rights without copyright? Justify the answer. What rights do the performers of the song have – copyright or related? Does the performer of the song have the right to dispose of the lyrics and music? If so, under what conditions? - How do you understand the concept of "co-authorship"? Commercials and films are created in co-authorship. How is it possible to dispose of property rights to such copyright objects? Is it possible to dispose of property rights alone? If so, under what conditions? - How to distinguish inventions and utility models from: - trade secrets, know-how; - scientific discovery.
Practical lesson 2	Protection of intellectual property rights. Agreements in the field of intellectual property. Commercialization of Intellectual Property Rights (2 hours) <u>Purpose:</u> educational: to generalize knowledge about the protection of intellectual property rights, contractual methods of disposal of intellectual property rights, commercialization and management of intellectual property rights; developmental: formation of logical legal thinking; educational: to cultivate a positive and respectful attitude to legal science.

	Questions to be repeated: The concept and grounds for the protection of intellectual property rights. Jurisdictional form of protection of intellectual property rights. Non-jurisdictional form of protection of intellectual property rights. The concept and content of contracts in the field of intellectual property. Contracts at the stage of creation of an intellectual property object. Agreements at the stage of use of an intellectual property object. Agreement on the transfer of exclusive property rights of intellectual property. Other agreements on disposal of intellectual property rights. Intellectual property as an intangible asset. Assessment of the value of intellectual property rights. Accounting of intellectual property. Taxation of transactions with objects of intellectual property rights. The concept of management and principles of intellectual property management. Life cycle of the object of intellectual property rights. Management of an intellectual property object at different stages of its life cycle. Task: 1. Check out the samples of agreements in the field of intellectual property: https://ukrpatent.org/uk/articles/copyright-reg (clause 5 of the Information on the State Registration of Copyright and Agreements Relating to the Author's Right to the Work). 2. Prepare an application (https://ukrpatent.org/uk/articles/copyright-forms) for registration of an agreement relating to the author's right to the work: a) an agreement on the alienation of intellectual property rights; b) license agreement. Questions for analysis: 1. Compare the concepts of "protection of intellectual property rights" and "protection of intellectual property rights". 2. Compare the concepts of "alternative (out-of-court) protection of intellectual property rights" and "non-jurisdictional form of protection of intellectual property rights". 3. What is the role of commercialization of intellectual property rights in the development of society? Give examples. Justify the answer. 4. How do you understand the concept of "balance of interests of subjects of intellectual property rights"? Give examples. Justify the answer. 5. Agreements at the stage of creation and use of an intellectual property object.
Part 2. Patent Science and Acquisition of Rights	
Practical lesson 1	Solving inventive problems. Structure and definition of rubrics of the International Patent Classification. Patent information search. 1.1 Theoretical part 1.1.1 Levels of inventions. Bona fide and unfair patents. 1.1.2 Methods for solving inventive problems and demonstration of one of the methods. 1.1.3 Selection of the rubric of the International Patent Classification. 1.1.4 Performing a patent search (familiarization with patent databases). 1.2 Practical part when working in the classroom. 1.2.1 Determination of the rubric of the IPC of the object. 1.2.2 Search for patents by a certain IPC heading and/or keywords. 1.2.3 Delivery of the results of the practical task and assessment. 1.3. Practical part for independent work. Determination of the rubric of the IPC of the object as the topic of the master's thesis with the name of the section, class, subclass, main group.
Practical lesson 2	Selection of analogues and selection of the nearest analogue, construction of the formula. 2.1 Theoretical part 2.1.1 Selection of analogues and selection of the nearest analogue for the invention (utility model). 2.1.2 General requirements for compiling the formula 2.1.3 Generalization of pairs of traits 2.1.4 Drawing up a claim for an invention (utility model) for a product/method using the basic laws of logic. 2.1.5 Formal examination of the formula (search for errors in formulas for real patents). 2.2 Practical part when working in the classroom

	2.2.1 Performance of formal examination of formulas by variants. 2.2.2 Delivery of the results of the practical task and assessment 2.3 Practical part for independent work 2.3.1 Selection of the closest analogue on the topic of the master's thesis
Practical lesson 3	Registration of an application for registration of property rights to an invention (utility model) 3.1 Theoretical part 3.1.1 Preparation of application documents with a recommendation for building an inventory. 3.1.2 Example of a description based on a real patent 3.2 Practical part when working in the classroom 3.2.1 Explanation of the test and formula. 3.3.2 Delivery of the results of the practical task and assessment 3.3 Practical part for independent work Preparation of a set of documents for registration of rights to a utility model on the topic EXCLUSIVELY of your bachelor's/master's dissertation.
Practical lesson 4	Registration of an application for registration of property rights to an industrial design and trademark 4.1 Theoretical part 4.1.1 Selection of the rubric of the MCPZ and determination of the name of the industrial design. 4.1.2 Preparation of documents for the application for state registration of an industrial design. 4.1.3 Grouping of the list of goods and services by the codes of the International Classification of Goods and Services 4.1.4 Classification of trademarks (TM) according to the Vienna Classification 4.1.5 Search for industrial designs and trademarks 4.2 Practical part 4.2.1 Determination of the rubric of the MCPZ and the name of the industrial design 4.2.2 Definition of the rubrics of the Nice and Vienna Classifications. 4.2.3 Search for industrial designs and trademarks 4.2.4 Delivery of the results of the practical task and assessment 4.3 Practical part for independent work
Practical lesson 5	Protection of trade secrets. Copyright Registration 6.1 Theoretical part 6.1.1 Restricted Information 6.1.2 Examples of trade secret detection and documentation 6.1.3 Procedure for filing an application for copyright registration 6.1.4 University documents for an official essay 6.2 Practical part when working in the classroom 6.2.1. Detection of trade secrets in the materials of the application for invention (utility model) 6.2.2. Determination of the list of documents for registration of copyright for a specific object of copyright. 6.2.3 Delivery of the results of the practical task and assessment 6.3 Independent work

6. Independent work of a higher education applicant

Independent work of a student involves:

preparation for classroom classes – 38 hours;

preparation for modular control work – 4 hours;

preparation for the test – 6 hours.

7. Educational Component Policy

Forms of work. Lectures are held using visual means of presenting the material and using methodological materials, access to which is available to higher education applicants. Students receive all materials via e-mail, campus or telegram group.

Higher education students are involved in the discussion of lecture material and ask questions about its essence. In practical classes, forms of individual and collective work (teamwork, pair work) are used to implement the teacher's tasks to acquire skills of independent practical work.

During the study of the course, active and collective learning strategies are used, which are determined by the following methods and technologies:

1. methods of problem-based learning (problem-based presentation, partial-search (heuristic conversation) and research method);
2. personality-oriented (developing) technologies based on active forms and methods of learning ("brainstorming", "analysis of situations", etc.);
3. information and communication technologies that provide the problem-research nature of the learning process and the activation of independent work of higher education students (electronic presentations, the use of practical tasks (tests) on the basis of computer and multimedia tools, supplementation of traditional educational classes with means of interaction based on network communication capabilities (software tools, mobile applications, etc.).

Attending classes. Classes can be held in classrooms according to the schedule. Also, classes can be held online in synchronous mode using video communication, provided that the applicant for higher education is uniquely identified.

If there are valid reasons, the applicant for higher education must inform the teacher in advance (1 day in advance) about the reasons for the possible omission of the control measure.

If it was not possible to notify in advance, the applicant for higher education must contact the teacher within one week to agree on the form and procedure for eliminating the debt.

If the classroom lesson falls on a non-working day (holiday, commemorative, etc.), then the material of such a lesson is partially transferred to the category "Independent work of higher education applicants", and partially added to the next lesson. It is also possible to save time on missed classes when performing modular control work outside of school hours (by testing).

Rules for assigning incentive points

Incentive points are put by the lecturer of part 2 for:

+ 5 points – for active work at least 5 lectures (questions, requests to clarify aspects of the lecture material, constructive denial of the information presented and participation in discussions);

+ 10 points – to the student, author (inventor) of the object for which the application for the invention/utility model is submitted (only if a set of materials is submitted and the application number is available);

+ up to 10 - mastering the WIPO distance course DL-101 "Fundamentals of Intellectual Property" (Free of charge), subject to the provision of a screenshot of the final exam result. Mastering during paid courses is not encouraged. Assimilation during classes of other free courses (as well as paid courses that are paid by the student before the first of September), regarding intellectual property, is carried out subject to such a course volume that is equivalent to the volume of the above-mentioned course (about 50 hours).

+ up to 10 – presentation of patent search results on the topic of the master's thesis with the definition of IPC/CPC headings, the use of UKRNOIWI, PATENTSCOPE, Espacenet databases (as well as the use of other databases, including LENS).

+ 3 points - WIPO DL-177 Use of patent information (or equated to practical No. 1, see clause 5, p. 9 of this syllabus).

+ 2 points - WIPO DL-101PCT Introduction to the Patent Cooperation Treaty, as well as other free courses to be agreed upon by the instructor.

The sum of incentive points cannot exceed 10% of the rating scale from the educational component, i.e. 10 points.

Academic integrity. The policy and principles of academic integrity are defined in Section 3 of the Code of Honor of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". Read more: <https://kpi.ua/code>.

Norms of ethical behavior. The norms of ethical behavior of students and employees are defined in Section 2 of the Code of Honor of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". More details: <https://kpi.ua/code>.

Procedure for appealing the results of control assessment measures. The student can raise any issue related to the procedure of control measures and expect it to be considered in accordance with predetermined procedures. Students have the right to reasonably appeal the results of control measures, explaining which criterion they do not agree with in accordance with the evaluation criterion.

8. Types of control and rating system for assessing learning outcomes (RSO)

Semester control is carried out in the form of a test. A 100-point rating system and a university scale are used to assess learning outcomes.

Assessment and control measures. The main part of the student's rating is formed through active participation in practical classes and obtaining the results of modular tests.

Modular control work and test are carried out by a lecturer from Section 2 (lecturer of the Department of Machine Design of the Mechanical and Mechanical Engineering Institute).

Part 1. Intellectual property rights

Current control: express survey on the topic of the lesson, completion of test tasks, discussion of legal cases, preparation of draft documents

In just 1 practical lesson, a student can receive up to 16 and 17 points, respectively for the first and second practical lessons. If a student is absent from a practical lesson, it is necessary to work out the missed lesson by completing practical tasks, solving online tests (access to the test is provided by the teacher) or solving legal problems (by sending the work to the classroom or to the teacher's e-mail).

A student's rating consists of the points he receives for:

	Type of activities	Maximum possible score
Practical lesson No. 1	Express survey on the topic of the lesson, discussion of legal cases, supplementation of other students' answers in the process of discussion in practical classes, performance of test tasks, preparation of practical tasks	16
Practical lesson No. 2		17
Total for Part 1		33

Part 2. Patent Science and Acquisition of Rights

The student's rating in the educational component consists of the points that he receives for:

- 1) Completing tasks in practical classes;
- 2) performance of modular control work.

System of rating (weight) points and evaluation criteria

1. Practical classes:

Weight score – 5. Maximum number of points in all practical classes equals: 5 points × 7 = 35 points.

Evaluation criteria:

- a score of 5 is given under the condition of correct, timely and creative completion of the task;
- a score of 4 is given if the task is completed correctly and on time;
- Score 3 is given provided that the task is completed on time with minor comments;
- Score 2 is given provided that the task is completed on time with significant comments;
- a point of 1 is given under the condition of a correct, but untimely completed task;
- A score of 0 is given if the task is not completed on time with significant remarks or absence from the lesson without a valid reason.

2. Modular control work:

Weight score – 32. The maximum number of points for the test is 32 points × 1 = 32 points.

It is carried out in the form of a test containing 32 tasks, each of which is estimated at 1 point.

Calendar control: is carried out twice a semester as a monitoring of the current state of fulfillment of the requirements of the syllabus in order to improve the quality of students' education.

Criterion	First calendar control	Second calendar control
Term of calendar control	Week 8	Week 14
Conditions for obtaining a positive assessment	if the current rating score is at least 50% of the maximum possible score at the time of calendar control	if the current rating score is at least 50% of the maximum possible score at the time of calendar control

Overall rating score of the educational component "Intellectual Property and Patent Science" (maximum 100 points):

$$RSC = R1 + RPr + RMP,$$

where R1 is the rating score for the section "Intellectual Property and Patent Science – 1. Intellectual Property Law" (from 0 to 33 points inclusive) – set by the teacher of the relevant module; RPr – rating points for the performance of work provided for by practical classes (from 0 to 35 points); RMP – rating points for modular control work (from 0 to 32 points).

The final rating cannot exceed 100 points.

Students who have a rating of less than 60 points at the end of the semester, as well as those who want to increase their grade, undergo a credit interview. There is no time to prepare for the interview. At the same time, a "rigid" system is used, when the student loses the starting rating, and the grade from the educational component is set on the basis of passing a credit interview.

On the test, students pass a test interview. Each interview task contains two theoretical and one practical questions. Each theoretical question is evaluated at 30 points, and the practical question is evaluated at 40 points.

System for evaluating theoretical (Rm1, Rm2) questions:

- "excellent", complete answer (at least 95% of the required information) – 30-29 points;
- "good", a sufficiently complete answer (at least 75% of the required information or minor inaccuracies) – 28-23 points;
- "satisfactory", incomplete answer (at least 60% of the necessary information and some errors) – 22-18 points;
- "unsatisfactory", unsatisfactory answer – 0 points.

Practical (Rpr3) Question Assessment System:

- "excellent", complete answer (at least 95% of the required information) – 40-38 points;
- "good", a sufficiently complete answer (at least 75% of the required information or minor inaccuracies) – 37-30 points;
- "satisfactory", incomplete answer (at least 60% of the required information and some errors) – 29-24 points;
- "unsatisfactory", unsatisfactory answer – 0 points.

The maximum rating of the test test is

$$RE = Rm1 + Rm2 + Rpr3 = 30 + 30 + 40 = 100 \text{ points.}$$

Conditions for admission to the semester control: the starting component is not lower than 36 points (60% of the minimum positive grade of 60 points).

The sum of starting points and/or points for the test work is converted to the credit score according to the table:

Table of correspondence of rating scores to grades on the university scale:

Score	Score
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100-95	Perfectly
94-85	Very good
84-75	Well
74-65	Satisfactory
64-60	Dostagno
Less than 60	Disappointing
Not met the conditions of admission	Not allowed

9. Additional information on the educational component

1. The presence of a sole patent for an invention (utility model) can be counted as additional points or equated to the performance of work in practical classes No. 2 and No. 3 (under part 2) with a weight score of 5.
2. The presence of a single certificate of registration of an industrial design or mark for goods and services is equated to the performance of work at practical lesson No. 4 with a weight score of 5 for the certificate.
3. The presence of a sole certificate of registration of copyright for the work is equated to the performance of work at practical lesson No. 5 with a weight score of 5.
4. Availability of the WIPO DL-177 Course Certificate The use of patent information can be counted as additional points or equated to the performance of work on practical No. 1 (according to part 2) with a weight score of 3.
5. For foreign students for whom it is inappropriate to study the legislation of Ukraine, it is possible to enroll in WIPO courses DL-101 "Fundamentals of Intellectual Property", subject to the provision of a screenshot of the final exam result (evaluated up to 50 points), DL-177 Use of patent information (evaluated up to 20 points), DL-101PCT Introduction to the Patent Cooperation Agreement (evaluated up to 5 points). Patent – evaluated up to 25 points (search for a patent of your country related to the specialty, search for analogues to it, in addition to those specified in the patent, description of the essence of the patent INID codes, selection of structural elements of the patent: the IPC rubric to which the invention belongs, information that makes up the formula and the following sections of the description: the branch of technology to which the invention belongs; the state of the art; the essence of the invention; the list of drawing figures, if they are referenced in the description; information confirming the possibility of implementation; preparation of a draft formula for his invention). An alternative to WIPO courses can be other courses offered by the student in agreement with the teacher.

The work program of the educational component (syllabus) is compiled by:

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Approved by the Department of Machine Design (Protocol No. 17 dated 20.06.2025);

Department of Chemical, Polymer and Silicate Engineering (Protocol No. 17 dated 04.06.2025).

Approved by the methodological commission of the ER MMI (minutes No. 11 dated 27.06.2025);
by the methodological commission of the Faculty of Engineering and Chemistry (protocol No. 11 of 27.06.2025.).