



# PEDAGOGICAL PRACTICE

## Working program of the academic discipline (Syllabus)

### Details of the academic discipline

|  |   |
|--|---|
| <b>Level of higher education</b>                       | doctor of philosophy (PhD)  |
| <b>Branch of knowledge</b>                             | 13 Mechanical engineering   |
| <b>Specialty</b>                                       | 133 Industrial engineering  |
| <b>Educational program</b>                             |   |
| <b>Discipline status</b>                               | Normative   |
| <b>Form of education</b>                               | Full-time (day, evening)  |
| <b>Year of training, semester</b>                      | 2nd year, 3rd semester  |
| <b>Scope of the discipline</b>                         | 2 ECTS credits 60 hours   |
| <b>Semester control/ control measures</b>              | Test  |
| <b>Lessons schedule</b>                                | Scientific and pedagogical worker   |
| <b>Language of teaching</b>                            | Ukrainian   |
| <b>Information about head of the course / teachers</b> | <i>Ph.D., prof., head Cafe MAHNVKornienko</i> Yaroslav Mykytovych<br>che@kpi.ua |
| <b>Placement of the course</b>                         | Campus, <a href="http://ci.kpi.ua">http://ci.kpi.ua</a>                         |

### Program of educational discipline

#### 1. Description of practice, its purpose, subject of study and learning outcomes

Pedagogical practice in the system of higher education at the third educational and scientific level is a component of professional training for scientific and pedagogical activity and is a type of practical activity of graduate students, which involves participation in the organization and implementation of teaching activities in higher education, organization of educational activities of students, as well as scientific - research work. During pedagogical practice, students of higher education develop their own style of pedagogical activity. Pedagogical practice contributes to the development of professional self-awareness, the culture of communication, the formation of theoretical, practical, and personal-motivational components of the professional competence of interns.

The formation of practical abilities and skills of a graduate student is carried out during lectures, seminars, and the organization of independent work for students of higher education. During practice, there is an opportunity to test the results of research conducted by a graduate student while writing a dissertation.

*The purpose of conducting pedagogical practice* is the acquisition by graduate students of the skills and experience of educational and educational-methodical activities necessary for

teaching in higher educational institutions disciplines according to the profile of the obtained specialty of the educational and scientific level of the Doctor of Philosophy.

**Object of practice** is the educational process of training specialists in the field of specialization 13 Mechanical engineering.

**Task practices consist of:**

- 1) abilities (competencies) obtained by graduate students:
  - Ability to think abstractly, analysis and synthesis (ZK 1);
- 2) obtaining the following program learning outcomes:

PR22 Formulate educational goals and choose appropriate educational material and its structure

Postgraduate students will also master the following skills:

- methods of activating students' cognitive activity;
- the principles of monitoring students' educational achievements and analyzing their results;
- mastery of modern technologies, methods and techniques of teaching disciplines in the relevant field of training of doctors of philosophy;
- creative approach to educational and methodical work, scientific activity, formation of the need for self-improvement, improvement of one's qualifications;
- formulate educational goals and choose the appropriate educational material and its structure;
- acquired abilities to critically evaluate lectures and other types of classroom activities, formulating conclusions regarding the organization of one's own teaching activities

## **2. Pre-requisites and post-requisites of the discipline (place in the structural and logical scheme of training according to the relevant educational program)**

**Prerequisites of the discipline.** For successful mastery of competencies, knowledge of the disciplines: "Organization of scientific and innovative activity", "Philosophical foundations of scientific activity" and "Methodology of scientific research..

**Postrequisites of the discipline.** To deeply understand the general principles and methods of fundamental sciences, as well as the methodology of scientific research, to apply them in one's own research in the field of mechanical engineering and in teaching practice.

## **3. Content of the academic discipline**

SECTION1. Educational and pedagogical activity

SECTION2. Methodical activity

SECTION3. Research activity

CHAPTER 4. Educational activity

## **4. Educational materials and resources**

### ***Basic literature***

1. Golovenkin, V. P. Pedagogy of higher education [Electronic resource]: textbook / V. P. Golovenkin; KPI named after Igor Sikorsky. - 2nd ed., revised. and additional – Electronic text data (1 file: 3.6 MB). – Kyiv: KPI named after Igor Sikorskyi, 2019. – 290 c. – Title from the screen. [Electronic resource] – Mode of access to the resource: / <https://ela.kpi.ua/handle/123456789/29032>

2. Methodological recommendations on the organization of students' practice and preparation of practical work programs of the National Technical University of Ukraine "Ihor Sikorskyi Kyiv Polytechnic Institute" [Text] / Composer: N.M. Lapenko, I.L. Spivak, I.V. Fedorenko, O.M. Shapovalova; in general ed. P. M. Yablonskyi. - K.: KPI named after Igor Sikorskyi, 2018. – 29 p.

3. Provisions on the practice of students of higher educational institutions of Ukraine [Electronic resource] - Resource access mode: / [http://kpi.ua/document\\_practice](http://kpi.ua/document_practice)

4. Educational-scientific program of the third (educational-scientific) level of higher education in field of knowledge 13 "Mechanical engineering", specialty 133 "Industrial mechanical engineering" / Composer: Y.M. Kornienko, A.R. Stepaniuk, V. Sivetskyi. I., Sokolskyi O.L., Melnyk V.M., Ruzhynska L.I., Shevchuk A.V., Shostachuk Yu.O., Kyiv, KPI named after Igor Sikorskyi, 2022, 20 p. Introduced by the Academic Council of KPI named after Igor Sikorskyi Ave. No. 10 dated 12/13/2021

5. Regulations on the organization of the educational process in KPI named after Igor Sikorsky. Kyiv: KPI named after Igor Sikorsky, Order No. 7-124 dated 07/20/2020 on the approval of regulations on the organization of the educational process at KPI named after Igor Sikorsky

## Educational content

### 5. Methods of mastering an educational discipline (educational component)

| Topics  | Learning outcomes   |
|---|---|
| <i>SECTION1. Educational and pedagogical activity</i> |   |
| <i>Educational work</i>                               | <p><b>Know:</b></p> <ul style="list-style-type: none"> <li>- basic concepts of pedagogy and teaching methods in higher educational institutions;</li> <li>- modern approaches to the formation of students' professional competence.</li> </ul> <p><b>Be able:</b></p> <ul style="list-style-type: none"> <li>- plan individual teaching activities, prepare for classes;</li> <li>- conduct various types of training classes according to the schedule in a fixed academic group;</li> <li>- to structure the content of educational material for conducting various types of educational classes;</li> <li>- prepare didactic material;</li> <li>- check students' written works;</li> <li>- conduct consultations.</li> </ul> |
| <i>SECTION2. Methodical activity</i>                  |   |
| <i>Methodical work</i>                                | <p><b>Know:</b></p> <ul style="list-style-type: none"> <li>- peculiarities of the organization of the educational process in a higher educational institution;</li> <li>- the content of education in the chosen profession (programs of educational disciplines (syllabi) of educational disciplines, textbooks, manuals, methodical recommendations).</li> </ul> <p><b>Be able:</b></p> <ul style="list-style-type: none"> <li>- draw up a thematic plan and plans for individual lessons;</li> <li>- prepare tasks for independent work, tasks for current, modular or final types of control, etc.</li> </ul>   |
| <i>SECTION 3. Scientific and research activity</i>    |   |
| <i>Scientific research work</i>                       | - the ability to apply special technologies and management methods in one's own scientific research   |
| <i>CHAPTER 4. Educational activity</i>                |   |
| <i>Educational Activities</i>                         | <p><b>Know</b> the peculiarities of the organization of educational work at the university, at the faculty, in the academic group.</p> <p><b>Be able:</b></p>   |

| Topics | Learning outcomes  |
|--------|--|
|        | <ul style="list-style-type: none"> <li>- plan educational work in an academic group;</li> <li>- prepare and conduct educational events;</li> <li>- make a psychological and pedagogical description of both individual students and the collective of the group as a whole.</li> </ul> |

## 6. Independent work of a graduate student

During pedagogical practice, a graduate student has the opportunity to test the results of research conducted by him when writing a dissertation.

### Policy and control

## 7. Policy of academic discipline (educational component)

While processing the material, graduate students:

*Independently:*

- Prepare:
  - methodical materials for conducting lectures;
  - methodical materials for conducting practical work (computer workshops);
  - methodical materials for conducting laboratory work;
  - methodical material on preparation and performance of individual tasks;
  - Presentation material for classes;
- Form a practice report.

*under the leadership of the scientific supervisor, teachers from the disciplines for which postgraduate students are assigned and the person responsible for the practice:*

- 1) Under the guidance of the scientific supervisor, the following are considered within the framework of the dissertation topic:
  - possible disciplines that will be assigned to graduate students in practice, taking into account the scientific research of the dissertation,
  - coordinate and approve, with the leading teachers of the department in the chosen disciplines, the topics of lectures / practical work (computer workshops) / laboratory work and individual tasks for which graduate students will prepare methodical material;
  - consider the possibility of external consultations on the issue of introducing research on the topic of the dissertation into the educational process of the department or other scientific institutions;
  - form and discuss the feedback of the scientific supervisor regarding the correspondence of the conducted practice to the topic of the dissertation and the used scientific research in the academic disciplines.
- 2) Under the leadership of leading teachers responsible for the development of disciplines:
  - develop methodological materials and presentations for conducting lectures / practical work (computer workshops) / laboratory work;
  - develop recommendations for preparation and implementation of individual tasks;
  - when approving materials, provide a justified own position and assessment of the presented material, and take into account the comments of leading teachers in the discipline;
  - take part in the discussion of the conducted classes and analysis of the main mistakes in their conduct. They receive a conclusion about the lessons from the leading teacher.
- 3) Under the guidance of the person responsible for practice:
  - receive advice on the preparation of practice documents;
  - form a package of practice documents;

- are preparing for the defense of the practice.

At the defense of practice (department meeting), the thesis supervisors, teachers of the department (from the disciplines involved in practice) and the person responsible for practice from the department report on the performance of their individual tasks by graduate students in practice.

In case of non-fulfillment of the approved calendar plan by the graduate student in a timely manner (without a valid reason), a decision may be made at the department meeting to deny the student admission to the practice defense and his subsequent expulsion from the university.

A graduate student suspended from practice, or whose work in practice is recognized as unsatisfactory, is considered to have failed to fulfill the individual plan and in accordance with the Procedure for training applicants for the degree of doctor of philosophy and doctor of science in higher educational institutions (scientific institutions), approved by the Resolution of the Cabinet of Ministers dated March 23, 2016 is subject to deduction.

### *Assignment of incentive and penalty points*

#### Bonus points for:

- 1) Active work with leading teachers of the department (recommendation from them regarding the provision of additional points) - 10 points;

#### Penalty points for:

- 1) Untimely submission of documents -10 points;

The sum of both penalty and incentive points must not exceed 0.1 RC = 100 points x 0.1 = 10 points.

### *Policy of deadlines and rescheduling*

Special attention is paid to the timely submission of practice documents and the implementation of the graduate student's individual practice plan.

Postgraduate students have the right to challenge the points for the assignment, but must be reasoned, explaining which criterion they disagree with according to the evaluation letter and/or comments.

The detailed criteria for evaluating the results of graduate students' studies are defined in the regulation on RSO in practice, which is an appendix to the curriculum of the academic discipline and in Appendix A to the syllabus.

### **University policy**

#### **Academic integrity**

The policy and principles of academic integrity are defined in Chapter 3 of the Code of Honor of the National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute". More details: <https://kpi.ua/code>.

#### **Norms of ethical behavior**

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

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

The final control is carried out at the end of the internship by evaluating the overall systematic pedagogical activity of the graduate student during the prescribed period. When assigning a graduate student a differentiated assessment, the level of theoretical training of the future teacher, the quality of performance of practical tasks, the level of mastery of pedagogical skills and abilities, attitude towards students, accuracy, discipline, quality of documentation and its submission time are taken into account. The practice defense is valued at 30 points.

### Distribution of points received by graduate students for practice

| No | Type of work   | Scores |
|----|--|--------|
| 1  | Preparation of lecture notes and presentation material for them  | 20     |
| 2  | Methodical instructions (protocols) for implementation practical work (computer workshops) / laboratory work / individual tasks  | 20     |
| 3  | Methodical instructions for the performance of individual tasks by students  | 10     |
| 4  | Correspondence of the content of the report to the internship program (the report is collected and structured in its entirety), the implementation of an individual task (fully / partially disclosed) | 10     |
| 5  | Presentation to defend the results of practice   | 10     |
| 6  | Report and defense of practice   | 30     |
| 7  | Penalty / incentive points (not included in the calculation of 100 points for practice)  | 10     |
|    | Total points:  | 100    |

**Terms of admission to semester control:** is the implementation of an individual plan for practice, providing a practice diary, a practice report and its appendices (methodological recommendations from the lecture / practical work (computer workshops) / laboratory work / individual tasks; feedback from teachers on the classes conducted; feedback from the scientific supervisor regarding correspondence of the conducted practice to the topic of the dissertation and the use of scientific research in academic disciplines, as well as a starting rating (rC) of at least 40% of the RS, i.e. 40 points

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

| <i>Scores</i>                | <i>Rating</i>    |
|------------------------------|------------------|
| 100-95                       | Perfectly        |
| 94-85                        | Very good        |
| 84-75                        | Fine             |
| 74-65                        | Satisfactorily   |
| 64-60                        | Enough           |
| Less than 60                 | Unsatisfactorily |
| Admission conditions not met | Not allowed      |

## 9. Additional information on the discipline (educational component)

### Recommendations for graduate students

general

During practice, graduate students acquire new knowledge, skills and abilities, mainly during specific lectures and practical classes under the leadership of the department's leading NPPs. Therefore, the work of graduate students in full-time positions (with or without payment) is the most appropriate in comparison with the practice of understudies, in fact, third-party observers.

Quite often, during practice, postgraduate students are involved by the administration (department) to provide assistance in the development of educational and methodological documentation (publication of manuals, licensing, development of methodological documentation, etc.). At the same time, the nature of such practice must strictly correspond to the study profile and the topic of the graduate student's dissertation and in terms of duration should not interfere with the fulfillment of the graduate student's work plan.

### To the report

| Section of the report      | Volume of the section                         | Summary of the chapter  |
|----------------------------|---|---|
| Review of literary sources | 2-5 p.  | List the main methods of conducting classes (lectures, workshops, etc.)   |
| Analytical part            | 5-7 p.  | Based on Chapter 1, analyze the existing methods for conducting classes and justify the most acceptable of them for conducting classes at the department  |
| The practical part         | 25-30 pages                                   | Describe the methods used during the practice period (with the insertion of screenshots) by types of lectures, practical work (computer workshops), laboratory work and individual tasks. Also, by type of classes, with the help of screenshots, show the formation, filling, evaluation of students on campus or Google classroom |
| General conclusions        | 2-3 pages                                     | Analysis of applied methods of conducting classes. Indicate their disadvantages and advantages in distance / face-to-face education   |
| references                 | 2-3 pages (at least 15 sources)               | List of literary sources.   |
| Appendices to the report   | Not included in the calculation of the report | Methodological recommendations for lectures / practical work (computer workshops) / laboratory work / individual tasks  |

### Distance Learning

Synchronous distance learning is possible using video conferencing platforms and an educational platform for distance learning at the university.

### Inclusive education

It is allowed, according to the provisions of the KPI named after Igor Sikorsky on inclusive education.

*Working program of the academic discipline (syllabus):*

*Compiled by:*

*Ph.D., associate professor, head café Andriy Stepaniuk, MAHNV*

*Approved by the Department of the Academy of Sciences of the Russian Academy of Sciences (No. 20 dated 06.20.2024)*

*Agreed by the Methodical Commission of the Faculty (No. 11 dated 06/28/2024)*

**A RATING SYSTEM FOR EVALUATING LEARNING OUTCOMES**  
from the academic discipline  
***Pedagogical practice***

form of education

Denna

The rating of a graduate student in practice consists of the points he receives for the following control measures:

|   |   |     |
|---|---|-----|
| 1 | Evaluation of the written report of a graduate student                      | 10  |
| 2 | Methodical instructions (protocols) for practical work (computer workshops) | 20  |
| 3 | Synopsis of lectures and presentation material for them                     | 20  |
| 4 | Methodical instructions for the performance of individual tasks by students | 10  |
| 5 | Defense presentation  | 10  |
| 6 | Report and defense of practice  | 30  |
|   | In total  | 100 |

***System of rating (weighted) points and evaluation criteria***

**1. Report on practice**

Weight score is 10.

***Evaluation criterion***

|  |               |
|--|---------------|
| "Excellent", (at least 90% of the required information)          | - 10-9 points |
| "Good", (at least 75% of the required information)               | - 8-7 points  |
| "Satisfactory", (at least 60% of the required information)       | - 6 points    |
| "Unsatisfactory", does not meet the requirements "Satisfactory") | - 0 points    |

**2. Methodical instructions (protocols) for practical work (computer workshops)**

The weight score is 20.

***Evaluation criterion***

|  |                |
|--|----------------|
| "Excellent", (at least 90% of the required information)          | - 20-18 points |
| "Good", (at least 75% of the required information)               | - 17-15 points |
| "Satisfactory", (at least 60% of the required information)       | - 14-12 points |
| "Unsatisfactory", does not meet the requirements "Satisfactory") | - 0 points     |

**3. Synopsis of lectures and presentation material for them**

The weight score is 20.

***Evaluation criterion***

|  |                |
|--|----------------|
| "Excellent", (at least 90% of the required information)          | - 20-18 points |
| "Good", (at least 75% of the required information)               | - 17-15 points |
| "Satisfactory", (at least 60% of the required information)       | - 14-12 points |
| "Unsatisfactory", does not meet the requirements "Satisfactory") | - 0 points     |



#### 4. Methodical instructions for the performance of individual tasks by students

Weight score is 10.

##### Evaluation criterion

|  |               |
|--|---------------|
| "Excellent", (at least 90% of the required information)          | - 10-9 points |
| "Good", (at least 75% of the required information)               | - 8-7 points  |
| "Satisfactory", (at least 60% of the required information)       | - 6 points    |
| "Unsatisfactory", does not meet the requirements "Satisfactory") | - 0 points    |

#### 5. Presentation

Weight score is 10.

##### Evaluation criterion

|                    |  |               |
|--------------------|--|---------------|
| "Perfectly"        | Illustrative material (presentation) fully, with high visibility, reveals the main provisions of the work submitted for protection. The material is made with the help of modern graphic packages in compliance with the requirements of regulatory documents. | - 10-9 points |
| "Fine"             | Illustrative material (presentation) fully, but with insufficient visibility, reveals the main provisions of the work. The material is made using modern graphic packages, there are minor deviations from the requirements of regulatory documents.           | - 8-7 points  |
| "Satisfactorily"   | Illustrative material (presentation) does not fully and with insufficient clarity reveal the main provisions   | - 6 points    |
| "Not satisfactory" | Does not meet the criterion "Satisfactory"   | - 0 points    |

#### 6. Report and defense of practice

The weight score is 30.

##### Evaluation criterion with the definition of four levels

|                    |  |              |
|--------------------|--|--------------|
| "Perfectly"        | The student clearly and fully revealed the purpose of the practice, the ways to achieve it, deeply argues the decisions made. The answers to the questions demonstrate the student's ability to professionally defend his own point of view, as well as the fact that he possesses professional knowledge at a modern level.                             | 30-27 points |
| "Fine"             | The student clearly and fully disclosed the purpose of the practice, the ways to achieve it, deeply argues the decisions made, but insignificant errors and inaccuracies are assumed. A student can professionally defend his own point of view. The answers to the questions are correct in essence, but not always sufficiently complete and reasoned. | 26-22 points |
| "Satisfactorily"   | The report on practice is essentially correct, but it is constructed illogically, vaguely, and has many inaccuracies. The answers to the questions are incomplete, significant inaccuracies are assumed in the reasoning of the decisions made.  | 21-18 points |
| "Not satisfactory" | Does not meet the criterion "Satisfactory"   | 0 points     |

##### ***Calculation of the rating scale (R):***

The sum of the weighted points of control measures during the semester is:

$$\mathbf{RS = RD = 10+20+15+15+10+30 = 100 \text{ points}}$$

Bonus points for:

- 2) Active work with leading teachers of the department (recommendation from them regarding the provision of additional points) 10 points;

Penalty points for:

- 2) Untimely submission of documents -10 points;

The sum of both penalty and incentive points must not exceed  $0.1 \text{ RC} = 100 \text{ points} \times 0.1 = 10 \text{ points}$ .

For the student to receive the appropriate grades (ECTS and traditional), his rating evaluation **RD** translated according to the table:

| <b>RD = rC</b>   | <b>Rating</b>    |
|--|------------------|
| 95...100   | perfectly        |
| 85...94  | Very good        |
| 75...84  | Fine             |
| 65...74  | satisfactorily   |
| 64...60  | enough           |
| <b>RD</b> ≤ 60   | unsatisfactorily |
| <b>rC</b> < 40 or other conditions for admission to practice have not been met | not allowed      |