MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

COMPLEX TRAINING

Guidelines for implementation

for Master's (second) degree higher education students of speciality 126 "Information Systems and Technologies" of the study program "Information Systems and Technologies"

Kharkiv
S. Kuznets KhNUE
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Guidelines concerning the organization and conducting of the complex training are provided. The content of the main tasks and the complex training report are given.

For Master's (second) degree higher education students of speciality 126 "Information Systems and Technologies" of the study program "Information Systems and Technologies".

UDC 004(072.034)

Introduction

The complex training of the research direction for higher education students of the first year of study of Master's (second) degree of specialty 126 "Information Systems and Technologies" is generally based on the basic conceptual principles of training of higher education students of S. Kuznets Kharkiv National University of Economics and is a mandatory component of the study and professional program for obtaining Master's (second) degree in a specialty and aims at the student's acquisition of skills and abilities to carry out independent research work.

The main content of the complex training is to involve higher education students in independent research work, familiarization with the methods of conducting research work, and issues of studying theoretical and scientific developments in the field of their professional activity.

The guidelines outline the structure and content of the complex training in the scientific research direction, and recommendations for implementation of the training. The purpose of the complex training, tasks, input data, description of the stages of the training implementation, methods that should be used during the training, rules for design, submission, final report based on the results of completing the tasks and implementation of the training stages, components of the report, report defense and evaluation are given.

1. General provisions

Complex training is a pre-planned form of the educational process, which aims to improve the knowledge and skills of the students with the help of educational experience and develop the skills in performing a certain activity, in particular, scientific research, or several of its types. Complex training is a special form of training that is based on the practical implementation of real tasks and gives the student the opportunity to gain his own experience. After all, it is known that real knowledge is to a large extent knowledge based on one's own experience, and not only theoretical knowledge obtained based on various sources of information. Therefore, the concept of experience is key for training.

Within the framework of these guidelines, the implementation of a complex scientific research direction is structured according to the following components:

the purpose and tasks of the training;

competences that the training enables to the acquire and develop;

input data for training (theoretical, practical basis, sources of information);

the structure and description of the content of the training stages;

methods and techniques that should be used by the student during the practical training;

description of the training outcomes and form of the presentation of the outcomes;

principles and components of evaluation of the training outcomes (the relevant report) and accompanying materials.

Complex training in the scientific research field is a stage of training of Master's (second) degree students and the basis for further pre-diploma practice and preparation and defense of an attestation work (in the form of a diploma thesis).

Complex training provides an opportunity for self-development of higher education students within the framework of competence components for solving research and analytical tasks.

It produces skills that expand the theoretical and practical training of higher education students in speciality 126 "Information Systems and Technologies" of the Master's (second) degree.

The subject of the complex training in the scientific research direction is the preparation of the components of the master's thesis by working out the relevant processes of conducting scientific research in their various forms, manifestations, and directions, the functioning and use of the methodological apparatus of scientific research and their main basic concepts, terms, tools, methods, and means. Basic knowledge of technologies for working on master's theses based on systematic and creative thinking in scientific, professional, and everyday activities is developed.

The necessary educational base before starting the training includes: basic knowledge and skills in the field of information systems, means and ways of mathematical modeling and information processing, use of intelligent systems, and means of knowledge analysis. At the same time, knowledge and practical skills in a foreign language in a professional direction, system analysis, modeling of systems, electronic means, and technologies in education and scientific activity, Ukrainian language in a professional direction, organization of databases and knowledge, basics of patent science, etc. are also necessary.

The training program consists, in particular, of studying the theoretical foundations of scientific activity and methods of scientific research, as practical aspects of scientific research in the field of information systems and technologies.

The overall goal of the complex training is the formation of skills in applying modern information technologies and use of the latest scientific approaches for the preparation of high-degree master's final qualification papers, the acquisition of relevant complex theoretical knowledge and methodological foundations necessary for the qualified performance of master's studies.

The goals of the complex training are:

in-depth study and practical mastering of the basics of the scientific research methodology;

acquiring a sufficient level of theoretical knowledge and practical skills regarding scientific research of modern approaches, tools, methods, and models in the field of information systems and technologies;

mastering the effective organization of scientific research;

preparation and publication of master's research results in the form of scientific works, articles, presentations, and abstracts of reports at conferences;

implementation of results in practical IT projects and educational processes at the university.

The task of the complex training is to acquire knowledge and practical skills concerning the main elements and components of methodology, organization, and scientific research of modern approaches, tools, methods, and models in the field of information systems and technologies, in the amount necessary for the preparation of a master's qualification work in the professional field of information systems and technologies, providing thorough theoretical and practical training of master's students in information and technologies in the conditions of a competitive market environment, globalization, development of information technologies in Ukraine and the world.

The outcomes of the training and competences acquired by higher education students during the training are given in Table 1.

Table 1

Learning outcomes and competences

Learning outcomes	Competences that must be mastered by a student of higher education
LO01	The integral competence
LO02	GC03
LO05	GC03
LO11	GC03
LO12	GC03

Note.

LO01. Searching for necessary information in scientific and technical literature, databases, other sources, analysis and evaluation of this information.

LO02. Communicating freely in national and foreign languages in scientific, industrial and social spheres of activity.

LO05. Determining the requirements for ICT on the basis of business processes and needs of interested parties' analysis, to develop technical tasks.

LO11. Solving the problems of digital transformation in new or unknown environments based on specialised conceptual knowledge, including modern scientific achievements in the field of information technology, research and integration of knowledge in various fields.

LO12. Improving the information system on the basis of business processes analysis.

GC03. Ability to communicate with representatives of other professional groups at different levels (with experts from other fields of knowledge/types of economic activity).

2. Organization of the complex training

The complex training involves laboratory studies and self-study of higher education students. For practical assimilation of the main topics, the training is conducted using computers, local networks, and the Internet.

The complex training involves laboratory studies (30 hours, 8 days of classroom training) and self-study (60 hours).

A necessary element of successful complex training is self-study of higher education students using literature on scientific research issues in the field of information systems and technologies, preparation of master's theses using information technologies, and development of relevant models and programs.

The plan and detailed content of the stages of the complex training (both the theoretical component and self-study of the training participants) regarding the teacher and students on a daily basis during the training are given in Table 2.

Table 2

The structure and content of the training stages on a daily basis

Day	The theoretical part (teacher and student)	The practical part (student)
1	2	3
1st day	The concept of scientific fact, hypothesis, theory, concept. Scientific hypothesis, its types, functions, and stages of development.	Meeting the scientific supervisor. Discussion of the further preparation of the master's thesis. Preparation and agreement with the supervisor on the topic (title) of the master's thesis.

Table 2 (continuation)

1	2	3
	Scientific methodology, method, technique. The concept of scientific research. Stages of scientific and research work. Formulation of the topic, problems, tasks and goals of scientific research. Definition and development of hypothesis, methodology and working plan of practical research and experiments. Results of scientific research, types and requirements for publication of results	Making an appropriate written statement on the topic. Signing the application by yourself and with the manager. Submission of a paper application to the department. Elaboration and presenting in writing the justification of the relevance of the topic of the master's thesis. Getting additional information about the training from the website of S. Kuznets KhNUE PLS, in particular, templates and requirements for the design of a report, theses, etc.
2 – 3rd day	Stages and tools of working with literary sources during research. Compilation and types of bibliography. Methodology of processing literary primary sources. Analysis of scientific publications of various types. Forms of presentation of research results. Requirements for articles, monographs, theses, reports, presentations. Preparation of scientific presentations and publications	Determine the main components of the introduction to the master's thesis, namely: the object of the study, the subject of the research, the purpose of the study, the research task, methods and models planned for use, the expected results, a possible prospect for further research
4 – 5th day	The concept of models, classification, and types of models. Mathematical, economic-mathematical, and computer modeling. Imaginary-symbolic, formal, logical, and other models in the processes of scientific research. Empirical and theoretical research methods and methodologies. Mathematical statistics, game theory, fuzzy set theory, operations research, mass service theory, agent modeling,	Compile an overview of sources related to the research topic. Consider at least 30 sources, including 10 English-language ones, published in the last 5 years. Use only articles, monographs, and theses (with authors, original data according to the requirements of scientific literature). Internet pages without authorship, textbooks, study guides, practicums for laboratory work, and similar sources are excluded.

Table 2 (continuation)

1	2	3
	expert, sociological and psychological research methods	The review involves your own analysis, not just a list of references. The list of references should be drawn up in accordance with the State Standard of Ukraine (SSU) and the relevant requirements of S. Kuznets KhNUE
6 – 7th day	Bibliographic information and classification in technical, economic, social sciences. Search engines, tools, capabilities and resources of the Internet and international, national, local computer information and search networks and scientific metric databases. National system of scientific and technical information of Ukraine. International scientometric specialized and general databases. Citations and indexes of scientists, institutions, printed and electronic publications. Ratings and impact factors. Global Internet resources, sites, portals, communities and search engines. International scientific journals, forums, conferences, projects and programs. Search for leading scientists for cooperation and journals for publishing research results	Complete the literature analysis; list it in accordance with DSTU and the requirements of KhNUE. Prepare theses on the topic of the master's thesis for a scientific conference with the participation of the thesis supervisor. The theses are signed by the thesis supervisor. Prepare a brief preliminary description of models, methods, algorithms, etc. within the framework of the future second section of the work. Provide the expected results of application of these models, methods and algorithms for the third section of the work
8th day	Scientific terminology and phraseology, styles, and features of presenting scientific results in theses, articles, monographs, dissertations, reports at conferences, and presentations. Formulas, tables, drawings, screenshots, photos, block diagrams, statistical data, and questionnaires.	Finalize the practical components of the complex training, incomplete for various reasons in the previous days of the training. Get acquainted with the technologies for checking scientific texts for plagiarism. Check your work (texts) and present the result.

Table 2 (the end)

1	2	3
	Techniques and features of oral discussion of scientific issues during discussions, questions, and answers. Presentation of scientific results in different styles and forms. Types, principles, rules, and tools for creating scientific presentations. Internet search capabilities. Using the Internet to publish research results. Scientific journals with electronic versions and content, repositories, and digital archives of scientific publications. Requirements for the sites of scientific journals and conferences in terms of content and functionality. Submission of articles to scientific periodicals and conferences. Virtual participation in scientific events, communication through social networks, and specialized shells. Electronic exchange of information in scientific research and the community	Check the training report for uniqueness. Prepare a training report and submit it for review. Protect the training report

Note.

The procedure for checking reports and the percentage of uniqueness are determined by the minutes of the department meeting. The report validation results are satisfactory if the values of the similarity scores are lower than the critical values of the metrics obtained during the validation.

3. Guidelines for the performance of the complex training

Important components of complex training are such elements and definitions as research object, research subject, research goal, research

tasks, methods and models planned for use, expected results, conclusions, and prospects for further research.

Let's briefly consider each of them.

The object of the research is a process or phenomenon that gives rise to a problematic situation or an applied problem and is chosen for study.

The subject of the research is part of the object of the research, namely one of its unexplored parts, that is, it is much more specific and narrower.

The subject should reflect the problem or an applied problem, so its definition includes all the requirements that are put forward from the point of view of formulating the problem or task.

The informational basis for the definition of the subject is the analysis of foreign and domestic literature on the object of research in order to identify tasks and problems that have not found a scientific and practical solution.

The purpose of the research should usually include three meaningful parts: what needs to be achieved in solving the problem under investigation; what practical means should be developed, tools, and recommendations; indicate a real practical problem or problem that will be solved as a result of research in the process of complex training.

Research tasks are a sequence of actions and steps during the complex training aimed at achieving its goal, namely the research goal.

Thus, the tasks should reflect the logic and structure of the research and may relate to both theoretical developments and practical recommendations.

There are no direct quantitative requirements for the number of tasks.

At the same time, several tasks can be solved in one point of work, or vice versa, one task is solved in several points.

It is also possible to match work items and tasks.

Methods and models that methodological tools for research and the implementation of the complex training tasks are planned for use.

It is recommended to cite and briefly name all the methods used in the work, both scientific and theoretical, and applied, practical in nature and direction.

Expected results usually include theoretical and practical components, that is, in other words, the researcher's expected future theoretical

development and the practical significance of the obtained results for solving certain aspects of the task as a whole.

This element has a somewhat preliminary, expected character, that is, it is often formulated at the initial stages, directly during the work, before its full completion.

The conclusions of the work. This is a very important mandatory structural part of the research, and the text of the work itself, which is submitted immediately after the main part.

This element of the work usually includes a final assessment of the conducted research with a brief description of its results; protection of the main provisions that distinguish this training from previous works; practical proposals that can be implemented in practical activities if there is a practical part of the work; an opinion on further prospects for research on the topic; drawing up general conclusions, whether the goal and objectives set in the introduction were achieved, the hypothesis was confirmed, etc.

In other words, the conclusion is a brief overview of the results obtained in the process of the complex training, and independent analytical conclusions made on their basis.

Like the introduction, the conclusion is regulated as to the form and content, but there are some differences. The regulation concerns more the elements of the conclusion and the requirements for compliance with the introduction.

While the introduction is relatively easy to write according to the template, the conclusion, on the other hand, has more personal thoughts, since this part is devoted to the author's conclusion. It is recommended to start conclusions with a few sentences of the introductory part, an introduction to the problem to which the work is devoted. The main part of the conclusion contains conclusions and summaries based on the results of the research. It is desirable to reflect all points of the theoretical and practical part, to give answers to the questions that were asked in the introduction.

For the conclusion to be logical and coherent, present the conclusions sequentially, following the structure of the text of the work. The conclusion will look logical in accordance with the tasks set in the introduction.

The main part of the conclusion ends with the statement that the goal of the work has been achieved and the hypothesis has been proven.

The final part of the conclusion is devoted to confirming the practical value of the work. Here you need to provide recommendations for improving the object of the study, and the possibility of implementing your findings into practice.

Prospects for further research can be presented both in the form of a separate subsection of the work and directly as part of the conclusions.

The conclusion is usually 3 – 4 pages long. As a rule, it is somewhat smaller than the introduction, although their main elements correspond to each other (the hypotheses, goals, and tasks mentioned in the introduction are also reflected in the final part of the thesis). However, if the introduction and conclusion are equal in length, it will not be a mistake; the main thing is to adhere to the principles of capacity and brevity, writing only the most important things.

The conclusion of the complex training should be written briefly, but concisely and in detail. Conclusions need to be generalized, to achieve their integrity throughout the diploma, connecting theoretical and practical conclusions together. After all, the purpose of the conclusion is to give the work integrity and completeness.

When writing a conclusion, it is necessary to use a scientific presentation style. Established introductory formulations that can be used in the conclusion of the training will help to simplify the work.

Writing a conclusion should be taken seriously. It is the introduction and conclusion (and sometimes only the conclusion) that in most cases are read by those who want to familiarize themselves with the student′s research. If the conclusion is written successfully, then the work will look finished, and complete. It is the conclusion that will form the basis of the presentation of the completed work.

Based on the results of completing all training tasks, the student prepares a report on the complex training, which must contain a number of necessary components (Table 3). The total volume of the complex training report is 28 pages (not including appendices). The volume of appendices is not limited.

Table 3

The structure of the complex training report

The structural elements of the report	Number of pages
The title page	1
The contents	1
The relevance of the topic	1
The object, the subject, the goal, tasks, methods and models, results, perspectives of the research	2
Review of literary sources	5 – 7
Description of models and (or) methods and results of application of the models and methods	10 – 15
Theses	2
A list of references	3
Checking the report for plagiarism	1
A scanned copy of the application on the topic	1
The total number	27 – 35

4. Requirements for the preparation of a report on the complex training

The general requirements for the text of the report are literacy, logical sequence of presentation of the material, clarity, and specificity of the given statements and results. The text should be presented in an impersonal form. It is necessary to adhere to a single, scientific terminology. In the case of using third-party materials, it is necessary to refer to the sources of information. The report is printed on one page of white paper in A4 format (210×297 mm).

If the report is submitted in printed form, then the report materials are bound in a stapler, signed on the title page by the student, the author of the report, and submitted to the department. If the report is submitted in electronic form, the student signs it with his own qualified digital signature (QDS).

The report formatting requirements are as follows [16]:

font type Times New Roman;

font size 14;

single line spacing;

margins: 2 cm all;

paragraph indent 1.27 cm;

inter-paragraph intervals: 0;

bold font, italics, and underlining are not used in the text.

The text of the report should be edited, with wording that does not allow ambiguity in their interpretation.

Paragraph indents should be used to highlight parts of the text that are separate in terms of content and are connected by a common logic.

The density of the text of the report, contrast, and clarity should be the same.

Numbers, signs, lines, and letters must be the same in style.

The pages "Title page", "Tasks" and "Contents" are included in the general numbering of the report, but they are not assigned a page number. Numbering starts from the Topic Relevance page. The number given in Arabic numerals is placed in the upper right corner of the page, following the numbering throughout the text. Illustrations and tables located on separate pages are part of the overall page numbering, and the page number is also placed on them.

Each of the structural elements of the report begins on a new page.

Headings of structural elements are placed on a new sheet, printed in capital letters in the middle of the line without a period at the end.

Below the figure, if necessary, explanatory information can be provided. If the drawing was not created independently, then a link to the source from which it was borrowed should be provided. If there is a large enough picture, it should be placed it in the appendices. It is recommended that appendices include materials that:

are necessary for the completeness of the report, but their inclusion in the main part of the work may change the orderly and logical presentation of the work;

due to the large volume, specificity, or form of presentation, materials cannot be included in the main part (tables, diagrams, photos), in which case they should be referenced in the appropriate sections of the report.

Tables should be placed after the first mention or on the next page of the report. The spaces between the text of the note and the table are one blank line.

All tables must be referenced. Tables are numbered with Arabic numerals with sequential numbering. The name of the table is indicated in the middle of the line. It is written in lowercase letters, except for the first capital letter. Do not put periods at the end of table names.

If the table does not fit on one sheet, it should have a line with the column numbers of the table after the "cap". In the case of transfer to another sheet, the table header is not duplicated, only a line with the table column numbers is placed instead, and the words "Continuation of the table" and its number must also be indicated. Above the last part of the table, the end of the table is indicated with the words "End of the table" and its number.

The text in the tables is printed in size 14, font size 12 can also be used.

Formulas are placed immediately after the text in which they are mentioned. They are separated from the text by blank lines before and after their introduction.

Formulas are placed in the middle of the line and are numbered. Under the text of the formula after a blank line, there should be an explanation of the variables of the formula. Explanations of the elements used in the formula should be provided directly below the formula with an explanation of the meaning of each of them.

The first line of the explanation begins on a new line without paragraph indentation with the word "where", without a colon. The explanation of the meaning of each element should be given from a new line, explanatory symbols should be written at the same distance from the edge of the sheet, equal to the first symbol.

References in the text are given according to the description of the source material. The reference form should be in square brackets with the indication of the serial number of the source in the list of the used literature. It is not necessary to specify the page number.

The list of references to which there are references in the report should be given after the conclusions to the entire report on a new page. There should be references in appropriate places in the text. Information about the literature included in the list must be given by the requirements of SSU [8].

The number of sources should be at least 30 names. Electronic resources, along with other sources, are listed alphabetically. Sources in other languages are also listed alphabetically at the end of the list.

An example of the title page of the report on the complex training is given in Appendix A.

5. Forms and methods of assessment

Based on the results of the training, the student must draw up a report on the complex training and submit it in printed or electronic form and as a presentation for the defense. After checking the complex training for plagiarism, the student is admitted to the defense.

Evaluation is based on the report data, submitted for review to the teacher in printed/electronic form, and the results of defense. If the report is not provided and not protected by the acquirer, such training is evaluated as incomplete, i.e. with an evaluation of "0" points.

The university uses a cumulative (100-point) evaluation system. Control of the knowledge of the training participants is carried out in the form of end-to-end monitoring of the degree of activity, effectiveness, and competence formation. This control covers the practical part of the training and consists of elements according to the content of the training (Table 4). The maximum score for each element is 100 %, and the minimum is 60 % of the maximum number of points.

Table 4

Distribution of points for evaluation of the training results

The structural element of the report	Maximum number of points
1	2
The layout of the title page and contents	1
The relevance of the topic	4
The object, the subject, the goal, tasks, methods and models, results, perspectives of research	8
Review of literary sources	20
Description of models and (or) methods and results of application of the models and methods	25
Theses	25

Table 4 (the end)

1	2
A list of references	15
Checking the report for plagiarism	1
A scanned copy of the statement on the subject	1
The total number	100

Evaluation of the results of the complex training is carried out on the basis of sections of the report prepared during the training based on a review of scientific literature sources on the direction and topic of the future master's work, as well as prepared for the presentation of theses of the report at a scientific conference. The following criteria are taken into account when evaluating the training results (report and theses):

methodologically correct setting of tasks and presentation of research results;

the availability of scientific information obtained by searching from various sources (at least 3 sources for the theses, at least 20 sources for the report);

availability of practical results obtained during the training;

proper registration when submitting work results for publication (reports and theses).

Assessment of the student's knowledge during the defense of the results of the complex training is carried out according to the criteria of the student's ability:

to carry out research work in the field of information systems and technologies in various subject areas;

to analyze and interpret the obtained results;

to produce and substantiate decisions at a high scientific, technical, and professional level;

to develop and apply models on the topic of the master's thesis;

to observe and competently use the legal framework in the field of information technologies, issues of intellectual property protection, academic integrity, legal protection of copyright, and related rights;

to possess means of scientific communication;

to be guided by general human, professional, and scientific moral and ethical norms;

to effectively use methods and means of supporting team scientific work, planning, and organization of scientific research, implementation of these methods and communication;

knowledge of state and foreign languages within the limits and functions sufficient for carrying out scientific research and publications in foreign scientific editions, and participation in international scientific conferences, projects, and meetings.

Recommended literature

Main

1. Бутенко Т. А. Інформаційні системи та технології [Електронний ресурс] : навчальний посібник / Т. А. Бутенко, В. М. Сирий. – Харків : ХНАУ ім. В. В. Докучаєва, 2020. – 207 с. – Режим доступу : https://repo.btu.kharkov.ua/bitstream/123456789/4849/1/INFO_SYSTEMS_20.pdf.

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

3. ДСТУ 3008-2015. Документація. Звіти у сфері науки і техніки. Структура і правила оформлення. – На заміну ДСТУ 3008-95 ; чинний від 2017-07-01. – Київ : ДП "УкрНДНЦ", 2016. – 31 с.

4. ДСТУ 3582:2013. Інформація та документація. Бібліографічний опис. Скорочення слів і словосполучень українською мовою. Загальні вимоги та правила (ISO 4:1984, NEQ; ISO 832:1994, NEQ) / Нац. стандарт України. – Київ : Мінекономрозвитку України, 2014. – 18 с.

5. ДСТУ 7157:2010. Інформація та документація. Видання електронні. Основні види та вихідні відомості. – Чинний від 2010-07-01. – Київ : Держспоживстандарт України, 2010. – 20 с.

6. ДСТУ 8302:2015. Інформація та документація. Бібліографічне посилання. Загальні положення та правила складання / Нац. стандарт України. – Київ : ДП "УкрНДНЦ", 2016. – 18 с.

7. ДСТУ ГОСТ 7.1:2006. Система стандартів з інформації, бібліотечної та видавничої справи. Бібліографічний запис. Бібліографічний опис. Загальні вимоги та правила складання (ГОСТ 7.1-2003, IDT) / Нац. стандарт України. – Київ : Держстандарт України, 2007. – 47 с.

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Appendices

Appendix A

The form of the title page of the report on the complex training

SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

DEPARTMENT OF INFORMATION SYSTEMS

Report

on the complex training

on the topic: _____

_____

Student of the second year of study
speciality 126 "Information Systems and Technologies"
study program "Information Systems and Technologies"
group_____

_____
(surname and initials)

Number of points taking into account defense

_____

National scale _____Assessment: ECTS

_____

Head of the complex training:

_____
(signature) (surname and initials)

Kharkiv – 20___

Contents

НАВЧАЛЬНЕ ВИДАННЯ

КОМПЛЕКСНИЙ ТРЕНІНГ

Методичні рекомендації до виконання для здобувачів вищої освіти спеціальності 126 "Інформаційні системи та технології" освітньої програми "Інформаційні системи та технології" другого (магістерського) рівня

(англ. мовою)

Самостійне електронне текстове мережеве видання

Укладач **Ушакова** Ірина Олексіївна

Відповідальний за видання *Д. О. Бондаренко*

Редактор *З. В. Зобова*

Коректор *З. В. Зобова*

Подано методичні рекомендації щодо організації та проведення комплексного тренінгу. Наведено зміст основних завдань і звіту з комплексного тренінгу.

Рекомендовано для здобувачів вищої освіти спеціальності 126 "Інформаційні системи та технології" освітньої програми "Інформаційні системи та технології" другого (магістерського) рівня.

План 2025 р. Поз. № 105 ЕВ. Обсяг 25 с.

Видавець і виготовлювач – ХНЕУ ім. С. Кузнеця, 61165, м. Харків, просп. Науки, 9-А

Свідоцтво про внесення суб'єкта видавничої справи до Державного реєстру ***ДК № 4853 від 20.02.2015 р.***