



Transport and Telecommunication Institute

# **Guidelines for the Preparation of Doctor Thesis (Doctor Dissertation)**

Riga - 2018

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## Introduction

This document clarifies the principles of submission of a Doctor Thesis (Promotion Work) in accordance of the Regulation of the Cabinet of Ministers of the Republic of Latvia of 27.12.2005 Nr. 1001 "Rules and criteria for awarding a doctoral degree (promotion)" and the approved Regulations of the Transport and Telecommunication Institute (TTI) on the procedure and criteria for awarding the degree of Doctor of Sciences.

Every doctor candidate in the TTI required to successfully complete and submit a dissertation to qualify for degree conferral. This document provides information on how to submit your dissertation, requirements for dissertation, and your dissertation publishing options.

## Approval of Dissertation Subject

The subject of the dissertation must be approved in advance by the TTI department (chair). If a doctor student wishes to submit as a dissertation a published series of articles, a book or monograph, or a manuscript that has been accepted for publication, approval by the appropriate department must be obtained.

Candidates are required to write a dissertation whose length may be determined by the complexity of the problem they may be addressing. The final document should be a creative intellectual exploration of an issue or topic.

The dissertation is a presentation of the student's own academic work and contribution to the larger pool of human knowledge. It gives evidence of the student's knowledge of their field of specialisation, their ability to interact with the work of relevant experts (duly cited and credited), and their ability to contribute the creation of new knowledge in a specific scholarly discipline. As in any academic work, plagiarism is a serious offense, and is to be meticulously avoided.

## Steps in Preparing a Dissertation Proposal

The first stage of writing the dissertation is to write the proposal for the research you intend to do. The proposal is, in essence, the first three chapters of what will eventually become part of the final dissertation document, as follows:

1. background, purpose, and overview of the study
2. literature review
3. proposed methodology

To prepare these three chapters, the student is to proceed through the following steps:

1. Identify the topic for their research and resulting dissertation
2. Identify a supervisor. A supervisor is a member of a university faculty whose role is to guide graduate students who are candidates for a doctorate. Students generally choose advisors based on their areas of research interest. The student is to work directly with the supervisor throughout the dissertation process. Each time the student has completed a section or draft, submit it to the supervisor for his/her input and approval. The

responsibility is on the student to contact the supervisor, to make sure the supervisor has received the document, and to collect it when it is ready for return. The student is also to work as quickly as possible in turn-around on corrections. The student should not solicit input on their dissertation from other faculty members without their supervisor's knowledge and explicit permission.

## Preparing the Dissertation Proposal

There are next step as recommendation for Preparation of the Dissertation Proposal:

1. Identify a problem area to be researched
2. Develop a clear purpose statement
3. Formulate a detailed study plan or proposal
4. Write your first three chapters, with regular collaboration with your supervisors

The following suggested outline for your proposal may be useful.

### *Chapter One: Introduction and Background to the study*

Chapter one should include the following sections, though this is not rigid. Depending on the student's topic and approach, these may vary to some degree:

- Introduction: Definition of the main problem or research question. Here they introduce the topic for research
- Background to the study: Presentation of the justification/rationale of the need for this research, plus a brief explanation of the conceptual or theoretical framework
- Statement of the Problem
- Purpose of the Study: A precise statement, no more than three sentences
- Objectives of the Study: A breakdown of the purpose of the study into sub purposes
- Hypothesis or Research Questions
- Justification/rationale
- Significance of the Study: A statement of who will benefit from the study and in what ways
- Assumptions
- Scope of study: This should indicate the purposeful parameters the student has placed around their research with proper justifications
- Limitations and delimitations: Potential drawbacks or shortfalls, including assumptions of what needs to be in place which are requisite for successfully pursuing the research, such as honest self-reporting by informants, etc.
- Definition of Terms: Define operational terms for the specific research
- Summary: A summary of the chapter and a brief overview of the remaining chapters

### *Chapter Two: Literature Review*

Chapter two presents and discusses what has been written related to topics relevant to the student's research study. By examining what others have researched and written, the student will also be demonstrating the existence of an aspect of the field that has not been explored, a gap which they intend to address through their research. Within their literature review, they should present the theoretical or conceptual framework that will guide their research.

### *Chapter Three: Research Methodology*

Chapter three should include a detailed description of the design of the study and the methodology to be utilized. Selected research methods should be appropriate to the research problems and questions identified in chapter one. Reasons for choosing the specific methods should be defended, and an explanation provided for why alternative methods were not selected. Suggested sub-divisions of this chapter include:

- Introduction
- Research Designs
- Object to be studied
- Sample(s) to be selected
- Sampling method(s)
- Types of data
- Data collection methods
- Data collection procedures
- Instrument pre-testing
- Data analysis plan
- Ethical considerations (where applicable)
- Summary

The following are required in the proposal:

- Timetable for data collection, analysis and write-up
- Estimated budget, including source of funding (if any)
- Permissions required (if any)

The student may organize their chapter three in this order, or if they are using several methods.

## Conduct the final dissertation defense

### Promotional Council

Defense of the thesis is carried out publicly in the Promotional Council for the Defense of Dissertations. Council members are leading scientists in their field who have the status of an expert in the relevant field of knowledge recognized by a special decision of the Latvian Council of Science.

## Submission of Dissertation to Promotional Council

To obtain a scientific degree, the applicant submits the following documents to the Council, to whom the promotion rights have been delegated in the relevant branch of science:

- Doctor Thesis (Dissertation) in Latvian or in English
- Summary of Doctor Thesis in Latvian
- Summary of Doctor Thesis in English
- Statement of the applicant
- Curriculum Vitae
- Copy of the document on education
- List of publications with their copies
- Agreement on the distribution of authors' contribution to joint publications
- Decision of the department of the organization where the work was performed
- The original of the Academic certificate on the completion of the doctoral program and the passing of doctoral examinations

## Promotion Work (Doctor Thesis)

The doctor degree is awarded for promotion work, under the supervision of an experienced scientist (further - the supervisor) independently developed and publicly defended, containing original results of research and making new results in the relevant branch or sub-branch of science.

Structure of promotional work:

- Title page (Appendix 1);
- The second page of the cover page (Appendix 2);
- Abstract in Latvian;
- Abstract in English;
- Table of contents;
- Explanation of abbreviations and symbols used in the work (acronyms, abbreviations);
- List of illustrations included in the work;
- List of tables included in the work;
- Introduction;
- The main part, divided into chapters and sub-chapters (at the end of each chapter there should be conclusions or generalizations);
- Conclusion;
- List of used literature;
- Applications;
- The author's words of gratitude are acceptable.

*Title page.* It contains the name of the educational institution, the degree, name and surname of the author, the title of the work, the field and the direction in which the work was performed,

the academic position, the scientific degree, the name and surname of the supervisor, the place and year of the work (Appendix 1).

*Abstract.* The abstract is a brief description of the work in which the surname, author's name, title of the work, hypotheses, goals and tasks, main conclusions and results of the study are indicated in the order of listing, each part of the work is characterized in a concentrated form. The abstract also contains the total number of dissertation pages, the number of tables, the number of figures and images, the number of literary sources used, and the number of applications.

*Table of contents.* The table of contents indicates all the components of the work, starting with the Abstract and ending with the Appendices. The titles of chapters and paragraphs in the text of work and in the table of contents should coincide.

*The list of illustrations and tables* contained in the work. Lists of illustrations and tables are formed separately. They should include the number of the table / illustration, the name and the location in the text (page).

*List of abbreviations and acronyms.* All used the acronyms and abbreviations should be defined and arranged in alphabetical order. If necessary, a Dictionary of the terms used in the work can be created.

*Introduction.* Introduction includes:

- Actuality of the problem
- Statement of the research problem
- Goal and tasks of the research
- Degree of the theme research
- Methodology and methods of research
- Scientific novelty of the work
- Theses submitted for defense
- Practical significance of the research results;
- Approbation of the work

*The main part of the promotion work.* The main part of the work consists of chapters. It is useful to divide large chapters into paragraphs. The number of chapters and paragraphs is not regulated and depends on the volume and content of the work. There can not be only one paragraph in the chapter. Each chapter ends with conclusions or generalizations. The total number of chapters of promotional work usually does not exceed 4-6.

*The conclusion.* The conclusion contains conclusions and generalizations on the work as a whole, as well as recommendations on the practical use of the results obtained.

*References.* The literature used contains the entire list of books, articles, texts and other information sources for which there are references in the work and which were used during the

preparation of the promotional work. Sources are indicated in the language in which they are written. The minimum required number of literary and information sources, as well as legislative and regulatory documents, depends on the subject of the study. The recommended number of sources used includes at least 100 titles, at least half of the sources should be published in English.

*Appendices.* Appendices are not included in the total amount of promotional work, but are included in the overall page numbering. From the general text appendices are separated by a separate page, on which the heading of the APPENDIX is located. This page is included in the total volume of pages. Each new appendix should have the next sequence number located in the upper-right corner of the page (for example, Appendix 1). In some cases, appendices can be designed as separate volumes.

## Formatting Guidelines

The work must comply with the generally accepted rules for the design of scientific texts.

### Technical formatting

Technical formatting of promotional work:

- Page parameters: A4 format, Top - 2 cm, Bottom - 2 cm, Left - 3 cm, Right - 1,5 cm;
- The size of the letters of the main part of the work is 12 pt, the font is Times New Roman, the line spacing is 1.5, the text is justified.
- Each chapter begins with a new page. The title of the chapter is separated from the previous and subsequent texts in one line. The title is not underlined, there is no dot at the end of the title. The page should not end with a title.
- Tables, illustrations and formulas are usually placed as close to the place as they are mentioned in the text, and centered. If the table or image fills the whole page, it must match the size of the text box (the size of the fields is preserved). Tables, illustrations and formulas are numbered consecutively, within each chapter. The table number and name must be placed above the table, left alignment, font size 12. A free line is left before the name of the table and after it.
- Formulas and equations should be selected from the text in a separate line and aligned in the center. To write all the formulas in the text, you use the same type of font, signs and notations, which is provided by the formula editor. Formulas should be numbered, the ordinal number is placed in parentheses opposite the formula on the right edge. If the formula takes up several lines, the formula number is placed opposite the last line on the right side. In the text when referring to one of the formulas, its number is placed the same as the number of the formula itself and in parentheses.
- All graphics, drawings, diagrams, photographs, placed in the work, are called illustrations. Diagrams, drawings and photographs should be of high quality, in \*.TIFF, \*.JPG, \*.BMP format with a resolution of at least 300 dpi. The formats \*.CDR, \*.PSD are also acceptable. The numbering and title of the illustration are arranged in a sketch, aligned in the center, the font size is 12.

## Making references to literary sources

Harvard Referencing is recommended for making references to literary sources. "Harvard referencing" is an umbrella term for any referencing style that uses the author name and year of publication within the text to indicate where you have inserted a source. The Harvard citation style is a system that students, writers and researchers can use to incorporate other people's quotes, findings and ideas into their work in order to support and validate their conclusions without breaching any intellectual property laws. Two types of citations are included:

1. In-text citations are used when directly quoting or paraphrasing a source. They are located in the body of the work and contain a fragment of the full citation. Depending on the source type, some Harvard Reference in-text citations may look something like this:

"After that I lived like a young rajah in all the capitals of Europe..." (Fitzgerald, 2004).

2. Reference Lists are located at the end of the work and display full citations for sources used in the assignment. Here is an example of a full citation for a book found in a Harvard Reference list:

Fitzgerald, F. (2004). *The great Gatsby*. New York: Scribner.

Reference lists are created to allow readers to locate original sources themselves. Each citation in a reference list includes various pieces of information including the:

- Last name, first initial of the author(s)
- Year published
- Title
- City published
- Publisher
- Pages used

Citations are listed in alphabetical order by the author's last name. If there are multiple sources by the same author, then citations are listed in order by the date of publication.

The complete guide to Harvard in-text and reference list citations can be found, for example, at the site: <https://www.mendeley.com/guides/harvard-citation-guide> .

## Language of the Dissertation

Promotional work should be presented in Latvian or in English.

## Length of the Dissertation

Most dissertations are 100 to 200 pages in length. All dissertations should be divided into appropriate sections, and long dissertations may need chapters, main divisions, and even subdivisions.

## Regarding Plagiarism

Plagiarism is of great concern to all researchers and writers. The gravity of both the offense and its personal and professional consequences warrants serious consideration. Plagiarism is using the ideas or words of another person without giving appropriate credit. Plagiarism includes the unacknowledged use of text and ideas from published work, as well as the misuse of privileged information obtained through confidential review of research proposals and manuscripts. The importance of recognition for one's intellectual abilities in science demands high standards of accuracy and diligence in ensuring appropriate recognition for the work of others. The misuse of privileged information may be less clear-cut because it does not involve published work. But the general principles of the importance of giving credit to the accomplishments of others are the same.



**TRANSPORT AND TELECOMMUNICATION INSTITUTE**

**XXXXXX XXXXXXXXX**

(name and surname of the author)

**XXXXXXXXXXXXXXXX XXXXXXXXXXXX XXXXXXXXXXX XXXXX XXXXXXXX XXXXXXXXXXX**

(title of the dissertation)

**DOCTORAL THESIS**

to obtain the scientific degree Doctor of Science in Engineering

Scientific area "Transport and Communications"

Scientific subarea "Telematics and Logistics"

**Scientific supervisor:**

Dr.sc.eng., Professor **XXXXXXX XXXXXXX**  
(name and surname of the author)

RIGA – 2018

UDK XXXXXX

Pa XXXXX

Transporta un sakaru institūts

**X.Xxxxxx**

(First initial. Last name of the author)

Pa XXX

Title of the dissertation: Promotional work. Riga: Transport and Telecommunication institute, 2018

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(Last name of the author)

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