Ministry of Education and Science of the Russian Federation

**NATIONAL RESEARCH**

**TOMSK STATE UNIVERSITY (NR TSU)**

**The Faculty of Physics**

**Master’s Degree**

**GUIDELINES FOR PREPARING MASTER’S THESES**

Guidelines for

Master’s Students

in subject area

03.04.02 – Physics

**Tomsk**

**2017**

**GUIDELINES FOR PREPARING MASTER’S THESES**

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Master’s Students

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03.04.02 – Physics

 The Guidelines is intended to guide students in structure and design of a Master’s Thesis in subject area 03.04.02 – Physics. It sets forth the requirements and rules for references.

 The manual is designed for students and faculty members of the Faculty of Physics in subject area 03.04.02- Physics.

 The Guidelines are available at the departments of the Faculty of Physics.

 Further information on the format of references and citations can be provided by TSU Research Library, room 20.

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**1 General Provisions**

 Master’s Thesis is a final stage of the final state examination of Master’s Students.

 The Thesis must conform to the Master’s Programme. It is an independent completed piece of research referred to the solution of a scientific or research and applied problem. It demonstrates professional level of a Master’s Student.

 The Thesis must reveal:

* novelty of the topic and research results;
* credibility of results, their theoretical and practical value;
* sufficient review of the literature within 3-5 years;
* depth of research and validity of conclusions;
* scientific style of writing, literacy, and tidiness;
* correct citations.

The Thesis must be **70-80** pages in length.

Having completed the Thesis, a Master’s Student must write a synopsis which is included into the content and structure of the Thesis but it is not numbered.

Synopsis must demonstrate the novelty of the topic; purposes and tasks of research; object and subject of research; methodological, empirical and regulatory bases; obtained results, their theoretical and practical value; a brief summary of the content; the main publications on the topic of the Master’s Thesis (if available). Synopsis must be at least 5-7 pages in length.

At least two reference letters must be attached to the Master’s Thesis. Reference letters must be provided by a research supervisor and a reviewer who is not faculty members at NR TSU.

The author of the Thesis is responsible for decision-making and validity of results, compliance of the work with the requirements of standards and guidelines.

Defence of Master’s Theses is open to public and is held at the meeting of the State Examination Board.

**2 Structure of a Master’s Thesis**

Master’s Theses must be structured in the following way:

* **title page;**
* **assignment;**
* **synopsis;**
* **table of contents;**
* list of abbreviations, symbols, and terms;
* **introduction;**
* **body;**
* **conclusion;**
* **reference list;**
* appendices.

The components **in bold** must be adhered to in all cases. The remaining components may be varied at the discretion of the author and supervisor.

**2.1 Title Page**

The Title page is the first page of the Thesis and serves as a source of information for processing and identifying the document.

The Title page must give the following information in the order listed:

* the name of the organisation TSU belongs to;
* the name of the institution to which the Thesis is submitted;
* admittance to the defence (provided by the Director of the BEP);
* the full name of the author;
* the full title of the Thesis;
* the full name of the research supervisors preceded by academic degrees and titles;
* the place and year of submission.

The Title page format is shown in Appendix A.

**2.2 Assignment**

The Assignment must be written in pen or typed.

The formulation of the topic of a Master’s Thesis must comply with the formulation on the Title page.

After the research supervisor has approved the assignment, correction and changes are not allowed without his/her permission and agreement.

The Assignment format is shown in Appendix B.

**2.3 Synopsis** (extended abstract)

**Synopsis** (extended abstract) provides a brief summary of the content. It begins on a new page and is included into the structure of the Master’s Thesis. Synopsis is not paginated.

Refer to GOST 7.9 for general requirements for abstracts.

**2.4 Table of Contents**

**Table of Contents** contains Introduction, names of the sections and sub-sections, Conclusion, Reference List, Appendices identified with page numbers where these components begin.

Refer to Appendix C for the format of the Table of Contents.

**2.5. Abbreviations, Symbols, and Terms**

The List of Abbreviations, Symbols, and Terms is arranged in the order the units appear in the text with explanations and comments.

The list must begin on a separate page.

If abbreviations, symbols, and terms appear less than three times, the list is not compiled. In this case, abbreviations, symbols, and terms are explained in the text when they are mentioned.

**2.6 Introduction**

The Introduction to the dissertation should set out the feasibility of the topic, assessment of the current state of the problem, background and initial data for developing the research topic.

The Introduction should clearly and accurately formulate the goal and tasks of the research, object and subject of the research, topicality, novelty, and feasibility of the topic by addressing each part in a new paragraph.

The Introduction should set out the background to the research study and the subject area.

The Introduction should be restricted to no more than 3 pages.

 **2.7 Body**

 The main body comprises data reflecting the matter, methodology and key results of the paper.

 The main body must include:

* **literature review** (analysis and summary of the data on the research topic, reasoning of the choice of the research area);
* **chapters** revealing the content and results of a completed task (for example, the content of completed theoretical and practical studies, obtained results, assessment of accuracy and validity of the results).

Literature review on the research topic must state the current situation (history) of the problem. The information contained in the review should allow an objective assessment of the results and the current level of research, its relevance, the appropriateness of the chosen pathway of research and the means of achieving the goal.

 Avoid general and public issues. It is necessary to select the material relevant to the research study.

 Relevance of the topic, rationale for the chosen pathway as a result of the analysis of the current state of the studied issue is formulated in the concluding part of the review.

 If the topic is devoted to a problem that has not been studied before (there is no the history of the question) or studied insufficiently, the author may combine the Introduction and the Literature Review.

 Chapters must be completed with a Discussion section. Discussions should not be simply a summary of the results the author has, it must provide his/her perspective of further development of the problem and studies.

 The main body for a Master’s Thesis must **50-60 pages** in length without appendices.

 **2.8 Conclusion**

 **The** **Conclusion** presents the main research results. It must contain only the conclusions which are relevant to the goal and tasks of the study specified in the Introduction.

 The Conclusion sums up theoretical and practical conclusions and suggestions that the author made as a result of the study. Conclusions and suggestions must be clear, accurate and evidence-based. They must be logically based on the content of the chapters.

The Conclusion should be restricted to **3-5 pages**.

 **2.9 References**

Reference list demonstrates the range and depth of the study and proves the validity of the stated facts. It must contain the information about the sources and literature used in the Thesis.

 Refer to GOST 7.1-2003 for the format of the reference list [3]. The full text is published on the website <http://www.lib.tsu.ru./win/metod/gost/gost7.1-2003.pdf>.

 More detailed requirements to the list are given in Section 6 of these guidelines or on the website <http://www.lib.tsu.ru/win/produkzija/metodichka/metodich.html>.

 **2.10 Appendices**

 Appendices is an optional part of the Thesis. It depends on the specifics of a topic. Appendices are used to provide more detailed information on the topic and contain supplementary materials:

* illustrations, graphs;
* tables.

Appendices are formatted as a continuation of the Thesis following the main parts of it and are located in the order they appear in the text.

Each appendix begins with a new page indicating the word APPENDIX in the centre of the sheet. Each appendix must have its own heading reflecting its content.

Pages are numbered sequentially with the letters of the English alphabet starting with A except for I and O.

 If all the letters are used, it is possible to identify the appendices with Arabic numbers.

 *For example:*

 APPENDIX A, APPENDIX B, etc.

 If the Thesis contains only one appendix, it must be identified as APPENDIX A.

 **3 Format**

In accordance with TSU Standard 003-2006 [11] and Documented Procedure of the Centre for Quality Management at TSU dated 23 August 2014 [12] Theses must be presented in typescript. One side only of the international A4 size paper must be used.

 Illustrations and tables included into the Thesis must comply with the A4 format.

 Each page must conform to the layout requirements.

 Margins at the binding (left-hand) edge must be **30 mm,** right edge **10 mm,** top and bottom edges **20 mm.**

 Paragraph indentation is **1.25 mm.**

The page format should be single column with one and a half spacing used between lines. Font size is equivalent to 12 to 14 point font in Times New Roman. It is allowed to use computer capabilities to highlight specific terms using different types of fonts.

Pages must be numbered with **Arabic numerals consecutively** through the Thesis, starting at the **Title Page** and finishing **at** **the final page of Reference List** and **Appendices**.

Page numbers shall be located centrally at the bottom of the page. The **Title Page** is "**1**" but this number must not appear on the page.

 The Master’s Thesis must be approximately **70-80 pages** in length.

 There are no strict requirements for the length of a FQP. The length of a Thesis varies depending on the topic, degree of its study in the scientific community, and content of a particular work. The length may be increased by 20-30%.

**4 Design**

 **4.1 Headings**

 **Headings and numbering of chapters, paragraphs** in the main body of the Thesis must comply with the Table of Contents. Page numbers shall be in Arabic numerals. **Chapters** are numbered with a single digit followed by no period, numbers of other sections with two digits with a period after the first one, etc. This way of numbering along with the paragraph indentation in the Table of Content allows the author to subordinate the material in the text. Words **Chapter, paragraph symbol § are not used** before headings. The template of the Table on Content is provided in **Appendix B.**

The names of the components SYNOPSIS, TABLE OF CONTENTS, LIST OF ABBREVIATIONS, SYMBOLS, AND TERMS, INTRODUCTION, CONCLUSION, REFERENCE LIST, APPENDIX must be located **in the centre** without a period at the end and typed in capital letters without underlying.

The names of sections and sub-sections and points must be **indented (1.25 cm). The names must be written with a capital letter without a period at the end and underlying. Word breaks** in the headings **are not allowed.** If a heading consists of two sentences, they must be separated by a period.

 Each section (chapter) of the main body, INTRODUCTION, CONCLUSION, REFERENCE LIST, and APPENDIX must begin on a **new page**.

 Headings must be separated from the text by **double space** (3-4 mm).

For example:

1 Mechanisms of GRS amplification

* 1. Chemical mechanism of amplification

Giant Raman scattering is the enormous increase (by various data up to 1,010 times) in the intensity of signals of the RS light of molecules located on a “rough” metal surface. The physics mechanism of the amplification of a RS signal due to the GRS effect can be understood by means of the classical theory of light scattering [19]. Let us consider a falling laser beam inducing a dipole moment μ ρ of a molecule which scatters (re-radiates) the light at the frequency ν of the oscillating dipole.

**The text of a thesis** may be divided within **sub-sections**. Each item of the enumeration list must be preceded by a hyphen or a lowercase letter followed by a parentheses if it is further referred to in the text.

Use Arabic numeralsfor further detalisation. They must be followed by a bracket. Each item must be indented as shown in the example.

Example:

a)\_\_\_\_\_\_\_\_\_\_\_

b) \_\_\_\_\_\_\_\_\_\_\_

            1)\_\_\_\_\_

            2)\_\_\_\_\_

c) \_\_\_\_\_\_\_\_\_\_\_

 **4.2 Visuals**

 **4.2.1 Tables**

 Tables must be formatted in accordance with TSU Standard 003-2006 [11].

 Tables are used to provide better understanding of parameters.

Names of tables must reflect their content, be accurate and concise. **The word “Table” and its name are located on the left above the table. Text must be written in line and preceded by a hyphened number of the table.** Tables should be placed within the chapter immediately following the first reference to them or on the next page. If tables split over two or more pages, “Continuation of Table 5” or “End of Table 5” must be repeated on the second and subsequent pages.

Tables must be located in the text in such a way so that it can be read **without turning the paper or turning it clock-wise.**

If there is a statement proved by the table, it is necessary to provide a **reference** to the table in **parenthesis**. References to the tables must be indirect, for example: “According to the criminal cases we have studied, during the detention of a suspect, there are violations of the statutory order, and accordingly, violations of the rights of a detainee (Table 1).”

If a table is borrowed from a book or an article, it must be given an in-text reference or reference to the entry in the Reference List.

Tables can be numbered continuously throughout the text or by sections (chapters). Tables must be numbered with **Arabic numerals**. Pages with tables must be included into the pagination of the Thesis.

Table headers must be started **with capital letters.** Sub-headers must begin **with lowercase letters** if they make up a single sentence with the heading, and with capital letters if they are independent. Headers and sub-headers are not followed by a period. Headers and sub-headers are always singular. The column “Item No” must not be included into the table. If there are no data in a column or a row, they are replaced with a dash or “no”. If the text in a column or a row is repeated it can be replaced with quotation marks. Do not use quotation marks instead of repeated numbers, signs, mathematical and chemical symbols.

Numbers in columns must be arranged so that number classes in the entire column are exactly one below the other and have the same number of decimal places. The only exception is numbers with intervals of values.

**A lower font size** may be **used** in tables. The height of the rows in the table must be at least **8 mm**. It is not allowed to divide table headers diagonally.

If the Thesis contains only one table, it must be identified as Table 1.

Notes to tables are placed at the end above the line indicating the end of the table. The word “Notes” must be indented and begin with a capital letter with no underlying.

Table 1 – Relative energies of isomers (2’-, 3’-, 4’-, 6’-)-О- acetyl phenolglycoside in relation to the most stable

|  |  |
| --- | --- |
| Position of the acetyl group | Total energy |
| u | eV | kcal/mol |
| 2’ | 0 | 0 | 0 |
| 3’ | 0.01 | 0.27 | 6.28 |
| 4’ | 0.02 | 0.54 | 12.55 |
| 6’ | 0.01 | 0.27 | 6.28 |

 Tables in Appendices are numbered separately with the letters indicating the appendix and Arabic numerals.

*For example:*

Table B.1 if it is in Appendix B.

Refer to **Appendix B** for the examples.

**4.2.2 Illustrations**

Illustrations can be represented by **graphs, figures, schemes, charts, maps, and photos.** Illustrations are placed in the text immediately following the first reference to them or on the next page, or are provided in a separate appendix.

All illustrations must have **references in the text**, i.e. a serial number under which it is placed in the text, for example: (Figure 5).

Illustrations borrowed from works by other authors are provided with a **footnote reference or reference** to the entry in the Reference List (see 6.3.1).

Illustrations must be located in such a way so that they can be read **without turning the page or turning it clock-wise.**

Illustrations (graphs, diagrams, schemes) may be done both black-and-white or in colour with the use of the computer.

All illustrations are called figures and identified with the word “Figure”. Illustrations can be numbered sequentially **throughout** the text or **by sections** **(chapters)**. Illustrations are numbered with **Arabic numerals without symbol No and a period.** If illustrations are numbered by sections (chapters), the number of an illustration is preceded by the number of a section (chapter). In this case the number of the section (chapter) and the number of the figure are separated by a period. For example: In section (chapter) 4 – Figure 4.1; 4.2; 4,3; etc..

If there is only one figure, it must be identified as Figure 1.

The caption or name of the illustration is placed under the illustration in the center and always begins with a capital letter. There is no period at the end of the caption, for example:



Figure 1 – Scheme of measuring voltage across the coil

Figure 2 – Scheme of the first elementary act of the reaction of selective hydrolysis-protonation act

 Refer to TSU Standard 003-2006 for further information on the format of illustrations [11].

 **4.2.3 Formulae and Equations**

 Formulae and equations must be **located in a separate line.** Each formula or equation must be **single spaced above and below from the main text**. If equation cannot be written in one line, it must be broken after (=) or addition (+), subtraction (-), multiplication (x), or division (:), or other mathematical signs. Moreover signs must be repeated at the beginning of the next line.

 If a formula is broken at the sign of multiplication, use “x”.

 **Explanations** to the symbols and numerical coefficients must appear immediately **under the formula** in the order they are given in the formula. **The value** of each **symbol** and numerical coefficient must be **indented**. **The first line** of the explanation begins with the word “where” without colons. **The formula** must be followed **by a comma.**

 Mathematical equations are placed in the same way as formulae.

 It is acceptable to write formulae and equations by hand in black ink.

 Equations and formulae must be **numbered sequentially** throughout the text or within the section (chapter). Arabic numeralsare given **on the right** of the formula at the same level. Numbers are given in parentheses (in the rightmost position on the line).

 **Examples of formulae in the text.**

 Measuring the current is based on the measurement of the magnetic field at a given radius assuming the cylindrical symmetry of the system. Voltage *U* on the magnetic probe (loop) is described by Faraday’s Law:



where $\frac{dФ}{dt}$ is changes in the magnetic flow.

**4.3 References**

Authors must format the references to sources where they borrow materials or separate pieces of information.

A Reference proves factual validity of the Thesis. It provides bibliographic description of a cited, considered, mentioned document in the text sufficient for its search and identification.

All types of published and not published documents on any drives (including electronic resources of local and remote access), their separate parts or a group of documents make up the Reference List.

**According to GOST R 7.0.5-2008 [1], author can choose and use different types of references. Master’s Students in physics and technical specialties use endnotes.**

If the description of a cited or used document is included into the Reference List and numbered, it must be **referred** in the text by a reference number given in **square brackets** in line with the text.

The reference contains the number which gives a thorough description of the document in the list.

***For example:***

A.B. Evstegneev [13] and V.E. Gusev [27] believe that …

If an idea shared by several authors or in several works is borrowed, square brackets must contain only the numbers of the reference entries.

***For example:***

Some authors [59, 67, 82] think that…

If the author refers to a certain extract of the text, the reference must be given as follows:

***For example:***

[18, p. 75].

**5 Reference List Format**

**5.1 General Requirements**

The Reference List is an integral part of any research work. It is located after the main text of a FQP and allows the author to prove the validity and accuracy of borrowings – citations, ideas, facts, tables, illustrations, formulae, texts, and documents – the study is based on.

The Reference List demonstrates the depth and breadth of the study of the topic. It shows the researcher’s erudition and culture.

Each document included into the Reference List must be described in accordance with the requirements of the System of Standards on Information, Bibliography, and Publishing (SIBID): GOST 7.1–2003 [3], GOST 7.80–2000 [7], GOST 7.82–2001 [4], GOST 7.12−93 [10], GOST 7.11−2004 [2].

Formatting of the list is the last stage of the formatting the Reference List. Have a hanging indent left align, the first line of each reference with subsequent lines **indented** to the right to a width by 5-7 spaces or **1.25 cm, line spacing is 1.25 cm,** right and left **indent** equals **0** cm, spacing before and after is **0 pt**.

After **adding** all points to the list, sort the list in the alphabetic order using **the sorting function in Word.** The function is located in the main menu in the section **Paragraph.**

**5.2 Selecting the Title of the Reference List**

There are two options for the title:

BIBLIOGRAPHY

REFERENCES

If the list comprises **all the documents** studied by the researcher disregarding their use in the thesis, the list is called **Bibliography.**

If it includes only those sources that have been **analysed** in the review and **cited in the text**, choose the second title, which is **References.**

**5.3 Arranging Reference Entries**

References in the list are located in a particular order. Depending on the nature, type, and goal of the research paper, authors have two options for positioning entries in the list: alphabetic or chronological (when sources appear in the text). References must be **numbered continuously throughout** **the Reference List**.

**Alphabetic order**

The alphabetic order is the most common. References are located according to the Latin alphabet. Moreover, the first letter of the initial word of the entry is observed, i.e. author’s surname or name of the document if the author is not mentioned.

If there are **two authors with the same surname**, arrange them **according to the initial letters** of their names. The works **by the same author** are listed by the **year of publication**.

See the reference list template:

REFERENCES

1. Agranovich V.M. Poverkhnostnye poljaritony / V.M. Agranovich, D.L. Mills. – M: Nauka, 1985. – 525 p.
2. Gazoanalizatory na osnove spontannogo kombinatsionnogo rassejanija sveta: vozmozhnosti i perspektivy / M.A. Buldakov [et al.] // Datchiki i distemy. – 2012. – No4. – P.10-13.
3. Kukushkin V.I. Vzaimosvjaz gigantskogo usilenija signalov ramanovskogo rassejanija i luminestsentsii na nanostrukturirovannykh metallicheskikh poverkhnostjakh / V.I. Kukushkin, A.B. Vankov, I.V. Kukushkin // Pisma v ZhETF. – 2013. Vol.98, No6. – P. 383 – 388.
4. Fleishmann M. Raman – spectra from electrode surfaces / M. Fleishmann, P. J. Hendra, A. J. Mcquillan // Chem. Soc. – Chem. Comm. – 1973. – № 3. – P. 80–81.
5. Hippler M. Cavity-Enhanced Raman Spectroscopy of Natural Gas with Optical Feedback cw-Diode Lasers // Anal. Chem. – 2015. – Vol. 87, № 15. – P. 7803–7809.
6. Improved multiple-pass Raman spectrometer / K. C. Utsav [et. al.] // Appl. Opt. – 2011. – Vol. 50, № 24. – P. 4805–4816.
7. Moskovits M. Surface–enhanced spectroscopy // Rev. Mod. Phys. – 1985. – Vol. 57, № 3. – P. 783–826.
8. Novotny L. Principles of Nano-Optics / L. Novotny, B. Hecht. – Cambridge: Cambridge University Press, 2006. – 539 p.
9. Raman gas analyzer for determining the composition of natural gas / M. A. Buldakov [et. al.] // Appl. Spectr. – 2013. – Vol. 80. – P. 124–128.
10. Salter R. Cavity-enhanced Raman spectroscopy with optical feedback cw diode lasers for gas phase analysis and spectroscopy / R. Salter, Chu J., M. Hippler // Royal Soc. Of Chem. – 2012. – Vol. 137, № 20. – P. 4669–4676.

**Reference List Format**

Number references sequentially **in the order they appear in the text**. **Identify** references **with Arabic numerals** **without a period** with a paragraph indention. Reference Style Sample:

1. Gazoanalizatory na osnove spontannogo kombinatsionnogo rassejanija sveta: vozmozhnosti i perspektivy / M.A. Buldakov [et al.] // Datchiki i distemy. – 2012. – No4. – P.10-13.
2. Improved multiple-pass Raman spectrometer / K. C. Utsav [et. al.] // Appl. Opt. – 2011. – Vol. 50, № 24. – P. 4805–4816.
3. Salter R. Cavity-enhanced Raman spectroscopy with optical feedback cw diode lasers for gas phase analysis and spectroscopy / R. Salter, Chu J., M. Hippler // Royal Soc. Of Chem. – 2012. – Vol. 137, № 20. – P. 4669–4676.
4. Hippler M. Cavity-Enhanced Raman Spectroscopy of Natural Gas with Optical Feedback cw-Diode Lasers // Anal. Chem. – 2015. – Vol. 87, № 15. – P. 7803–7809.
5. Raman gas analyzer for determining the composition of natural gas / M. A. Buldakov [et. al.] // Appl. Spectr. – 2013. – Vol. 80. – P. 124–128.
6. Moskovits M. Surface–enhanced spectroscopy // Rev. Mod. Phys. – 1985. – Vol. 57, № 3. – P. 783–826.
7. Fleishmann M. Raman – spectra from electrode surfaces / M. Fleishmann, P. J. Hendra, A. J. Mcquillan // Chem. Soc. – Chem. Comm. – 1973. – № 3. – P. 80–81.
8. Kukushkin V.I. Vzaimosvjaz gigantskogo usilenija dignalov ramanovskogo rassejanija i luminestsentsii na nanostrukturirovannykh metallicheskikh poverkhnostjakh / V.I. Kukushkin, A.B. Vankov, I.V. Kukushkin // Pisma v ZhETF. – 2013. Vol.98, No6. – P. 383 – 388.
9. Agranovich V.M. Poverkhnostnye poljaritony / V.M. Agranovich, D.L. Mills. – M: Nauka, 1985. – 525 p.
10. Novotny L. Principles of Nano-Optics / L. Novotny, B. Hecht. – Cambridge: Cambridge University Press, 2006. – 539 p.

**6 Bibliographic Description of Reference Entries**

**Bibliographic description** is a set of bibliographic data recording and identifying a publication structured according to certain rules specified by the standard.

**6.1 Book and brochures**

***Books with one author***

Avdjushev V.A. Chislennoe modelirovanie orbit / V.A. Avdjushev V.A. – Tomsk : NTL. 2010. – 282 p.

Nembach E. Particle Strengthening of Metals and Alloys / E. Nembach. – N. Y. : John Wiley & Sons, Inc., 1997. – 285 p.

***Books with two authors***

Agranovich V.M. Poverkhnostnye poljaritony / V.M. Agranovich, D.L. Mills. – M: Nauka, 1985. – 525 p.

Novotny L. Principles of Nano-Optics / L. Novotny, B. Hecht. – Cambridge : Cambridge University Press, 2006. – 539 p.

***Books with three authors***

 Gill F. Prakticheskaja optimizatsija: transl. from English / Ph. Gill, W. Murray, M. Wright. – M. : Mir, 1985. – 509 p.

 Bagrov V.G. Dopolnitelnye glavy matematicheskoj fiziki (kalibrovochnye polja) : study guide / V.G. Bagrov, A.S. Vshivtsev, S.V. Ketov. – Tomsk: TSU Publishing house, 1990. – 144 p.

***Edited books***

 Teorija izluchenija reljatevistskikh chastits / V.G. Bagrov [et al.]; Ed. V.A. Bordovitsina. – M. : Fizmatlit, 2002. – 576 p.

Shape Memory and Superelastic Alloys: Applications and Technologies / K. Yamauchi [et al.]. – Woodhead Publishing, 2011. – 215 p.

***Multivolume work***

 Metally s effektom pamjati formy: reference book: 4 vol. / Ed. V.A. Likhachev. – St. P.: NIIKh SpbGUb Publ., 1998. – Vol.4. – 268 p.

 Meditsinskie materialy i implantaty s pamjatju formy: 14 vol. / Ed. V.E. Gjunter. – Tomks : MITs Publ., 2011. – Vol.1. – 534 p.

***Study guides***

 Borisov A.V. Magnitnoe pole katushek Gelmgoltsa i izmerenie ikh induktsii s pomoschju effekta holla: methodological instructions for laboratory practice / A.V. Borisov. – Tomsk 2014. – 15 p.

 **6.2 Synopses of Dissertations and Dissertations**

***Synopsis of dissertation***

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APPENDIX A

**Title Page Template**

Ministry of Education and Science of the Russian Federation

NATIONAL RESEARCH

TOMSK STATE UNIVERSITY (NR TSU)

Faculty of Physics

Department of General and Experimental Physics

ADMIT TO DEFENCE AT THE SEB

Director of the BEP

Dr. Physics and Maths, professor,

V.P. Dyomkin

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2017

**MASTER’S THESIS**

CD16-BINDING RECOMBINANT BISPECIFIC ANTIBODIES IN TREATMENT OF MULTIPLE MYELOMA AND BREAST CANCER, ALGORITHMS FOR IDENTIFICATION AND ANALYSIS OF TUMOUR CELLS BY COLOURFUL IMAGES

in the basic educational programme of training Master’s Students

in subject area 03.04.02 – Physics

Valerija S. Gulaja

Research supervisor of the Thesis

Dr. Tech., Prof.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_V.I. Syrjamkin

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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2017

Research supervisor of the Thesis

PhD, Associate Professor

\_\_\_\_\_\_\_\_\_\_\_\_ W.T.V. Germeraad

 *signature*

Author of the Thesis

student of group No\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ V.S. Gulaja

 *signature*

Tomsk

2017

APPENDIX B

**Assignment for the Master’s Thesis**

NATIONAL RESEARCH

TOMSK STATE UNIVERSITY (NR TSU)

Faculty of Physics

Department of General and Experimental Physics

**ASSIGNMENT**

**for preparing the Master’s Thesis**

Master’s Student \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 surname, name, patronymic, programme

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Topic of the Master’s Thesis \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Research Supervisor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 surname, name, patronymic, academic degree, title

Terms of completion:

1. Preliminary plan and schedule for writing the Master’s Thesis from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Search and study of required legal documents, acts and special literature from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Collection and analysis of practical material from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

what kind of practice is supposed to be studied

1. Final plan of the Master’s Thesis from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Writing and formatting the Master’s Thesis from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Preparing and publishing an abstract of the Master’s Thesis from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Public presentation of the main ideas of the Master’s Thesis/ participation in a planned research and scientific conference from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Preparing a synopsis of the Master’s Thesis from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

I declare that I have familiarised myself with the Guidelines for Preparing a FQP. I further accept the assignment for execution \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 date and signature of the Master’s Student

APPENDIX C

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