MINISTRY OF SCIENCE AND HIGHER EDUCATION OF RUSSIAN FEDERATION

**ITMO University**

**STATE FINAL EXAMINATION**

**DETAILED OUTLINE**

**General subject area**

**Educational program**

**Language of instruction**

**Program status**

**Qualification**

**Study format**

|  |  |  |
| --- | --- | --- |
| **Workload** | **Semester** | **State final examination components** |
| **Credits** |
| 6 |  | Final thesis preparation and defense |

St. Petersburg

20ХХ

Authors of this document:

Structural unit:

Head of the educational program

### **General provisions**

The State final examination (hereinafter SFE) aims to identify the level of correspondence between the results produced by students who completed their educational program and the requirements of ITMO University’s educational standard.

The SFE detailed outline is executed in accordance with the requirements of the following university by-laws:

* Regulations on graduation theses;
* Regulations on the functions of the State Examination Committee during the conduct of the State Final Examination;
* Requirements for graduation theses;
* Provision on the verification of students' graduation theses at ITMO University with the use of the Antiplagiat system;
* Regulations on the implementation and defense of business projects (startup-theses) at ITMO University;
* Regulations on the implementation and defense of art projects at ITMO University;
* Regulations on the implementation and defense of graduation thesis as a research article;

The regulating documents mentioned above are available on [ITMO.Education](https://edu.itmo.ru/ru/gia/).

* other documents as defined by the head of the program.

Students’ state final examination is held in the form of a graduation thesis defense.

The main graduation thesis formats are:

* graduation theses completed individually or as part of a team;
* business project as thesis (business-thesis);
* art project as thesis;
* scientific article as thesis.

### **Graduation thesis timeline**

| **No.** | **Step** | **Timeline** |
| --- | --- | --- |
| 1. | Choice and approval of thesis topic and supervisor  (applying via ISU) | December 1 - January 31 |
| 2. | Revision of thesis topic | until March 31 |
| 3. | Filling in and approval of thesis objectives on ISU |  |
| 4. | Work on thesis contents (in collaboration with thesis supervisor) |  |
| 5. | Thesis pre-defense |  |
| 6. | Thesis verification via the Antiplagiat system |  |
| 7. | Upload of the final version on ISU (for **final verification** via the Antiplagiat system and submission to State Examination Committee) | 10 days before thesis defense |
| 8. | Review by thesis supervisor:   * thesis supervisor submits their review (by filling it in and publishing on ISU) * student confirms they have familiarized themselves with the review on ISU | 7 days before thesis defense  5 days before thesis defense |
| 9. | Review by expert: (для бакалавров по решению ОП):   * expert reviewer submits their review (by filling in a digital form) * student confirms they have familiarized themselves with review on ISU | 7 days before thesis defense  5 days before thesis defense |
| 10. | Presentation of all materials to State Examination Committee | 2 days before thesis defense |
| 11. | Thesis defense | According to the SFE schedule of the educational program |

Preparation stages and timelines for other thesis formats are outlined in the corresponding regulations, as well as on the pages of these projects on [ITMO.STUDENTS](https://student.itmo.ru/en/gia/).

### **The educational program’s specific requirements for graduation theses**

#### **Thesis pre-defense**

Thesis pre-defense is a form of interim examination for pre-graduation practical training.

+ optional

#### **Thesis verification via Antiplagiat system**

#### **Graduation thesis requirements**

Graduation thesis is to be completed in accordance with the requirements of ITMO University’s by-law *Graduation thesis requirements*.

The thesis consists of the following structural elements:

* Title page;
* Thesis objectives;
* Abstract;
* Table of contents;
* Text;
* List of references.

(optional components as defined by the head of the program)

* List of abbreviations and shorthands;
* Glossary of terms;
* List of illustrations;
* Appendices.

Additional graduation thesis requirements

Additional requirements for other thesis formats are outlined in the corresponding regulations, as well as on the pages of these projects on [ITMO.STUDENTS](https://student.itmo.ru/en/gia/).

#### **Requirements for graduation thesis contents**

#### *Recommendation: specify the graduation thesis contents requirements for your educational program.*

#### **Requirements for presenting graduation thesis for defense**

*Recommendation: specify requirements for report, presentation, time limit, etc.*

### **Graduation thesis grading criteria at the State Examination Committee meeting**

When determining the final grade for a thesis defense, members of the State Examination Committee (SEC) use the following criteria to determine the quality of a thesis and its defense:

**Criteria for graduation thesis quality**

1. Correspondence between thesis contents and its declared topic

|  |  |
| --- | --- |
| excellent | Thesis contents fully correspond to thesis objectives |
| Thesis structure makes it possible to fully develop the thesis topic. The conclusions are logical and supported by arguments. The practical part of the thesis confirms its theoretical conclusions. The topic is fully developed. |
| + additional criteria for the educational program |
| good | One of the sections in the contents doesn’t correspond to thesis objectives. |
| Thesis structure makes it possible to fully develop the thesis topic. The conclusions are logical but the arguments are sometimes insubstantial. The practical part of the thesis mostly confirms its theoretical conclusions. The topic is fully explored. |
| + additional criteria for the educational program |
| satisfactory | 2-3 sections from different chapters do not correspond to the thesis objectives |
| Thesis structure mostly makes it possible to explore the thesis topic. The conclusions are present but the supporting arguments are absent. The practical part doesn’t confirm all theoretical conclusions. |
| + additional criteria for the educational program |
| unsatisfactory | Contents of the whole thesis or one of its chapters do not correspond to thesis objectives. |
| The thesis lacks structure, the logic behind developing the topic is broken, there are no coherent arguments behind the conclusions, and the practical part of the thesis doesn’t correspond to its theoretical conclusions. The topic isn’t developed. |
| + additional criteria for the educational program |

1. Explanation of topic relevance and correctness of the goals and tasks of conducted research

|  |  |
| --- | --- |
| excellent | Thesis relevance is demonstrated through indicating the degree of topic exploration (at least 40 research sources on the topic are under 5 years old, at least 50% of them are indexed by the Higher Attestation Commission and 25% indexed in WoS/Scopus, among sources there are links to governmental documents: strategies, programs, laws, etc.).  Thesis goal makes it possible to solve the outlined problems.  All the outlined thesis objectives make it possible to reach the goal. |
| Thesis relevance is fully justified with regards to the contemporary level of scientific and social development. Thesis goal is justified and aimed to solve relevant problems; thesis tasks fully correspond to the goal. |
| + additional criteria for the educational program |
| good | Thesis relevance is not fully demonstrated through indicating the degree of topic development (at least 30 research sources on the topic are under 5 years old, at least 30% of them are indexed by the Higher Attestation Commission and 20% indexed in WoS/Scopus, among sources there are links to governmental documents: strategies, programs, laws, etc.).  Thesis goal makes it possible to solve some of the relevant research and practical problems.  Under 30% of the outlined objectives do not correspond to the goal. |
| Thesis relevance is mostly justified with regards to the contemporary level of scientific and social development. Thesis goal is formulated; thesis tasks fully correspond to the goal. |
| + additional criteria for the educational program |
| satisfactory | Thesis relevance is partly demonstrated through indicating the degree of topic development (at least 20 research sources on the topic are under 5 years old, at least 20% of them are indexed by the Higher Attestation Commission and 15% indexed in WoS/Scopus, among sources there are links to governmental documents: strategies, programs, laws, etc.).  Thesis goals cannot solve the majority of relevant scientific and practical problems.  Over 50% of the set objectives do not correspond to the goal. |
| Thesis is mostly relevant, but this relevance is not fully justified. Thesis goal isn’t clearly formulated. Not all of the thesis tasks fully correspond to the goal. |
| + additional criteria for the educational program |
| unsatisfactory | Thesis relevance is not demonstrated through indicating the degree of topic exploration (under 20 research sources on the topic are under 5 years old, under 20% of them are indexed by the Higher Attestation Commission and under 15% are indexed in WoS/Scopus, among sources there are no links to governmental documents: strategies, programs, laws, etc.).  Thesis goal and objectives do not answer relevant scientific and practical challenges. |
| Thesis relevance is not justified and/or doesn’t take into account the contemporary level of social and scientific development.  Thesis objectives are not formulated and do not correspond to the goal. |
| + additional criteria for the educational program |

1. Thesis correspondence to subject area, major, and specialization

|  |  |
| --- | --- |
| excellent | Thesis fully corresponds to program subject area, major, and specialization. |
| Thesis corresponds to program subject area, major, and specialization. |
| + additional criteria for the educational program |
| good | Thesis fully corresponds to program subject area, major, and specialization.  Thesis corresponds to program subject area and major, but only partly corresponds to specialization |
| Thesis corresponds to program subject area and major, but only partly corresponds to specialization |
| + additional criteria for the educational program |
| satisfactory | Thesis fully corresponds to program subject area, major, and specialization. |
| Thesis corresponds to program subject area, but only partly corresponds to major and specialization |
| + additional criteria for the educational program |
| unsatisfactory | Thesis doesn’t correspond to subject area, major, and specialization |
| Thesis doesn’t correspond to subject area, major, and specialization |
| + additional criteria for the educational program |

1. Correctness of the chosen research methods

|  |  |
| --- | --- |
| excellent | Several methods have been analyzed before the optimal one was chosen. The application of this method for the chosen objective is justified. |
| All chosen research methods correspond to the declared objectives and are currently relevant. |
| Research methods are chosen adequately and fully correspond to thesis goals and objectives. The argumentation behind the chosen methods is sufficient. |
| + additional criteria for the educational program |
| good | Insufficient amount of methods has been analyzed.  The method is chosen correctly but is not sufficiently justified. |
| Under 30% of the chosen methods do not correspond to the declared objectives/  All chosen methods correspond to the declared objectives but under 30% of them are currently relevant. |
| Research methods are chosen adequately and fully correspond to thesis goals and objectives. The argumentation behind the chosen methods is insufficient. |
| + additional criteria for the educational program |
| unsatisfactory | The chosen research method is not an optimal one and/or it is not justified. |
| Over 50% of the chosen research methods do not correspond to the declared objectives/  Under 30% of the chosen research methods do not correspond to the declared objectives but over 50% of them are not currently relevant. |
| Research methods are chosen adequately and mostly correspond to thesis goals and objectives. The argumentation behind the chosen methods is absent. |
| + additional criteria for the educational program |
| unsatisfactory | The chosen research method doesn’t correspond to this objective. |
| All chosen research methods do not correspond to the declared tasks and/or are not relevant at the time of the defense. |
| The chosen methods do not correspond to the declared tasks and objectives. |
| + additional criteria for the educational program |

1. Quality, logic, and fullness with which the collected material is presented

|  |  |
| --- | --- |
| excellent | Research logic (consistency in presenting the research process and/or design), relevance in the research field, use of knowledge from adjacent fields, as well as professional knowledge and skills; student demonstrates program-related competencies on a high level; correspondence of student’s competence model; student has a publication and has participated in conferences; for Master’s students – the publications are indexed in RSCI, Higher Attestation Commission, and WoS/Scopus; student uses the latest international sources. |
| The work is completed in an academic style without overwhelming lexical structures; the text is logical, each consecutive part relies on conclusions from the previous ones; the process of theoretical reasoning and experiments is fully described. |
| + additional criteria for the educational program |
| good | Research logic (consistency in presenting the research process and/or design), relevance in the research field, use of knowledge from adjacent fields, as well as professional knowledge; student demonstrates program-related competencies on a good level; correspondence of student’s competence model; student has a publication and has participated in conferences; for Master’s students – the publications are indexed in RSCI; student uses the latest international sources. |
| The work is completed in an academic style, however sometimes there are overwhelming or speculative lexical structures; the text is generally logical, some consecutive parts only partly rely on conclusions of the previous ones; the process of theoretical reasoning and experiments is fully described. |
| + additional criteria for the educational program |
| satisfactory | Research logic (in some cases, there is inconsistency in presenting the research process and/or design), relevance in the research field, insufficient use of knowledge from adjacent fields, as well as professional knowledge; student demonstrates program-related competencies on a satisfactory level; correspondence of student’s competence model; student has participated in conferences |
| The work is completed in an academic style, however often there are overwhelming or speculative lexical structures; the text is often illogical, consecutive parts do not rely on conclusions of the previous ones; the process of theoretical reasoning and experiments is not fully described. |
| + additional criteria for the educational program |
| unsatisfactory | Research logic (absent), relevance in the research field is not considered; student demonstrates program-related competencies on a low level; correspondence of student’s competence model; thesis results have not been implemented |
| The work is completed in a non-academic style, often there are overwhelming lexical structures; the text is often illogical, consecutive parts are not connected to the conclusions of the previous ones; the process of theoretical reasoning and experiments is not described. |
| + additional criteria for the educational program |

1. Degree of justification for the assertions that are presented for defense

|  |  |
| --- | --- |
| excellent | The assertions are formulated correctly.  Thesis demonstrates how these assertions were reached. |
| The conclusions produced in the thesis strictly correspond to the results of the conducted research. |
| + additional criteria for the educational program |
| good | The assertions are formulated correctly.  Thesis demonstrates how these assertions were reached. |
| The conclusions produced in the thesis partly correspond to the results of the conducted research. |
| + additional criteria for the educational program |
| satisfactory | The assertions are formulated incorrectly.  Thesis does not convincingly demonstrate how these assertions were reached. |
| The conclusions produced in the thesis partly correspond to the results of the conducted research and partly rely on common knowledge. |
| + additional criteria for the educational program |
| unsatisfactory | The assertions are formulated incorrectly.  Thesis does not demonstrate how these assertions were reached. |
| The conclusions produced in the thesis are not justified because they do not correspond to the results. |
| + additional criteria for the educational program |

1. Scientific and/or practical value of the research

|  |  |
| --- | --- |
| excellent | Scientific value is confirmed by publications in specialized journals and reports on conference(s)    Practical value: the solution suggested by the student for the outlined problems is acknowledged by experts and qualified by documents and/or experts as effective and innovative |
| Thesis contains elements of scientific novelty (for instance, a definition is specified, a classification is suggested, etc.).  Thesis results have practical value and can be scaled. |
| + additional criteria for the educational program |
| good | Scientific value is confirmed by publication(s) in specialized journal(s)    Practical value: experts deem the solution suggested by the student corresponding to the goal, however its effectiveness is questionable. |
| Thesis contains elements of scientific novelty but they are not specifically described.  Thesis results have practical value but they are limited to the research object (field, company) and therefore research has to be expanded in order to be scaled. |
| + additional criteria for the educational program |
| satisfactory | Scientific value is confirmed by a conference report.    Practical value: experts deem the solution suggested by the student in need of substantial revision. |
| Thesis contains elements of scientific novelty but they are not directly connected to the topic and/or are substituted for practical results.  Thesis results have potential practical value if research is continued. |
| + additional criteria for the educational program |
| unsatisfactory | Scientific value cannot be confirmed due to the absence of reports or publications.  Practical value: the suggested solution isn’t effective and doesn’t correspond to the goal and objectives. |
| Thesis doesn’t contain elements of scientific novelty.  Thesis results have no practical value. |
| + additional criteria for the educational program |

1. Integration of research findings

|  |  |
| --- | --- |
| excellent | Methods from thesis recommendations, developed software, conducted research, etc., have been implemented in the activity of an economic entity.  Experts suggested that thesis results be implemented into the activity of an economic entity.    According to experts, thesis results can be implemented into the activity of an economic entity. |
| + additional criteria for the educational program |
| good | With partial/small revision thesis results can be implemented into the activity of an economic entity. |
| + additional criteria for the educational program |
| satisfactory | With significant revision thesis results can be implemented into the activity of an economic entity. |
| + additional criteria for the educational program |
| unsatisfactory | Thesis results haven’t been implemented and according to experts, they cannot be implemented into the activity of an economic entity. |
| + additional criteria for the educational program |

**Criteria for thesis defense quality evaluation**

1. Quality of report

|  |  |
| --- | --- |
| excellent | The student demonstrates deep knowledge of the topic, freely uses the relevant terms, presents the topic logically and clearly; the material is novel, logically presented, relevant; the results are presented on a high level; the student speaks freely about the work. |
| The report corresponds to the thesis topic.  High quality of the presentation.  The report is logically coherent.  The student demonstrates their fluency in the topic. |
| The report is structured (relevance, goal and objectives, justification of main results, elements of scientific novelty and practical value) and corresponds to thesis contents. The student stays within the time limit. The report is easy to understand. |
| + additional criteria for the educational program |
| good | Thesis relevance is insufficiently justified; the report is logical; the student demonstrates good theoretical knowledge. |
| The report corresponds to the thesis topic.  There are mistakes in the presentation of the material and the logic of the presentation.  The student demonstrates their fluency in the topic. |
| The report’s structure is partly disturbed, 1-2 elements are missing (relevance, goal and objectives, justification of main results, elements of scientific novelty and practical value), the report doesn’t fully correspond to thesis contents, the student slightly stays outside the time limit (speaks shorter or longer by 1-2 minutes), the report doesn’t present the whole picture. |
| + additional criteria for the educational program |
| satisfactory | The report is illogical, the student doesn’t know the terms well. |
| The report doesn’t fully correspond to the declared topic. There are significant drawbacks in the presentation of the material and the logic of the report.  The student doesn’t demonstrate fluency in the material. |
| The report’s structure is significantly disturbed, 3-4 elements are missing (relevance, goal and objectives, justification of main results, elements of scientific novelty and practical value), the report significantly doesn’t correspond to thesis contents, the student doesn’t meet the time limit (speaks shorter or longer by 3-4 minutes), the report doesn’t present the whole picture. |
| + additional criteria for the educational program |
| unsatisfactory | The report doesn’t correspond to the declared topic. |
| The report doesn’t correspond to the declared topic.  The presentation is illogical and of low quality.  The student doesn’t demonstrate fluency in the material. |
| The report isn’t structured, over half of the compulsory elements are missing (relevance, goal and objectives, justification of main results, elements of scientific novelty and practical value), the report doesn’t correspond to thesis contents, the student doesn’t meet the time limit, the report is hard to comprehend. |
| + additional criteria for the educational program |

1. Quality of presentation

|  |  |
| --- | --- |
| excellent | High quality of the presentation, which fully corresponds to thesis contents.  Good visualization (plots, schemes) |
| The presentation fully explores the declared topic and research results. It demonstrates a high level of visualization (there are plots, schemes, etc.)  There are no mistakes in the presented information.  The presentation is well-structured. |
| The presentation corresponds to the contents of the report and at the same time complements them, making them easier to understand. |
| + additional criteria for the educational program |
| good | Presentation structure is partly disturbed. |
| The presentation mostly explores the declared topic and research results.  Generalized conclusions of the thesis are visualized.  The presentation is structured but there are flaws in its logic. |
| The presentation corresponds to the contents of the report but partly repeats it; it does make the report slightly easier to understand. |
| + additional criteria for the educational program |
| satisfactory | Presentation consistency is disturbed. |
| The presentation does not fully explore the declared topic and research results.  The results are visualized insufficiently or unclearly.  At times, presentation logic is disturbed. |
| The presentation partly corresponds to the report’s contents but partly/fully repeats it; it doesn’t help to understand the report. |
| + additional criteria for the educational program |
| unsatisfactory | The material is badly presented; the logic and structure of the presentation doesn’t correspond to the report. |
| The presentation doesn’t contain research results.  IT tools weren’t effectively used to prepare the presentation.  The presented visualization of the results doesn’t correspond to that found in the thesis.  There are grammatical errors. |
| The presentation doesn’t correspond to the contents of the report and isn’t demonstrated. |
| + additional criteria for the educational program |

1. Quality and level of answers to the committee’s questions

|  |  |
| --- | --- |
| excellent | The student gives full and complete answers with examples and explanations to all questions; they actively and justifiably defend their point of view. |
| The answers are full and contain examples with explanations. |
| The student answers all questions directly and completely, presenting arguments for their answer (cites sources, uses logical approaches).  The student doesn’t answer some of the questions by proving their inconsistency (such as irrelevance to the subject area). |
| + additional criteria for the educational program |
| good | The student gives partly complete answers and doesn’t present sufficient arguments to defend their point of view. |
| The answers are incomplete and lack explanations. |
| The student doesn’t answer all of the posed questions, but they directly and completely justify their answers (cite sources, use logical approaches). The student has to answer at least 60% of questions (2 out of 3).  The student doesn’t answer some of the questions by proving their inconsistency (such as irrelevance to the subject area). |
| + additional criteria for the educational program |
| satisfactory | The student answers only the simplest questions without illustrating their answers with examples. |
| The student answers only elementary questions and doesn’t offer explanations. |
| The student doesn’t answer all of the questions, but they directly and completely justify their answers (cite sources, use logical approaches). The student has to answer at least 30% of questions (1 out of 3).  The student doesn’t answer some of the questions by proving their inconsistency (such as irrelevance to the subject area). |
| + additional criteria for the educational program |
| unsatisfactory | The student doesn’t give answers, their argumentation is weak/their answers are wrong. |
| There are no answers or the answers are wrong. |
| The student doesn’t directly answer the questions or justify their answers (by citing sources and using logical approaches); instead, they give evasive answers based on their own opinion or don’t give any answer. The student cannot prove the inconsistency of those questions that they consider irrelevant. |
| + additional criteria for the educational program |

**Readiness to solve professional tasks**

excellent – yes

good – yes

satisfactory – yes

unsatisfactory – no

The criteria presented above serve as guidelines for members of the SEC and students. The final decision on the grade for thesis defense is made by the SEC in accordance with clause 9.10 of the *Regulations on graduation theses*: “The SEC takes into account the contents of the thesis, the quality of calculations, the justifiability of conclusions and suggestions, the originality level, the contents of the report, the student’s presentation, their answers to the posed questions, thesis reviews, the level of theoretical, scientific, and practical training, and the achievements of the student.”

### **5. State final examination for people with health limitations**

1. SFE for people with health limitations is conducted with regard to students’ special needs, their personal capacities and health condition (hereinafter special needs), in accordance with ITMO University’s by-law *Regulations on the functions of the State Examination Committee during the conduct of the State Final Examination*.

SFE of such students is overseen by the Center for Inclusive Education.

1. The following requirements are met when SFE is conducted:

* students with health limitations take their SFE in the same room with students without health limitations if this doesn’t produce any challenges for students with health limitations;
* upon request, the staff of the Center for Inclusive Education can attend the SFE to assist students with health limitations with technical means or to meet the procedure;
* upon request, students with health limitations can use the necessary technical means during their SFE;
* students with health limitations are ensured unhindered access to ITMO University’s rooms.

1. No later than four months before the start of SFE the Center for Inclusive Education collects applications from students addressed to the head of the Center about the need to provide special conditions for their participation in SFE, indicating their special needs, or applications stating their refusal of such special conditions.

The application has to be supported by medical documents confirming students’ special needs.

1. If there are applications from students with health limitations for special conditions that they need to take part in their SFE, the Center for Inclusive Education together with the head of the program ensure that such conditions are created and maintained.

### **6. Training outcomes (competencies)**