



Syllabus of the educational component

Program of educational discipline



Pre-diploma practice

Code and name of specialty

113 – Applied mathematics

Institute

Educational and Scientific Institute of Computer Science and Information Technology

Educational program

Intelligent data analysis

Department

Computer mathematics and data analysis

Level of education

Bachelor

Type of discipline

Special (professional), Mandatory

Semester

8

Language of teaching

Ukrainian

Teachers and developers



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Doctor of technical sciences, professor, professor of the Department of Computer Mathematics and Data Analysis of NTU "KhPI".

Work experience since 1981. The number of scientific and educational publications is more than 200. Leading lecturer in the disciplines: "Control theory", "Incorrect problems of data processing", "Predictive analysis". Scientific directions: control and decision-making under conditions of uncertainty, machine learning.

[Learn more about the teacher on the department's website](http://web.kpi.kharkov.ua/kmmm/uk/o_kafedre_ua/profesorstvo-vikladatskij-sklad/lyubchik-leonid-mihajlovich/)

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General information

Annotation

Pre-diploma practice is conducted in the 4th year in the 8th semester, the duration of the practice is 180 hours (6 credits). Pre-diploma practice is aimed at forming the professional competencies, abilities, and skills of the applicants, which are provided for by the educational program and their collection of actual material for their performance of the qualifying bachelor's work.

Pre-diploma practice takes place based on enterprises (organizations, institutions) based on concluded agreements reflecting the main issues of the organization of work of interns.

Purpose and objectives of the disciplines

Pre-diploma practice aims to systematize, expand, and consolidate professional knowledge, deepen and consolidate theoretical knowledge acquired by students of higher education during the implementation of the educational program, familiarization directly at the enterprise with the processes of modern production, in particular the IT industry, acquisition and improvement of practical skills and abilities with specialty, as well as the collection of material for the performance of a qualifying bachelor's thesis.

Format of classes

Self learning. Final control - credit.

Competences

GC 2. Ability to apply knowledge in practical situations.

GC 3. The ability to generate new ideas (creativity).

GC 7. Ability to search, process, and analyze information from various sources.

GC 8. Knowledge and understanding of the subject area and understanding of professional activity.

GC 9. Ability to communicate with representatives of other professional groups at different levels (with experts from other fields of knowledge/types of economic activity)

GC 10. Skills in the use of information and communication technologies.

GC 12. Determination and persistence to assigned tasks and assumed responsibilities.

ZK 13. Skills of interpersonal interaction.

SC 7. The ability to solve professional tasks using computer equipment, computer networks, and the Internet, in the environment of modern operating systems, using standard office applications.

SK 8. Ability to operate and maintain software of automated and information systems for various purposes.

SK 9. Ability to use modern technologies of programming and software testing.

SK 11. The ability to create documents of established reporting and use of normative and legal documents.

SK 12. The ability to organize the work of a team of performers, to make appropriate and economically justified organizational and managerial decisions, and to ensure safe working conditions.

SK 16. The ability to participate in the preparation of scientific reports from the performed scientific research works and in the implementation of the results of the conducted research and development.

SC 17. The ability to effectively communicate professionally in writing and orally in Ukrainian one of the official languages of the EU.

Learning outcomes

LO 11. To be able to apply modern technologies of programming and software development, software implementation of numerical and symbolic algorithms.

LO 12. Solve separate engineering problems and/or problems arising in at least one subject area: sociology, economics, ecology, and medicine.

LO 13. Use specialized software products and software systems of computer mathematics in practical work.

LO 14. Demonstrate the ability to self-study and continue professional development.

LO 15. To be able to organize one's activities and obtain a result within a limited time frame. RN 16.

Demonstrate the skills of interacting with other people, and the ability to work in a team.

LO 17. To be able to collect, process, analyze, and systematize scientific and technical information, while avoiding academic dishonesty.

LO 18. Effectively communicate information, ideas, problems, and solutions with specialists and society in general.

LO 19. Collect and interpret relevant data and analyze complexities within one's area of expertise to make judgments that reflect relevant social and ethical issues.

LO 20. Demonstrate professional communication skills, including oral and written communication in Ukrainian and at least one of the official languages of the EU.

Scope of the discipline

The total scope of the discipline is 180 hours. (6 ECTS credits): self-work – 180 hours.

Prerequisites for studying the discipline

Disciplines of general and special training in 1-8 semesters of study according to the list of educational components.

Features of the discipline, methods, and technologies of education

Practice involves the individual work of students of higher education. In the course of practice, students of higher education must study the structure of the enterprise, the functions of its subsystems, organizational and informational relationships between these subsystems, the corresponding scheme of information flows; technological processes of the enterprise, in particular, information processing processes; the main characteristics of modern equipment and means of development, testing and support of software systems used based on practice; means of organizing and planning work based on practice; means of labor protection and safety equipment. The department appoints supervisors of pre-diploma practice to guide the practice of each applicant. The responsibilities of practice managers are to develop and provide applicants with individual tasks and other instructions for completing practice; control the timeliness of the formation and execution of individual schedules of practice; consult on the implementation of individual practice tasks and the preparation of practice documents; timely processing of feedback and preliminary assessment of the applicant's work in practice based on checking the practice report, the results of the individual task.

The manager of the practice base enterprise appoints a pre-diploma practice manager to supervise the practice of each applicant. The duties of the practice managers from the enterprise are to control the applicants' compliance with labor discipline and safety techniques; develop and provide applicants with individual tasks and other instructions for practice; control the timeliness of the formation and execution of individual schedules of practice; consulting on the implementation of individual practice tasks and the preparation of practice documents; creation of conditions for high-quality implementation of the internship program and assistance to applicants in obtaining materials for the report and improving their qualifications; timely processing of feedback (by assessing attitude to work, compliance with labor discipline, level of theoretical and practical training, etc.) and preliminary assessment of the applicant's work in practice based on checking the practice report, the results of the individual task and other practice documents.

Program of educational discipline

Topics of lectures

Lecture classes within the discipline are not provided.

Topics of practical classes

Practical classes within the discipline are not provided.

Topics of laboratory work

Laboratory work within the discipline is not provided.

Self-learning

The individual task is drawn up with the participation of the internship manager from the university, and the internship manager from the company and is agreed upon with the supervisor of the higher education student's thesis after the trainees have been assigned to jobs. Working hours of practice are 30 hours per week.

In the course of practice, applicants must:

- fully perform the tasks provided for in the internship program;
- study and follow the rules of labor protection, safety techniques, and industrial sanitation;
- to participate in the social life of the enterprise - practice base;
- to be responsible for the work performed at the same level as all employees.

At the end of the internship, the student of higher education must prepare all necessary reporting documentation, which includes the internship diary, internship report, and presentation.

Literature and educational materials

Training materials and tasks are provided by practice managers.

Evaluation system

Criteria for evaluating student performance and distribution of points

The main tasks of the pre-diploma internship are reflected in the internship Diary, in which the applicant records the content and scope of the work performed, as well as its results during the entire internship. The actual implementation is certified by the internship manager from the enterprise, who prepares feedback on the implementation of the internship program after the internship. The main document on the implementation of the pre-diploma practice program is a written report, which, together with the practice diary, is submitted for review to the head of practice from the department within the term regulated by normative and methodical documents on the organization and conduct of practice. Based on the results of the report review, the head of practice from the department writes a general review and determines the assessment with which the report is recommended for defense before the commission. Summarizing the results of the pre-diploma practice takes place in the form of a differentiated assessment, which is accepted by the commission, the composition of which is determined by the head of the department (at least 2 members of the commission).

The winner's points are calculated according to the following ratio:

Feedback from the manager of the company - 40% of the total score;

Feedback from the head of the department - 30% of the total grade;

Defense of pre-diploma practice - 30% of the total grade..

Rating scale

Total points	National assessment	ECTS
90–100	Perfectly	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactorily	D
60–63	Satisfactorily	E
35–59	Unsatisfactorily (further study required)	FX
1–34	Unsatisfactorily (further study required)	F

Norms of academic ethics and policy of the course

The student must adhere to the "Code of Ethics of Academic Relations and Integrity of NTU "KhPI": show discipline, education, benevolence, honesty, and responsibility. Conflict situations should be openly discussed in study groups with the teacher, and if it is impossible to resolve the conflict, it should be brought to the attention of the employees of the institute's directorate.

Regulatory and legal support for the implementation of the principles of academic integrity of NTU "KhPI" is posted on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/>

Approval

Syllabus approved by

Date of approval, signature
29.08.2024

Head of the department
Olena AKHIEZER

Date of approval, signature
29.08.2024

Guarantor of Educational
Program
Olena AKHIEZER