



PRE-GRADUATE PRACTICE OF BACHELORS

Syllabus

Course Requisites

<i>Cycle of Higher Education</i>	<i>First cycle of higher education (Bachelor's degree)</i>
Field of Study	<i>12 Information Technologies</i>
Speciality	<i>121 Software engineering</i>
Educational program	<i>Software Engineering of Multimedia and Information Retrieval Systems</i>
Discipline status	<i>Normative</i>
Study form	<i>Full-time</i>
Year of study, semester	<i>4 year (8 semester)</i>
ECTS workload	<i>6 credits (ECTS).</i>
Testing and assessment	<i>Final test</i>
Course Schedule	<i>4 weeks, according to the University Order</i>
Language	<i>English</i>
Course Instructors	<i>PhD., Associate Professor, Vasyl Yurchyshyn, vasyIPZKS@gmail.com</i>
Access to the course	<i>Google classroom, http://fpm.kpi.ua/archive</i>

Outline of the Course

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

Pre-diploma practice of bachelors is one of the important practical disciplines of training specialists in higher education and is one of the final stages of training in the educational and professional field of training in higher education institutions of Ukraine.

Pre-diploma practice is a mandatory component of the educational and professional program of training bachelors in the specialty 121 Software Engineering and aims at the student's acquisition of professional skills and the ability to perform independent engineering work.

The purpose of the credit module is to form students' ability to:

- 1) systematize, expand and consolidate professional knowledge;*
- 2) to form the initial competencies of conducting independent professional work;*
- 3) conduct independent design and construction work and experiments.*

The essence of practice is to involve students in independent professional work, familiarization with the methodology of design and construction works in specialized institutes, leading companies and industrial enterprises.

The subject of practice is deepening the skills of independent work, expanding the scientific and technical worldview of students, researching the chosen problem and the ability to connect it with the theoretical direction of research, to determine the structure, logic and content of the future thesis or thesis project. Completion of "Pre-Diploma Practice" contributes to the formation of general (GS) and professional competences (PC) in students, necessary for solving practical tasks of professional activity:

GS 01 *Ability to abstract thinking, analysis and synthesis.*

GS 03 *Ability to conduct research at an appropriate level.*

GS 04 *Ability to communicate with representatives of other professional groups at different levels (with experts from other fields of knowledge/types of economic activity).*

GS 05 *Ability to generate new ideas (creativity).*

PC 01 Ability to analyze subject areas, form, classify software requirements.

PC 02 Ability to participate in software design, including modeling (formal description) of its structure, behavior and functioning processes.

PC 03 Ability to develop architectures, modules and components of software systems.

PC 04 Ability to formulate and ensure software quality requirements in accordance with customer requirements, specifications and standards.

PC 05 Ability to adhere to specifications, standards, rules and recommendations in the professional field when implementing life cycle processes.

PC 08 Ability to apply fundamental and interdisciplinary knowledge to successfully solve software engineering tasks.

PC 11 Ability to implement phases and iterations of the life cycle of software systems and information technologies based on relevant models and software development approaches.

PC 12 Ability to carry out the system integration process, apply change management standards and procedures to maintain the integrity, overall functionality and reliability of the software.

PC 13 The ability to reasonably choose and master software development and maintenance tools.

Completion of "Pre-Diploma Practice" contributes to students' formation of the following program learning outcomes (PLO) according to the educational program:

PLO01 Analyze, purposefully search for and select the information and reference resources and knowledge necessary for solving professional tasks, taking into account modern achievements of science and technology.

PLO 03 Know the main processes, phases and iterations of the software life cycle.

PLO 04 Know and apply professional standards and other regulatory documents in the field of software engineering

PLO 10 Conduct a pre-project survey of the subject area, system analysis of the design object.

PLO 12 Apply effective software design approaches in practice.

PLO 16 Have skills in software development, design approval and release of all types of software documentation.

PLO 22 Know and be able to apply project management methods and tools.

PLO 33 Be able to organize the full cycle of software product management

PLO 36 To be able to manage projects of creation and implementation of software according to international standards

PLO 38 To be able to apply programming technologies for the development of software for multimedia and information-search systems.

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

Successful completion of the "Pre-Diploma Practice" is preceded by the study of the disciplines of the bachelor's training plan in the specialty 121 Software Engineering.

Completion of "Pre-Diploma Practice" will ensure independent practical work and preparation of materials for writing a diploma project in the specialty 121 Software Engineering; experience in designing, developing, deploying, integrating, testing, implementing and operating software for various purposes.

2 Content of the academic discipline

The organization and conduct of research practice are regulated by the following documents:

- contracts with enterprises regarding the completion of practice by students;
- the order of the university on the referral of students to practice and the appointment of managers from the university;
- educational program and work program of practice;
- diaries and individual tasks for students to complete practice;
- journal of students' visits to practice;

- schedules of visits to bases of practice by its managers for the purpose of control;
- reports of students on the implementation of the program of practice;
- examination information regarding credit from practice.

Students are sent to practice according to the order of the university. The order determines the type of practice, the terms and place of its completion, the distribution and confirmation of students according to the supervisors from the department, etc. The form of the order is determined by the current regulations of NTUU KPI named after Igor Sikorsky.

3 Educational materials and resources

Basic literature:

1. Regulations on the organization of the educational process at Igor Sikorskyi KPI: approved by the order of the Rector, ORDER No. 7-124 dated 07/20/2020. [electronic resource] . - Access mode - <https://document.kpi.ua/regulations>. - Title from the screen. - Ukrainian language.
2. The regulations on the procedure for the practice of higher education applicants of the National Technical University of Ukraine "Ihor Sikorskyi Kyiv Polytechnic Institute" were approved by the order of the Rector, ORDER No. 7/172 dated 09/24/2020. [electronic resource] . – Access mode - https://document.kpi.ua/files/2020_7-172.pdf. - Title from the screen. - Ukrainian language.
3. Methodological recommendations on the organization of students' practice and the 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. Yablonsky. - K.: KPI named after Igor Sikorskyi, 2018. – 29 p.
4. Law of Ukraine On Higher Education: / Verkhovna Rada of Ukraine; Bulletin of the Verkhovna Rada (VVR), 2014, No. 37-38, Article 2004 -. – Kyiv, 2018. – Title from the screen.
5. Provisions on internships for students of higher educational institutions of Ukraine: Order of the Ministry of Education of Ukraine dated 08.04.1993 No. 93 (Amended by Order of the Ministry of Education No. 351(v0351281-94) dated 20.12.94.
6. Provisional regulation on the organization of the educational process in KPI named after Igor Sikorskyi [Text] / Composed by V.P. Golovenkin; in general ed. Yu.I. Yakymenko – Kyiv: KPI named after Igor Sikorskyi, 2017. – 156 p.

Educational content

4 Methods of mastering an educational discipline (educational component)

Practice can take place at an enterprise, organization or educational institution. Management of practice from the university is carried out by the teacher of the department, who is responsible for internship, supervisor of final qualification work, from the company — a manager from among specialists by specialty profile.

The head of practice from the department ensures the implementation of all organizational measures before at the beginning of practice: instruction on the procedure for passing practice; giving students-interns need documents: referral to practice, practice diary. The head of the final qualification work provides consultations on issues related to writing a diploma project.

The practice begins with the mandatory instruction for all students safety techniques at the enterprise and workplaces, familiarization with the internal rules schedule.

Regulations on the practice of higher education applicants of KPI named after Igor Sikorsky (Order No. 7-172 dated 09/24/2020 regulates the duties of the head of practice and the student.

The head of practice from the department must:

- to develop working practice programs and coordinate them with the practice bases no later than two weeks before the start of practice;
- to warn students about the preparation of a medical certificate about the state of health (v if necessary) 7 days before the start of practice;
- no later than 7 days before the start of practice, provide practice bases with lists of students- interns for issuing temporary passes;
- prepare to provide a student or a group of students with a referral for practice;
- when sending two or more students for practice, appoint a senior of the group, who is the assistant to the head of the practice;
- hold meetings with students and acquaint them with work practice programs; - issue diaries with individual tasks and a calendar plan to students conducting practice;
- to ensure the timely arrival of students at the practice bases and monitor their progress practices;
- systematically, at least once a week, advise students and control the stages of individual task execution according to the calendar plan;
- to help the head of practice from the enterprise in compiling the characteristics of each student;
- to take part in accepted credits from practice;
- check the return of passes, literature and property to the enterprise by all students;
- draw up a report on going to work, as well as conduct a briefing on safety techniques, if students undergo practice in structural divisions university;
- to submit to the dean's office a report on the results of the internship with proposals regarding its improvement.

University students are obliged to:

- before the beginning of the internship, get a referral from the internship supervisor of the department for practice, work program of practice and practice diary;
- arrive at the practice base on time;
- to fully perform all tasks provided for in the work program practice, and instructions of its managers;
- to know and strictly observe the rules of labor protection, safety techniques and industrial sanitation and internal procedures of the enterprise.

5 Independent work of student

During the internship, the student must complete the following amount of work:

1. Definition of the object and subject of design taking into account the practice base (enterprise/institution).
2. Together with the supervisor of the diploma project, form the content of the individual task.
3. Determination of the terms and scope of the necessary theoretical studies and calculations.
4. Collection and systematization of information about the design object.
5. Description of the design object model.
6. Evaluation of relationships between model elements.
7. Formulation of the statement of the problem for writing the diploma project.
8. Analysis and selection of methods and technologies for the implementation of the given task.
9. Forming a practice report.

Policy and control

6 Policy of academic discipline (educational component)

Practice report requirements

After the internship, students must present the internship to the head of the department a written report together with a diary within the prescribed period (no later than three days after end of practice) for verification, review and admission to defense. The internship report must contain information about the student's implementation of the internship program and individual task. Systematization of the collected materials is carried out by the student under time of practice and is completed during the time specially allocated for this purpose, respectively to the practice program.

The structure and content of the practice report sections

The practice report consists of the following sections or documents:

1. Title page of the report (according to the sample).
2. Content of the practice report.
3. Introduction with a brief overview of the problem area for which the diploma project is being carried out, a brief argumentation of the relevance of the declared development, a brief annotation of the sections of the report.
4. Formalization of the statement of the task of the diploma project (object, subject and goal of development, final result of the completion of the diploma project).
5. The first full version of the diploma project with all completed sections and appendices.

The diploma project consists of the following elements:

- Title page of the prescribed sample;
 - The task of developing a diploma project of the established model;
 - Abstract (in Ukrainian); - Abstract (abstract in English); - Content;
 - List of conventional designations, abbreviations and terms;
 - Introduction;
 - The main part with a list of sections;
 - Conclusions;
 - References;
 - Appendix A to the diploma project - Demonstration version of the software (architecture, brief description of functionality, programming language, work results software, etc.).
 - Appendix B to the diploma project - Presentation of the first full version of the DP with everything completed Sections.
6. Conclusions to the report.

Summary of practice

The report is defended by the student at the commission appointed by the head of the department. Of the commission includes practice managers from the department and two teachers of the department. Commission takes credit within the first 3-5 days after the end of practice.

In order to be admitted to practice credit, a student must present a commission (no later than three days before the end of practice) for checking and reviewing:

- 1) practice report;
- 2) presentation of the practice report;
- 3) practice diary.

7 Types of control and rating system for evaluating learning outcomes

Current control: checking the practice diary every week. Semester control: defense of the practice report, credit.

Conditions for admission to the semester control: a minimum positive grade for performance individual task - 60 points. Evaluation criteria:

1) Availability of documents: practice report; presentation of the practice report; diary practices - 60 points.

2) Protection of the practice report and performance of the individual practice task Evaluation criteria: 1) complete completion of an individual task - 40 points; 2) incomplete completion of an individual task – 10-20 points;

3) sufficient correspondence of the content of the individual task – 0 - 5 points. Table of correspondence of rating points to grades on the university scale.

The final performance score or the results of Final test the Fail/ Pass are adopted by university grading system as follows:

<i>Points</i>	<i>Grade</i>
100-95	Excellent
94-85	Very good
84-75	Good
74-65	Satisfactorily
64-60	Enough
< 60	Unsatisfactorily
Admission conditions are not met	Not admitted

Course syllabus:

Is created by PhD, Associate Professor Vasyl Yurchyshyn

Approved by Computer Systems Software Department (protocol №3, 29.09.2025)

Approved by the Applied Mathematics Faculty Methodology Commission (protocol № № 2, 16.10.2025).