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"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
Department “Drilling of oil and gas wells”

MASTER’S THESIS

Methodical recommendations
for execution and formatting of master’s thesis
for student of field of study
21.04.01 Petroleum engineering for all modes of study

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Annotation

Methodical recommendations for the execution and formatting of master's thesis are intended for students of the field of study 21.04.01 Petroleum engineering for all modes of study.

This master's thesis is carried out during the entire period of study.

The requirements for the content, formatting and presentation of the material, review and defense of the master's thesis are given.

CONTENT

INTRODUCTION

Students who do not have an academic debt are allowed to write a graduate qualification work.

The process of carrying out the graduate qualification work is aimed at the formation of general cultural and professional competencies according to FSES HE in the field of training. 21.04.01 Petroleum engineering on the programs of the department "Drilling of oil and gas wells": GPC-1, GPC-2, GC-3, PC-1 , PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, PC-10.

GQW is the final stage of training and is aimed at:

- consolidation, systematization of the theoretical and practical knowledge obtained in the course of training, their application in the solution of design, scientific and economic tasks of construction of oil and gas wells;
- development of skills for conducting independent work, mastering research methods, conducting experiments, processing results when solving problems and questions being developed in the GQW;
- clarify the competency of students for independent work in the conditions of modern production.

The content of the GQW should meet the current level of development of national and foreign production, the achievements of advanced scientific, technical and technological developments.

These guidelines were developed in accordance with the Recommendations for the structure and formatting of the graduate qualification work (master's thesis) IUT in the field of study 21.04.01 Petroleum engineering. They contain requirements for carrying out of the master's thesis and are designed to orient the graduate in choice of the topic of research, content, organization of preparation, writing and defending the master's thesis.

The future work of the graduate in this or that field of the oil and gas industry requires the ability to think creatively, be familiar with specific technologies and technical means, give conclusions and recommendations based on the results of theoretical and practical researches as well as develop a scientific approach to solving production and technical problems. Skills of creative work are acquired by the masters during the entire period of study at the magistracy.

The master's thesis is the graduate qualification work demonstrating the level of scientific preparation of the master, professional knowledge of the theory and practice of the subject, the ability to independently conduct scientific search and solve specific tasks in the field of professional activity. The main scientific results obtained by the author of the master's thesis are subject to obligatory approbation.

The purpose of writing the master's thesis is to determine the abilities and readiness of the master degree student to independently solve the tasks of his professional activity in the modern way, professionally present special information, scientifically argue and defend his point of view which serves as

the basis for awarding him the "master's" degree.

The main task of these methodological recommendations is to provide the necessary methodological assistance, to properly direct the efforts of the master to the qualitative execution of the master's thesis.

1 GENERAL PROVISIONS

The master's thesis is the graduate qualification work of the master intended to demonstrate the scientific level of his preparation, the ability to independently conduct scientific research and solve specific problems in the sphere of future professional activity.

The master's program includes two components - educational and scientific-research. The content of the scientific- research work is determined by an individual plan.

The process of carrying out the master's thesis includes the following stages:

- approval of the topic of master's thesis and scientific supervisor;
- development and approval of an individual work plan for magister (APPLICATION 1);
- preparation of the master's thesis;
- the defense of the master's thesis;
- refereeing and defending the master's thesis.

Simultaneously with allowance the student given by the head of the master's program, the head of the graduating department and the director of the institute to write the master's thesis the topic of his graduate qualification work must be approved

The order to appoint the supervisors of GQW and approve the master's topic is signed by the department's Director during the first month after the beginning of the training.

The master's thesis is carried out under the supervision of the scientific adviser (doctor or candidate of sciences), who is appointed by the director of the Institute of geology and oil and gas production of IUT from the highly qualified specialists who conduct scientific, academic and other researches and work in the Master's degree program in the field of study 21.04.01 Petroleum engineering. Qualified workers from the specialized practical field for a particular direction of the magistracy (work experience of such specialists must be at least 10 years) can be attracted as consultants or scientific supervisors of master's theses. For graduate qualification works related to several scientific fields one or two scientific advisers may be involved.

Pre-defense of master's thesis is held at the meeting of the graduating department after the completion of master's thesis. The decision on admission for defense the graduate qualification work is entered in the minutes of the meeting of the department. In case of successful pre-defense the thesis is submitted for refereeing which is performed by one reviewer: internal or external - doctor or candidate of science. The supervisor writes a report on the master's thesis.

Defense of the master's thesis is held at the meeting of the State Qualification Committee for the master's theses defense. Students who successfully passed a comprehensive state examination are allowed for defense of master's thesis.

2 REQUIREMENTS TO MASTER'S THESIS

2.1 General requirements

Graduate qualification work of a master is a master's thesis, which is an independent scientific research carried out on the actual topic of the master's field of study 21.04.01 Petroleum engineering. The master's thesis performs the qualification function. The main scientific results obtained by the author of the master's thesis are subject to obligatory approbation. Approbation can be made through publishing in scientific publications, presentation in reports at scientific conferences, symposiums, seminars, as well as by obtaining documents certifying copyrights (patents, certificates) or by practical introduction in enterprises, organizations or institutions.

The master's thesis is intended to achieve the candidate's scientific potential, to show his abilities in organizing and conducting an independent research, using modern methods and approaches to solve problems in the study area, identifying the results of the research, their arguments and developing reasoned recommendations and proposals.

The main task of the master degree student is to demonstrate the level of his scientific qualification, the ability to independently conduct a scientific search and solve specific scientific problems. He must have a broad erudition, a fundamental scientific basis, master the methodology of scientific creativity, modern information technologies, methods of obtaining, processing, storing and using scientific information, and be capable of fruitful scientific -research and educational research activity.

Master's thesis as a work with scientific content should have an internal unity and show the work progress and development results in studying of the chosen theme. On the one hand, it should be generalizing, so far as it is a kind of result of master's preparation, on the other hand it is an independent original scientific research.

The content of each part of the master's thesis is determined by its theme. The choice of the topic, the stages of preparation, the search for bibliographic sources, their study and selection of factual material, the method of writing, the rules for formatting and defense of the master's thesis have much in common with the diploma thesis. However, the requirements for a master's thesis are scientifically much higher than for a diploma paper. Master's thesis, its topic and scientific level should meet the educational and professional training program of the field of study 21.04.01 Petroleum engineering.

The performance of the work must indicate that its author is able to properly conduct a scientific search, recognize professional problems, know the general methods and methods for their solution.

Writing a master's thesis suggests:

- Systematization, consolidation and expansion of theoretical and practical knowledge in the master's field of study, their application in solving specific research problems;

- development of skills for conducting independent work and mastering the methods of research and experimentation in solving scientific problems and questions;

- finding out the preparedness of the master degree student for independent work in an educational or research institution.

The master's thesis must contain the set of the results and scientific thoughts which the author is planning for defense. Also the master's thesis must testify to the author's ability to conduct scientific search independently, using theoretical knowledge and practical skills, to see professional problems, to be able to formulate research tasks and methods for their solution.

A master student must be able to:

1) formulate and solve problems arising in the course of research activities and require deepen professional knowledge;

2) choose the necessary research methods, modify existing ones and develop new methods based on the tasks of the specific research;

3) generalize, systematize and theoretically comprehend empirical material;

4) process the obtained results, analyze and comprehend them taking into account the available literature data;

5) conduct bibliographic work involving modern information technologies;

6) have skills and techniques of historiographic and source criticism;

7) speak foreign languages to the extent which necessary for independent work with regulatory sources and scientific literature;

8) present the results of the research carried out in the form of written work, formatting in accordance with existing requirements with the use of modern editing and printing tools.

The content of the work can be the results of theoretical research, the development of new methodological approaches to solving scientific problems as well as solving problems of an applied nature.

The master thesis is carried out by the student on the materials collected by him personally during the desk and field researches during research practice. It must consist of theoretical and practical parts and master's thesis must differ from the final project of the bachelor's degree program in depth of the theoretical study of the problem, and from the diploma paper of the specialist in novelty of research.

The topic of the master's thesis must, as a rule, correspond to the field of the research papers determined by the graduating department.

Formatting of the work must comply with the requirements presented in the "Methodological guidelines for the formatting of master's thesis for the master degree students in the field of study 21.04.01 Petroleum engineering of all modes of study." The schedule of the educational process provides for a period of time not less than two months for formatting and preparation for the defense of the master's thesis.

2.2 Content of master's thesis

The master's thesis has a generally accepted structure and consists of an introduction, a main part and a conclusion.

The title page The example of filling in the title page is shown in APPLICATION 2**.**

The content is a reference aid element of the graduate qualification work, which gives a general idea of the structure of the work. The contents are placed after the title page.

The words page or p. can't be used in the contents.

According to its design each section in the contents must be an exact copy of the same part in the main text, i.e. their complete verbal, grammatical and graphic compliance is required.

Between names of sections and page numbers it is necessary to put a suspension point. It is necessary to place page numbers by the principle: units under units, tens under tens.

The concept (see the APPLICATION 3)

Abstract

The abstract gives the short description of structure of GQW, main resolved tasks and questions. The sample of the contents is presented in the APPLICATION 4. The abstract provides the purpose the master's thesis, its brief content and the main results obtained during the research. The text of the abstract is performed in the Russian and foreign languages on separate pages, and it is located after a structural element of explanatory note (EN) "CONCEPT" and it is infused with the text of EN GQW.

Introduction of the master's thesis reflects logic of the conducted research and allows to estimate the degree of studying of the topic. Introduction is an independent part of the work which is not indicated by numbers either in contents or in the text. It is necessary to give the following information in introduction:

– justification of the choice of the topic, its relevance;

– description of the level of preparedness of the topic in native and world science;

– formulation of the research problem;

– main objective and tasks of work;

– object and subject of research;

– scientific novelty;
– research methods;
– description of the practical significance of the research;
– structure of work.

Justification of the relevance of the chosen topic is the initial stage of any research. The author's ability to choose a topic, correctly understand and estimate it from the point of view of timeliness and the social significance characterizes author's scientific maturity and professional qualifications

The coverage of relevance should not be verbose. It is necessary to show the main thing - the essence of a problem situation, from which the relevance of the topic will be clear. The relevance can be defined as the significance, importance, priority among other topics and events.

Any scientific research is carried out in order to overcome certain difficulties in the learning process of new phenomena, to explain previously unknown facts or to reveal incompleteness of the old ways of explaining known facts. The relevance of the topic determines the needs of society in obtaining any new knowledge in this field. As any other product the expected new knowledge needs a statement of the need: to whom, for what purposes, what scope, quality of this knowledge, etc.

It is logical to come over from the proof of the relevance of the chosen topic to the research problem. The ***research problem*** is an area of something unknown but demanded in scientific knowledge. A competently formulated problem is an indication of the contradiction that has arisen (revealed) in the studied area, an indication of the knowledge that does not yet exist, but which needs to be obtained in order to solve the specified contradiction.

Then it is necessary to formulate the ***research objective*** which determine reasons why the research is conducted, what is planned to be received as a result and also particular objectives which must be solved according to this objective are specified. The researcher's desire to answer questions on the scope and quality of new knowledge determines the purpose of the research. Definition of the purpose is very important stage in a research as it defines also tasks of the researcher himself: what to study, what to analyze and what methods can be used to gain new knowledge.

The **research tasks** represent the stages of achievement of the goal of the work. These are the stages, on each ones a particular research activity is carried out (studying literature, collecting empirical data, their analysis, creation of classifications, development of methods and their implementation, etc.). It is usually done in the form of listing (to study ..., to describe ..., to set ..., to find out, etc.).

Achievement of the goal of the master's thesis directs the master degree students to solve the brining up problem in two main directions – theoretical and application-oriented.

Further an object and an subject of research are formulated. ***A research object*** is what knowledge process is directed to, it is the chosen element of reality characterized by obvious borders, relative autonomy of existence and the re-

moteness from its environment surrounding. The object generates a problem situation and it is chosen for studying.

The **subject of scientific research** is a logical description of the object, the selectivity of which is determined by the researcher's preferences in choosing the point of the mental review, the aspect, the "survey" of separate manifestations of the observed segment of reality.

The subject of the research is the most significant theoretical or practical properties, sides, manifestations, features of the object that are subject to direct study. It is a point of view of the object, the aspect of its consideration giving an idea what will be specifically studied in the object, how it will be considered, what new relations, properties, functions will be revealed.

The skill in defining of a subject is traditionally associated with how close the researcher has approached, firstly, to the sphere of the most actual dynamic states of the object (the opportunity to explain the origin and development, the genesis, phenomenon contradictions which are externally apparent) and, secondly, to the area of essential links and elements, the change of which affects the entire system of organization of the object.

The research object is always wider than its subject. If an object is a field of activity, then the subject is the process under study within the research object.

The object and subject of research as categories of the scientific process are correlated as general and particular. The part of the object is allocated that serves as the subject of research. The main focus of the author of dissertation is directed on it, it is the subject of research that determines the theme of the dissertation work, which is defined on the title page as its title.

After determining the object and the subject of research, the ***scientific novelty of the research*** is formulated. Requirements for the scientific novelty of the research are given in the relevant section 2.3 of these guidelines.

The presentation of the used ***research methods*** makes it possible to estimate the completeness of the competences and skills obtained by the master during writing of the master's thesis.

The justification of the **practical significance** of the research allows to estimate the ability of the master degree student to apply the acquired skills and proficiencies to the analysis of a particular research object.

In the final part of the introduction, it is necessary to briefly say about the structure of the work. Characteristics of the structure of the work is a summary of the sections and subsections of the main part, the scope of work in pages without annexes, the number of sources of literature used in the work.

In the **main part** of the master's thesis, the state of the question this work is devoted has to be explained in fully and systematized way. The subject of the analysis should be new ideas, problems, possible approaches to their solution, the results of previous researches on the problem to which this work is devoted (if necessary), and also possible ways of solving the set goals and objectives.

The main part consists of three sections, each one is divided into subsections depending on the research topic and its objectives. In each section there must be at least two subsections. Between the sections there must be organic internal link, the material within the sections must be stated in a clear logical sequence. Each section ends with brief conclusions. Names of sections must be extremely short, precise, accurately reflect their main content and can not repeat the title of the thesis.

The main part of the work consists of theoretical, practical (analytical) and project component.

The ***theoretical part*** is 1/3 of the total amount of qualification work. This part is based on the study of the available native and translated into Russian foreign scientific and specialized literature on the problem under study, as well as regulatory materials. It is recommended to consider the brief history, the ancestors of the theory, the accepted concepts and classifications, the degree of exploration of the problem abroad and in Russia, to analyze a specific material on a selected topic, collected during the work on the master's thesis. The author considers the method of research of the selected material (for example, the method of measuring technical parameters of process fluids).

As the master's thesis is usually devoted to a rather narrow topic, a review of the works of the predecessors should be done only on the chosen topic, and not on the whole problem in general. In the review of the literature it isn't necessary to state everything that the student has learned from the reading and what has only an indirect relation to his work. But valuable publications that are directly relevant to the topic of the master's thesis must be named and estimated.

In presenting controversial opinion it is necessary to cite this author only under this condition the criticism can be objective. In the presence of various approaches to the solution of the studied problem it is necessary to compare different recommendations contained in the current guidance materials and the work of various authors

Only after the comparison it is possible to justify own opinion on the contentious question or to agree with one of the points of view already available, however, in any case, it is necessary to put forward the appropriate arguments. Analyzing the existing conceptual apparatus in the investigated area, the author presents his interpretation of certain concepts (author's definition) or gives their critical assessment.

In this section the ability of the master degree student to systematize the existing developments and theories on this problem, to critically consider them, to highlight essential, to estimate experience of other researchers, to define the main thing in study of a subject from positions of modern approaches, to reason own opinion is reflected.

Theoretical part is justification of future developments as allows to choose methodology and a technique of the comprehensive analysis of a problem.

Practical part of the work has to contain the comprehensive characteristic of an research object, the analysis of the studied problem, as well as the actual

data processed by means of modern techniques and presented in the form of analytical calculations. Description of the research object has to be given accurately.

Besides, calculations of the separate indicators used as characteristics of the object have to be given. Digital data has to be selected for a certain period of time (3-5 years), be tabulated and analyzed. They shouldn't be outdated. Conclusions according to each table are obligatory. At the same time materials in the text of the work have to be located compactly: if tables contain too much digital data, then it is better to take out them for the text and to make out in the form of annexes. The same has be done with graphs, diagrams, schemes, etc.

The justification of the subsequent developments is carried out in the practical part. Depth and validity of the offered actions depends on completeness of this part. It is recommended to critically analyze the functioning of analogues of the research object, both in Russian practice and foreign.

Project part of the work represents development of recommendations and actions for the solution of the studied problem as well as the analysis of the results of using the proposed measures confirmed by calculations, or justification of the expected results of using the proposed measures. In this part the possibilities of improvement of the equipment and technology of the oil and gas industry are considered. Conclusions, offers, justifications of options of development of this process or forms of its control are formulated.

All proposals and recommendations should be specific and be brought to the development stage, ensuring implementation. It is important to show how the proposed activities will affect the overall performance of the enterprise, institution, organization.

In the master's thesis each section must end with conclusions.

Conclusions – new judgments, to be exact the implications drawn on the basis of the analysis of theoretical and/or empirical material.

The quantity of conclusions can be a miscellaneous but has to be not less than 3-5. If there are to many conclusions it is better to use an additional structuring into the list of conclusions, i.e. to break them into groups on some logical basis.

Conclusions have to contain assessment of compliance of results to objectives, tasks and the problem of a research and to confirm elements of scientific novelty.

The conclusion has to be directly connected with those objectives and tasks which are formulated in introduction. The conclusions and generalizations following from all work are given in this part as well as ways of further researches within this problem are specified here. The **conclusion** of the master's thesis reflects the following aspects:

- relevance of studying of a problem in general or its separate aspects;
- the perspective of the used approach;
- scientific novelty of the work;
- the viability of using certain methods and techniques;

- a concise wording of the main conclusions received as a result of carrying out a research.

In general the implications and results of the research presented in the conclusion have to reflect consistently the solution of all tasks set by the author at the beginning of work (in introduction) that will allow to estimate perfection and completeness of the conducted research.

After the conclusion there is a **list of used sources**. For each source from the source list, there must be a link in the text. The number of used sources indicates the depth of elaboration of the problem. The list of references has to consist of not less than 60 names of monographic works, scientific articles (**normative acts are neither monographic works nor scientific articles**).

Annexes are placed after the list of used sources. Their purpose is to avoid unnecessary loading of the text with various analytical and statistical materials or calculations that do not contain basic information. Each annex starts with a new page and has a title.

2.3 Scientific novelty of master's thesis

The novelty of scientific provisions is the most important requirement for the theses. Scientific provisions can be laws, regularities, dependences, properties, the phenomena, methods of researches, new technologies and methods of justification of their parameters, etc. In scientific provisions, everything can be new, partially new as well as a new set of known provisions can be contained.

Elements of novelty that can be represented in the master's thesis include the following:

- a new object of research, i.e. the task set in the thesis is considered for the first time;
- a new statement of known problems or tasks (for example, removal of assumptions, acceptance of new conditions);
- a new method of solution;
- a new application of a known solution or method;
- new consequences from the well-known theory under new conditions;
- new results of the experiment, their consequences;
- new or improved criteria, indicators and their explanation;
- development of original mathematical models of processes and phenomena, date obtained with their use.

The main principle of the formulation of scientific novelty is not to declare the introduction of something new (classification, principles, trends, etc.), but to show what is new brought in the classification, what new principles and trends are identified, etc.

For result assessment from the point of view of novelty it is essential to select the following characteristics.

Type of novelty. It is possible to mark out theoretical novelty (a concept, a hypothesis, regularity, terminology, etc.) and practical (a rule, an offer, recommendation, means, requirement, methodical system, etc.). Depending on the type of work (fundamental, technological), its theoretical or practical novelty or both will prevail.

Level of novelty of the result, the place of the gained knowledge among known and their continuity. Results of researches in comparison to data, already known in science, can perform various functions: to specify, to concretize known, to supplement it or to radically transform it.

Specification level. The new result specifies already known, concretizes the separate theoretical or practical provisions concerning training, education or teaching academic disciplines. Changes affect the private questions, individual provisions which don't have fundamental importance for understanding the essence of the phenomenon, the process.

Level of additions. The new result expands the known theoretical propositions, practical recommendations. The increment is significant: it opens up new aspects, problem sides, new elements, parts that were not previously known, are allocated. In general, the innovation does not change the current picture but only supplements it.

Level of transformation. It is characterized by fundamentally new approaches which did not exist in theory and practice before and which are radically different from the known concepts in this field of the economy.

The research supervisor of the master's thesis controls all stages of preparation and writing of work up to its defense.

3 ORDER OF WRITING OF MASTER'S THESIS

3.1 Supervision and advising

Master's thesis must be carried out by master degree students independently, creatively, taking into account the possibilities of implementing separate parts of the master's thesis in practice. Each made decision has to be carefully thought over. The direct supervision of the master's thesis is performed by the research supervisor.

The supervisor is appointed from among highly qualified specialists who conduct scientific, academic, technological and other researches and scientific works on the subject of a specific program. For graduate qualification works related to several scientific fields one or two research supervisor may be involved. Simultaneously with allowance the student given by the head of the master's program, the head of the graduating department and the director of the institute to write the master's thesis the topic of his graduate qualification work must be approved. The research supervisor of the master degree student is appointed by the order of the director of institute of TIU.

The research supervisor of the master's thesis:

- provides assistance to the master degree students in choosing the topic of master's thesis;
- sets a problem for preparation of a master's thesis;
- assists the master student in developing an individual work schedule for the entire period of writing the master's thesis;
- helps the master degree student with drawing up the working plan of the master's thesis, selection of the list of the references and information necessary for implementation of the thesis;
- consults with the master degree student, provides him with the necessary methodological assistance;
- controls the performance of the work and its parts;
- writes a report on the master's thesis with a recommendation for defense it or not;
- provides assistance (consults the master degree student) in the preparation of the presentation of the master's thesis for its defense;

The department regularly listens to master degree students and research supervisors about the progress of master's theses. The head of department informs the head of the master program and directorate of institute on degree of readiness of the master's thesis.

The master degree student, during all term of training in a magistracy, needs to have not less than 4 scientific publications in scientific print medias of various level, the research supervisor can act as the coauthor of these publications.

Master's thesis must be carried out by master degree students independently, creatively, taking into account the possibilities of implementing separate parts of the master's thesis in practice. Each made decision has to be carefully thought over.

It is necessary to remember that supervisors of the master's thesis give recommendations on what and how to be done but only the author of the master's thesis makes the final decision and he is responsible for contents.

● The research supervisor checks the course of implementation of the master's thesis on separate stages, consults the master degree student on all arising problems and questions, checks the quality of the work and after its completion represents a written report for work (APPLICATION 5).

● Theoretical knowledge and practical skills of the master degree student concerning to the studied problem shown by the student in the course of writing of the master's thesis are estimated in the report. Also it is necessary to indicate in the report the degree of self-sufficiency of the master degree student in the performance of the work, the personal contribution of the master degree student to the justification of conclusions and proposals, the observance of the schedule for the performance of the master's thesis. The report ends with a conclusion

about the possibility (impossibility) of admission of the master's thesis for defense.

3.2 Checking student qualifying papers for plagiarism

The master's thesis must be checked in the "AntiplagiatVuz" system, the conclusion about the work verification must be submitted to the research supervisor.

The student submits an electronic file with the text of the GQW in the pdf format to the graduating department and the secretary of the State Examination Commission.

The electronic file with the text of the GQW must have the name: Full Name of the student_structural subdivision_graduating department_name of the field of study_group abbreviation_graduating year (for example: GQW_IVANOV II_IGiN_ NB_ND_MBm_2017).

The verification of GQW for borrowings in order to control the degree of independence and correctness of the use of data from various sources is carried out at the graduating department by the secretary of the State Examination Commission under the supervision of the head of the department.

GQW must be submitted for checking in a period of no later than 25 working days before the defense in accordance with the approved schedule. The checking of GQW using the System must be made no later than 3 calendar days from the submission date of the work and its registration by the graduating department in the Journal.

Before checking the work in the System, the person responsible for checking has to visually inspect the text of the work in the Microsoft Word editor for the presence of symbols that look similar to Cyrillic. At the same time, the set of rules "For business correspondence" should be selected in the spelling settings of the editor.

The electronic version of the GQW after checking for the presence of borrowings is placed in the "GQW" section of the electronic library system "Lan".

After checking of the GQW the student is given a Plagiarism Report (certificate of checking for the presence of borrowings) (via his signature in the Journal) (APPLICATION 6), signed by the head of the GQW. A student who did not submit an electronic version of the GQW for placement in the electronic library system "Lan" does not receive a Plagiarism Report

The signature of the head of the GQW in the Plagiarism Report is a confirmation that the head is acquainted with the result of checking the GQW for the amount of borrowings and confirms that the quantitative and qualitative level of borrowings corresponds to the established degree of originality of the GQW text (the originality degree of the GQW is **at least 75 %**).

If the student does not agree with the results of the GQW checking in the System, expressed in the statement (APPLICATION 7), the head of the graduat-

ing department makes the decision on a possibility of the admission the GQW for defense.

3.3 Refereeing of master's thesis

To obtain an admission to the defense of the master's thesis, a pre-defense is held at the meeting of the graduating department no later than one month before the announced date of defense, in order to determine the preparedness of the master degree student to defend. The decision on admission to the defense is entered in the minutes of the department's meeting. In the case of successful pre-defense, the thesis is submitted for refereeing

As reviewers can be experts (doctor or candidate of science) on the research topic from IUT and other organizations appointed by the graduating department as an official reviewer.

The referee report is given in writing (APPLICATION 8). The graduate student has the right to get acquainted with its contents before defense of the thesis, but not later than one or two days before the defense. All sections of the work, the degree of novelty and independence of the research, the student's skill to use methods of scientific analysis, the reasoning of the conclusions, logic, language, style of presentation of the material, compliance of the work with the requirements of GOST are estimated in the referee report.

Along with the positive aspects of the work in the referee report shortcomings are also noted. The referee report must contain a recommendatory evaluation of the work. The volume of the referee report is usually from two to five pages of the typewritten text.

The research supervisor of the master degree student prepares a report on the master's thesis, in which it is necessary to note: the relevance of the topic, the author's personal participation in the development of the provisions and in the achievement of the results described in the thesis, the reliability of these provisions and results, the degree of novelty, the scientific and practical significance of the results of the research, approbation and scale of use the basic provisions and results of the work.

3.4 Choice of topic and drawing up a plan of writing

The graduate student chooses the topic of the master's thesis independently taking into account his scientific and practical interests. In some cases, upon agreement with the supervisor and the head of the department implementing the training program of masters in the field of study 21.04.01 Petroleum engineering, the master student can chose (if there are sufficient reasons for this, for example, the practical features of the student's work) a topic not included in the recommended list .

The topic of the master's thesis must be relevant, and be of scientific and practical interest as well as corresponds to the field of study in which the master student is studying.

The topic of the master's thesis is assigned to the master degree student by an order on the institution on the basis of a personal application.

The supervisors of the graduate qualification works are appointed by the same order among academic teaching staff and highly qualified specialists of enterprises. The candidates in supervisors are agreed by the graduating department.

The master's thesis, as a rule, has to be based on the consolidation of the course papers on the major subjects which were been done by the master degree student during the whole training term. In these cases, the master's thesis is a logical continuation and deepening of the previous work of the master degree student for the entire period of study at the university that allows him to more fully use all the knowledge he has gained and to write a substantial scientific and practical work.

The working plan for the master's thesis is developed by the master degree student with the assistance of the research supervisor on the basis of the received area of research.

The master's thesis plan has to be carefully thought over, justified and coordinated with the research supervisor. It includes the following sections: *Introduction*, *The main part* (first, second and third section), *Conclusion* and *List of reference links*. The number of sections and subsections in the main part largely depends on the nature and complexity of the topic. A traditional structure of the work is the structure that includes three sections of three subsections. The field and nature of the work can also be modified depending on the extent to which the actual material will be attracted.

In addition to the plan of the master's thesis, the master degree student develops a calendar schedule of the work for the entire period of completion of the graduation work with the indication of the sequence of the stages and their content.

Approval of the topic of the master's thesis, drafting the plan, its approval by supervisor, pre- defense of the thesis must be fully carried out within the established deadlines.

The original version of the working plan has to reflect the main idea of the work. During its drawing up, it is necessary to define the content of the individual sections and give them the appropriate titles: to think over the contents of each section, outline the sequence of questions which will be discussed in in the form of subsections, and give their brief description.

The working plan of the master's thesis is flexible, that involves introducing changes which can arise as a result of more detailed research of the subject area. All changes in the working plan of the thesis has to be coordinated with the research supervisor. The final version of the working plan of the thesis is essentially the content of the master's thesis.

3.5 Literature search

The beginning of the master's thesis is associated with the process of the literature search, which is reasonable to be started with the study of works that are close to the chosen topic of the master's thesis.

It is recommended to get acquainted with literature in the following sequence:

1) governing documents – at first laws, then legislative acts;

2) scientific publications - first monographs, then periodicals;

3) statistical data.

At the same time, first of all it is necessary to study the latest publications, then the earlier ones.

Statistical and analytical material related to the ongoing processes in the oil and gas field can be found on the Internet. For this purpose the ability to work in search engines is very important.

For the selection of publications on the topic of interest, the lists of reference contained in the researches already conducted (theses for obtaining academic degrees, research reports, etc.) can be used.

The significance of the works is determined by the *author's* popularity. At present the scientific citation index (SCI:) is used to evaluate the work of individual scientists and research teams.

During writing the master's thesis, it is recommended to use of electronic resources of the IUT.

The index of scientific citation is abstract database of scientific publications indexing the links specified in the reference lists of these publications and providing quantitative indicators of these links (such as total citation volume, Hirsch index, etc.). The citation index is a measure of the "significance" of the works of a scientist accepted in the scientific world. The value of the index is defined by the number of references to this work (or surname) in other sources.

In case of selection of literature it is necessary to make directly the bibliographic description of the selected publications in strict accordance with requirements imposed to design of the list of references. This list of references on the topic of the master's thesis is agreed with the research supervisor.

3.6 Writing style of scientific materials

The master's thesis must be in a scientific style which has some characteristic features.

First of all, the scientific style is characterized by the use of structures that exclude the use of first-person pronouns of the singular and plural, and second-person pronouns. In this case, it is proposed to use indefinite-personal sentences (for example: "First, it is necessary to select the factors for analysis, and then to determine their impact on the indicator is determined"); style in third person (for ex-

ample: "The author believes ..."); sentences with passive voice (for example: "An integrated approach to a re-search is developed...").

In the scientific text it is impossible to use colloquial vocabulary. It is necessary to apply terminological names. If there is any doubt about the stylistic coloring of a word, it is better to turn to the dictionary.

The most important means of expressing the semantic completeness, integrity and coherence of a scientific text is the use of special words and word combinations. Such words allow to reflect the following:

- sequent line of thoughts (in the beginning, first of all, then, firstly, secondly, it means, so);
- change one thought to another (before moving to; we refer to; we will consider; we turn our attention to; having considered; let's move to; it is necessary to stop at; need to be considered);
- contradictory relations (however, meanwhile, while; nevertheless);
- cause-effect relations (*so, therefore, thanks to this, according to this, as a result of this, it follows that*);
- different degree of confidence and the source of the message (*of course, certainly, really, apparently, presumably, probably, perhaps, possibly, according to the message, according to the information, in opinion, as reported*);
- result, conclusion (*so, thus, that means; in conclusion, note, all that has been said allows to draw a conclusion, summarizing, it is necessary to say, to sum up what has been said, we will note*).

To express the logical sequence complex conjunctions are used: *due to the fact that; meanwhile; as; instead of; due to the fact that; because of; taking into account that; after; while* and others. Derivative preposition are especially common *during; in compliance with; as a result; unlike; along with; in connection with; in consequence of*, etc.

Pronouns, adjectives and participles can be used as means of communication (*data; this; such; called; specified; listed above*).

Demonstrative pronouns *"this", "that", "such"* are very widespread in the scientific text. Pronouns *"anything", "something", "somewhat"* in the text of scientific work usually aren't used.

For expression of logical communications between parts of the scientific text the following steady combinations are used: *we will give results; as the analysis has shown; on the basis of the obtained data.*

For formation of a superlative degree of adjectives words *the most, the least,* are often used.

A feature of the scientific style is the affirmation of the signs inherent in the defined word. So, the adjective *following*, synonymous to the pronoun *such*, emphasizes the sequence of enumeration of features and attributes (for example, *consider the following factors that affect ...*).

The presentation of the material in the master's thesis must be consistent and logical. All chapters have to be connected among themselves. It is necessary to pay special attention to logical transitions from one chapter to another, from the paragraph to the paragraph, and inside the paragraph – from a question to a question.

4 PRE- DEFENSE OF MASTER'S THESIS

The day, time and place of the pre-defense of the master's thesis is determined by the decree on the graduating department. Pre-defense is carried out by the commission created at the department.

The secretary of the pre-defense commission permits the master degree students to enter to the pre-defense premises in accordance with the list of students admitted to pre-defense.

The pre-defense commission can work with one master degree student with the whole staff or distribute graduate students on commission members.

The commission (member of the commission) checks the compliance of the topic of the master's thesis, the full name of the supervisor, the data of the corresponding order, the corresponding section of the master's thesis which must be presented for pre-defense (1,2 section of the master's thesis - on the first pre-defense, the whole master's thesis on the second pre- defense).

The commission (member of the commission) may ask the master degree student to make a report and / or ask him questions about the writing and contents of the master's thesis.

The pre-defense commission on the basis of the pre-defense results makes a decision on the readiness of the master's thesis for defense.

5 DEFENSE OF MASTER'S THESIS

The completed GQW is submitted no later than ten days before the established day of defense, after the checking of the borrowings amount (plagiarism) by the graduating department and the standard control.

The student submits to the graduating department the completely designed GQW on paper and the electronic file with the text of GQW in the doc or rtf format on the electronic medium. Data of paper and electronic variants of GQW have to be identical.

The electronic file with the text of the GQW must have the name: Full Name of the student_structural subdivision_graduating department_name of the field of study_group abbreviation_graduating year (for example: GQW_IVANOV II_IGiN_ NB_ND_MBm_2017).

The checking of GQW using the System must be made no later than 3 calendar days from the submission date of the work and its registration by the graduating department in the Journal which is kept at the department during 5 years. The degree of originality of the GQW must be eligible(75 % for GQW)

After the checking is completed, a short report is formed on the means of the System function "Version for printing", indicating the degree of originality of the GQW text. The report is printed, certified by responsible person for checking and put in GQW. The work doesn't return to the student but it is transferred to the head of the department.

At the same time a written report of the research supervisor is presented in which advantages and disadvantages of the thesis are described and recommendation on admission for defense is made.

Based on the provided materials the head of the department decides whether to admit the thesis to the defense or not by making a corresponding entry on the title page of the work. If the head of the department does not consider it is possible to admit the master's thesis for defense, this question is considered at the department meeting with the participation of the master degree student and his supervisor.

Defense of the master's thesis is held publicly at an open meeting of the State Examination Commission (SEC). The master's degree scholar represents in the state examination commission:

- printed interlaced thesis in one copy;
- electronic copy of the thesis;
- report of the supervisor;
- referee report on the thesis;
- list of published scientific papers of the master degree student (if any) or an act on the implementation of the results of the research (APPLICATION 9);
- report about checking of the master's thesis on the ANTIPLAGIAT.VUZ system

The meeting of the SEC starts with the announcement of the defense of the thesis, indicating its name, full name of its author. Further, the secretary of the commission reports on the availability of necessary documents and briefly characterizes the " the educational biography " of the master degree student (his academic performance, availability of publications, speeches at conferences, seminars, circles, etc.).

Then the word is given to the master degree student (within 10-15 minutes). He builds his speech on the basis of the pre-prepared theses of the report (reading the report is not recommended). If situations so requires it is necessary to make references to in addition prepared drawings, tables and other materials.

After the master degree student's speech he is asked questions verbally. All in attendance on the defense can ask questions. Members of SEC have the primary right to ask questions.

Further the chairman gives the word to the research supervisor of the undergraduate. In his speech the supervisor reveals the relation of the master degree student to work on its thesis, raises other questions concerning his personality. At absence of the research supervisor at the meeting of SEC his written report on the thesis is read out. Further it is given the word to the referee. At his

absence his review is read out. The master degree student's answers questions and remarks of the referee.

Then a scientific discussion begins. Everybody can participate in it. The author of the thesis ends the discussion by a concluding word in which he answers the critical remarks.

After the end of the discussion at the request of the master degree student, he may be given the concluding word.

The results of the defense of the master's thesis are estimated according to the point system:

(91 p. - 100 p.) - if the topic, objective and subject of graduate qualification work are scientifically based and clearly formulated. The relevance and novelty of the research are shown. The theoretical and practical significance of the work performed by the author is quite fully developed. Clear and convincing conclusions were drawn from the results of the research. The list of used references sufficiently reflects the information available in the literature on the research topic. The text contains links to a list of used references. Graduation work is carefully formatted. There is the necessary illustrative material. The contents of the final project was reported in a short form, consistently and logically, clear answers were given to the questions posed by the members of the State Examination commission.

(76 p. - 90 p.) - the list of used sources does not fully reflect the conducted information search. In the text there are no links to the list of references. The work is not neatly formatted. The contents and results of the research are not clearly stated. The master degree student did not answer all asked questions.

(61 p .- 75 p.) - if there are some comments on the content of the graduate qualification work concerning the depth of the conducted research, the work is formatted inaccurately, the work is not satisfyingly reported, satisfactory answers have not been given to all asked questions.

(0 p. - 60 p.) - If the graduate qualification work has many comments in the reports of the supervisor, referee, the work is reported unconvincingly, inconsistently, illogically, there are practically no answers to the questions. (APPLICATION 10).

These evaluations are made up of an assessment of the contents of the thesis, its formatting (including language and style), the process of defense. The decision on the evaluation is made at a closed meeting of the SEC by open voting of its members by a simple majority of votes. The results of the defense are announced later on the same day after the registration of the minutes of the SEC meeting. Master's thesis after defense is kept in the university (at the graduating department for five years), the author has the right to make a copy from it.

If the master's thesis is estimated as "unsatisfactory", the master degree student is allowed to be re-defensed in the next SEC sessions during 5 years, but not more than once. At the same time, the SEC decides whether the master degree student can be allowed to re-defense of the thesis on the same topic or the

student must write a master's thesis on a new topic chosen by the graduating department. In the case of repeated unsatisfactory defense, the master degree student loses the right to receive a master's degree. The documents provided for this case by the Provision on the state qualification certification are issued to him .

6 FILLING OF AN APPEAL AND APPEAL PROCEEDING

The appeal is submitted personally by the master degree student to the appeal commission no later than the next working day after declaration of results of the state certification test.

In order to consider the appeal, the Secretary of the SEC sends to the Appeal Commission the minutes of the SEC, the conclusion of the SEC Chairman on observance of procedural questions in conducting the state certification test, as well as student's written answers or the GQW, supervisor's report and referee report.

The appeal is considered at a meeting of the appeal commission no later than two working days from the date of its submission. The chairman of SEC and the student who submitted the appeal are invited to the meeting of the appeal commission. In this case the student must have the identity documents.

The meeting of the appeal commission can be held in the absence of the student who submitted the appeal in case if he hasn't appeared at the meeting of the appeal commission.

The decision of the appeal commission is brought to the attention of the student submitted the appeal within three working days from the date of the meeting of the appeal commission. Fact of acquaintance of the student with the commission's decision is certified by his signature of the student with the decision of the appeal committee.

The decision of the Appeals Commission is final and not subject to revision.

The appeal on carrying out the state certification test at twice is not accepted.

7 FORMATTING OF MASTER'S THESIS

The Explanatory Note is performed on sheets of white A4 paper (210x297 mm) on one side using printing and graphic output devices of the PC, 14 Times New Roman font size, normal; fields - upper and lower -2, right-1, left-3; paragraph -1,25; page numbering is centered on top, the page number is not displayed on the title page, the line interval is one and a half.

7.1 Tables

Digital material is presented in the form of tables in accordance with fig.1

Table _____ - _____
No name of the table

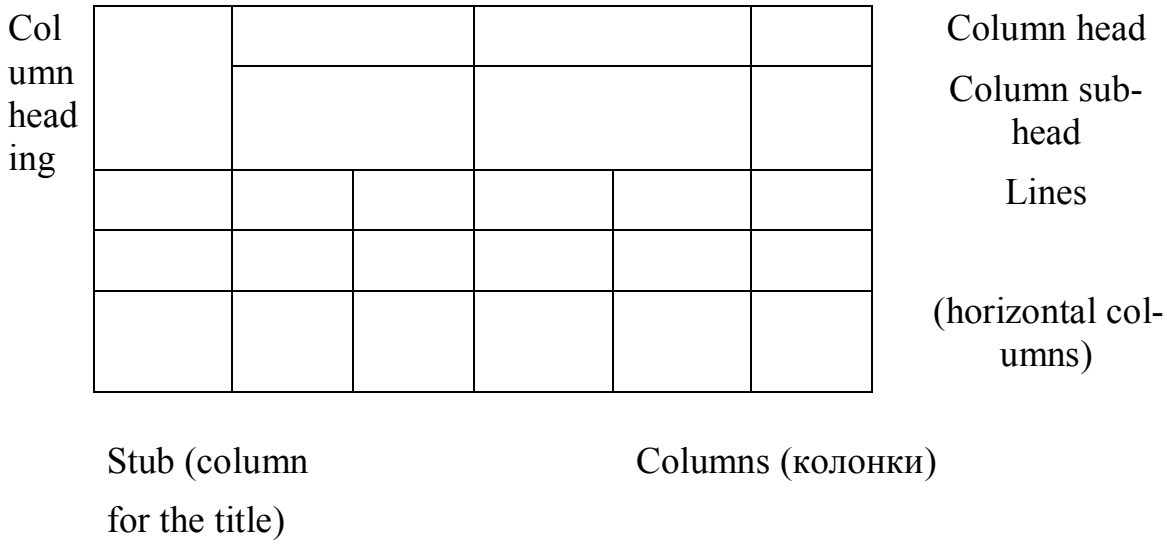

Fig 1 – Formatting of the table

7.2 Formulas

Formulas have to be numbered by consecutive numbering in the Arab figures which are written down at the level of a formula on the right in parentheses, one formula is denoted by (1).

References in the text to the order numbers of the formulas are given in parentheses, for example, ... in formula (1).

In the formulas the designations established by corresponding state standards and (or) other documents must be used as symbols.

Explanations of symbols and numerical coefficients included in the formula, if they are not explained earlier in the text, should be given directly under the formula.

Explanations of each symbol should be given from a new line in the order in which they are given in the formula. The first line of explanation should begin with the word "where" without a colon after it.

Example

Definite the mass of Q, kg / m in kilograms of a single-dimension drill string from pipes with a diameter of 127 mm and a wall thickness of 9 mm

$$Q = q \cdot L, \quad (1)$$

Where q is the mass of one meter of drill pipe, kg / m; Q = 30 kg / m;

L - length of the column, m; L = 2000 m.

After interpretation, the numerical values are substituted for the letters in the formula. Dimension is written only after the results of the calculation.

7.3 Design of illustrations

Illustrations - graphic material (drawing, diagram, chart, arrangement of equipment elements, etc.) are placed in a note for better understanding of the text.

Illustrations must be placed immediately after the text in which they are mentioned for the first time, on the next sheet, and if necessary, in the annex.

The illustration is indicated by the word "Figure", which should be numbered with Arabic numerals through numbering. If the figure is one, it is indicated by "Figure 1" or "Figure A.1" (when referring to the figure in the annex).

Illustrations must have a name and explanatory data (caption). The word "Figure" and the name are placed after the explanatory data.

Example

1-cement stone; 2 - casing string; 3 - drilling mud; 4 - well wall.

Figure 1 - Scheme for calculating the casing string

All illustrations reference must be given in a note ("Figure 1", in "Figure 2").

Illustrations must be performed in accordance with the requirements of the standards of Unified system for design documentation, Construction design and estimate documentation.

In a note it is necessary to apply the standardized units of physical quantities, their names and designations according to GOST 8.417-2002 (APPLICATION 11). Use of different systems of designation of physical quantities isn't allowed.

References to sources should be specified by the Arab figures in square brackets as they appear in the text of the EN.

"LIST OF REFERENCE LINKS" is written in the form of a heading (symmetrically to the text, without indicating the section number) in capital letters.

When preparing the "list" should be guided by GOST 7.1-2003 (APPLICATION 12).

When defending the master's thesis, it is necessary to prepare a multimedia presentation accompanying the speech of the master degree student.

A sample title page of the presentation of the master's thesis is presented in APPLICATION 13.

LIST OF REFERENCE LINKS

1 Methodological guidelines for the development of educational and methodological support for the main professional educational programs of higher education [Text] / comp. L.K. Gabysheva [and others] .- Tyumen: IUT, 2016 .- 50 p.

2 Methodological recommendations on the formatting of manuscripts of educational and scientific publications [Text] / comp. M.G. Lutoshkina, L.V. Skomorokhov.-2 nd ed., update and revised .- Tyumen: Publishing Center of the LID IUT, 2016.- 98 p.

3 Methodological guidelines on the structure, content and formattig of graduate qualification work of bachelors, specialists, masters of technical specialties and technical fields of study [Text] / comp. L.K. Gabysheva [and others] .- Tyumen: TyumGNGU, 2014.- 55 p.

4 Regulations for checking manuscripts for borrowing using the "Antiplagiat.Vuz" system [Text] / comp. K.V. Strabykina [and others] // SMK R-27-2016. - Tyumen: IUT, 2016.- 17 p.

5 Ovchinnikov, V.P. Master's thesis: method. Instructions on registration of the master's thesis for master degree students of the field of study131000.68 "Petroleum engineering" of all forms of training [Text]: method. Instructions/ V.P. Ovchinnikov, A.F. Semenenko, T.M. Semenenko. - Tyumen: TyumGNGU The Publishing Center of the LID .- 2013.- 28 p.

6 Ovchinnikov, V.P. Master's thesis: method. Instructions on performance of the master's thesis for master degree students of the field of study 131000.68 "Petroleum ingineering" of all forms of training [Text]: method. instructions / V.P. Ovchinnikov, Zh.S. Popova, M.V. Listak - Tyumen: TyumGNGU The Publishing Center of the LID .- 2013.- 33 p.

7 http://fbs.bsu.edu.ru/downloads/rekom_gor_2012.doc .
Methodical recommendations for the implementation of master's theses. Belgorod State University. / Gerasimova NA, Klimova TB, Kalugin VA- Belgorod: BelGU, 2012.

APPLICATION 1

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state budget educational institution of higher education
"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
Department “Drilling of oil and gas wells”

AGREED	APPROVED
The Head of the program	Head of the Institute
_____	_____
_____	_____
«___»_____201__ .	«___»_____201__ .

INDIVIDUAL WORKING PLAN OF THE MASTER DEGREE STUDENT

_____
(full name.)

Institute _____

Department _____

Mode of study _____

Field of study _____

Master’s program _____

Research supervisor _____

Tyumen, 201__

1 THEORETICAL CLASSES

1.1 TRAINING COURSES

1 SEMESTR

№	Disciplines	Method of control
1		
2		
3		
4		
5		

2 SEMESTR

№	Disciplines	Method of control
1		
2		
3		
4		
5		

3 SEMESTR

№	Disciplines	Method of control
1		
2		
3		
4		
5		

4 SEMESTR

№	Disciplines	Method of control
1		
2		
3		
4		
5		

5 SEMESTR

№	Disciplines	Method of control
1		
2		
3		
4		
5		

1.2 SCIENTIFIC-RESEARCH PART OF MASTER DEGREE PROFRAM

1 SEMESTR

Work content	Hours in a week	Start-End	Method of control	Supervisor's note about completion
Scientific-research activities in semester				
Preparation of master's thesis				

2 SEMESTR

Work content	Hours in a week	Start-End	Method of control	Supervisor's note about completion
Scientific-research activities in semester				
Preparation of master's thesis				

3 SEMESTR

Work content	Hours in a week	Start-End	Method of control	Supervisor's note about completion
Scientific-research activities in semester				
Preparation of master's thesis				

4 SEMESTR

Work content	Hours in a week	Start-End	Method of control	Supervisor's note about completion
Scientific-research activities in semester				

Preparation of master's thesis				

5 SEMESTR

Work content	Hours in a week	Start-End	Method of control	Supervisor's note about completion
Scientific-research activities in semester				
Preparation of master's thesis				

2 PRACTICAL TRAINING

2.1 CIRRICULAR

№	Work content	Course	Start-End	Location
1				

2.2 WORK EXPERIENCE INTERSHIP

№	Work content	Course	Start-End	Location
1				

2.3 PRE-GRADUATION

№	Work content	Course	Start-End	Location
1				

3 FINAL STATE ATTESTATION

№	Contents	Time frame
1	State exam	
2	Defense of master's thesis	

Master's thesis topic

_____

_____

_____

_____

Approved at the department meeting _____

«___» _____ 20___ Minutes № _____

Head of department _____

Order issued by Institute

_____

«___» _____ 20___ . № _____

Research supervisor_____ _____

(signature) (date)

Master degree student _____ _____

(signature) (date)

APPLICATION 2

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state budget educational institution of higher education
"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
(IGiN)

ADMIT TO DEFENSE
Head of the department «Drilling of oil and gas wells»
Yu.V. Vaganov

WELL DEVELOPMENT ON THE SHELF WITH HELP OF
COILED TUBING DRILLING RIG

EXPLANATORY NOTE
To master's thesis
on syllabus
OFFSHORE DRILING

DESIGNER:
Student of MBm-17-1 group
I.S. Volkov

SUPERVISOR:
Assistant professor, Phd in Engineering Science
A.A. Baluev

COMPLIANCE SUPERVISOR,
assistant
A.F. Semenenko

Master's thesis
Defended with the grade
Secretary of SEC, assistant
A.F. Semenenko

Tyumen 2017

APPLICATION 3

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state budget educational institution of higher education
"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
Department "Drilling of oil and gas wells"

APPROVED
Head of the department «Drilling of oil and gas wells»
_____ Yu.V. Vaganov
_____

CONCEPT OF RESEARCH
FOR MASTER'S THESIS

Full name_____
(of the student)
of the master program (educational program)_____
_____
Formulation of the topic chosen for research
_____
_____
Justification of subject's relevance
_____
Objective of research
_____
_____
Tasks of research
1._____
2._____
3._____
4._____
5._____
(List consecutive steps of research)
On materials what company (the organization, the region, industry, etc.) the research will be conducted_____
_____
_____
Which conceptual models are applicable to the subject
_____
_____
What methods will be used during the research
_____
_____

Back side

What will be the result of the research?

_____
_____
_____

Research supervisor

_____ _____
(signature) (initials, surname)

Compliance supervisor _____ _____
(signature) (initials, surname)

Designer

_____ _____
(signature) (initials, surname

Date _____

APPLICATION 4

ABSRACT

Graduation qualification work (master's thesis) 75 pp., 18 drawings, 3 tables, 26 sources, 2 annexes, 14 sheets of presentation,

Key words: research, solid solutions, microstructure type B2, metastable phase.

The object of research is solid solutions of the system.

The aim of this work is to study the structure and types of ordering that are formed in the solid solutions of phase diagram.

In the course of work, experimental studies were carried out using electron microscopy and X-ray diffraction analysis.

As a result of the research it has been established that ordering by B2 type can be done by heterogenization of the solid solution and obtaining an appropriate stoichiometric composition in the enriched regions or layers. The obtained results do not correlate with the generally accepted phase diagram in the region of solid solutions, both in the position of the ordering regions and in the phase composition.

The results are recommended to be used in research institutes and organizations engaged in the study of phase transformations in alloys for further research and correction of the phase diagram of Fe-Sk.

APPLICATION 5
Report form of supervisor

REPORT
of research supervisor on master's thesis

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state budget educational institution of higher education
"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
Department "Drilling of oil and gas wells"

REPORT
of graduate qualification work of supervisor

on student's graduate qualification work:_____
_____
Field of study _____

Topic of GQW _____
_____
_____

GQW is carried out_____ _____
(on the topic proposed by the student; at the request of the enterprise; in the field of fundamental and exploratory scientific research)
Compliance schedule of GQW writing _____
Extent of use of information technologies during writing of GQW __
_____
Advantages of GQW_____
_____
Remarks to GQW _____
(to publication, to introduction, it is introduced in organization (what organization)
Additional information for SEC_____
_____
_____

Grade _____

Supervisor of GQW _____ _____
(signature) (full name)

APPLICATION 6

Report

On checking of the manuscript for borrowings

The manuscript (full name of the author) in the field of study / specialty (indicate the code and name) was submitted for checking.

The manuscript was checked by the system "Antiplagiarism. vuz. "

The system has shown that the originality of the text of the checked manuscript is ___%.

Appendix: A screenshot of the details of the report on borrowing presence.

Employee's position, _____ initials, surname

carried out the check

_____20 __.

Signature

Agreement wit the supervisor

APPLICATION 7

Application for repeat checking of graduate qualification work on borrowing presence

To the Head of the Department

_____

(name of the department)

_____

(Full name)

APPLICATION

I, _____ a student of ____ course, _____ group don't agree with the results of checking on amount of borrowings in graduate qualification work done by me (a type of written work: degree work, graduation paper, master's thesis and etc.), on the topic:

_____

_____

_____

(topic of the work)

written by me on the amount of borrowings.

I am asking to consider the possibility of the admission of GQW defense.

«___»_____20__. Signature

APPLICATION 8
The form of referee repot on master's thesis

REFEREE REPORT

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state budget educational institution of higher education
"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
Department "Drilling of oil and gas wells"

Dear_____

We would like you till _____to give written referee report on graduate qualification work (GQW) of the student_____ on the subject:

_____
_____
_____
_____

Head of the department
«Drilling of oil and gas wells» Yu.V. Vaganov

REFEREE REPORT

1 Compliance with the assignment of the Department _____
_____
2 Quality of formatting _____
_____
_____
3 Relevance _____
_____
_____
_____
_____
_____
_____

4 Originality of problem's solution _____
_____
_____

_____

5 Technical and economic efficiency_____

_____

_____

_____

_____

6Disadvantages_____

_____

_____

_____

7 Recommendations for implementation and improvement

_____

_____

_____

8 Compliance of the work to the specified requirements to GQW

_____

_____

_____

grade

_____

author

_____

deserve (doesn't deserve) to award of master degree in the field of training «Petroleum engineering».

Referee_____ _____

(position, title) (initials, surname)

_____

(date)

stamp

APPLICATION 9
Form of the act about implementations
of results gained in process of thesis writing

GENERAL FORM OF
A COMPANY
(ORGANIZATION)

APPROVED
[position of the head]
Signature Initials, surname
____.____._____
stamp.

ACT
about implementations
of results gained in process of master's thesis writing

on the topic [«topic's name»], in the field of study [code and name of the training field], on curriculum[name of educational program], written by [Surname and initials of the master degree student].

Text of the act

APPLICATION 10

Assessment criteria of master's thesis

№ p/p	Aspects for assessment	Assessment criteria	Point
1	**2**	**3**	**4**
1	General characteristics of work	1.1. Work doesn't contain new results, previously unused data was not used for analysise	4
		1.2. The work has research character on an original subject	5
		1.3. The work is done on the request of a company	5
2	Relevance of the subject	2.1. The relevance of the research is justified by unconvincing, general, declarative statements. The analysis of the degree of study is replaced by the enumeration of scientific publications	3
		2.2. The relevance of the topic is justified, but no connection is shown with the real needs of society, the satisfaction of which is necessary at the present time. The analysis of scientific approaches to the study of the question under investigation has been carried out, but weakly studied issues which have to be developed are not shown	4
		2.3. The relevance of the topic is convincingly substantiated and is related to the real needs of society, the satisfaction of which is necessary at the present time. The analysis of scientific approaches to the study of the investigated issue is carried out, weakly studied issues which have to be developed are shown	5
3	Compliance with the work schedule	3.1. Significant deviations from the established deadlines	3
		3.2. Minor deviations from the established deadlines	4
		3.3. Full compliance with deadlines	5
4	Compliance with the requirements for the content of GQW	4.1. Clarity of the formulation of the necessary elements of research (object, subject, purpose, tasks, hypothesis, theoretical (methodological) basis of research, methods, data)	
		4.2. Adequacy and sufficiency of information sources (completeness and novelty of used scientific literature, use of reference publications, monographs and publications in scientific periodicals)	
		4.3. The availability of a critical analysis of existing approaches to solving the research problem	
		4.4. Logical presentation (the presence of logical connections both inside and between sections of the work)	
		4.5. Presence of summary in each section of the work and generalization of the results obtained in the conclusion of work	
		4.6. Visualization support of research results (the use of tables, graphs, diagrams, algorithms, schemes, etc.)	

1	2	3	4
Paragraphs 4.1.- 4.6. are estimated according to the following system:			
Meet the requirement in part			3
Meet the requirement in general			4
Meet the requirement in full			5
5	Quality of work formatting	5.1. Significant deviations from the accepted standards of IUT	3
		5.2. Minor deviations from the accepted standards of IUT	4
		5.3. Full compliance with the IUT standards	5
6	Used research methods and means	6.1. Use of traditional techniques and means of famous authors	4
		6.2. Use of own or original techniques and means with author's elements. Justification of the expedience of using this toolkit	5
7	Obtained results	7.1. Conclusions are of a general nature, their practical (scientific) meaning is not clear	3
		7.2. The obtained results can be used in the production and / or training of labor skills	4
		7.3. The proposed recommendations are implemented or accepted for implementation (reference or act of implementation) and / or there is a convincing justification of the practical significance of the obtained results	5
8	Presentation of research results	8.1. Compliance with the fixed time limits, confident performance level of the material, the logical construction of the report, rhetorical skills, the use of modern information technologies for the presentation of research results	
Meet the requirement in part			3
Meet the requirement in general			4
Meet the requirement in full			5
9	Approbation of research results	9.1. There are no publications in the scientific press, the results were not introduced into the production and / or educational process	4
		9.2. There are scientific publications or the implementation of results in the production and / or educational process are documented	5
10	Referee's assessment	10.1 Remarks are essential	3
		10.2. There are minor remarks	4
		10.3. There are no remarks	5
11	Answers to questions of SEC members	11.1. There are no right answers	3
		11.2. Significant difficulties in answering	4
		11.3. The answers are complete and full	5
General assessment		55-65 points – 3 66-75 points – 4 76-85 points – 5	

APPLICATION 11
(mandatory)

International system units (SI)

Table 11.1 –Some basic, additional, most important derived units of space, time and mechanical quantities

Unit name	Nomination	Russian designation
1	2	3
1 Basic units		
Length	meter	М
Mass	kilogram	Кг
Time	second	С
2 Additional units		
Plane angel	radian	Рад
3 Derived units of space and time		
Square	square meter	$м^2$
Объем, вместимость	кубический метр	$м^3$
Speed	meter per second	м/с
Acceleration	meter per second squared	$м/с^2$
Rate of rotation	second in minus first degree	$с^{-1}$
Angular speed	radian per second	рад/с
4 Derived units of mechanical quantities		
Density	***kilogram per cubic meter***	***$кг/м^3$***
Specific bulk mass, per-unit-volume rock mass	kilogram per cubic meter	$кг/м^3$
Specific volume	cubic meter per kilogram	$м^3/кг$
Weight of 1 meter of pipe	kilogram per meter	кг/м
Reduced mass of 1 м pipe string	kilogram per meter	кг/м
Square moment of inertia of plane figure (axial, polar, centrifugal)	meter in the fourth degree	$м^4$
Resisting moment of plane figure	meter in the third degree	$м^3$
Force, weight	newton	Н
Load, ultimate joint strength	newton	Н
Specific weight	newton per cubic meter	$Н/м^3$
Moment of force	newton -meter	Н·м
Specific torque (force)	newton -meter per newton	Н·м/Н
Specific loading, load per unit of bit diameter	newton per meter	Н/м
Power impulse	newton -second	Н·с
Pressure, differential pressure	pascal	Па

Continuation of the table 11.1

1	2	3
Vapour-pressure	pascal	Па
Barometric gradient	pascal per meter	Па/м
Dynamic shear stress, static shear stress	pascal	Па
Stress limit, yield limit, proportionality limit, strength	pascal	Па
Modulus of elasticity	pascal	Па
Rock hardness	pascal	Па
Resistance to bearing, flattening, breaking	pascal	Па
Performance	Joul	Дж
Energy	Joul	Дж
Per-unit-volume of rock fracture energy	Joul per cubic meter	Дж/м^3
Slicing velocity	second in minus first degree	с$^{-1}$
Current gradient	second in minus first degree	с$^{-1}$
Pump output flow, pumping capacity (pump mixer)	cubic meter per second	м^3/с
Permeability, permeability index, permeability to phase, absolute permeability	square meter	м^2
Formation compressibility factor of rock, isothermal compressibility coefficient	pascal in minus first degree	Па$^{-1}$

Table 11.2 – Off-system units that can be used in EN3

Value	Measuring units	
	nomination	designation
Drilling speed (mechanical, run)	meter per hour	m/h
Penetration speed (technical, commercial, rig total operating)	meter per machine-month	m/m.-m.
Funnel viscosity PV-5(VBR-1)	second	s
Water loss	cubic centimeter in 30 minutes	sm^3/30 min
Filtration of oil-continuous mud	cubic centimeter in 30 minutes	sm^3/30 min
Rotation speed	round per minute	r/min
Oil wells debit (mass rate)	tons per day	т/day
Gas (water) wells debit(volume flow rate)	cubic meter per day	m^3/day
Well efficiency	Kilogram per pascal-day	kg/(Pa·day)
	Cubic meter per pascal-day	m^3/(Pa·day)
Specific well efficiency	Kilogram per meter -pascal-day	kg/(m·Pa·day)
	Cubic meter per meter -pascal-day	m^3/(m·Pa·day)

Table 11.3 – Multipliers for conversion from some accepted in drilling units to units of International system

Value	Accepted present units	Multiplier for conversion in SI units
1	2	3
Length	angstrom	10^{-10}m =0,1 nm
Mass	tonn	10^3 kg
Plane angel	degree	$\pi/180$ rad ≈ $1{,}75\cdot10^{-2}$ rad
Angular speed	r/min	$\pi/30$ rad/s
Density	g/sm^3	10^3 kg/m^3
Specific bulk mass	g/sm^3	10^3 kg/m^3
Square moment of inertia of plane figure	sm^4	10^{-8} m^4
Resisting moment of plane figure	sm^3	10^{-6} m^3
Force, weight, load	kgs	9,8 N
	tf	$9{,}8\cdot10^3$N=9,8 кN
Specific weight	gs/sm^3	$9{,}8\cdot10^3$N/m^3=9,8 кN/m^3
Moment of force	кgs·m	9,8 N·m
Specific torque (force)	кgs·m/ts	10^{-3}N·m/N=mN·mN
Specific loading, load per unit of a bit diameter	ts/sm	$9{,}8\cdot10^5$ N/m =0,98 MN/m
	ts/inch	$3{,}86\cdot10^5$ N/m=0,386 MN/m
Pressure, differential pressure, vapour-pressure	кgs/sm^2	$9{,}8\cdot10^4$ Pa ≅ 0,1 MPa
	bar	10^5 Pa = 0,1 MPa
	mm of mercury	133,322 Pa
	mm H_2O	9,8 Pa
	mm H_2O	$9{,}8\cdot10^3$ Pa = 9,8 кPa
Barometric gradient	кgs/(sm^2·m)	$9{,}8\cdot10^4$ Pa/m ≅ 0,1 MPa/m
Stress (mechanical), ultimate strength, yield limit, proportionality limit, modulus of elasticity, resistance to bearing, breaking	кgs/sm^2	$9{,}8\cdot10^4$Pa ≅ 0,1 MPa
Rock hardness	кgs/mm^2	9,8 МПа
Dynamic shear stress, static shear stress	mgs/sm^2	$9{,}8\cdot10^{-2}$Па ≅0,1 Па
	dyne/sm^2	0,1 Па
Surface tension	dyne/sm	10^{-3}Н/м=1 мН/м
Performance, energy	кgs·m	9,8 Дж
Per-unit-volume of rock fracture energy	кgs·m/sm^3	$9{,}8\cdot10^6$Дж/м^3 = 9,8 МДж/м^3
Power	L/s	735, 5 Вт
Dynamic viscosity, plastic viscosity, effective viscosity	poise	0,1 Па·с
	centipoise	10^3Па·с = 1 мПа·с

Continuation the table 11.3

1	2	3
Cinematic viscosity	stoke	10^{-4} м^2/с
	centistoke	10^{-6} м^2/с = 1 мм^2/с
Volume flow rate (gas well debit)	m^3/day l/s	1,16·10^{-5} м^3/с 10^{-3}м^3/с
Pump output flow, pumping capacity (pump mixer)	l/s	10^{-3}м^3/с
Permeability	darcy	1,02·10^{-12}м^2 =1,02 мкм^2
	millidarcy	1,02·10^{-3}мкм^2 ≅10^{-3}мкм^2
Formation compressibility factor of rock, isothermal compressibility coefficient	(кgs/sm^2)$^{-1}$	10^{-5}Ма$^{-1}$
Formation hydroconductivity	darcy·m/s poise	1,02·10^{-9} м^3/(Па·с)
Deviation intensity	degree/10 m	0,1 град/м
	degree/100 м	10^{-2} град/м
Temperature difference	^{0}C	1 К
Geothermal gradient	^{0}C/100 m	10^{-2} К/м
Quantity of heat	kcal	4,1868·10^3 Дж≅4,19 кДж
Specific heat capacity	kcal/(k·degree)	~4,19 кДж/(кг·К)
Heat-conduction coefficient	kcal/(m·h·degree)	1,163 Вт/ (м·К)

APPLICATION 12

(mandatory)

Examples of formatting of the list of reference links

In accordance with GOST 7.1 [8

Books by one author

1 Saroyan, A.E. Drilling strings in deep drilling [Text]: / AE. Saroyan .- M .: Nedra, 1997. - 231 p.

Books of two, three or more authors

2 Podgornov, V.M. Practicum on the completion of wells [Text]: / V.M. Podgornov, I.A. Vedishev. - Moscow: Nedra, 1985. - 256 p.

3 Sushon, L.Ya. Controlling the curvature of inclined wells in Western Siberia [Text]: / L.Ya.Sushon, P.V.Emelyanov, R.T.Mullgaliyev. - Moscow: Nedra, 1988. - 218 p.

4 Special plugging materials for low-temperature wells [Text]: /P.V Ovchinnikov [and others] .- M .: OOO Nedra-Business Center, 2002.-115 p .: ill.- 600 copies- ISBN 5-8365-0108-4.

Reference materials

4 Kalinin, A.G. Drilling of inclined wells [Text]: reference book / A.G. Kalinin, N.A. Grigoryan, B.Z.Sultanov; Ed. A.G. Kalinin. - Moscow: Nedra, 1990. - 348 p.

(More than three authors)

5 Reference book of drilling water wells [Text]: reference book /D.N.Bashkatov [and others]. - Moscow: Nedra, 1979. - 560 p.

Magazines

6 Bobrov, M.G. Results of tests of screw downhole motors D2-195 with working units of increased length [Text]: / M.G. Bobrov, I.L. Nikitenko, V.V Goldobin. // Oil economy M.: VNIIBT, 1990. - № 5. - P.18-20.

7 Petrushkin, S.I. Perfection of maintenance service of drilling in Western Siberia [Text]: / S.I. Petrushkin // Express-inform. Ser. Construction ofoil and gas wells on land and at sea. - M .: VNIIOENG, 1990. Issue. 4. - P. 39-43.

8 Kuznetsov, Yu.S. Prospects for the development of the scientific direction "Opening and separation of layers of complex deposits with conservation of natural permeability of reservoir rocks" [Text]: / Yu.S. Kuznetsov // News of Institutions. Oil and gas. - Tyumen: TyumGNGU, 1998. - P. 37-42.

Reports of Research Institutes

9 Improvement of the technology of fastening deep prospecting wells for Western Siberia [Text]: Report on the subject of E11.1 / 102 (12) 117-8 / 2 (final) / ZapSibBURNIPI; Head I.I.Petrov. - Tyumen, 1986. - 90 p.

Works of the Institute

10 Guryevskikh, G.K. The influence of technological regimes on the reliability of the results of the study of positions by reservoir testers [Text]: / G.K.

Gurievskikh, A.P. Klevtsur // Complex of geological and geophysical studies in wells: Tr. ZapSibNIGNI. - Tyumen, 1984. - Issue. 186. - P.31-38.

Methodical instructions

(One, two or three authors)

11 Ovchinnikov, P.V. Methodical instructions for the discipline "Technology of drilling oil and gas wells" for practical classes and independent work of students for students of specialty 130504 - Drilling of oil and gas wells of all forms of training (part 2) [Text]: method. instructions. /P.V. Ovchinnikov, M.V. Dvoynikov, V.M. Grebenshchikov. - Tyumen: Tyumen State Oil and Gas University, 2008. - 30 p.

(More than three authors)

12 Methodical instructions for the implementation of the thesis project (application) for students of specialty 130500.65 130504.65 "Drilling of oil and gas wells of all forms of training, (part 3) [Text]: method instructions. / V. P. Ovchinnikov [and others]. - Tyumen: Tyumen State Oil and Gas University, 2011. - 15 p.

State standards and governing documents

13 GOST 20692-2003. Chisel bits. Types and main dimensions. Technical requirements [Text]. - Intriduction. 2004-07-01. - Moscow: Publishing Standards, 2003. - 6 p .: ill.

14 Guidelines for environmental protection in the construction of wells for oil and gas on land [Text]: RD 39-133-94 approved Department of Environment and Natural Resources of the RF on 28.04.94. - Moscow: NGO Drilling Engineering, 1994. - 126 p.

Rules, instructions and regulatory documents

15 Federal rules and regulations in the field of industrial safety "Safety rules in the oil and gas industry". Series 08. Issue 19. - Moscow: Closed Joint-Stock Company "Scientific and Technical Center for Studies of Industrial Safety Problems", 2013.- 288 p.

16 Guidelines for the calculation of casing strings for oil and gas wells [Text] .- Introduction. 1997-07-01. - M.: VNIITNEFT, 1997. - 194 s .: ill.

17 Technology of completion of wells drilled on the Jurassic deposits [Text]: Approved. Glavtyumenneftegaz on 30.06.87. Tyumen, 1987. - 43 p.

Patent documents

18 . Pat. 2187888 Russian Federation, IPC7 H 04 V 1/38, N 04 J 13/00. Transceiver device [Text] / Chugaeva V.I.; Applicant and patent holder Voronezh. Sci.-ed. In-t connection. - No. GOST 7.1-2003

150 2000131736/09; Claimed. 18.12.00; Publ. 20.08.02, Bul. No. 23 (II). - 3 sec. : Ill.

Theses and author's abstracts

19 Ivanov, E.E. Development of methods for lowering the viscosity and deparaffination of field pipelines using an electric field [Text]: thesis. ... Phd in Engineering Science: 07.00.02: it is protected 22.01.02: approved. 07/15/02 / Ivanov Evgeny Evgenyevich. - Ivano-Frankivsk, 2007. - 184 p. - Bibliography: p. 202-213. - 04200201565.

20 Petrov, G.P. Increase in the effectiveness of the cluster method of drilling up oil fields in Western Siberia [Text]: Abstract of thesis. Dis ... Phd in Engineering Science. - Tyumen, 1997. - 47 p. - Bibliography: p. 200-210. - 04500200566.

NOTES: 1. Information on sources should be placed in the order of the appearance of references to sources in the text of the explanatory note, it is necessary to number in Arabic numerals in square brackets [14].

2 When referring to several sources, each source has to be marked a comma [12,16,21]; [18; APPLICATION A].

APPLICATION 13
(advisory)

A sample of title page of the master's thesis

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION
Federal state budget educational institution of higher education
"INDUSTRIAL UNIVERSITY OF TYUMEN "
Institute of geology and oil and gas production
Department "Drilling of oil and gas wells"

Field of study_____

Educational program_____

TOPIC OF MASTER'S THESIS

_____

_____

Designer _____ _____.
group Initials and surname

Supervisor _____
Initials and surname

Tyumen - 20__

MASTER'S THESIS

Methodical instructions
on writing and formatting of master's thesis

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