

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
DNIPRO UNIVERSITY OF TECHNOLOGY



DNIPRO UNIVERSITY
of TECHNOLOGY
1899

FACULTY OF CONSTRUCTION
Department of Construction, Geotechnics and Geomechanics

PROGRAM OF THE INDUSTRIAL PRACTICAL TRAINING
(GUIDELINES FOR PASSING PRACTICAL TRAINING AND WRITING A REPORT)

for students of the specialty 192 “Building and Civil Engineering”

Dnipro
Dnipro University of Technology
2020

Program of the professional practical training (guidelines for passing practical training and writing a report) for students of the specialty 192 “Building and Civil Engineering”/ M. Vyhodin, E. Maksymova, K. Kravchenko, K. Zhabchyk. – Dnipro: DUT, 2020. – 21 p.

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Professional practical training is one of the most important types of educational activity aimed at training future specialists in terms of practical tasks to improve their professional skills. The materials contain basic requirements and recommendations to organize of the first professional practical training

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CONTENT

INTRODUCTION	4
1. AIMS AND ASSIGNMENT OF PRACTICAL TRAINING	4
2. CONTENT OF THE PRACTICAL TRAINING	6
3. STRUCTURE OF PROFESSIONAL PRACTICAL TRAINING AND REPORT WRITING.....	7
3.1. General provisions	7
3.2. Responsibilities of the head of practical training from the University.....	8
3.3. Responsibilities of the head of practical training from facility manager.....	8
3.4. Duties of a student	8
3.5. Forms and means of practical training control.....	8
3.6. Report writing recommendations	9
4. RESULTS OF PRACTICAL TRAINING	11
BIBLIOGRAPHIC LIST.....	11
ANNEX 1. COMPOSITION AND CONTENT OF THE WORKSHEET.....	13
ANNEX 2. AGREEMENT ON THE PRACTICAL TRAINING.....	14
ANNEX 3. DIRECTIONS TO THE PRACTICAL TRAINING.....	16
ANNEX 4. PRACTICAL TRAINING DIARY	17
ANNEX 5. EXAMPLE OF APPLICATION ON THE TITLE PAGE	21
ANNEX 6. RECOMMENDATIONS FOR THE REPORT	22

INTRODUCTION

Professional practical training is one of the most important types of educational work and inclined to maximize the preparation of future professionals to the practical work, to raise the level of their professional training.

The practical training involves improving professional and practical training of students and ensures that they gain the competence specified by the educational program using the material and technical base practical training.

Program practical training (guidelines) developed for students' III course, which learn the specialty Building and Civil Engineering 192.

Duration of practical training - four days.

Bases for practical training is to build organizations of all forms of ownership, research and design and design institutes, institutions of Architectural and Building Control, Architecture and Building Departments of local self-government, which use advanced technology and organizations in the design and control of construction, equipped with modern machinery mechanization of works, software systems design calculation of building structures and automated systems design, etc.

During the entire period of practical training, the student prepares a report, which is the main document characterizing the student's work during this period. A student who has not received a differential credit of professional practical training is sent to practical training again during the student holidays or is expelled from the university. The source of information for writing a report are the planned and actual indicators of the economic activity of the practical training base, the results of observations, surveys, surveys work on a certain type of activity, inspections, other methods of collecting primary information used by the student during the professional practical training.

1. AIMS AND ASSIGNMENT OF PRACTICAL TRAINING

The purpose of the internship is to familiarize with the advanced technologies of construction production, design materials for structures where these materials are used and, on their basis, the collection of information materials for writing a practical training report. The choice of an object for this takes place with the agreement of the head of the practical training.

The main tasks of the practical training are to consolidate and develop students' theoretical knowledge and the formation of skills for their application in the field of

technology, economics, organization and management of construction in solving practical problems within the framework of an individual educational trajectory.

As a result of the internship, students get acquainted with the main methods of performing construction work, labor safety rules and workplace organization, assessment of the quality of construction work, design features, calculations, etc. according to his individual assignment, which is coordinated with the head of the practical training from the university.

During the internship, students must:

- timely arrive at the place of the practical training;
- get acquainted with the production;
- undergo safety training;
- study the scope of work;
- familiarize yourself with the basic mechanisms that are used in construction;
- get an idea of the main types of work;
- keep a diary of practical training and complete an individual assignment.

Moreover, the student should be able to:

- efficiently and on time to carry out the assigned work at the facilities of the enterprise as students;
- if necessary, work in the departments of the enterprise (that is, correctly perform the main types in this construction process)
- be able to use the tools that are used in construction;
- know and correctly carry out control and measuring operations.

According to the educational and vocational training program of specialty 192 Building and Civil Engineering of a Bachelor's degree determines such a professional learning outcome: mastering work skills to work effectively independently (course and diploma design) or in a group (laboratory work, including leadership skills in their implementation), the ability to obtain the desired result in conditions limited time with an emphasis on professional integrity and exclusion of the possibility of plagiarism.

After the end of the industrial practical training, the student draws up a report and submits it to the head of the practical training from the Department of Construction, Geotechnics and Geomechanics, which is assessed as a differential credit from about

2. CONTENT OF THE PRACTICAL TRAINING

The industrial practical training includes two stages:

1. Acquaintance with construction objects, technology and organization of construction production (excursions), design materials for objects.
2. Collection of design materials for the selected object for writing a report on industrial practical training, research work (if possible).

Students should study the architectural, planning and design solutions of the facility under construction, local construction conditions, the project for the production of work and the mechanization and sequence of work adopted in it. When performing construction processes, students should comprehensively study the methods of organizing work, construction machinery and equipment, devices and temporary devices.

On the organization of construction, students study: the presence of a construction organization project (COP), the organization of the work of production teams; delivery schedules for MC and reinforced concrete structures and the complexity of their delivery at the construction site; storage facilities; the composition and structure of mechanization bases, the organization of transport and the park of lifting and transport machines, equipment and devices for performing construction and installation work.

In construction economics, students' study: the main technical and economic indicators of construction, the wage system, the level of labor productivity, the analysis of the production and economic activities of the organization.

At the second stage of the practical training, the maximum possible collection of project materials is carried out for an individual task, agreed with the head of the practical training. In this case, the collection of information is carried out according to the following recommended sections:

- architectural and construction part (facades, plans and sections of the structure, general layout of the site, basic structural solutions of the structure, materials and structures);
 - calculations and design of supporting structures;
 - technology and organization of construction production (construction master plan, calculation and composition of temporary engineering networks and structures and flow charts for the main types of work - zero cycle, installation, stone, finishing work, flooring, roofing, etc., Construction calendar plan);
 - construction economics (local and object estimates)
 - main measures for labor protection and life activity.

Students who undergo practical training in production can participate in the development of specific tasks for improving the technology and organization of work, filing applications for an invention.

For an in-depth acquisition of practical skills, heads of practical training from the university and the enterprise can conduct excursions for students to other construction and reconstruction projects. At the same time, special attention is paid to the organization of the construction site, the use of advanced technologies and means of mechanization of workplaces in the production of special work.

3. STRUCTURE OF INDUSTRIAL PRACTICAL TRAINING AND REPORT WRITING

3.1. General provisions

According to the current regulations, the general management and responsibility for organizing the practical training is borne by the dean of the faculty together with the head of the industrial practical training of the university. The student receives advice on educational and methodological issues at the Department of Construction, Geotechnics and Geomechanics, and the direct guidance from the university is entrusted to the teachers of the department.

The distribution of students to the places of practical training, the establishment of the dates for the beginning and end of the practical training is approved by the order of the university.

The determination of the bases of practical training is carried out by the Department of the University on the basis of direct Agreement with enterprises (Annex 2), organizations, institutions, regardless of their organizational and legal forms and forms of ownership.

The procedure for hiring, working hours and other working conditions for student trainees are established in accordance with the legislation on working conditions of temporary workers. The internal labor regulations of the enterprise (organization) also apply to the student.

Violation of the rules established in production, labor and production discipline, safety measures, entails a certain penalty, up to expulsion from the university.

The organizations, which are the bases of practical training, organize the work of students, assist them in the selection of materials for writing a report on practical training, create conditions for the use of technical documentation and special literature, ensure and control the observance of the internal regulations by students are fully responsible for accidents with students; provide high-quality conducting briefings on labor protection, involve them in rationalization work.

Before leaving for practical training, the student must receive a referral from the dean's office (Annex 3), a diary (Annex 4) and an individual task from the head of the practical training; familiarize yourself with the basic provisions on labor protection.

3.2. Responsibilities of the head of practical training from the University

The head of the practical training from the university participates in the distribution of students to the bases of practical training, is responsible for the quality of the practical training and strict compliance with its program.

The head of the practical training from the university controls the provision of student trainees with normal working and living conditions, receives reports on the practical training and prepares proposals for its improvement.

3.3. Responsibilities of the head of practical training from facility manager

The head of the practical training from production helps the student-trainee in obtaining the necessary production skills during the implementation of the practical training program: he checks and evaluates the student's work and compiles a production characteristic for him.

The head of the practical training from production is responsible for the timely familiarization of the student-trainee with the provisions on labor protection and fire-prevention measures, supervises the work of the student, contributes to the research work of students.

3.4. Duties of a student:

- obtain the documents necessary for the professional practical training (referral, diary, etc.) and have a copy of the contract with the company;
- meet with the head of the practical training from the University, get an individual assignment;
- have no academic debt;
- timely arrive at the place of the practical training;
- during the entire period of practical training, the student fills out the practical training diary and prepares information for writing a report;
- the student must complete and defend a report, receive a differential credit with an assessment.

3.5. Forms and means of practical training control

Control over the passage of professional practical training is entrusted to its head from the University. The documents for the current control are the practical training program, the student's diary, the time sheet.

In practical training, students must strictly adhere to industrial discipline, labor regulations, safety measures and other standards, observe the rules of business communication with production workers.

3.6. Report writing recommendations

In order to keep records of work for the period of practical training, students keep a diary of work performance every day. The diary entries are checked and signed by the production manager. Diary materials are one of the sources for writing a technology report.

The practical training's report is made by each student individually.

At the end of the professional practical training, each student-trainee draws up a written report and submits it to the internship supervisor simultaneously with a diary signed by the professional practical training supervisor from the production. The textual and calculated parts of the report are supplemented with working drawings of the facility under construction, a project for the production of works, flow charts for the implementation of individual processes or other documents regarding the rules of production and methods of construction work within the framework of their individual assignment.

The report is the result of the knowledge and skills acquired by the student during the period of practical training. In it, the student must show knowledge in the field of construction production technology within the framework of an individual educational trajectory. The report should consist of the following sections:

1. Introduction.

The introduction should contain the following information about the object: name, purpose, main features (cubic capacity, building plane, number of apartments or spans - for an industrial structure, cost according to the estimate, including construction and installation works). The organization that carries out the construction, its departmental affiliation, as well as a brief description of the state of construction before the start of practical training is also indicated.

2. Space-planning and constructive solution of the construction object.

The second section provides a brief description of the architectural design of a building or structure. The drawings are given - a plan of a typical floor, drawings and drawings of the main structural elements, as well as information about the use of building materials and products.

3. Production technology 1 - 2 types of work (according to the individual task).

In the third section, a detailed description of one or two types of work is given, in the development of which the student-trainee was directly involved (project for the

production of work, flow charts (Annex 1) for the implementation of certain processes or other documents on construction production).

When describing the methods of production of works, the student must show in detail: preparation for production of works; materials and elements necessary for the production of work, their transportation; machines and mechanisms, tools, inventory and devices used in the production of these works; the technological sequence and features of the production of these types of work - describe the preparatory, main and auxiliary production processes and outline the flow charts of labor processes; the composition of the brigades and units of the workers involved in these works, the organization of their work at the workplace, the definition of the boundaries of seizures and areas; production conditions and variable productivity of this type of work, ways to increase it; technical and tariff regulation of work, drawing up orders; forms of remuneration of workers and the distribution of wages among workers' brigades or units; labor protection requirements for this type of work.

4. Measures for labor protection at the facilities.

The fourth section should be devoted to safety measures for the main types of work.

5. Industrial excursions (if possible).

For an in-depth acquisition of practical skills, heads of practical training from the university and the enterprise can conduct excursions for students to other construction and reconstruction projects. In the fifth section, it is necessary to give a brief description of the objects on which the excursions were conducted. Also, in this section, you can indicate additionally mastered skills within the framework of practical training and individual professional interests of the student.

6. Conclusions.

In the sixth (final) section, the student must provide the main conclusions based on the results of industrial practical training: positive / negative impressions, his own critical remarks, as a result of the implementation of which, in his opinion, it is possible to increase labor productivity and improve its conditions.

The structure of the report of professional practical training must meet the requirements of ДСТУ 3008: 2015 "Information and documentation. Reports in the field of science and technology".

The report should be written on sheets of standard format (A4) and supplemented with graphic material. The volume of the report is 10 - 25 typewritten pages. The title page is drawn up in accordance with Annex 5 and Annex 6.

4. RESULTS OF PRACTICAL TRAINING

After the end of professional practical training period, applicants for higher education report on the implementation of the program and individual assignment. The form for reporting the applicant for higher education on the passage of professional practical training - a written report.

The assessment of the work by the head of the practical training is carried out by an expert method using the criteria regulated by the Regulation on the assessment of learning outcomes of applicants for higher education of Dnipro University of Technology, taking into account the specifics of the specialty.

The result of the student's practical training is obtaining a differential credit (according to the current standards and norms). The condition for receiving is the presence of a completed diary with a positive characteristic of the manager from the enterprise.

The head of the practical training from the University (department) takes credit from applicants for higher education at the university during the first two weeks of the semester after the end of the practical training.

If the applicant for higher education needs to get an assessment in practical training before the start of the semester (transfer to study at another institution of higher education, etc.), the head of the department's practical training takes credit within one week after the completion of the practical training.

The final mark for the practical training is calculated as an average score based on the results of the general part of the report, an individual assignment and taking into account the recall of the head of the practical training base. The score given in this case is taken into account when determining the rating for the semester during which the defence took place, and scholarships are assigned.

Evaluation of the results of students' practical training is carried out on a 100-point scale with the obligatory transfer of point assessments into the institutional scale. The mark for the practical training is entered in the record-and-examination sheet and the record book of the applicant for higher education, signed by the head of the practical training from the department.

BIBLIOGRAPHIC LIST

1. User's Guide ECTS [Electronic resource]. <https://kpi.ua/files/ECTS.pdf> (date of access: 04.11.2017).

2. ДСТУ 3008:2015. Звіти у сфері науки і техніки. Структура та правила оформлювання. DSTU 3008: 2015. Reports in the field of science and technology. Structure and design rules.

3. ДСТУ 8302:2015. Бібліографічне посилання. Загальні положення та правила складання. DSTU 8302: 2015. References. General provisions and rules of drawing up.

4. Law of Ukraine "On higher education" [Electronic resource]. URL: <http://zakon2.rada.gov.ua/laws/show/1556-18> (date accessed: 04.11.2017).

5. National qualifications framework. <http://zakon3.rada.gov.ua/laws/show/1341-2011-p>.

6. Regulations on the educational and methodological support of the educational process of applicants for higher education of the Dnipro University of Technology", approved by the Academic Council on January 22, 2019, Protocol No. 2.

7. Regulation on the assessment of learning outcomes for applicants for higher education, approved by the Academic Council on December 26, 2017, protocol No. 20 (as amended, adopted by the Academic Council on September 18, 2018, protocol No. 11).

8. Regulations on the practical training of applicants for higher education of the National Technical University "Dnipro Polytechnic", approved by the Academic Council on 11.12.2018 (Minutes No. 15).

9. Regulations on the system for the prevention and detection of plagiarism at the National Technical University "Dnipro Polytechnic", approved by the Academic Council on 13.06.2018 (Protocol No. 8).

10. Educational and vocational training program for the first level of higher education in specialty 192 Building and civil engineering NTU "DP" (in the edition that is valid at the time of qualification work).

11. Bricks & Mortals: Ten Great Buildings and the People They Made
<https://www.amazon.com/Bricks-Mortals-Great-Buildings-People/dp/1408843676>

12. Building Construction Costs with RSMeans Data 2019 by Robert Mewis
https://www.amazon.com/Building-Construction-Costs-RSMeans-Data/dp/1946872512/ref=bx_26?pd_rd_w=rANZ7&pf_rd_p=82aca571-3653-4c76-afa2-d596d18861b7&pf_rd_r=CZ38E0C9HW6EKSD5YC2E&pd_rd_r=2aa75659-1e78-483d-bbfb-956f57537921&pd_rd_wg=5aPHs&pd_rd_i=1946872512&psc=1

13. Fundamentals of Building Construction: Materials and Methods 7th Edition
https://www.amazon.com/Fundamentals-Building-Construction-Materials-Methods/dp/1119446198/ref=bx_4?pd_rd_w=fEGPV&pf_rd_p=82aca571-3653-4c76-afa2-d596d18861b7&pf_rd_r=VH8W5PWGG2GRHTKC0R7J&pd_rd_r=311a4373-0eed-4b35-a51d-e228e3153049&pd_rd_wg=2BXmV&pd_rd_i=1119446198&psc=1

ANNEX 1. COMPOSITION AND CONTENT OF THE WORKSHEET

1. Appointment.
2. Content.
 - 2.1. Characteristics of the construction process.
 - 2.2. Description of all operations performed (manual and mechanized).
 - 2.3. Applied equipment, tools and mechanisms.
 - 2.4. Materials used consumption rates and certification.
 - 2.5. Quality control description:
 - in progress;
 - upon completion of work.
 - 2.6. Labor protection during the construction process.
 - 2.7. A list of all transactions performed during the working day, indicating the time.
 - 2.8. List of used normative literature.

ANNEX 2. AGREEMENT ON THE PRACTICAL TRAINING

AGREEMENT NO. _____

for the practical training of students of higher educational institutions

Dnipro city

" ____ " _____ 20 ____

We, the undersigned,

on the one hand - the **Dnipro University of Technology** (hereinafter referred to as the institution of higher education) represented by the first vice-rector Aziukovskyi Oleksandr, acting on the basis of the charter and, on the other hand

(Name of the company, organization, institution)

(Further - the base of practical training) represented by

(Position, surname, initials)

acting on the basis _____,

(Articles of the enterprise, orders, instructions)

concluded an agreement among themselves:

1. The base of practical training is obliged:

1.1. To accept students for practical training according to the schedule:

No.	Name of specialty	Course	Type of practical training	Number of students	Duration of practical training	
					beginning	end

1.2. Appoint by order of qualified specialists to direct the practical training.

1.3. Create the necessary conditions for students to complete the internship program, prevent their use in positions and jobs that do not correspond to the internship program and future specialty.

1.4. Provide students with a safe working environment at each workplace. Conduct mandatory instruction on labor protection: induction and at the workplace. If necessary, teach student trainees to safe working methods. Provide overalls and safety equipment in accordance with the standards established for regular employees.

1.5. Provide student interns and heads of practical training of a higher education institution with the opportunity to use laboratories, offices, workshops, libraries, technical and other documentation necessary to complete practical training programs.

1.6. Provide a record of student internships at work. All violations of labor discipline and internal regulations should be reported to institutions of higher education.

1.7. After completing the practical training, give a description of each student-trainee and a response to the prepared report.

1.8. Additional conditions:

a) on free terms "base of practical training" - "institution of higher education";

2. The institution of higher education undertakes:

2.1. Two months before the start of the internship, provide the internship base for approval with a program, and no later than a week - a list of student interns.

2.2. Appoint qualified teachers as practical training leaders.

2.3. Ensure that students comply with labor discipline and internal labor regulations. Participate in the investigation by the commission of the base of the practical training of accidents that happened to students.

3. Responsibility of the parties for non-performance of the contract:

3.1. The parties are responsible for failure to fulfil their responsibilities for organizing the practical training in accordance with the current labor legislation in Ukraine.

3.2. All disputes arising between the parties are resolved in the prescribed manner.

The agreement comes into force after it is signed by the parties and is valid until the end of the professional practical training in accordance with the schedule.

The agreement was drawn up in two copies - the base of the practical training and the institution of higher education.

Legal addresses:

Institution of higher education:
49005 Dmitry Yavornytsky Ave., 19
m. Dnipro
Educational part
Dnipro University of Technology

Base of practical training:

Signatures and seals:

Institution of higher education:

Base of practical training:

" ___ " _____ 20 ____

" ___ " _____ 20 ____

student _____
(Full Name)

arrived " _____ " _____ 20 _____

to the enterprise, organization, institution and started to practical training.

Enterprise stamp,
organizations, institutions " _____ " _____ 20 _____

(Signature) (position, surname and initials of the person in charge)

Retired " _____ " _____ 20 _____
from an enterprise, organization, institution

Enterprise stamp,
organizations, institutions " _____ " _____ 20 _____

(Signature) (position, surname and initials of the person in charge)

Feedback and evaluation of the student's work in practical training

(Name of the company, organization, institution)

Head of practical training from enterprise, organization, institution _____

(Signature) (surname and initials)

Enterprise stamp,
organizations, institutions " _____ " _____ 20 _____

ANNEX 5. EXAMPLE OF THE REPORT TITLE PAGE

**Ministry of Education and Science of Ukraine
Dnipro University of Technology**



FACULTY OF CONSTRUCTION
Department of Construction, Geotechnics and Geomechanics

REPORT

OF THE INDUSTRIAL PRACTICAL TRAINING

on " _____ "

(enterprise's name)

in position: " _____ "

from __. __. 20__ to __. __. 20__ year.

Signature / Date Fulfilled:

student of group _____
group number

full name

Assessment

Signature / Date

Head of practical training from the University

position, full name

Dnipro
2020

ANNEX 6. RECOMMENDATIONS FOR THE REPORT

Examples of the design of figures and tables

Table 1. Requirements for formatting typewritten text

Indicator	Value
Margins (top / left / bottom / right)	2 cm / 3 cm / 1.5 cm / 10 cm
Font	Times New Roman
Font size	14
Interval	1.15 pt.
Spacing before / after paragraph	0.0 pt.
First line indent of a paragraph	1.25 cm
Body text alignment	Fit to width
Continuous numbering	At the bottom of the page

Note: When transferring a table to another sheet, it is mandatory to repeat its "heading". At the end of the report, a list of references is provided, which is also drawn up in accordance with current requirements.

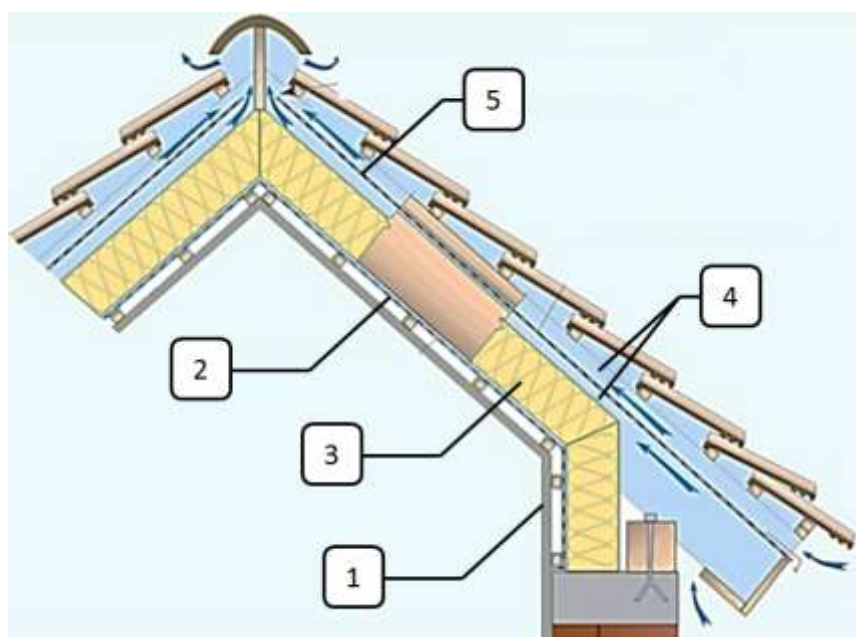


Figure 1 - Insulation of the attic floor: 1 - gypsum board, 2 - vapor barrier, 3 - insulation, 4 - air gap, 5 - waterproofing.

The bibliographic list is drawn up in accordance with the current requirements

Educational edition

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Zhabchyk Kateryna

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