MINISTRY OF EDUCATION AND SCIENCE of UKRAINE

O. M. BEKETOV NATIONAL UNIVERSITY
of URBAN ECONOMY in KHARKIV

Methodical recommendations
for the master's thesis preparation

(for applicants of the second (master's) level of higher education of all forms of study in the specialty G19 – Building and Civil Engineering, educational program "Industrial and Civil Engineering")

Kharkiv
O. M. Beketov NUUE
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Recommended by the department of building structures, record № 11 on April 11, 2025

Recommended by the department of geotechnics, underground structures and hydrotechnical construction, record № 9 on April 18, 2025

Recommended by the department of technology and organization in construction, record № 5 on April 08, 2025

Recommended by the department of materials science and engineering of composite structures, record № 25 on April 15, 2025

CONTENT

1. General Provisions

These methodological guidelines are developed in accordance with the provisions on the organization of the educational process, educational and methodological support of educational programs and the procedure for the creation and work of the examination commission for the attestation of higher education applicants of O. M. Beketov National University of Urban Economy in Kharkiv [1–3].

Attestation of applicants for the second master's level of all forms of study in the specialty G19 "Building and Civil Engineering" under the educational program "Industrial and Civil Engineering" is carried out in the form of a public procedure for defending the master`s thesis in accordance with [3] and the Procedure for attestation of applicants for higher education of O. M. Beketov NUUE in the format of defense of master`s thesis's using distance learning technologies for the period of martial law.

The master's master`s thesis hereinafter Master`s Thesis (MT) is performed by the applicant independently under the guidance of a scientific and pedagogical staff (SPS) of the graduate department, based on the competencies acquired during the period of study and provides for the solution of a complex design and scientific problem in the field of construction and/or civil engineering.

To perform a complex task (the scope of which goes beyond the limits established by these methodological guidelines), it is possible to perform a complex MT by a team of applicants of no more than three applicants A complex MT provides for the study by performers of the work of one object of implementation, but with different objects and subjects of research within this object and the corresponding differences in the sections of the work.

Specialists (consultants) of the relevant departments on the subject of the section can be appointed to consult individual sections of the MT.

The master`s thesis is checked for plagiarism accordingly [4].

The applicant is responsible for the solutions developed in the MT, their quality, the presence of academic plagiarism, fabrication, falsification and timely completion of the work.

Work prepared in accordance with these methodological guidelines, performed in accordance with the assigned task within the established deadline, agreed with all consultants and responsible for Compliance Review, approved by the supervisor and head of the relevant graduate department, admitted based on the results of checking for signs of plagiarism, and which received a positive review, is allowed to be defended.

The defense of the MT is carried out openly and publicly, with subsequent posting on the website of the relevant graduate department, or in the repository of the university.

Publication of master`s theses containing information with limited access must be carried out in accordance with the requirements of the law.

2. Thesis Topics

The topic of the MT should be relevant, correspond to the current state and prospects for the development of science and technology and the selected object of implementation. The MT completed on the assigned topic must demonstrate the applicant's ability to solve research and/or innovation problems in the field of Building and Civil Engineering.

The topic of the MT may involve the use of the results of scientific research of the department and their development; preference is given to the topic during the development of which the applicant can show maximum personal creativity and initiative.

The topics of the MT are determined by the relevant graduate departments and specified during the pre-graduation practice.

The applicant is given the right to propose his/her topic to the MT with the justification of the expediency of its development. In such cases, preference is given to topics directly related to the place of pre-graduation practice or future professional activity of the graduate.

The formulated topic of the work should be concise, reflect the purpose of the study and the construction object selected for implementation.

3. Thesis Supervision

The supervisor of the MT is usually appointed by the scientific and pedagogical staff of the graduating departments that have a scientific degree in the relevant specialty and/or an academic title.

As an exception, the management of the MT is allowed to enter the SPS of graduate departments without a title and scientific degree, which are recognized leading specialists in the field by agreement of the Academic Council of the School.

No more than five applicants can be assigned to one manager at the same time.

The supervisors of the MT together with the topics are appointed by the order of the Rector of the University on the report of the head of the graduate department agreed by the director of the school and the guarantor of the EP.

Scientific supervisor of the MT:

− formulates the topic of the MT and, together with the applicant, determines the purpose, tasks, subject and object of research;

– draws up an individual task for the applicant to perform the MT according to the established form;

– assists in obtaining starting materials;

− recommends to the applicant the necessary sources on the topic of research;

− provides coordination and scientific-methodological assistance on the implementation of sections of the MT through consultations;

− coordinates and monitors the progress of the MT to ensure that the work is relevant to the assigned topic and adherence to the implementation schedule;

− regularly informs the graduating department about the status of work and timely informs the head in case of non-compliance with the schedule;

– controls the compliance of the content and completeness of the work performed with these methodological recommendations;

− checks the completed work and prepares the supervisor's review to the MT.

4. Requirements for Content and Length

The MT consists of a text and graphic part (posters, drawings or slides). The recommended volume of the text part is 80 - 120 pages (without appendices), the graphic part – 10 - 12 drawings of A1 format (design in a larger format is allowed) or in the form of equivalent presentation slides in pdf format.

The text part is drawn up in accordance with DSTU 3008:2015 Information and Documentation. Reports in the field of science and technology. Structure and rules of registration [5].

The graphic part of the MT can be represented by drawings, diagrams, diagrams, etc. which are drawn up in accordance with the rules for the execution of drawings and graphic materials determined by regulatory documents in the areas included in DSTU 9243.5:2023 System of design documentation for construction [6].

According to [5], the textual part of the master`s thesis is divided into the introductory part, the main part and appendices.

The introductory part consists of the following structural elements:

– Title Page (see Appendix A for the form);

– Assignment (see Appendix B for the form);

– Abstract;

– Content.

Each of the elements of the introductory part begins with a new page. Page numbering begins with the title page, but the numbering is hidden on the title page itself.

The abstract is posted on the assignment on the MT. It must contain:

– information about the volume of the MT, the number of sections, figures, tables, appendices, sources according to the list of references;

– list of keywords;

– a brief description of the sections of the MT.

The description of the sections of the MT in the abstract should contain the following elements:

– object of research;

– purpose of research;

– a brief description of each of the sections in accordance with the structure of the MT;

– the main conclusions of the study.

The following structural elements are given in the table of contents, indicating the page number of the beginning of the structural element:

– names of all sections and subdivisions of the main part of the work in sequence in accordance with the task for the implementation of the MT and these methodological recommendations;

– «Conclusions»

– «References»

– «Appendices» (if available).

The main part consists of three main sections and conclusions:

1. Analytical Review;
2. Research Section;
3. Design Section;

Conclusions.

Each of the sections of the main part must begin with a new page. Page numbering is end-to-end.

In the sections of the main part of the MT, the tasks set by the work manager and/or consultants of the relevant sections should be solved. The list and approximate content of the sections of the MT are determined by the support group of the EP "Industrial and Civil Engineering" in accordance with [8, 9]. The content of the sections of the MT is specified by the thesis supervisor and/or the consultant of the section in accordance with the specifics of the study and the object of implementation.

Sections of the MT can be divided into subsections, paragraphs, subparagraphs. Sections, subsections, paragraphs and subparagraphs are numbered in Arabic numerals.

The subdivisions of the MT must have sequential numbering within each section. The subsection number consists of the section number and the subsection serial number, separated by a dot. After the subsection number, a period is not put, for example, 1.1, 1.2, etc. Paragraphs should be numbered sequentially within each section or subsection.

The item number consists of the section number and the serial number of the item or the section number, the serial number of the subsection and the serial number of the item, separated by a dot.

The main part begins with an introduction, where the applicant formulates a general description of the work, justifies the choice of topic, its relevance and purpose, subject and object of research, and describes the structure of the work. Also, the introduction may contain additional points: research methods, scientific novelty of the results obtained, practical significance of research results, approbation of the results of work, if any.

Chapter 1 Analytical review.

In chapter 1, the author of the work outlines in detail the main stages of the development of scientific thought in the chosen area of research, briefly analyzes the sources worked out by him, names the issues that remained unresolved and determines the place of his research in solving the problem, establishes the connection of his work with previous research. It is worth noting that quotes and retelling of scientific papers, the materials of which are used to write a master's thesis, should make up about 1/3 of their own text. It is advisable to end this section with a brief summary of the need to conduct research in a particular area, that is, to justify its relevance.

Chapter 2 Research Section.

This section presents the results of the author's own research with exhaustive completeness, highlighting the new things that he brings to the development of the problem. The applicant must assess the completeness of solving the assigned tasks,

assess the reliability of the results (characteristics, parameters), compare them with similar results of domestic and foreign papers and substantiate the need for additional research.

An integral part of the research part is the verification of the hypothesis laid down in the basis of the MT study, which can be formulated both for new design solutions and for new materials and technologies.

Considering the subject of the work, verification can be carried out by analytical, numerical or experimental (full-scale) method.

Approximate content of subparagraphs of Section 2:

– development of a hypothesis and description of the theoretical prerequisites of the study;

– choice of method and justification of the methodology and program of the study;

– processing, analysis, description of the process and the results obtained;

– evaluation of the results obtained and formulation of conclusions.

Chapter 3 Design Section.

This section is devoted to the development of design solutions based on the analysis and research results obtained and contains the following subsections:

3.1 Architectural and Engineering Solutions of the Selected Construction Object.

3.2 Structural Analysis and Design of the Building's Substructure and Superstructure.

3.3 Technology and Organization of Construction Works.

3.4 Occupational Health and Safety in Emergency Situations.

Each of the subsections of section 3 is aimed at developing engineering solutions for the construction object selected for implementation.

The following are the general requirements for the content of each subsection.

3.1 Architectural and Engineering Solutions of the Selected Construction Object

It is necessary to provide information on the conditions of the location of the construction object (situational scheme, fragment of the master plan); data on engineering and geological conditions of the construction site; to determine the volumetric planning and structural solutions of the building (facades, floor plans and sections); justify the choice of building materials and products; to perform the necessary calculations on construction physics, to give the main technical and economic indicators, to develop measures to serve people with limited mobility, etc.

The volume of the text part of the section is 10–15 pages of A4 format. Graphic part – 2–3 sheets of A1 drawings or equivalent presentation slides.

The content of subsection 3.1 is developed in accordance with the subject of the MT and the characteristics of the object of implementation with the involvement of an appointed consultant from the Department of Urban Construction. The consultant contributes to the timely receipt of the task and the receipt of the necessary methodological materials for the implementation of the unit.

3.2 Structural Analysis and Design of the Building's Substructure and Superstructure

The development of this unit begins with the agreement by the applicant of the calculation model of the implementation object with consultants from the departments of Building Structures and Geotechnics, Underground Structures and Hydrotechnical Construction. Based on the results of the analysis of the MT theme and architectural and planning solutions of the implementation object, the applicant and consultants of these departments should agree on a common technical tool for creating a calculation model.

Further, the applicant and a consultant from the Department of Building Structures coordinate the technical solutions of the load-bearing structures of the building and develop a spatial model of the ground part of the building with the provision of the necessary loads in accordance with the current building codes and state standards of Ukraine, which contain the relevant requirements. The model is

calculated with the determination of the loads that should be transferred to the base.

Having received data on loads from the above-ground part of the building (calculation scheme of the above-ground part), the applicant, together with a consultant from the Department of Geotechnics, Underground Structures and Hydrotechnical Construction, analyze them together with the engineering and geological conditions of the construction site and make preliminary decisions on the technical solutions of the foundations of the implementation object, as well as choose a calculation model of the soil base in accordance with current building codes and state standards. On the basis of the adopted technical solutions, a spatial calculation model of foundations and their foundations is developed.

Establish the relationship (combination) of the models of the above-ground and underground parts of the implementation object for joint calculations.

Adjustments to the adopted design solutions of the above-ground and underground parts of the building are carried out according to the results of the analysis of the stress-deformed state (SDS) of the combined model "soil-foundation-structure" (if necessary).

The approximate content of subsection 3.2 can be as follows:

– determination of loads;

– development of the computational model (the final model diagram may be included in the main text to conserve space);

– results of the calculation of SDS of the "soil-foundation-structure" system;

– results of the design of at least two category A load-bearing structures of the superstructure.

– results of the design of the foundations of the building, including the geotechnical cross-section of the soil base.

The volume of the text part is 30–50 pages of A4 format. Graphic part 3–4 sheets of A1 drawings or equivalent presentation slides.

3.3 Technology and Organization of Construction Works

When performing this section, it is necessary to consider the possibility of using new structures, materials, modern means of mechanization, the latest methods of technology and organization of work.

The approximate content of subsection 3.3 is as follows:

– site preparation;

– organizational and technological scheme for construction;

– technology and organization for the execution of key construction processes;

– construction schedule;

– construction site layout plan;

– *site preparation*: preparation for construction should include a system of organizational measures and preparatory work and facilitate the deployment and execution of construction works in accordance with design solutions;

– *organizational and technological scheme for construction*: the organizational and technological scheme of construction determines the sequence of construction and installation works based on the analysis of volumetric planning and structural solutions of the object, taking into account the conditions and methods of construction organization. The choice of organizational and technological scheme should be based on the flow method of construction;

– *technology and organization for the execution of key construction processes*: on the basis of the organizational and technological schemes of the MT, the methods of work performance with an abbreviated description of the technology, mechanization and organization of the entire complex of works on the construction of the object are substantiated, the volume of construction work, the need for building materials and structures are determined, the technological map (s) are developed. Technological maps are developed using appropriate standard documentation;

– *construction schedule:* the duration of construction is determined using the work schedule, which should provide for a progressive technology of work and ensure maximum combination and flow of work in compliance with safety requirements;

– *construction site layout plan* for one of the main construction stages (the substructure phase or the superstructure phase), as assigned by the project consultant;

– *Calculation of the main Technical and Economic Indicators of the MT (such as the scheduled work duration, total labor input, facility cost based on consolidated indicators, etc.).*

The content of subsection 3.3 is developed in accordance with the subject of the MT and the characteristics of the object of implementation with the involvement of an appointed consultant from the Department of Technology and Organization in Construction. The consultant contributes to the timely receipt of the task and the receipt of the necessary methodological materials for the implementation of the unit.

The volume of the text part of the subsection is 20–35 pages of A4 format. Graphic part – 2–3 sheets of A1 drawings or equivalent presentation slides.

3.4 Occupational Health and Safety in Emergency Situations

This section is an estimated and descriptive part, with a volume of 10-–5 pages of A4 format. In it, the applicant considers safety issues from the standpoint of developed and approved world, European, Ukrainian regulatory documents in the field of construction, considering the features that are determined by the content of the master's thesis.

The approximate content of subdivision can be as follows:

– introduction;

– analysis of working conditions on the construction site;

– organization of safe and healthy working conditions on the construction site;

– safety in emergency situations;

– completion of an individual assignment in Occupational Health and Safety (as assigned by the consultant).

The first part of subsection 3.4 is devoted to the issues of creating safe and harmless working conditions and reducing industrial injuries and occupational diseases in the conditions of construction sites, enterprises of the construction industry and during the operation and reconstruction of existing facilities.

The second part is devoted to the analysis of potential causes of emergencies at a construction site, reveals the issue of ensuring safety in emergency situations.

The content of subsection 3.4 is developed in accordance with the subject of the MT and the characteristics of the object of implementation with the involvement of an appointed consultant from the Department of Occupational and Life Safety. The consultant contributes to the timely receipt of the task and the receipt of the necessary methodological materials for the implementation of the unit.

The conclusions are the final section of the main part of the MT. The conclusions set out the most important scientific and practical results of the work. If there is practical significance of the results obtained, information on the use of research results or recommendations for their use are provided. If the research results are implemented, the information is submitted indicating the names of the organizations in which the implementation was carried out. In this case, the annexes may contain copies of the relevant documents.

This section does not have a serial number.

References is formed by the author of the work in one of the following ways:

– in the order of appearance of links in the text;
– in alphabetical order of the names of the first authors or titles;
– in chronological order.

The list of sources of reference should contain an exhaustive list of sources that were used in the writing of the MT, each of which should be referenced in the text of the work. Inclusion in the list of sources of reference without reference to them in the text of the text part is not allowed.

The list should contain references to current building codes, state standards of Ukraine and relevant research results published in professional journals and/or in publications indexed by scientometric databases (Scopus and Web of Science).

The bibliographic description of the list of sources used in the master's thesis is drawn up in accordance with DSTU 8302:2015 Information and documentation. Bibliographic reference. General provisions and rules of assembly.

Appendices

The appendices may contain auxiliary material necessary for the completeness of the perception of the work:

- slides printed in A4 format (provided that the graphic part is designed in the form of an electronic presentation);
- intermediate formulas and calculations;
- tables of auxiliary numerical data;
- protocols and acts of testing, implementation, calculations of the economic effect, letters of support for the results of work;
- instructions and methods, description of algorithms that are not the main results of work, descriptions and texts of programs for solving problems using electronic computing tools that were developed in the process of execution-master's thesis;
- illustrations of an auxiliary nature;
- other data and materials.

5. Formatting Requirements

The text part is drawn up in accordance with DSTU 3008:2015 Information and Documentation. Reports in the field of science and technology. Structure and rules of registration [5].

The text part of the MT is drawn up in the state (or English) language in hard cover and additionally submitted in electronic form (in .pdf format) on a CD (flash drive), which is bound in an envelope to the text part and transferred to the archive. The electronic version of the MT and the resume are transferred to the graduating department*.

* For the period of martial law, the text part and graphic materials are drawn up exclusively in electronic form and submitted to the defense in .pdf format.

The text of the text part of the MT is printed on one side of the sheet, on white A4 paper (210 mm × 297 mm) with margins of the following sizes: left – 25 mm,

right – not less than 10 mm, upper – 20 mm, bottom – 20 mm. You should use Times New Roman font size 14 with line spacing of 1.5.

Photographs, drawings, diagrams, graphs, maps and tables (illustrations) should be immediately after the text where they are mentioned for the first time, or on the next page. Illustrations and tables that are placed on individual pages of the work are included in the general page numbering. Illustrations are marked with the word "Figure" and numbered sequentially within the section, with the exception of illustrations given in the appendices.

The number of the illustration should consist of the section number and the ordinal number of the illustration, between which a dot is placed. For example, "Figure 3.2" (the second figure of the third section). The number of the illustration, its title and explanatory captions are placed sequentially under the illustration. If only one illustration is presented in the work, then it is numbered according to the general rules.

Digital material, as a rule, is designed in the form of tables. The table should be placed immediately after the text in which it is mentioned for the first time, or on the next page. All tables must be referenced in the text of the text part. Tables are numbered in Arabic numerals within the section, with the exception of the tables given in the annexes.

The table number consists of the section number and the ordinal number of the table, separated by a dot, for example, Table. 2.1 (the first table of the second section). The table can have a name, which is printed in lowercase letters (except for the capital letter) and placed above the table. The title should be concise and cover the main content of the table.

If the table cannot be placed on one page, then it is moved to the next with the table number, for example, "Continuation of Table. 1.2». On the next page, only the numbering of the graphs without the elements of the table head is indicated, that is, in the right corner they write, for example, "Continuation of Table. 1.2».

Rules for writing formulas and equations.

Formulas and equations are placed directly after the text in which they are

mentioned, in the middle of the page. Formulas and equations in the explanatory note (except for formulas and equations given in the appendices) are numbered within the section.

The number of a formula or equation consists of the section number and the ordinal number of the formula or equation, separated by a dot, for example, formula (1.3) is the third formula of the first section. The number of the formula or equation is indicated at the level of the formula or equation in parentheses in the rightmost position on the line.

Explanations of the values of symbols and numerical coefficients of formulas or equations are given directly below the formula in the sequence in which they are given in the formula or equation. Explanation of the values of the symbols and the numerical coefficient should be given from a new line. The first line of the explanation begins with a paragraph with the word "where" without a colon.

Example:

$$\sigma_{np} = \sqrt{\sigma_x^2 + \sigma_y^2 - \sigma_x \cdot \sigma_y + 3\tau^2} \le 1{,}15 R_y \gamma_c \qquad (1.3)$$

where σ_x, σ_y are the stresses on the main axes;

τ is the tangential stresses in the cross-section.

References, citations.

When writing the work, the applicant should indicate *references* to sources, materials, their individual results, ideas and conclusions, on which the problems and tasks are based, the study of which is devoted to the work. Such references allow you to find documents and check all the necessary information about them. It is worth making references to the latest editions of publications. Earlier editions can be referred to only in those cases when the material they have is not included in the latest edition.

If information and materials from monographs, review articles and other sources with a large number of pages are used, then the reference must accurately indicate the page numbers, illustrations, tables, formulas from the source to which the

reference is given in the work.

References to sources in the text of the work should be indicated by a serial number according to the list of references, highlighted with two square brackets, for example, "... in the works [1–7]...".

If in the text of the work it is necessary to make references to a specific part or page of the corresponding source, then they are given in footnotes, while the reference number must correspond to its bibliographic description according to the list of references. Links to illustrations are indicated by the ordinal number of the illustration, for example, "....fig. 1.2…..». References to formulas are indicated by the ordinal number of the formula in parentheses, for example, "... in formula (2.1)....".

To confirm your own arguments, reference to an authoritative source or for a critical analysis of a particular printed work, quotes should be given. Scientific etiquette requires an accurate reproduction of the quoted text, because the slightest abbreviation of the given extract can distort the content laid down by the author.

General *citation requirements* are as follows:

a) the text of the quote begins and ends with quotation marks and is given in the grammatical form in which it is presented in the original source, while preserving the peculiarities of the author's writing. Scientific terms proposed by other authors are not marked with quotation marks, except for those that have led to a general controversy. In these cases, the expression "so-called" is used;

b) the citation must be complete, without arbitrary abbreviation of the author's test and distortions of the author's thoughts. The omission of words, sentences, paragraphs during quotation is allowed without distortion of the author's text and is indicated by three dots. They are placed anywhere in the quote (at the beginning, inside, at the end). If there was a punctuation mark before or after the published text, then it is not saved;

c) each quote must have a reference to the source;

d) in case of indirect quotation (retelling, presentation of the opinions of other authors in your own words), which gives significant savings in the text, you should be extremely accurate in presenting the author's thoughts, correct in evaluating his

results, and give appropriate references to the source.

Design of graphic material.

In the MT, graphic materials (in the form of drawings, diagrams, diagrams, etc.) are drawn up in accordance with the requirements of current norms: defined by regulatory documents in the areas included in DSTU 9243.5:2023 System of Design Documentation for Construction [6]. Preference is given to A1 format. It is allowed to design the graphic part of the MT in the form of slides of an electronic presentation with the obligatory duplication of them on A3 paper. The paper version of the slides is hemmed to the text part in the form of appendices.

The text part with the electronic version of the MT on a CD, drawings and a paper version of the slides are handed over to the archive of O. M. Beketova NUUE.

The full-text electronic version of the MT is posted on the website of the relevant graduate department, or in the repository of the university.

Preparation, submission, review and approval (signature) of master`s thesiss of students is carried out in accordance with the Procedure for Attestation of Applicants for Higher Education of O. M. Beketov NUUE in the format of defense of master`s thesiss using distance learning technologies for the period of martial law.

6. Checking for Signs of Academic Plagiarism

The procedure for checking qualification papers for plagiarism is determined in accordance with the Regulation on Academic Integrity and the System for Preventing Academic Plagiarism of O. M. Beketov National University of Urban Economy in Kharkiv [4].

The verification of master`s thesis is carried out by an employee of the department, appointed responsible for checking the works at the department for the presence of textual coincidences by order of the rector.

Students submit qualification papers to the responsible employee in the format *.pdf, together with the application (Appendix E) within the period established by the department, but before the preliminary defense of qualification papers

Based on the results of the MT check for signs of plagiarism, a report is generated in the prescribed form, which is a mandatory appendix to the text part of the master`s thesis for admission to the defense.

In case of exceeding the threshold percentage of textual matches, the commission, which consists of the head of the department, the head of scientific work and the person responsible for the verification at the department, decides on the timing of the revision of the work and re-verification, which is formalized by the puncture of the department meeting.

If the master`s thesis does not meet the requirements of academic integrity (exceeding the threshold percentage of textual matches) after reconsideration by the commission of the department, this issue is submitted for consideration by the Academic Council of the School.

7. Thesis Review

After the registration of the MT and its preliminary consideration at the department, the MT is submitted for review. The reviewer is appointed by the decision of the department. The reviewer can be a professor/associate professor of the department of O. M. Beketov NUUE (internal reviewer), another educational institution or a representative of production (external reviewer).

The review should include an objective assessment of the compliance of the work with the task and independence of its implementation, compliance with the requirements of methodological guidelines and norms of Ukraine, compliance of the decisions made with the current level of science and technology, the availability of justification for the main technical solutions, the completeness and quality of the text part and the graphic part.

The review points out the shortcomings and provides suggestions for their elimination. The conclusions of the review provide proposals for awarding the applicant with the appropriate educational degree. The review ends with a comprehensive evaluation of the work.

The review is attached to the appropriately designed MT and submitted

together with the Certificate of Implementation of the Curriculum of the Higher Education Applicant, the supervisor's feedback and the report on checking for signs of plagiarism to the Secretary of the EC, in accordance with [3, 4].

The procedure for reviewing the MT for the period of martial law is determined by the Procedure for Attestation of Applicants for Higher Education of O.M. Beketov NUUE in the format of defense of master`s thesis using distance learning technologies for the period of martial law.

8. Compliance Review

To ensure the proper registration of master's theses, in accordance with the requirements of these methodological recommendations, O. M. Beketov NUUE carries out Compliance Review of the quality of master's works. Compliance Review is carried out by the secretary of the EC in the period determined by the calendar plan for the performance of work after the approval of all other sections of the MT.

When conducting it, the following are considered:

– correspondence the thesis title with the topic stipulated in the university order;

– compliance with the technical requirements for the design of the work given in the methodological recommendations;

– compliance with the requirements for the structure of the master's thesis;

– identity of the titles of sections and subsections in the content and in the text of the work;

– the presence of a review (Appendix D);

– availability of feedback from the supervisor (Appendix C);

– availability of a certificate of implementation of the curriculum of a higher education applicant;

– availability of a report in the prescribed form on checking for signs of plagiarism;

– availability of an electronic version of work.

A Master's thesis that is not submitted for Compliance Review on time and/or

fails to meet the established requirements will not be admitted to the defense.

For the period of martial law, the procedure for regulatory control is determined by the Procedure for Certification of Applicants for Higher Education of O.M. Beketov NUUE in the format of defense of master`s thesis using distance learning technologies for the period of martial law.

9. Defense Procedure

The final certification of the second master's level of all forms of study in the specialty G19 "Building and Civil Engineering" under the educational program "Industrial and Civil Engineering" is carried out in the form of a public procedure for defending the master`s thesis.

The organization and conduct of the defense of the MT of applicants is carried out in accordance with [3] and the Procedure for certification of applicants for higher education of O. M. Beketov NUUE in the format of defense of master`s thesis using distance learning technologies for the period of martial law.

10. Evaluation criteria

The assessment of the MT defense results is conducted in accordance with Regulation [3] and in the manner prescribed by the university's adopted knowledge assessment system:

– On the national (4-point) scale: Excellent; Good; Satisfactory; Unsatisfactory.

– On the 100-point scale and the ECTS scale: 90–100 points (A): Excellent performance with minor errors; 82–89 points (B): Above average standard, but with some errors; 74–81 points (C): Generally sound work with significant errors; 64–73 points (D): Clear, but with significant shortcomings; 60–63 points (E): Performance meets the minimum criteria; Less than 60 points (F/FX): Unsatisfactory.

The assessment takes into account the student's level of theoretical, scientific, and practical preparation.

The decision of the Examination Committee (EC) regarding the level of

knowledge demonstrated during the MT defense, as well as the decision to award the student the corresponding qualification, is made during a closed session of the EC. The decision is passed by a majority vote of the committee members present at the meeting, conducted via open voting. In the event of a tie, the vote of the EC Chairperson is decisive.

REFERENCES

1. Положення про організацію освітнього процесу Харківського національного університету міського господарства імені О. М. Бекетова [Електрон. ресурс] : Наказ ХНУМГ ім. О. М. Бекетова № 431-01 від 23.09.2024// Міністерство освіти і науки України, ХНУМГ ім. О. М. Бекетова. – Електрон. текст. дані. – Харків, 2024. – 65 с. – Режим доступу: https://www.kname.edu.ua/images/Files/Normativny_Dokumenty/Організація_освіт_процесу_2024_1.pdf, вільний (дата звернення: 26.08.2025). – Назва з екрана.

2. Положення про навчально-методичне забезпечення освітніх програм Харківського національного університету міського господарства імені О. М. Бекетова [Електрон. ресурс] : Наказ ХНУМГ ім. О. М. Бекетова № 141-01 від 29.03.2024 // Міністерство освіти і науки України, ХНУМГ ім. О. М. Бекетова. – Електрон. текст. дані. – Харків, 2024. – 9 с. – Режим доступу: https://www.kname.edu.ua/images/Files/Normativny_Dokumenty/Положення_НМК_2024.pdf, вільний (дата звернення: 26.08.2025). – Назва з екрана.

3. Положення про порядок створення та роботу екзаменаційної комісії з атестації здобувачів вищої освіти Харківського національного університету міського господарства імені О. М. Бекетова [Електрон. ресурс] : Наказ ХНУМГ ім. О. М. Бекетова № 249-01 від 04.09.2020 // Міністерство освіти і науки України, ХНУМГ ім. О. М. Бекетова. . – Електрон. текст. дані. – Харків, 2020. – 21 с. – Режим доступу: https://www.kname.edu.ua/images/Files/Normativny_Dokumenty/Положення_ЕК_2020_compressed.pdf, вільний (дата звернення: 26.08.2025). – Назва з екрана.

4. Положення про академічну доброчесність та систему запобігання академічному плагіату Харківського національного університету міського господарства імені О. М. Бекетова [Електрон. ресурс] : Наказ ХНУМГ ім. О. М. Бекетова № 272-01 від 25.11.2022 // Міністерство освіти і науки України, ХНУМГ ім. О. М. Бекетова. – Електрон. текст. дані. – Харків, 2022. – 22 с. – Режим доступу: https://www.kname.edu.ua/images/Files/Normativny_Dokumenty/

Положення_про_академічну_доброчесність_та_систему_запобігання_академічному_плагіату.pdf, вільний (дата звернення: 26.08.2025). – Назва з екрана.

5. ДСТУ 3008:2015 Інформація та документація. Звіти у сфері науки і техніки. Структура та правила оформлювання. – Чинний від 2017–07–01. – Київ : ДП «УкрНДНЦ», 2016. – 31 с. – Існує електрон. версія. (Режим доступу: https://online.budstandart.com/ua/catalog/doc-page.html?id_doc=64463, вільний).

6. ДСТУ 9243.5:2023. Система проєктної документації для будівництва. Загальні положення. – Чинний від 2024–04–01. – Київ : ДП «УкрНДНЦ», 2024. – 5 с. – Існує електрон. версія. (Режим доступу: https://online.budstandart.com/ua/catalog/doc-page.html?id_doc=103962, вільний).

7. ДСТУ 9243.7:2023. Система проєктної документації для будівництва. Правила виконання архітектурно-будівельних робочих креслень.– Чинний від 2024–04–01. – Київ : ДП «УкрНДНЦ», 2024. – 48 с. – Існує електрон. версія. (Режим доступу: https://online.budstandart.com/ua/catalog/doc-page.html?id_doc=103964, вільний).

8. ДБН В.1.2-14:2018. Загальні принципи забезпечення надійності та конструктивної безпеки будівель і споруд із зміною №1. – Чинний від 2022–09–01. – Київ : ДП «Укрархбудінформ», 2022. – 38 с. – Існує електрон. версія. (Режим доступу: https://online.budstandart.com/ua/catalog/doc-page.html?id_doc=78683, вільний).

9. Проект стандарту вищої освіти України для другого (магістерського) рівня з галузі 19 – Архітектура та будівництво, спеціальності 192 – Будівництво та цивільна інженерія / Підкомісія зі спеціальності 192 – Будівництво та цивільна інженерія Науково-методичної комісії № 9 з будівництва та технологій сектору вищої освіти Науково-методичної ради Міністерства освіти і науки України. – Київ, 2020. – 14 с. – Існує електрон. версія. (Режим доступу: https://nubip.edu.ua/sites/default/files/u132/nakaz_mon_192_mag.pdf?utm_source=chatgpt.com, вільний).

10. Освітньо-професійна програма «Промислове та цивільне будівництво» для другого (магістерського рівня) зі спеціальності 192 –

Будівництво та цивільна інженерія [Електрон. ресурс] : Наказ ХНУМГ ім. О. М. Бекетова № 204-01 від 10.07.202 // Міністерство освіти і науки України, ХНУМГ ім. О. М. Бекетова. – Електрон. текст. дані. – Харків, 2023. – 16 с. – Режим доступу: https://www.kname.edu.ua/images/Files/ECTS/Magistr/2023/M_192_ПЦБ_укр_2023.pdf, вільний (дата звернення: 26.08.2025). – Назва з екрана.

APPENDIX A

Title Page of the Master's Thesis

O. M. BEKETOV NATIONAL UNIVERSITY OF URBAN ECONOMY IN KHARKIV

SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING

Department_____

MASTER'S THESIS

STUDY OF THE INFLUENCE OF DYNAMIC LOADS ON THE SUBSIDENCE OF THE FOUNDATIONS OF AN INDUSTRIAL BUILDING

Comleted by: 2-nd year student, M ICE 2024-5a

Specialty: G19 – Building and Civil Engineering

Educational program – Industrial and Civil Engineering

_____Name Surname

Supervisor_____Name Surname

Reviewer_____ Name Surname

202_

APPENDIX B

Master's Thesis Assignment

O. M. BEKETOV NATIONAL UNIVERSITY OF URBAN ECONOMY IN KHARKIV

SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING

APPROVED

Head of the Department of _____

Ph.D., Assoc. Prof. _____

"___"_____202_

ASSIGNMENT

FOR THE MASTER'S THESIS FOR THE STUDENT

NAME SURNAME

Specialty G19 – Building and Civil Engineering

Educational-professional program – Industrial and Civil Engineering

(educational-professional or educational-scientific)

Master's thesis topic: **Study of the influence of dynamic loads on the subsidence of the foundations of an industrial building**

approved by the Order of the Rector of NUUE dated "__" _____202_r. No _____

The deadline for submitting the completed work to the department is "__"___ 202_y.

Initial data for the master's thesis, research topic, architectural drawings of the object, geotechnical data for the construction area.

List of issues to be investigated:

1. Analytical review of the selected topic.
2. Research of _____
3. Application of research findings through the construction project.

List of graphic material: Architectural design of the implementation project; Structural design of the foundations; Structural design of the building's load-bearing elements; Technological chart; Construction schedule; Construction site layout plan.

Date of issue "__" _____202_

Master's Thesis Supervisor _____ Name Surname

Assignment accepted _____ Name Surname

Consultants of thesis sections

Section		Last name, initials and position of the consultant	Signature, date	
			Task issued by	Task accepted by
1 Analytical Review.				
2 Research Section.				
3 Design Section.	*Architectural and Engineering Solutions of the Selected Construction Object.*			
	Structural Analysis and Design of the Building's Substructure and Superstructure.			
	Technology and Organization of Construction Works.			
	Occupational Health and Safety in Emergency Situations.			
4 Compliance Review				

Thesis Schedule

Num-ber sa-lary	Name of the stages of the master's thesis	Completion Period	Note
1	*Analytical Review*		
2	*Research Section*		
3	*Design Section*		
4	*Compliance Review*		

APPENDIX C

Supervisor's Review

The applicant can consider his work completed if it meets the following requirements: the work contains reliable factual digital material, all conclusions are sufficiently substantiated, recommendations for the implementation of the research results have been developed.

The applicant submits a fully completed master's thesis to the supervisor for review.

The review of the supervisor is carried out on a special form. The text of the review should be written in legible handwriting or printed on a computer.

REVIEW
of supervisor for the master's thesis

on the topic: _____

student (s) _____
(last name, first name, patronymic)

_____

(text of the review)

Supervisor

_____ _____ _____
(position, academic titles, degree) *(signature)* *(initials, surname)*

The review is drawn up in any form with an indication of:

a) relevance of the topic;

b) compliance of the work with the assigned task;

c) a brief critical review of the content of individual parts of the master's thesis, indicating the level of disclosure of certain issues of the work;

d) the significance of the applicant's conclusions and practical

recommendations, the main results of the study;

e) signs of novelty in the conducted research and personal contribution of the author;

f) the degree of independence of the applicant in working on the MT;

g) shortcomings of the MT;

i) the level of theoretical and practical training of the applicant, his erudition and knowledge of professional literature;

j) characteristics of professional and personal qualities of a master's student;

k) conclusions on the compliance of the quality of the master's training with the requirements of the EP and the possibility of awarding him the appropriate qualification of the Master of Construction.

APPENDIX D

Master's Thesis Review

Writing a review should be preceded by a careful consideration of all sections of the work, including the factual material and calculations provided, identification of its advantages and disadvantages in terms of theoretical provisions and in practical terms, as well as in design. The text of the review should be written in legible handwriting or printed on the appropriate form.

REVIEW
of the thesis

educational and qualification level "master"

on the topic of: _____

_____

graduate _____

(last name, first name, patronymic)

(text of the review)

Reviewer
_____ _____ _____

The review is made in any form. In the text of the review, it is recommended to avoid general phrases. For example, such as "the applicant did a great job", "coped with a difficult task", "made a number of valuable offers".

The review should reasonably disclose the following issues:

a) relevance of the topic;

b) correspondence of the object and subject of research to the specialty;

c) characteristics of the work performed, signs and degree of novelty;

d) a general overview of the content of the master's thesis, while the reviewer must evaluate each section of the thesis;

e) the most interesting places of work, in which the level of theoretical and practical training of the applicant, his erudition, knowledge of professional literature was manifested;

f) validity of the applicant's conclusions and recommendations arising from the work performed by him/her;

g) shortcomings of thesis;

i) general assessment of the work and its compliance with the requirements for master's theses in a certain specialty;

j) a grade according to a four-point system ("excellent", "good", "satisfactory", "unsatisfactory"), which, in the opinion of the reviewer, the master's thesis deserves;

k) conclusion on the possibility of assigning the appropriate qualification to the applicant (formulation according to the curriculum of the specialty).

The overall assessment of the master's thesis should logically follow from the content of the review. The total volume of the review is not limited, but it is recommended to refrain from both excessively short and very detailed reviews, from retelling the work or presenting details that are not essential for its overall assessment in terms of compliance with the requirements for master's theses of a certain specialty.

APPENDIX E
Declaration on Adherence to the Academic Integrity Policy

To: The Head of the Department

_____

_____

From: applicant for higher education (student full name, "institute", "course", "group"

_____

Statement

I am aware of the rules of the current “Policy on Academic Integrity and the System for Preventing Academic Plagiarism” at the O. M. Beketov National University of Urban Economy in Kharkiv, dated 2022, according to which the detection of plagiarism is grounds for the rejection of a work from the defense process and for the application of disciplinary and academic penalties.

I have been notified of the use of the Text-Matching Detection System in student works and hereby give my consent for the University to process and store my work in the University’s Database. I also grant the University the right to submit my work for processing and storage in the Text-Matching Detection System, to use the work to detect plagiarism in other works that have been or are being uploaded for review by the Text-Matching/Identity/Similarity Detection System and by its authorized users, and to publish the work on the university (department) website or in the repository.

The electronic version of my work is identical to the printed version.

_____ _____

Date Signature

Електронне навчальне видання

МЕТОДИЧНІ РЕКОМЕНДАЦІЇ

до виконання кваліфікаційної роботи магістра

(для здобувачів другого (магістерського) рівня вищої світи всіх форм навчання зі спеціальності 192 − Будівництво та цивільна інженерія, освітня програма «Промислове та цивільне будівництво»)

(Англ. мовою)

Укладачі: **АЛЕКСАНДРОВИЧ** Вадим Анатолійович,
ФІРСОВ Павло Михайлович,
ГАВРИЛЮК Ольга Володимирівна

Відповідальний за випуск гарант ОП *В. А. Александрович*
За авторською редакцією
Комп'ютерне верстання *В. А. Александрович*

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Харківський національний університет
міського господарства імені О. М. Бекетова,
вул. Чорноглазівська (Маршала Бажанова), 17, Харків, 61002.
Електронна адреса: office@kname.edu.ua
Свідоцтво суб'єкта видавничої справи:
ДК № 5328 від 11.04.2017.