Master Thesis:

2.5.1. **Purpose and prerequisites**

Master thesis is an obligatory element of the educational program in a form of a research or project work of a student. Master thesis defense is a mandatory part of the final state examination.

The master thesis must demonstrate the necessary professional qualifications of graduates in the field of research, management, entrepreneurial and / or consulting activities.

Master thesis should be written on the basis of carefully developed academic, educational or professional literature on the problem under study. Master thesis should be distinguished by a critical approach to the study of literary sources. Material drawn from literary sources must be revised, organically linked to the topic chosen by the student.

The master thesis should be written on the basis of carefully processed empirical material on the problem under study. The master thesis should demonstrate the student's ability to use research methods learned in the disciplines of the curriculum. The involved empirical material should be documented (interview guides, scripts, calculations, videos, etc.) and presented in the Appendix to the master thesis.

The results obtained in the master thesis should have elements of scientific novelty and practical significance. The totality of the results obtained in such a work should indicate that its author has the skills of analytical, research or scientific-practical work in the chosen field of professional activity.

The main formats of master thesis are:

- Research format - research carried out in order to obtain new knowledge about the structure, properties and patterns of functioning of the studied object (phenomenon).
- Application format - identification and analysis of an applied problem, as a result of which a solution / product of an applied nature is proposed.

Master thesis can be based on a generalization of the results of the coursework performed by the author and contain materials collected by him personally during the period of practice.

Master thesis is carried out individually.

2.5.2. **Deadlines:**

2.5.2.1. Assignment to the student – December, 15

2.5.2.2. Submission of interim report – April, 20

2.5.2.3. Submission of final report – May, 20

2.5.3. **Content**

The volume of the master's thesis (without attachments) is at least 60 pages. The list of used literature is at least 50 titles, among which there must be at least 50-60% of articles in academic journals, including at least 33% in foreign (English-language) academic journals.

The general structure of a master's thesis depends on its format, but always includes the title page, confirmation of the originality of the master thesis, table of contents, short introduction, main part (divided into chapters), conclusion, bibliography and applications.

For master's theses of a research type, in the main part of the work, it is advisable to focus on the standard structure of a research article in a scientific journal, which usually includes:

• Introduction;

• Literature review;

• Methodology;

• Results;

• Discussion of the results obtained and directions for further research.

2.5.4. **Assessment**

Reporting forms for a master's thesis are the text of the thesis, assessed by the supervisor and reviewer, and the defense of the course work, assessed by the commission.

Evaluation of course work takes place in accordance with the criteria and the evaluation formula (Appendix 1).

The final grade consists of the supervisor's grade (25%), the reviewer's grade (25%) and the commission's grade (50%).

2.5.5. In the process of internship, students can use information technologies, including design automation and software development tools used in a specialized organization, Internet technologies, etc.

Internship logistics are reflected in hands-on training contracts with individual organizations. The specified material and technical support must meet the current sanitary and fire safety standards, as well as safety requirements during work.

2.5.6. In the context of restrictive or other measures, the internship is performed remotely in accordance with the instructions of the HSE and Russian Federation regulatory bodies.

Annex 1.

Evaluation of MIM Term Papers and Master Dissertations

MIM term papers will be assessed and evaluated according to the criteria formulated in the table below. Three criteria apply for the research, undertaken by the student, and the report, and one criterion applies for the report presentation. Each criteria weights 25 % of the final grade. The term paper defence committee will use the diagram to decide on the grade of the master thesis. To determine the grade, the diagram is not imperative but rather guiding. Students are advised to check this diagram in the early stages of conceptualising their work.

Please circle what is applicable		**1-3 (fail)**	**4-6 (satisfactory)**	**7-8 (good)**	**9-10 (excellent)**
1. Quality of work	Research method/design	Unsystematic and/or no validated use of research and design methodologies. Insufficient/limited explanation.	Adequate use of research and design methodologies. Explained and justified.	Use of the right research and design methodologies. Well-explained and well justified.	Profound and critical use of research and design methodologies. Very clear and validated design. Excellent demonstration of research and design methodologies.
	Application/development of theory	Does not relate theory to the performed project. Has difficulties applying theory to the performed project.	Sufficiently applied theory in the performed project.	Has applied theory to the performed project.	Has integrated existing theory from different fields or sources into a new and original theoretical description/new design.
	Interpretation of the results	No sufficient interpretation and verification of the results. Conclusions are unconnected to the results and no or only minimal verification of the results has been carried out. Conclusions have sufficient link with results.	Findings are treated as straightforward and unproblematic. Verification has been carried out. Conclusions are based on the results.	Uses techniques for interpretation and verification in a mechanical way. Conclusions are based on results in a clear way.	Detailed interpretation and verification of the results. The conclusions are based on the results in a clear way and are extrapolated to a wider context.

	Academic significance	Work done is not reliable and cannot be communicated to the outside world. Work done has minimal scientific significance and should be checked and possibly redone before results can be communicated to the outside world.	Work done has some scientific significance. Work should be checked before it can be included in external reports or publications.	Results can be communicated without hesitation to the outside world. Work can be submitted as a conference paper, a journal publication or a patent.	Work can be communicated to the outside world. The paper has been submitted for review to be published in a highly ranked journal, or has been used in a patent application or in a grant submission.
	Remarks				
2. Performance	Critical attitude	Does not show or has limited critical attitude towards own results.	Has a sufficiently critical attitude towards own results, limited critical attitude towards literature and specialists.	Has a sufficiently critical attitude towards own results, literature and specialists.	Has a critical attitude towards own results, literature and specialists.
	Creativity	Has not attempted to make an original contribution to the project.	Has had at least one original contribution to the project not initiated or thought of by the supervisor.	Has come up with several original ideas, design options and/or concepts not initiated or thought of by the supervisor.	Has come up with many original ideas, design options and/or concepts not initiated or thought of by the supervisor.
	Initiative	Student shows no initiative at all. Student randomly picks up some initiatives and/or new ideas suggested by others (e.g. supervisor).	Student occasionally takes initiative, together with the supervisor, to extend or modify the research/design plan or to suggest an alternative method or approach.	Student takes initiative at multiple occasions to give his/her own input for the research/design plan or the followed method and approach.	Problem formulation, research/design plan, followed method and approach were essentially all initiated, selected and defined by the student.
	Interaction with peers/ superiors	Has difficulty interacting with peers and superiors.	Sufficient interaction with peers and superiors.	Good interaction with peers and superiors.	Very good interaction with peers and superiors.

	Planning	Is not able to make and execute a project plan.	Is able to make and execute a project plan.	Is able to make and execute a good project plan.	Excellent project plan. Project time was not exceeded, not even in cases of unexpected circumstances.
	Remarks				
3. Report	Content	Report shows no coherence of content.	Report fulfils all requirements in terms of content.	Good report in terms of content.	Excellent report in terms of content.
	Form	Structure needs considerable improvement. General presentation of the content (text and figures) not very effective.	Structure is acceptable. General presentation of the content (text and figures) is satisfactory.	Clear structure. Good presentation of the content (text and figures).	Very well-structured document. General presentation of the content (text and figures) is very effective.
	Quality of writing	Poorly or Reasonably expressed argumentation. Document contains serious spelling and grammatical errors.	Sufficiently expressed argumentation. The document contains little spelling and grammatical errors.	Expressed and formulated well. Document has a nice flow. Document contains only minor spelling and grammatical errors.	Excellent expressed and formulated report. Document has a smooth flow with effective transitions. Spelling and grammatically error free.
	Independence in writing	The report required substantial and considerable input from the (principal) supervisor(s).	The report required significant input from the (principal) supervisor(s).	The report required some input from the (principal) supervisor(s).	The report required minimal input from the (principal) supervisor(s).
	Remarks				
4. Presentation & defence (defense committee only)	Content	Presentation lacks detail and does not support conclusions. Irrelevant information presented.	Presentation has sufficient detail to support conclusions.	Presentation has a good level of detail to support conclusions.	Presentation has the right level of detail to support the conclusions and to understand the recommendations.
	Form	Presentation is unstructured and chaotic. No (proper) use of visual aids. Logical structure of presentation is poor. Improvements to the structure	Logical structure of presentation is reasonable but needs some improvement. Sufficient use of visual aids.	Presentation has good logical structure, the essentials are separated from the ancillary. Good use of visual aids.	Presentation has excellent logical structure, the essentials are very well separated from the ancillary. Perfect use of visual aids.

		should be made. Use of visual aids can be improved.			
	Performance	Poorly expressed and formulated. Unclearly presented. Audience was ineffectively addressed.	Expressed and formulated adequately. Most of the time clearly presented. Audience was sufficiently addressed.	Well expressed and formulated. Clearly presented. Audience was well addressed.	Expressed, formulated and presented with great style, clarity and effectiveness. Audience was well addressed and engaged.
	Defence	Weak argumentation. Some questions got wrong answers or not fully answered.	Satisfying argumentation. A few questions could benefit from more thoughtful or complete answers.	Satisfying argumentation. Well answered questions. Not always complete.	Strong argumentation. Perfectly answered questions: thoughtful and complete answers.
	Remarks				