

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
ІМЕНІ СЕМЕНА КУЗНЕЦЯ

Кафедра інформаційних систем

(назва кафедри)

«ЗАТВЕРДЖУЮ»
Проректор з навчально-методичної роботи

Каріна НЕМАШКАЛО



РОБОЧА ПРОГРАМА

ПЕРЕДДИПЛОМНОЇ ПРАКТИКИ

рівень вищої освіти другий (магістерський)

галузь знань 12 «Інформаційні технології»

спеціальність 122 «Комп'ютерні науки»

освітньо-професійна програма «Комп'ютерні науки»

Завідувач кафедри

інформаційних систем

(назва кафедри)

Бондаренко Д.О.

Гарант освітньо-професійної програми «Комп'ютерні науки»

підписано КЕП

Мінухін С.В.

Харків

2024

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF
ECONOMICS

Department of Information Systems

"APPROVED"
Vice-rector for educational and methodical work

Karina NEMASHKALO



PROGRAM

PRE-GRADUATE PRACTICE

(type of practice)

Study cycle second (master's)

Field of knowledge 12 "Information technologies"

specialty 122 "Computer sciences"

educational and professional program "Computer Sciences"

Head of the Department of Information Systems

(name of department)

Bondarenko D.O.

Head of the educational and professional program "Computer Sciences "

digital signature

Minukhin S.V.

Kharkiv

2024

PROGRAM DEVELOPERS: PhD, prof. S. V. Minukhin, Doctor of Economics,
Assoc. Hrabovskyi Y.M.

The program has been agreed with the guarantor of the educational and
professional program "Computer Sciences"
(program name)

The program was approved at a meeting of the Department of Information
Systems

Minutes of the meeting of the department dated August 27, 2024, No. 1

The program has been extended:

on _____ born Head of the Department of Information Systems
(name of department)

(signature) (surname and initials)

Head of the educational and professional program "Computer Sciences"

(signature) (surname and initials)

on _____ born Head of the Department of Information Systems
(name of department)

(signature) (surname and initials)

Head of the educational and professional program "Computer Sciences"

(signature) (surname and initials)

on _____ born Head of the Department of Information Systems
(name of department)

±

(signature) (surname and initials)

Head of the educational and professional program "Computer Sciences"

(signature) (surname and initials)

INTRODUCTION

Practice is a mandatory component of training specialists with higher education. The practice of students of higher education presupposes the continuity and sequence of its implementation.

The program of the pre-diploma practice was compiled in accordance with the educational and professional program "Computer Sciences" of the second (master's) level of specialty 122 "Computer Sciences".

1. Characteristics, purpose, tasks and results of pre-diploma practice

1.1. Characteristics of pre-diploma practice

Number of credits	Total hours		Type of control	Semester
12	360		report	III
	Of them:			
	practice	independent work		
	360			

1.2. **The purpose of** pre-diploma practice is deepening, consolidating, generalizing and systematizing theoretical knowledge obtained by students of higher education in the process of studying professionally oriented disciplines, formation of general and special competences, obtaining practical skills of independent practical activity in the areas of application of computer systems.

1.3. Main tasks and results of pre-diploma practice

The main task of pre-diploma practice is the formation of general and special competences, which are necessary for the acquisition and development of the future profession of higher education seekers. After completing the internship, students must achieve results in accordance with the educational and professional program

The results of training and competence formed by pre-diploma practice are shown in Table 1.

Table 1

Learning outcomes and competence,
which are formed by pre-diploma practice

Special competences (SC)	General competences (CG)	Learning outcomes (LP)
	GC02	LO1
	GC02	LO2
	GC05	LO3
	GC05	LO10.
SC01		
SC08		
	GC03	LO15
	GC02	LO18
	GC03	
SC11		
	GC03	LO19
	GC07	
SC01		
SC10		

de LO1 To have specialized conceptual knowledge that includes modern scientific achievements in the field of computer science and is the basis for original thinking and conducting research, critical understanding of problems in the field of computer science and at the border of fields of knowledge.

LO2 Have specialized computer science problem-solving skills necessary for conducting research and/or carrying out innovative activities for the purpose of developing new knowledge and procedures.

LO3. It is clear and unambiguous to convey one's own knowledge, conclusions and arguments in the field of computer science to specialists and non-specialists, in particular to people who are studying.

LO10. To design architectural solutions of information and computer systems for various purposes.

LO15 Identify the needs of potential customers regarding the automation of information processing.

LO18 Collect, formalize, systematize and analyze the needs and requirements for the information or computer system that is being developed, operated or supported.

LO 19 To analyze the current state and global trends in the development of computer sciences and information technologies.

GC02. Ability to apply knowledge in practical situations.

GC03. Ability to communicate in the national language both orally and in writing.

GC05. Ability to learn and master modern knowledge.

GC07. Ability to generate new ideas (creativity).

SC01. Awareness of the theoretical foundations of computer science.

SC08. The ability to develop and implement software development projects, including in unpredictable conditions, with unclear requirements and the need to apply new strategic approaches, use software tools to organize teamwork on the project.

SC10. The ability to evaluate and ensure the quality of IT projects, information and computer systems of various purposes, to apply international standards for assessing the quality of software of information and computer systems, models for assessing the maturity of information and computer systems development processes.

SC11. Ability to initiate, plan and implement the development processes of information and computer systems and software, including its development, analysis, testing, system integration, implementation and support.

2. Content and organization of pre-diploma practice

Pre-diploma practice at the second (master's) level under the educational and professional program "Computer Sciences" is conducted in scientific institutions, organizations and enterprises working in the field of IT business.

Pre-diploma practice is carried out in the form of creating and promoting real projects, which are carried out by the student of higher education within the approved topic of the master's thesis, taking into account the interests and capabilities of the units and organizations in which it takes place.

The analysis of the information system of the enterprise, the collection and processing of statistical, economic and technical information, which is obtained and analyzed in the format of monitoring the relevant work processes, is the basis for the implementation of the tasks of the first and second sections of the master's thesis.

The content of the pre-diploma practice is determined by its supervisor on the basis of the master's training curriculum and should be reflected in the individual plan of the higher education student's practice.

Internships for students of higher education are organized in accordance with the assigned tasks and on the basis of the competencies that the student of higher education should acquire during this period of preparation for writing a master's thesis according to the Computer Science Program.

3. Requirements for the bases of pre-diploma practice

Pre-diploma practice for students of higher education involves the following requirements for the practice base :

1. The bases of pre-diploma practice for the holders of the master's degree in the specialty 122 "Computer sciences" can be:

- IT companies;
- production enterprises of state, communal and private ownership;
- state institutions and organizations;
- educational institutions with the availability of curricula that correspond to the OPP "Computer Sciences" in the specialty "Computer Sciences".

2. The practice base must provide proper conditions for the information gatherers to collect information for the master's thesis, prevent their use before taking up positions

and performing work that does not correspond to the practice program and the topic of the master's thesis.

3. The practice base must provide trainee applicants with the opportunity to use material and technical means and information resources necessary for the implementation of the practice program.

4. The practice base should provide applicants with the opportunity to collect information for the diploma thesis based on the results of the enterprise's activities, which is not a commercial secret, based on the referral of the information systems department.

5. After the end of the internship, the manager of the internship from the internship base must provide a description of each applicant-intern, in which the level of performance of the tasks of the internship program, the quality of the report prepared by him and give an assessment.

4. Individual practice tasks

The individual task of the pre-diploma practice is determined by the practice supervisor from the department (and/or company) together with the student of higher education, and must correspond to the topic of the thesis.

Research topics should correspond to the scientific directions of the department of information systems, as well as tasks that have practical and applied significance and are relevant for the field of IT technologies, economics and science.

The individual assignment for the pre-diploma internship (Appendix A) is determined before the internship begins and recorded in the internship diary (Appendix B) .

During the pre-diploma practice, the student of higher education must fill in a diary, recording the types of work performed and the terms of their completion, the information necessary for the performance of the work (information sources, composition of initial data, etc.), the content of the activities performed, etc.

After the end of the pre-diploma practice period, the applicant of higher education must provide the results of the pre-diploma practice in the form of a report and submit it to the department together with the practical diary within the prescribed period.

An individual task is given to students of higher education within the framework of the approved topic of the diploma thesis in order to acquire skills and abilities of self-solving industrial, scientific and organizational tasks by students of higher education during the pre-diploma practice.

Completing an individual task activates the applicant's activity, expands his worldview, increases initiative, makes the pre-diploma practice concrete and purposeful

for the preparation of the master's thesis.

The content of the individual tasks of the applicants is specified and specified during the pre-diploma practice by the head of the department and practice base.

The materials obtained by the student of higher education during the performance of an individual task are subsequently used for the performance of master's thesis tasks, as well as for the preparation of theses of a report, article or for other purposes in agreement with the department of information systems and the management of the practice base.

5. Requirements for the pre-diploma practice report

According to the results of pre-diploma practice, the applicant of higher education submits to the department:

- diary of pre-diploma practice of a higher education applicant;
- a detailed report on the results of the pre-diploma practice, which consists of a cover letter, practice assignment, content, introduction, main part in the established form; conclusions (independent assessment of work), list of used sources, appendices;
- presentation of the prepared report in accordance with the internship report based on the results of the pre-diploma internship.

In the text of the report, when using some statistical data, conducting an analysis, for example, the process of choosing an instrumental tool for the implementation of the task, etc., it is necessary to refer to the relevant sources of information (data) in the list of used sources.

The report is printed on one page of white paper of A4 format (210 × 297 mm).

Formatting requirements:

font type – Times New Roman;

pin – 14;

interline spacing – a factor of 1.3;

margins: top and bottom – 2 cm, left – 3 cm, right – 1.5 cm;

do not use italics and underlining in the text.

The language of the report is Ukrainian.

The text of the report should be logical according to the sequence of the individual task, edited, with wording that does not allow ambiguity in their interpretation, and with mandatory references to the list of used sources.

Paragraph indents should be used to highlight parts of the text that are separated in terms of content and are connected by the general logic of teaching.

The density of the text of the report, contrast and clarity should be the same. All numbers, signs, lines, letters must be clear and uniformly black

throughout the report.

6. Summarizing the results of pre-diploma practice

Usually, during the next week after the end of the pre-diploma practice period, higher education applicants report on the performance of tasks from the practice base, department and individual pre-diploma practice task.

The student of higher education reports to the commission appointed by the head of the department. The commission must include at least three members, necessarily the guarantor of the educational program and the head of practice from the institution of higher education.

For the defense, the student of higher education submits a practice report and a diary, signed by the head of the practice base, with feedback and evaluation. Based on the results of the report, the commission evaluates the work of the student of higher education. The internship report must comply with the principles of academic integrity. The practice report is checked for signs of plagiarism.

The grade for the pre-diploma practice is included in the record of success. The results of practice are discussed at the department meeting.

7. Criteria for evaluating the results of pre-diploma practice

The evaluation of the results of passing and defense of practice is carried out according to the 100-point system of evaluation of learning results adopted at the university.

The final number of points received by the student of higher education based on the results of the internship takes into account:

- manager's feedback from the practice base;
- feedback from the head of the department;
- the report and presentation of the applicant of higher education regarding the results of the internship during the defense of the report;
- answers to questions.

The criteria for evaluating learning outcomes are given in table. 2

Table 2

Criteria for evaluating learning outcomes

Points	Criteria for evaluating learning outcomes
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90-100	The internship report and the internship diary are prepared in accordance with the requirements and submitted for defense within the term determined by the department; the report contains elements of novelty, has practical significance; the applicant has mastered the skills of research work: information gathering, analysis, formulation of conclusions, proposals; the answer of the student of higher education to the questions of the members of the commission is exhaustive.
82-89	The practice program is fully implemented, but there are some non-principled shortcomings; insufficiently used reporting materials in the analysis process; there are separate comments regarding the design of the report, diary; the winner of the defense demonstrated good knowledge, answered the questions of the commission members.
74-81	There are separate comments regarding the design of the report and the diary; there are grammatical and stylistic errors; there are inaccuracies in the calculations during the analysis; in defense, the acquirer demonstrated satisfactory knowledge; answers to the questions of commission members are inaccurate or incomplete.
64-73	The internship report and the internship diary were made out with numerous errors or not in full, in defense, the applicant showed incomplete knowledge of the researched object, failed to satisfactorily answer the questions posed by the commission members.
60-63	The applicant made significant mistakes when solving pre-diploma practice tasks, was unable to give an explanation of the calculations performed; reporting documents are issued with errors; rating practice manager and characteristics indicate a low level of knowledge, skills and competences.
35-59	The report was submitted to the manager for review in violation of the terms; performed with substantial borrowings of information-theoretical material; the design of the report does not meet the requirements.
1-35	Missing reporting documents: report, practice diary and description.

8. Recommended literature

1. Конституція України № 254к/96-ВР від 28.06.1996 р. (зі змінами та доповненнями) [Електронний ресурс]. – Режим доступу : <https://zakon.rada.gov.ua/laws>.

2. Положення про організацію освітнього процесу в Харківському національному економічному університеті імені Семена Кузнеця : наказ № 5

від 26.10.2020 р. [Електронний ресурс]. – Режим доступу : <https://www.hneu.edu.ua/wp-content/uploads/2020/12/Polozhennya-pro-organizatsiyu-osvitnogo-protsesu-u-HNEU.pdf>.

3. Положення про організацію практики студентів у Харківському національному економічному університеті імені Семена Кузнеця (нова редакція) [Електронний ресурс]. – Режим доступу : <https://www.hneu.edu.ua/wp-content/uploads/2022/11/Polozhennya-pro-organizatsiyu-praktyku-studentiv.pdf>.

4. Положення про проведення практики студентів вищих навчальних закладів України, затверджене наказом Міністерства освіти України від 08.04.1993 р. № 93 [Електронний ресурс]. – Режим доступу: <https://zakon.rada.gov.ua/laws/show/z0035-93#Text>.

5. Про вищу освіту: № 1556-VII від 01.07.2014 р. Закон України (зі змінами та доповненнями) [Електронний ресурс]. – Режим доступу : <https://zakon.rada.gov.ua/laws/card/1556-18>.

6. Про освіту: № 2145-VIII від 05.09.2017 р. Закон України (зі змінами та доповненнями) [Електронний ресурс]. – Режим доступу : <https://zakon.rada.gov.ua/laws/card/2145-19>.

7. ДСТУ ГОСТ 7.1:2006. Бібліографічний запис. Бібліографічний опис. Загальні вимоги та правила складання [Електронний ресурс]. – Режим доступу: http://www.dnu.dp.ua/docs/ndc/standarts/DSTU_GOST7.1-2006.pdf.

8. ДСТУ 3582:2013 Бібліографічний опис. Скорочення слів і словосполучень українською мовою. Загальні вимоги та правила. – Київ: Мінекономрозвитку України, 2014. – 15 с.

9. ДСТУ 8302:2015 Інформація та документація. Бібліографічне посилання. Загальні положення та правила складання. – Київ : ДП "УкрНДНЦ", 2016. – 17 с.

10. ДСТУ 3008-15 Інформація та документація. Звіти у сфері науки і техніки. Структура та правила оформлювання. – Київ : ДП "УкрНДНЦ", 2016. – 31 с.

11. Методологія інформаційних систем та баз даних: теоретичний і практичний підходи: навч. посібник / уклад. Ю. О. Ушенко, М. Л. Ковальчук, М. С. Гавриляк, А. Л. Негрич. – Чернівці: Чернівецький нац. ун-т ім. Ю. Федьковича, 2021. – 240 с

12. Методичні рекомендації до проходження переддипломної практики для студентів ОПП "Комп'ютерні науки" спеціальності [Електронний ресурс] / укл. С. В. Мінухін, І. О. Ушакова, Д. Ю. Голубничий, О. В. Щербаков;

Харківський національний економічний університет ім. С. Кузнеця. - Електрон. текстові дан. (207 КБ). - Харків : ХНЕУ ім. С. Кузнеця, 2021. - 32 с. <http://repository.hneu.edu.ua/handle/123456789/25167>.

13. Starkova O., Bondarenko D., Hrabovskyi Y. Providing software support for economic analysis. // *Technology Audit and Production Reserves*, 2023, № 5/2(73). - P. 34–39. <http://www.repository.hneu.edu.ua/handle/123456789/30456>.

14. Hrabovskyi, Y., Bondarenko, D., Kobzev, I. Improving the technology for constructing a software tool to determine the similarity of raster graphic images. // *Eastern-European Journal of Enterprise Technologies*, 2024, № 1(2 (127)), P. 16–25

15. Hrabovskyi Y. M., Kots P. G. Methods of development of mobile application graphic design for remote interaction with patients. // *Наукові записки Української академії друкарства*. – 2023. - № 2 (67). - С. 93–106.

Appendices

Appendix A

Practice assignment template

TASK
for pre-diploma practice
2nd year master's student with specialty
122 "Computer Science"

(student's name)

1. Assignment: _____

2. The deadline for submitting the report

3. Input data for the task: DSTU on information processing, literary sources, technical documentation on information system <object name>, practice materials.

4. List of graphic material: _____

Head of university _____

(signature)

(position, P.I.B.)

Student _____

(signature)

(position, P.I.B.)

An example of a diary from pre-diploma practice

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

KHARKIV NATIONAL ECONOMIC
SEMEN KUZNETS UNIVERSITY



61166, Kharkiv, ave. Sciences, 9-A,

phone: 702-07-17, 702-04-59

www.hneu.edu.ua

PRACTICE DIARY

student _____

(surname, first name, patronymic)

Educational and Scientific Institute of Information Technologies _____

Department _____ of Information Systems _____

Master's _____ degree _____

Specialty (educational program) _____ 122 "Computer science" _____

(code and name)

course _____ 2 _____, _____ group

Rice. B.1. An example of filling out the first page of a diary from pre-diploma practice

2. Calendar schedule of practice

No	Titles of works	Weeks of practice								Performance notes
		1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	9	10	11
1	Passing safety training	✓								
2	Acquaintance with the object of management	✓								
3	Determination of the main questions for the problem	✓	✓							
4	Conducting research according to the assigned tasks			✓	✓	✓				
5	Analysis of the results of the conducted research						✓			
6	Approbation of research results							✓		
7	Completion of the report								✓	

Heads of practice:
from a higher education institution

(signature)

(surname and initials)

from the enterprise, organization, institution

(signature)

(surname and initials)

Rice. B.2. An example of filling in the fourth page of a diary for pre-

diploma practice