Riga Technical University

Institute of Energy Systems and Environment

Final Thesis formatting guidelines

in the academic Bachelor's study program "Environmental Engineering"
and the academic Master's study program "Environmental Engineering"

Final Thesis formatting guidelines in the academic Bachelor's Study Program "Environmental Engineering" and the academic Master's Study Program "Environmental Engineering."
Riga: RTU IESE: 2024. 24 p.

The final thesis formatting guidelines are intended for students of the Bachelor's and Master's level study programs "Environmental Engineering" at the Faculty of Natural Sciences and Engineering of RTU (Riga Technical University), academic staff, thesis supervisors, reviewers, and members of the final defense committee.

The final thesis formatting guidelines were created by the RTU IESE working group (academic staff and doctoral students).

PREFACE

These guidelines for formatting the final thesis have been prepared to help graduate students in developing their final theses – bachelor's or master's theses (hereinafter referred to as "theses") in the Riga Technical University (RTU) programs "Environmental Engineering". The formatting guidelines ensure that the theses are uniformly prepared for defense and for obtaining a program degree. Students should carefully read these guidelines.

General requirements for final theses (both bachelor's and master's theses), as well as the procedures for developing and defending final theses at Riga Technical University, are regulated by the "Regulations on Final Examinations at Riga Technical University" and the "Methodological Guidelines for the development and defense of the final theses within the study direction "Environmental Protection" Bachelor and Master degree programs "Environmental Engineering".

TABLE OF CONTENTS

FINAL THESIS STRUCTURE

1. The final thesis is a carefully argued scientific work. It should provide an original result, which is carefully documented from primary and/or secondary sources. The thesis must be a significant research component and focus on a scientific field. The final thesis allows the student to demonstrate knowledge in the chosen research area, combining theoretical knowledge, professional expertise, skills, and competencies. The structure of the final thesis (both bachelor's and master's theses) must follow the structure outlined below:
    *   Introduction: 3–5%
    *   Literature Review: 25–30%
    *   Main Research Section (Methodology, Results, and Discussion): 60–69%
    *   Conclusions and Recommendations: 3–5%
2. The final thesis (both bachelor's and master's theses) must contain the following sections:
    *   Title page
    *   Signature page
    *   Declaration of authorship
    *   Supervisor's task
    *   Abstract in two languages (Latvian and English)
    *   Table of contents
    *   List of figures
    *   List of tables
    *   Abbreviations
    *   Introduction
    *   Literature review
    *   Methodology
    *   Results and discussion
    *   Conclusions and recommendations
    *   References
    *   List of author's publications (if applicable)
    *   List of author's presentations (if applicable)
    *   Appendices
3. The volume of the final thesis:
    *   For a bachelor's thesis, at least 50 pages (counting from the page "Introduction" to the page "Recommendations").
    *   For a master's thesis, at least 60 pages (counting from the page "Introduction" to the page "Recommendations").

The total length of the thesis should be chosen so that it fully covers the topic and achieves the objectives of the thesis.
Note: The section numbering starts from the "Literature Review."

Abstracts should NOT repeat the author, supervisor, or thesis title.

The introduction is divided into the following sections: Problem, Relevance of the Research, Research Aim, Objectives, Tasks, Novelty, Practical Significance, Hypothesis.

Conclusions are given after each main section, summarizing the key ideas, results, and conclusions. These should be written in bullet points, in a thesis form.

The methodology section, as well as the results and discussion, must include a detailed description of all research methods used in the work (e.g., theoretical, experimental, modeling methods).

TECHNICAL FORMATTING OF THE FINAL THESIS

Body text

4. The text is written using:
   - Times New Roman font;
   - Font style – Regular;
   - Single line spacing between lines;
   - Font size – 12 pt;
   - Justified alignment (aligned on both sides).
5. The page margins are as follows:
   - Right and left margins – 2.5 cm;
   - Top margin – 2 cm;
   - Bottom margin – 3 cm;
   - Header and footer – 1.3 cm. The header and footer should remain empty.
6. A new paragraph is indicated by indenting the first line with 1 cm. No spaces between the paragraphs are required.
7. All pages shall be numbered with Arabic numerals, placed at the bottom, middle of the page. Do not use lines, dots, or any other marks before or after the number. The first page (up until the literature analysis) is not numbered, but it counts toward the total number of pages. Therefore, page numbers should be placed starting from the "Literature Analysis" section.

Note: References should NOT be placed at the bottom of the page, at the end of a chapter, or at the end of the Thesis before the reference list.

Headings

8. Each chapter of the Thesis starts on a new page. Subchapters are continued on the same page. The space between the heading and the text is: 12 pt from the previous text, and 6 pt from the following text.
9. Chapter titles are written in:
   - Capital letters (CAPS);
   - Times New Roman font;
   - Font style – Bold;
   - Font size – 14 pt.
10. Subchapter headings should have only the first letter capitalized, followed by lowercase letters.
    They are written:
    - In Times New Roman font;
    - Font style – Bold;
    - Font size – 13 pt.
11. A third-level subheading does not need the bold font style.
12. The formatting style for a fourth-level subheading is the same as for a third-level subheading, except it should not be numbered.
13. Headings are centered on the page with no indention from the left side.

Note: Syllabification, letter underlining, and full stops are not applied in the titles and headings

14. The main chapters of the Thesis should be numbered consecutively, with the number placed before the title. The chapters should be numbered using Arabic numerals, e.g., 1, 2, etc. Subchapters should be numbered consecutively with the chapter number, using two Arabic numerals, e.g., the numbers for the subchapters within the first chapter shall be 1.1, 1.2, etc. If a subchapter consists of multiple sections, they should be numbered accordingly within that subchapter using three Arabic numerals, e.g., 2.2.1, 2.2.2, etc. For subchapters, use Arabic numerals or lowercase letters in parentheses, e.g., 1), 2) or a), b), etc. The first letter of the text after the number should be capitalized. Only the main research chapters, i.e., Literature Analysis, Methodology, Results, and discussion, are numbered. Other chapters should remain unnumbered.

Example. Formatting headings
1. TITLE (1st LEVEL)

1.1. Sub-title (2nd level)

1.1.1. Sub-title (3rd level)

Sub-title (4th level)

Tables and figures

15. Tables and figures must be clear, self-explanatory, accurate, easy to understand, and memorable. The titles of tables and figures should be sufficiently clear and understandable.
16. Tables and figures (graphs, charts, drawings, and photographs) must be embedded in the document. They should be placed between paragraphs after (or close to it) their first mention in the text.
17. Figures should be large enough to be easily readable; tables that are larger than half a page should be split into several smaller ones.
18. There must be at least two sentences of text between table and table, figure and figure, table and figure. They should not be placed one after the other.

Note: Tables and figures should be in the same language as the rest of the Thesis.

19. Figure titles should be placed below the figure, not in text boxes linked to the figure. Table titles should be placed above the table.
20. The text must include at least one sentence summarizing or explaining the content of the figure or table. Also, it should be verified that the figures and tables mentioned in the text really exist.
21. The figures are placed centered with no indentations. They should be numbered within the relevant chapter (for example, "Fig. 1.3" refers to the third figure in the first chapter). Each figure should be given a title. If there is only one figure in the work, it should not be numbered but should have a title. The figure number and title should be symmetrically centered below the figure.

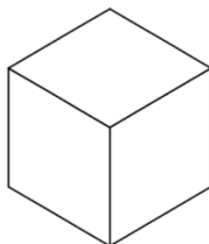**Example**: Formatting of the third figure in the first chapter:

Fig. 1.3 Title of the figure

22. The word "Fig." should be followed by one space, an Arabic numeral, a period, one blank space, the title with the first word capitalized. No period should be placed after the title.
23. The font style for figure captions should be:
    - *Times New Roman* style, font style – Regular
    - Font size – 12 pt
24. There should be a 12 pt space before and after the figure, and between the title and the text.
25. If the figure requires explanations, they can be placed below the title. The font size for explanations - 10 pt.
26. References to figures is given in the text and written as "Fig. 1" or "Figs 2 to 4", using "Fig." capitalized and abbreviated (unless it is the first word in a sentence) and without period at the end (unless the reference appears at the end of a sentence).

Example …the process is illustrated in the scheme provided in Fig.1.3.

Figure 1.3 shows…", or "… (see Figs.1.3 and 2.4)

27. Recommended style for figure titles: *Times New Roman*. The font size should match the text font size. Figure lettering should be large enough to be easily readable when the drawing is reduced. Axes titles in graphs should be labeled with words, not symbols. For example, label the axis as "Pressure," not just "p." Units of measurement should be placed in parentheses.

28. If the figure has two or more parts, label them as "(a)", "(b)", etc., as part of the figure.
29. If scanned figures are included, they must be clear, with all legends and data visible, and easily readable. If this is not possible, the figure should be redrawn, especially if the figure is simple. If figures are borrowed from another source, this should be properly cited.
30. Tables included in the work must be numbered and given titles. Tables should be centered with no indentation from the margins.
31. The title of a table should be placed above the table, on the right side, with no indentation. The word Table should be followed by one space, an Arabic numeral, a period, one space, and title, with only the first word capitalized. No period should be placed at the end of the title. Tables are numbered within the corresponding chapter with Arabic numerals (e.g. Table 1.3. refers to the third table in the first chapter). If the Thesis contains only one table, it is not numbered, but it is given a title. The space before and after the table caption should be 12 pt and 6 pt.
32. Tables should be as simple as possible. The text in the table should be written using *Times New Roman* style, with single space between the lines and font size 12 pt (the font size can be reduced to readable values, but not less than 9 pt). Tables should have single horizontal lines (½ pt) above and below column headings and subheadings, as well as at the bottom of the table (if needed, horizontal lines can be placed between rows). The number of columns should be limited to 10, as too many columns make the table hard to read. Vertical lines and shaded areas should be avoided as much as possible. Self-formatted borders or frames should not be used around tables.
33. All tables are prepared using *Word's* table creation functions. Tables should be fitted in the page using the *AutoFit* option: first *AutoFit-to-Contents* and then *AutoFit-to-Window*. Other options from the menu can be used to adjust the cells: *Insert, Delete, Merge cells, Distribute columns evenly, Align text,* etc.

Example : Table formatting across pages:

Table 1.3 Title of the table

Month	ρ_{cs}, %	ρ_{ps}, %	ρ_{os}, %
Jan	5.88	36.88	57.24
Feb	6.79	45.65	47.57
Mar	5.48	40.40	54.12
Apr	16.39	51.58	32.03
May	11.18	45.27	43.55

34. After the table, include one blank row.
35. A reference to a table is given in the text and is written as "Table 1" or "Tables 2 to 4". The word "Table" should not be abbreviated.

Example
As can be seen from the data in **Table 3.1**, ...

The data from **Table 3.1** shows ... (see **Table 3.1**).

36. Only the title and the first row of the table MUST NOT be left on a separate page from the rest of the table content, they must be moved to a new page. If there are, for example, three rows left on one page, the table should be split onto a new page.

Example: Splitting a table onto a new page

Table 3.1. Title of the Table

Month	ρ_{cs}, %	ρ_{ps}, %	ρ_{os}, %
Jan	5.88	36.88	57.24
Feb	6.79	45.65	47.57
Mar	5.48	40.40	54.12
Apr	16.39	51.58	32.03

Table 3.1. continuation

May	11.18	45.27	43.55
Jun	12.87	33.68	53.45
Jul	15.94	40.45	43.62
Aug	6.10	50.22	43.68

Note: Figures and tables should not exceed half a page. If they are larger, they must either be split or placed in the appendices.

Equations

37. The mathematical formulas and equations are placed in the text,however, each formula is written on a separate line. The symbols used in equations must be explained below the formula. The formulas are numbered with Arabic numerals, which are placed in the brackets on the right of the formula, within the corresponding chapter. If there is only one formula in the Thesis, it is not numbered.

Example. Formatting the first equation in Chapter Two

$$m = \frac{V \cdot M}{V_0}$$

(2.1.)

Where:
m - mass, g
V - volume, l
M - molecular weight, g/mol

V_0 - molar volume of an ideal gas at standard temperature and pressure, l/mol.

38. If the formula consists of several rows, the formula number is indicated in parentheses at the level of the last row of the formula on the right side.
39. When a reference to a formula is provided in the text, its number is provided in the same way – in parentheses. Equations should be referred in the text by "Equation (2.1)"

Example

Equation (2.1.) is used ....

9

40. A recommended order of closures for parenthesis, is the following: { [(….)] }

41. Equations that are simple, short, and not of major importance can be left in the text, and written in single-line form (for example, for fractions use $\beta = a/b$). Equations are inserted into the text using the symbols from the Symbol dialog box.

Appendices

42. Some supplementary materials, that cannot be placed into the main body of the Thesis, are provided in the appendices, under the title "Appendices" placed on a separate page (formatted as a chapter heading without any numbering).

43. Each appendix starts on a separate page. In the top right corner of the page the sequence number of the appendix is provided, e.g., Appendix 1, Appendix 2, etc. In the center of the next line the title of the appendix is given. If there is only one appendix in the Thesis, the title is not required, and the appendix is not numbered. The reference to an appendix should be given in the text.

Example

… the data is provided in the Appendix 1.,

… (see App.1).

44. The page with the title "Appendices" is numbered and shown in the Table of contents. Also, other pages of appendices are numbered, but are not included in the Table of contents.

RTU IESE prepared *Word* document

Please note that a *Word* file has been created with the first pages already prepared: title page, declaration, etc. This file must be used by the student for writing and formatting their final thesis (the file is available to students in the "Bachelor's Thesis" and "Master's Thesis" courses in the ORTUS e-learning environment, as well as on www.videszinatne.rtu.lv under the "Guidelines" section).

Citations and references

45. It is vital that the sources of information that have been used for the Thesis are cited. This will help protect you from accusations of plagiarism and demonstrate an understanding of the importance of professional research work.

46. The sources must be cited whenever another person's ideas or points are paraphrased or when another person's work is quoted. If tables, images, etc., are used that are taken from another source, this must also be appropriately indicated.
There are two options for acknowledging the used sources:
- to place the reference in the text after the quote to indicate where the work of others has been used;
- to place the references at the end of the work in the "References" section.

47. Two citing methods may be used – *Harvard* and *ISO 690 (Numerical Reference).* In Harvard style you place authors surname and year of the publication at the end of the citation. In ISO 690 instead of the surname and year you shall place [number] of the reference, starting with the [1] and going in the rising order.

Citing using Harvard style

48. In the work, when referring to someone else's words or ideas, the source is indicated. In the relevant part of the text, the author's surname and the publication year are given in round brackets. If the author's name is included in the sentence, only the publication year is indicated in brackets."

   Example

   It has been argued (Harris, 2001) that the main considerations are…

   It has been argued by Harris (2001) that the main considerations are…

49. For books prepared by a collective of authors, the chapter author is cited, not the editor of the entire book.
50. If you are citing different publications written by the same author in the same year, label the first one cited with the letter 'a' after the year and the second 'b' etc., for example, (Smith, 2004a), (Smith, 2004b). The same is done in the list of references.
51. If the work has two authors, both of their surnames are included in the reference, for example, (Cullingworth un Nadin, 2007) or Cullingworth un Nadin (2007).
52. If there are three or more authors, the abbreviation "et al." (and others) is used after the first author's surname, for example, Tayler et al. (2003) or (Tayler et al., 2003).
53. If a question is addressed that has been discussed by several authors who have expressed similar opinions, all of them are included in one set of brackets in chronological order. Works published in the same year are listed in alphabetical order, for example, (Midgley, 1994; Smith, 2004; UNCHS, 2006; Gandelsonas, 2012).
54. If possible, refer to the original source. However, sometimes it may be necessary to cite an author whose work has not been read, but has been presented or summarized by the author of the publication that has been read:

   Example

   Rondinelli (1993), cited in Potts (2012, p. 37), describes the stages of a project…

   or

   A process project might consist of a number of stages including experimentation andproduction (Rondinelli, 1993, cited in Potts 2012, p. 37).

Direct source citation

55. The information provided by the authors is paraphrased in your own words, rather than directly quoting many of their works, as this demonstrates an understanding of the information read. An exact quote may be necessary if:
    - it is not possible to present the information more concisely or in a different way;
    - a part of the author's text is needed for further analysis.
56. If the quote is short, place the author's words in quotation marks, then cite the author, date, and page number.

   Example

   Key causes of economic deprivation include low income or unemployment which are often the result of "poor qualification levels and lack of basic skills" (Thake and Saubach 1993, p. 18).

57. For longer quotes, the source is indicated above the quote. When using a quote, quotation marks are not used.

Example

As Joia and Sanz (2005, p. 5) observe:
In specific terms, it might be imagined that the benefits of web consumer retention would only seem to be advantageous for digital companies that are client-centric, which can interact with these consumers. Furthermore, the mere fact of using transactional practices, lowdifferentiation between products and the emphasis on promotion of price on the web would seem to increase sensitivity to price.
In the current fiercely competitive internet commerce climate, it would seem that these observations might well be borne out.

58. If some words are omitted from the quote, this is indicated by inserting three dots, for example, "The state has an essential role … in the legal definition of property rights" (Deininger 2003, p. 69).
59. If you add your own text to a quote, it should be placed in square brackets […] to make it clear which words are the author's and which are yours. The quote must exactly match the original; no bold or italic text should be added.

References

60. References mean a complete description of each source cited in the text, in the reference list or bibliography at the end of the work (under the heading "References").
61. The list of references is written in alphabetical order: first the author's surname, then the initials. Using the ISO 690 style, sources in the reference section are arranged in the order of their use.
62. References by the same author are arranged by the year of publication, starting with the oldest.
63. The titles of books, reports, and conference papers are italicized. For journal articles, the journal name (not the article title) is italicized.
64. The first letter of each author's surname and first name is capitalized. The title of the publication, all place names in the title, and the publisher's name are also capitalized. The title of the publication is italicized.
65. References should be formatted as follows:
    - In *Times New Roman* style;
    - Font size 12 pt;
    - Single line spacing;
    - A 6 pt space before and after each reference;
    - Text *Justified*;
    - Each subsequent reference has a *Hanging* indent of 1.5 cm.

Example. Reference formatting

Cooke, D.J. and Philip, L. 2001. To treat or not to treat? An empirical perspective. *In: Hollin,*
C.R. ed. Handbook of offender assessment and treatment. Chichester: Wiley, pp. 3-15.

Potts, D. 2002. Project planning and analysis for development. *Boulder*, Colorado: Lynne Reinner.

Redknap, M. et al. eds. 2001. Fourth International Conference on Insular Art. *National Museum & Gallery*, Cardiff, 3-6 September 1998. Oxford: Oxbow.

General Rules for Formatting References

Book

Include the following information: Author. Year. *Title of the book*. Place of publication: Publisher.

Example

Potts, D. 2002. *Project planning and analysis for development*. Boulder, Colorado: Lynne Reinner.

If the book has three or more authors, include all their names or simply write the first author's name, followed by *et al.* If the book used in the work is its second or later edition, include this information in the reference as well.

Example

Seifert, K. L. et al. 2000. *Lifespan development*. 2nd ed. Boston: Houghton Mifflin.

Seifert, K. L., Hoffnung, R.J. and Hoffnung, M. 2000. *Lifespan development*. 2nd ed. Boston: Houghton Mifflin.

Book Chapter

Edited books contain collections of chapters which are written by different authors. To reference a chapter in an edited book you need to include the following information:
Chapter author(s). Year. Chapter title. In: Book editor(s) ed. *Title of the book*. Place of publication: Publisher, page numbers of the chapter.

Example

Cooke, D.J. and Philip, L. 2001. To treat or not to treat? An empirical perspective. In: Hollin, C.R. ed. *Handbook of offender assessment and treatment*. Chichester: Wiley, pp. 3-15.

Journal Article

References can be made to both printed and electronic articles. When citing a journal article, include:
Author. Year. Article title. *Journal Title* volume (issue), page numbers.

Example

Waterson, M. 2003. The role of consumers in competition and competition policy. *International Journal of Industrial Organization* 21(2), pp. 129-50.

Conference Proceedings

When citing materials from conference proceedings, the first reference should be to the author of the material. Also, include the page numbers in the proceedings.

Fledelius, H.C. 2000. Myopia and significant visual impairment: global aspects. In: Lin, L.L.-K.et al. eds. *Myopia Updates II: Proceedings of the 7th International Conference on Myopia*. Taipei, 17-20 November, 1998. Tokyo: Springer, pp. 31-37.

When referring to conference proceedings, the first element in the reference is the person or organization responsible for editing the text. Include the location and dates of the conference.

Redknap, M. et al. eds. 2001. *Fourth International Conference on Insular Art*. National Museum& Gallery, Cardiff, 3-6 September 1998. Oxford: Oxbow.

If no editor can be traced, replace it with the name of the conference.

Building on the evidence: proceedings of the second conference on evidence-based Practice. 1999. 16-17 April 1999. Norwich: Norfolk Healthcare Trust.

It is referred to in the main text as (*Building on the evidence*, 1999).

Report

If the author is not specified, use the organization's name.

European Commission. 2004. *First report on the implementation of the internal market strategy 2003-2006*. Luxembourg: Office for Official Publications of the European Communities.

Thesis

For theses, indicate the level of the work (e.g., MA, MSc, or PhD) and the institution where the work was completed.

Boyce, P. J. 2003. GammaFinder: a Java application to find galaxies in astronomical spectral line datacubes. MSc Dissertation, Cardiff University.

Bin Omar, A. 1978. Peasants, institutions and development in Malaysia: the political economy of development in the Muda region. PhD Thesis, Cornell University.

Newspaper Article

The formatting is similar to journal articles, but you also need to specify the exact publication date. The same formatting applies to references to online versions.

Example

Benoit, B. 2007. G8 faces impasse on global warming. Financial Times 29 May 2007, p.9.

Electronic Journal Article

If the electronic journal article is also available in print and if the layout, page numbers, text, and images are exactly the same, it can be referenced as a printed journal article. If the journal article is only available online or differs from the printed version, include the date when it was accessed, and the URL:

Author(s). Year. Article title. *Journal Title*. [Online] volume. Available: URL [Accessed: date when the link was accessed].

Example

Merchent, A.T. 2007. Diet, physical activity, and adiposity in children in poor and rich neighbourhoods: a cross-sectional comparison. *Nutrition Journal* [Online] 6. Available at: http://www.nutritionj.com/content/pdf/1475-2891-6-1.pdf [Accessed: 27.02.2007.].

Internet Resources

It can be difficult to cite a website. If no author is specified, mention the responsible organization for the site. If that cannot be determined, it may indicate the source is not of sufficient quality. Include the following information where possible:

Author (if possible) or Organization. Publication date. *Title of the document* [Online]. Place: Publisher (if possible). Available: URL [Accessed: date when the link was accessed].

For individual works found online, format references as follows:

Author or Editor (if possible). Year (if possible). *Title* [Online]. Place: Publisher (if possible). Available: URL [Accessed: date when the link was accessed].

Example

Lane, C. et al. 2003. *The future of professionalized work: UK and Germany compared* [Online]. London: Anglo-German Foundation for the Study of Industrial Society. Available at: http://www.agf.org.uk/pubs/pdfs/1232web.pdf [Accessed: 10.05.2007.].

The publisher and place of publication can be considered as the organization responsible for creating the site.

Always include the date the website was accessed along with the URL. Since websites may no longer be available, it is important to state that the information was accurate on the specified date.
Wikipedia is not considered a scientific source, and its use in writing a Thesis should be avoided.

Personal Communication

Example

Smith, K. 2004. Email to B. Robertson 14.04.2004.
Young, Z. 2007. Letter to S. Nicholas 28.09.2007.

When citing a message in a virtual discussion forum and/or virtual learning environment, include the following information:
Author. Year. Message title. _Discussion site/Forum name_. In: _Institution name_ [Online] Publication Day Month Year. Available: URL [Accessed: Day.Month.Year].

Example

Smith, A. 2010. Quality of Wikipedia articles. _Wikipedia debate discussion board_. In: _StudySkills_ [Online] 12.07.2010. Available at: http://cue.cf.ac.uk [Accessed: 18.07. 2010].

Example. Providing information for discussion

Little, L. 2002. Two new policy briefs. _ECPOLICY discussion list_ [Online] 16.04.2002.Available at: http://www.askeric.org/VirtualListserv_Archives/ECPOLICY/2002/Apr_2002/

Msg00003.html [Accessed: 8 November 2003].

! For all email references, the title of the message comes from the email subject line.

References by _Mendeley_

Mendeley is a free tool that lets you manage your library with the following features:
- Add PDF files to your library.
- Import / export files from other bibliographic management tools such as _EndNote_,_BibTex_ and _RIS_.
- Find documents online by document ID (for example, DOI) or by name and add them to your library.
- Import one-click links from a web site such as _EBSCO_ or _SpringerLink_ etc.
- Manage your documents and bibliographic references.
- Add bibliographic references after the selected citation in _MS Word_ and _Open Office_ standard documents and automatically create a list of bibliographic references (references).
- Share documents on the _Mendeley_ network.

User Registration

To use Mendeley, you must register on the *mendeley.com* website. It is recommended to use the RTU-provided email address when registering to fully utilize the opportunities offered by the university in the future. Mendeley has several user editions:

- *Mendeley Web* – a social network for collaboration and communication with other researchers, document sharing, and creating a library for the research team;
- *Mendeley Desktop* – an application that must be installed on your computer. *Mendeley Desktop* allows you to manage your library and references. Synchronization between *Mendeley Web* and the local application is provided;
- *Mendeley Mobile* – a mobile application with limited functionality compared to *Mendeley Desktop*, primarily designed for reading, searching, and less for document processing.

Building a Library

The *Mendeley* tool allows you to create a library with or without full-text sources. This tool can be used both as a collection of read books and as a list of unread books. It allows you to easily organize sources, add descriptions to sources, and automatically insert bibliographic data from PDF files and web resources. The PDF file format is the most common format for sources, so *Mendeley* provides several features for working with them.

You can add PDFs to your library by clicking the *Add Files* button or by using the *Drag & Drop* function to place the file in the *All-Documents* list (Fig.1.).

Mendeley will automatically attempt to determine the bibliographic data of the attached PDF document - title, year of publication, pages (Fig.2.).

If all bibliographic data is complete and correct, you can press the *Details are Correct* button. Alternatively, you can press *Search*, and *Mendeley* will try to find information about this document online and complete it. The user may also fill in the missing information himself if *Mendeley* fails to complete the bibliographic data. It is recommended that you fill in the DOI field if the document is assigned a DOI. With DOI*, Mendeley* can retrieve missing data. It is recommended that you fill in as much bibliographic information as possible, as this will be useful in automatically creating references and a list of references. *Mendeley* provides the ability to import / export documents from other bibliographic reference tools such as *EndNote, BibTex* and *RIS*.
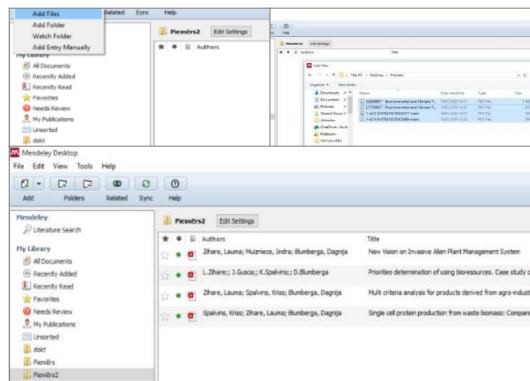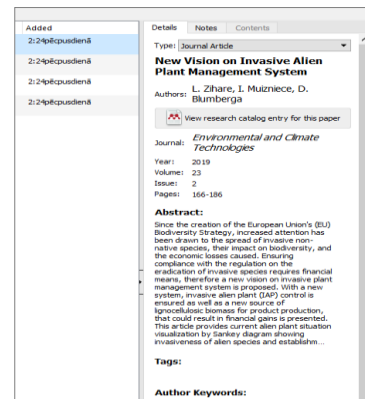

Fig.1. Adding PDF file in Mendeley

Fig.2. Automatic identification of the bibliographical data in Mendeley

Another way you can add documents to your library is to enter a document ID such as DOI and have *Mendeley* find the document online. You must select *File / Add Entry Manually*and enter a DOI. You need to press a button similar to a magnifying glass and *Mendeley* will find the document. You need to press the *Save* button and the document will be saved to the *Mendeley* library (Fig.3.).

File /Add Entry Manually can be used to enter descriptions of other sources. After calling the tool, you must select the source type and fill in the required fields (Fig.4.).
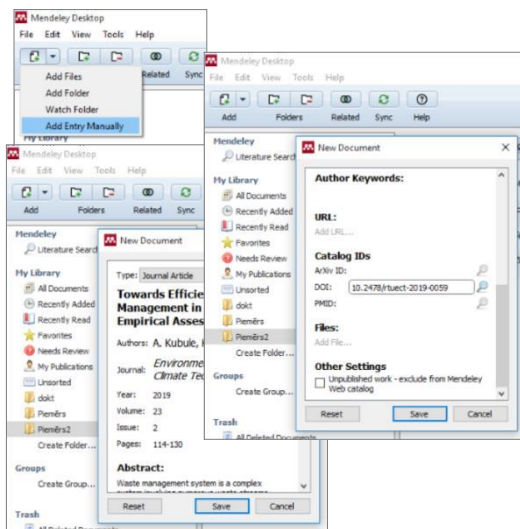
Fig.3. Adding a source by *DOI*
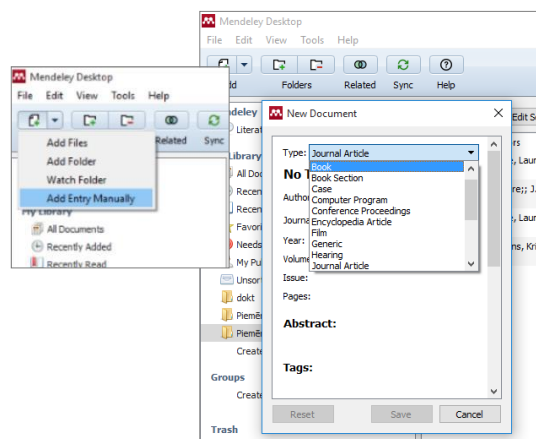
Fig.4. Adding a source by *Add Entry Manully*

A window will open, explaining how the *Web Importer* works in different browsers. It should be added to the browser's bookmarks, which are always visible and accessible when you need to import a source from an open website. For example, if a publication is open in the IEEE database that needs to be cited in your work, the "*Save to Mendeley*" button, which needs to be clicked, will appear in the browser bookmarks (Fig. 5.).

Clicking *Save to Mendeley* opens a window showing bibliographic data for the publication. If all is correct, click *Save,* and the publication will be automatically added to the *Mendeley* library and referenced in your work. Imported publications can be repaired or opened directly in the *Mendeley* app.
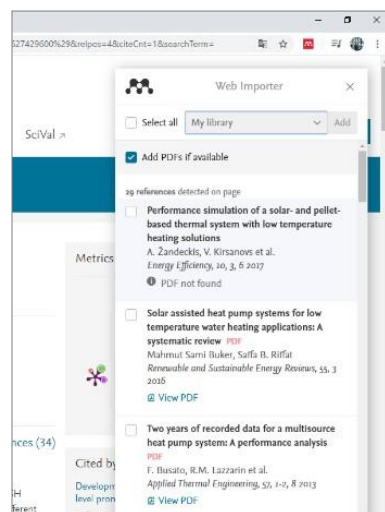

Fig.5. Saving bibliographic data from the browser

Mendeley provides the ability to automatically replenish the *Mendeley* library even when a document is stored in a specific folder that the user wants to add to his or her library(Fig.6.).

For example, if a user searches for keywords in a RTU subscribed database and saves the found documents as PDFs in a folder on his computer for later reading, *Mendeley* can set the function to automatically add all PDFs stored in that folder to the *Mendeley* library so that you can refer to them later and quote them.
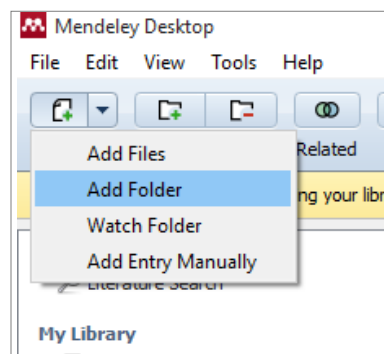
Fig.6. Adding a reference from a folder

This feature is called *Watched Folders*. It can be accessed from *Tools / Options / Watched Folders.* When using this feature, it should be noted in which folders the PDF documents saved should be added to the *Mendeley* library. *Mendeley* provides the ability to synchronize the *Mendeley Desktop* with the *Mendeley Web*, for example, if a user wants to access his or her library online from anywhere by authentication to the *Mendeley Web* site. In order to use synchronization you must enable the *synchronization feature Sync.* This can be done from *All Documents / Edit Settings.* You should check the *Synchronize* attached files check box. You can choose whether documents in your entire library will be synchronized or just documents in a specific folder. You need to keep track of your GB volume so that it does not exceed the amount provided free of charge.

Document management

The *Mandeley* tool provides extensive document management capabilities. You can mark documents as read or unread. When documents are added to the Mendeley library, they are marked as unread, so the user can keep track of what has been added and what needs to be read. When a document opens in the *Mendeley PDF Viewer* tab, the document is marked as read (Fig.7.).
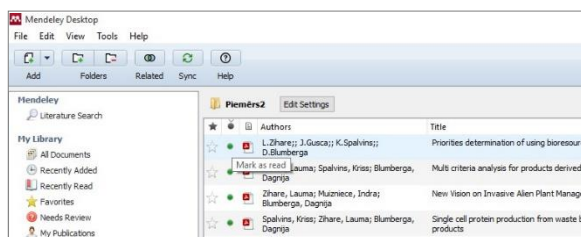

Fig.7. Document's status in the *Mendeley*

You can open the document in *Mendeley PDF Viewer* by double-clicking it. *Mendeley PDF Viewer* has a visible toolbar that lets you add notes to text, highlight text, and more actions. The PDF provides the ability to search by entering key words. *Mendeley* provides the ability to organize library documents in various ways in the *File/Organizer Tools/Options/File Organizer*. It is possible to copy all library documents into a specific folder and create a folder structure by years, authors, journals, as well as rename each file attached to the library according to the chosen principle, for example by author, year, and title.

Mendeley provides the ability to clean the library of duplicates by selecting *Tools/Check for Dublicates*. It is possible to merge duplicates by pressing the *Confirm Merge* button as long as the documents do not conflict with the bibliographic data.

Citing documents and list generating

Once a user has created their own library, *Mendeley* provides the ability to add references to *Mendeley* library documents in *MS Word* and *Open Office* word processors and create custom citations in accordance with international standards. A list of references with citations used is automatically generated based on the style you choose, significantly reducing the administrative burden for the researcher / student in finalizing the research or Thesis (Fig.8.).
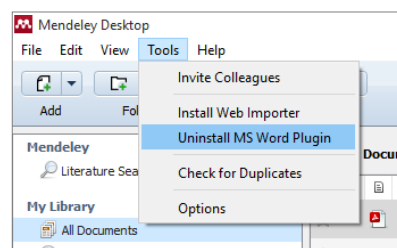

Fig.8. Adding and activating *MS Word*

To use this feature, ir must be enabled in the *MS Word* or using the *Open Office Mendeley Plug-In.* This can be done from the *Tools / Install MS Word Plug In* menu (Fig.9)
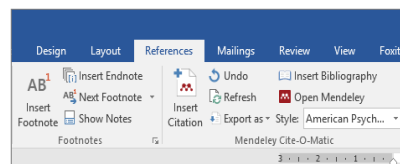

Fig.9. *Mendeley Cite-O-Matic* group on the References tab

When the plugin is enabled, a new *Mendeley Cite-O-Matic* group will appear on the *References* tab of *MS Word*. First, in this section, you need to select a citation style in the *Style* field to be used for citations and the list of citations. If the desired style is not immediately visible, you can press *More Styles* and find the desired style.

The *American Psychological Association 6th Edition (APA)* style is used for formatting bibliographic data in scientific research papers. Pressing the *Insert Citation* button opens the *Mendeley* window where you can find the document to be quoted. Quotes can be searched for by any keyword: author, titles or parts of titles, year, magazine, etc. Among the found documents, select the correct one, press the *OK button* and the reference will appear in the text according to the selected standard (Fig.10.).
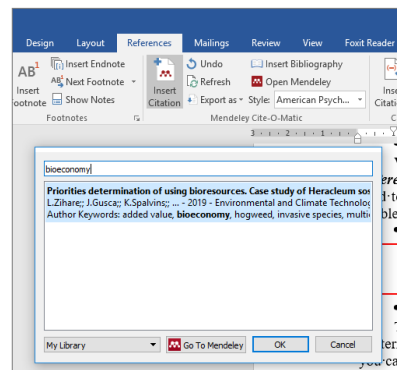

Fig.10. Source Search list

After inserting all quotes, you can create a list of sources.The list will only be created from sources whose citations have been used in the Thesis. It will be created based on the previously selected referencing style. To insert a list, you need to click *Insert Bibliography*. The inserted field will automatically update after inserting new citations in the document.

References by *MS Word*

Starting from the 2007 version, *Microsoft Office Word* can automatically generate a list of citations and sources. When using a new source, all the source information is saved on the computer, allowing you to find and reuse any created source in other research projects.

New citation and source adding

Adding a new citation to a document also creates a new source that will appear in the list of references and sources used.

1. In the *References* tab, in the *Quotations & Bibliography* group, click the arrow next to *Style.* Click on the style you want to use for the quote and source. For example, citations and sources in social science papers typically use the *MLA* or *APA* style (Fig.11.).

2. Click at the end of the sentence or phrase you want to quote. On the *References* tab, in the *Quotations & Bibliography* group click *Insert Citation*.
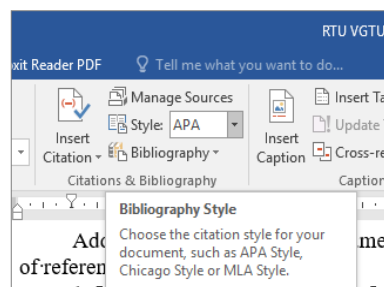
Fig.11. Creating style

Adding new source

To add information about a new source, click *Add New Source* (Fig.12.).
Click on the arrow next to *Type of Source* to begin filling in the source information. For example, the source may be a book, report, or website. Complete the source information. (Fig.13.).
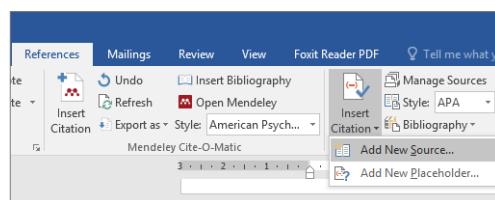
Fig.12. Adding new source

To add more source information, select the *Show All Bibliography Fields* check box.
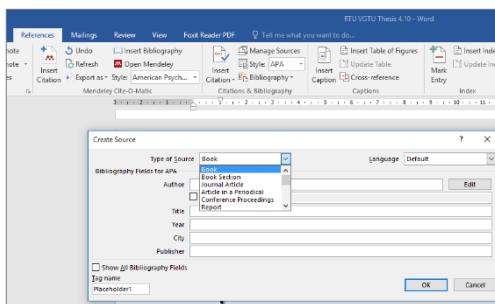
Fig.13. Source information

Location of the source

The list of reviewed and cited sources can be quite long. Occasionally, using the *Management Source* command, you must search for a source quoted in another document. On the *References* tab, in the *Quotations & Bibliography* group, click *Manage Sources* (Fig.14.).
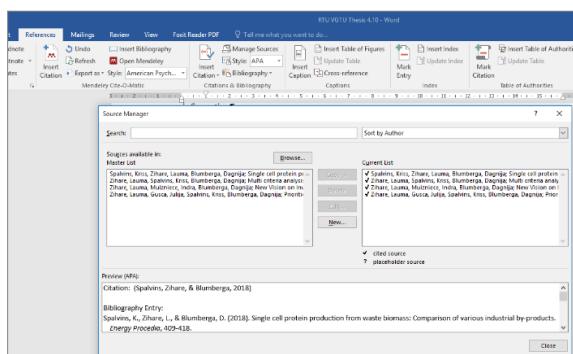
Fig.14. Managing sources

To find a specific source, do one of the following actions:

- sort by author, title, citation title, or year in the *Sort by* ... box, and then search for a result list of the required source.
- in the *Search* box, type the name or author of the source you are looking for.The list narrows significantly to match the search term.

In the *Source Manager* box, you can click the "*Browse*" button to select another base list from which you can import new sources into your document. For example, you can connect to a shared file, a research colleague's computer, a server or site used by the university or research institution.

Source Management

If you wish to reserve a place for a citation and complete the bibliographic source information later, any changes made to the source will automatically be reflected in the bibliography, if it has already been created. In the *Source Manager*, a question mark will appear next to the placeholder sources.

In the *References* tab, in the *Quotations & Bibliography* group, click *Manage Sources*. In the *Master List* section, click on the source you want to edit. Then click *Edit*. Click the arrow next to the *Type of Source* to start filling in the information about the source. For example, the source could be a book, report, or website.

To add more information about the source, use the *Show All Bibliography Fields* option.

List creation

A bibliography and reference list can be created at any time when one or more sources have been included in the document. If all the necessary information for a source description is not available, a placeholder quote can be used to complete the citation and later finish the source information. Click on the location where you want to insert the bibliography and reference list. Typically, this list appears at the end of the document. In the *References* tab, in the *Quotations & Bibliography* group, click *Bibliography* (Fig. 15.).

Click on the predefined bibliography list format to insert the bibliography into the document.
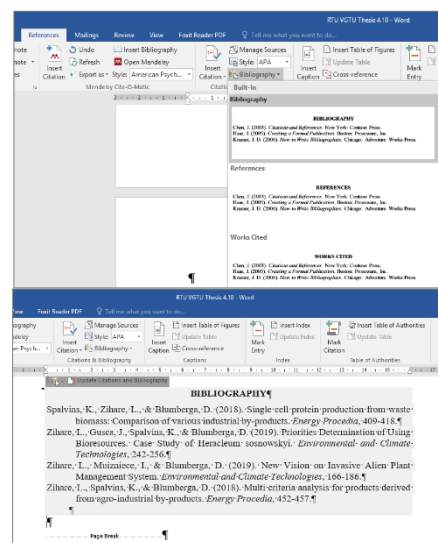

Fig.15. Adding bibliography list

References by *Zotero*

Zotero is a free easy-to-use reference management software, also known as bibliographic software, which allows to:

- Create a personal database of references relevant to you, along with associated files, which will help you to easily manage your research work;
- De-duplicate references retrieved from multiple sources;
- Insert references into a *Word/LibreOffice/Google Docs* document and format them automatically in a citation style of your choice;
- Share your reference library with other researchers;
- Display your work to connect and collaborate with researchers worldwide.

Zotero versions

Zotero is open-source software and therefore, it is free and is updated regularly. With the free version, you have 300MB of personal storage space but it is possible to pay for a premium plan that gives you more storage space.

There are several versions of *Zotero*:

- a desktop software application, that you can download and install on your *Windows*, *Mac* or *Linux* computer. To insert references into a *Microsoft Word* or *Libre Office* document and generate a bibliography, you must use the desktop version.
- a web-based application, *Zotero* web library is available to you once you register.
- If you're using a mobile device or a desktop browser without a *Zotero Connector*, you can save webpages or identifiers to your library from the save page
- *Zotero* has released a mobile version for *iPad* or *iPhone* downloadable from the *Apple Store* and it is also beta-testing a mobile version for *Android*.

Setting up *Zotero* and creating an account

The first step to installing *Zotero* is to download the software. Three components must be downloaded in order to use *Zotero*:

- The Desktop Application
- The Browser Connector (*Zotero Connector*)
- The MS Word Plugin

You can only download *Zotero* after you have created a free account. Go to zotero.org website and click *Register* (top right) to fill in the form. (It is recommended to use the RTU-provided email address when registering). You will be emailed a link to complete the registration. Also, once you enable sync, your *Zotero* library on your computer will link with your *Zotero's* online account, thereby enabling you to access your work anywhere, join groups and back up all your attached files.

To install *Zotero*, go to zotero.org website and choose Download. *Zotero 7* is the latest edtion of *Zotero*. Be sure to also install the *Zotero Connector* for your browser. The *Zotero Connector* for browser lets you to save documents directly from the browser to *Zotero*.

Adding and organizing Items (references) in *Zotero* desktop library

Every reference you add is considered a separate item. Every item contains different metadata, depending on what type it is. Items can be everything from books, articles, and reports to web pages, etc. To begin adding items to *Zotero* library, a <u>collection</u> (a folder into which items related to a specific project or topic can be placed) must be created.

My Library contains all the items in your library. Right-click on *My Library* or click on the *New Collection* button to create a new collection. (Fig.16.)

Organizing your references in folders is a good and effective way of managing your references. It saves you time spent on looking for specific papers and helps you categorize your writing. You can create different folders for the different chapters of your Thesis, for instance, introduction, literature review, methodology, etc.
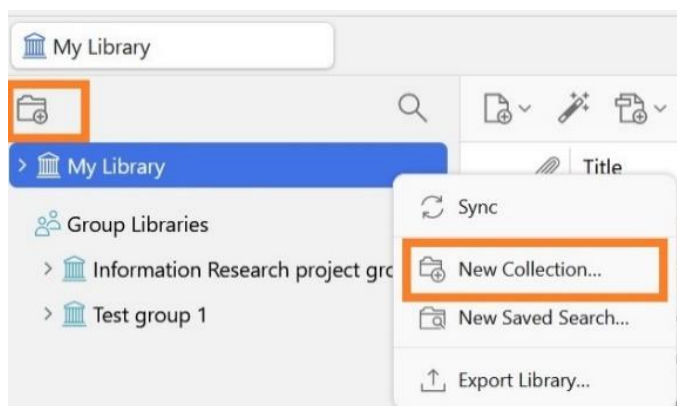

Fig.16. Creating a New Collection in My Library

There are various ways to add references to your *Zotero* desktop library. Where possible you are advised to obtain references from online sources, such as databases or publishers' websites.

The methods you can use are:
- Using the *Zotero Connector* is best way to import references into your library.
- Exporting from online resources – most databases will allow you to export your results into reference management software.
- Adding references using *ISBN, DOI* or *PubMed ID* (using the *Zotero Identifier* to import references into your library)
- Adding a reference manually – this is necessary in some cases where you cannot find the references from an online source.

Adding PDFs will automatically generate records in your library with the full text attached.

Note! Always check references to make sure they have imported correctly and have no errors. If you need to alter any information in the reference, you may edit it. If you remove a reference from a collection, you will still have the original in My Library, but if you remove a reference from My Library, it will also remove it from any collections to which it has been added.

Adding references using the *Zotero Connector*

To add references via the web browser, the *Zotero Connector* must be installed in addition to the *Zotero* desktop app. The *Zotero Connector's* save button is the most convenient and reliable way to add items with high-quality bibliographic metadata to your *Zotero* library. As you browse the web, or search in a

database or catalogue, the *Zotero Connector* will automatically find bibliographic information as you visit and allow you to add it to your *Zotero* library with a single click.

If you are searching something in a database, catalogue or a website, click the *Zotero* folder icon near the URL address bar to download items to your *Zotero* library. A drop down list of all of the items on the page allows you to select the items you are interested in.

If you are looking at the information for just one article, book, website, video, etc., you will see different download icons, for example, if you are on the main page of a journal article, the save button will change to the icon of a journal article (Fig.17.), or the save button will show a book icon on a library catalogue entry for a book. Clicking the icon to download it will create a specific item in *Zotero* with the information it has identified.

Fig.17. Adding a journal article to *Zotero* library using *Zotero Connector*

On many sites, *Zotero* will also save any PDF accessible from the page or an open-access PDF that can be found for the saved item.

Some webpages do not provide any information that *Zotero* can recognize. On these pages, the save button will show a gray webpage icon. If you click the save button on these pages, *Zotero* will import the page as a "Web Page" item with a title, URL, and access date.

Note!: To save references with the *Zotero Connector* you have to make sure that you are either logged in the *Zotero Web* library or you have your *Zotero Desktop* running otherwise the *Connector* will not have anywhere to save the reference to!

Manually adding references

There are occasions when you may need to add a reference manually, where it is not available from an online source. Click the *New Item* button to create a new entry. (Fig.18.) Select the appropriate type (book, article, etc.), and fill in the relevant details (author, title, publication year, etc.). *Zotero* will save the record automatically.
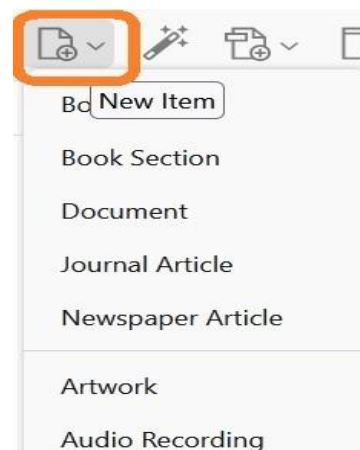

Adding PDFs to your *Zotero* library

PDF documents are automatically retrieved when you use the *Zotero Connector*, and this is the best way to add items to your library.

Fig.18. Manually adding items

However, if you have PDFs saved already which you want to add to your library, *Zotero* can create a bibliographic record from the PDF.

There are three ways to add the PDFs to your library:
- In your *Zotero* Desktop library go to the add *PDF+* icon.
- Select *Add File* (Fig.19.) and then choose the PDF file you want to import. *Zotero* will then automatically retrieve the bibliographic information.

- Drag and Drop method
- By importing metadata from a citation file (like *RIS* or *BibTeX*).

Saving PDFs that you already on have on your computer to *Zotero* is easy: drag and drop them into a collection. *Zotero* will automatically attempt to retrieve metadata for the item and add it for you. This metadata retrieval usually works really well when the PDF contains a unique identifier, e.g., a DOI, however bibliographic details may not always import correctly. If this happens, to retrieve the bibliographic information manually, right-click on the PDF file in your library and select Retrieve Metadata for PDF.

Fig.19. Adding PDF file in Zotero

Note! If you have PDFs stored on your computer, drag them into the middle pane of your *Zotero* library. If you have 'Automatically retrieve metadata' checked in *Zotero* preferences, *Zotero* will find the bibliographic details and create a record in our library.
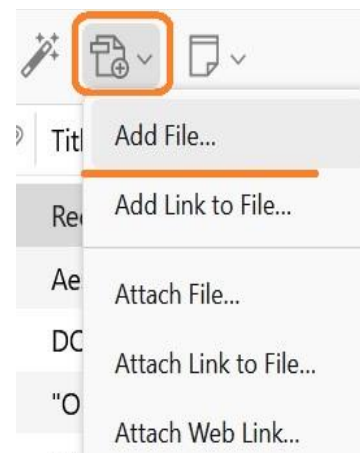
Within *Zotero Desktop* you can also search for and add references using *ISBN, DOI*, *PubMed ID* or any other of the listed codes. At the top of your library click on the *Identifier* button (it looks like a magic wand) (Fig.20.). Type the identifier in the look up box. *Zotero* will find the reference and add it to your library.

Fig.20. Adding references by Identifier

Citing documents and generating a bibliography

Using *Zotero* with a word processor allows you to make use of *Zotero's* ability to automatically track and format citations/footnotes/endnotes within your written document according to a chosen citation style. *Zotero* works with *Microsoft Word*, *LibreOffice*, and *Google Docs*.

You can use *Zotero* to insert references into a *Word/LibreOffice/Google Docs* document, generate a bibliography at the end of your document and format it in the citation style of your choice. You must use *Zotero Desktop* to use the *Zotero* citing tool – it will not function with *Zotero Web*. When you install *Zotero Desktop* on your computer, the *Zotero* tab is automatically added to the toolbar in *Word/LibreOffice/Google Docs* document.

To avoid any errors in your bibliography, it is important that you have removed any duplicates from your library before you begin to cite references in your document.

Open the *Word/LibreOffice/Google Docs* document that you wish to work in and select the *Zotero* tab. You should see the *Zotero Plugin*. Place your cursor where you want your citation to appear in your Word document and click on *Add/Edit Citation*. (Fig.21.)
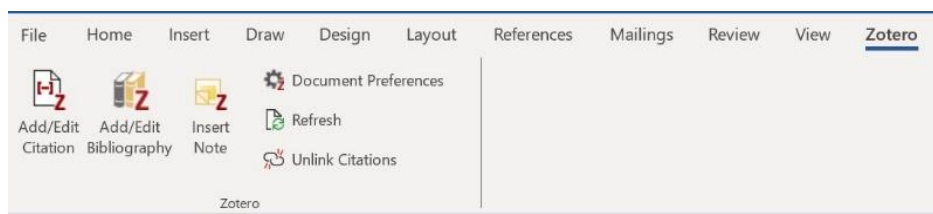
Fig.21. Inserting citations into Word document

The first time you do this in a document, you will be asked to choose a citation style. After you have made your selection, the *Citation dialog box* (Fig.22.) will appear.

Type a few letters of the reference you want to find, for example, the surname of the author or a title. You will see a list of references. Click on the one you want to add and then press the Enter key on your keyboard. The citation should appear on your document, correctly formatted. Via the *Citation dialog box,* you may also insert multiple citations.
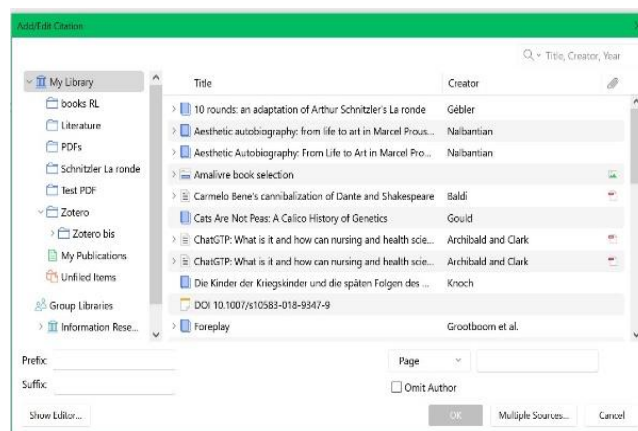

Fig.22. Citation dialog box

Note! You might experience problems if you are using a computer, which has both *EndNote* and *Mendeley* plugins installed in *Word*. If the *Zotero* plugin is causing problems, try disabling the *EndNote*, or the *Mendeley* plugin.

Once you have added some citations to your document, you can create a reference list. Place your cursor at the end of your document where you would like your reference list to start and click on *Add/Edit Bibliography. Zotero* will insert a fully-formatted and alphabetized bibliography of all references cited in your document, using the citation style you had previously chosen. Each time you add a citation or make changes to your citations, the bibliography will restructure itself accordingly. For example, if you are using a numbered style and you choose to insert new citations early in the document, the bibliography will also re-number itself.

If you would like to add items to your bibliography that you have not cited in the document, place the cursor into the bibliography and click *Add/Edit Bibliography* again. A pop-up window will appear, the area on the right contains all items already included in your bibliography; the area in the middle shows all items in the *Zotero* collection selected in the area on the left. From the middle area, select the item(s) you would like to add to your bibliography, and then click on the green right arrow between the middle and right areas. Click OK. The additional item(s) should now show in your bibliography.

You can also create a bibliography from within *Zotero*. To do so open *Zotero* desktop and right click on a folder. Then select *Create bibliography from collection* (Fig.23.) and choose a citation style, output mode and method.
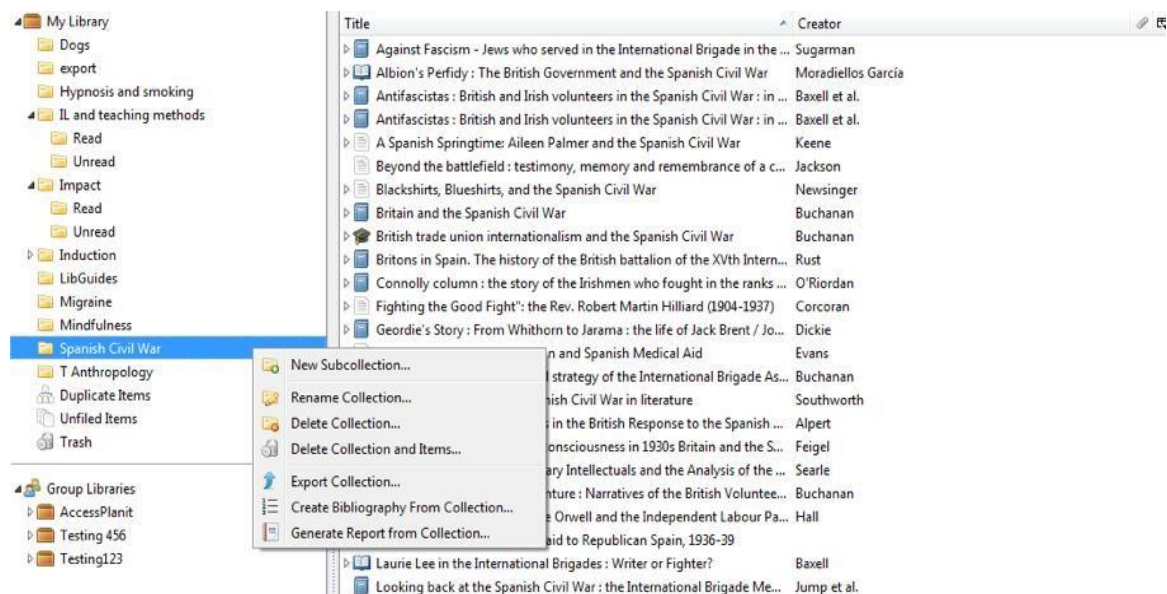
Fig.23. Creating a bibliography within *Zotero*

Editing citations

It's important to check all the references that you add to *Zotero* for accuracy. If there is a mistake in a reference in *Zotero* this will be carried through to your citations and bibliographies. To make changes to your citation, place the cursor within the citation and then click the *Add/Edit Citation*. In the pop-up window, make the desired changes, for example, adding page numbers, and your citation will automatically refresh and display the changes you made.

All metadata errors in a citation should be corrected in *Zotero*, not in *Word/LibreOffice/Google Docs*. After you have gone into *Zotero* and updated the citation, use the *Zotero Refesh* button in to update your document.

PREPARING THE PRESENTATION FOR PRE-DEFENSE

66. In the pre-defense, each student is allocated <u>7 minutes for the presentation + 3 minutes for questions</u> and <u>suggestions from the scientific committee</u>. It is recommended (but not mandatory) to use the RTU slide format for the presentation, presentation must be coordinated with the supervisor. Remember that the presentation you are creating with the idea that the same (with additional results, conclusions, etc.) will be used for your official final thesis presentation.

67. The presentation should include the following information:
    - Overview of the problem and relevance;
    - The aim and objectives of the work;
    - A description of the methodology used;
    - Results and findings;
    - Conclusions and recommendations.

PREPARING THE PRESENTATION FOR THE FINAL THESIS DEFENSE

68. The student prepares for the final thesis defense by:
    - Creating an electronic presentation in accordance with the Final Thesis formatting guidelines in the academic Bachelor's Study Program "Environmental Engineering" and the academic Master's Study Program "Environmental Engineering."
    - Creating a video presentation in accordance with the Final Thesis formatting guidelines in the academic Bachelor's Study Program "Environmental Engineering" and the academic Master's Study Program "Environmental Engineering."

69. The defense takes place orally. It provides an opportunity to share the research carried out in the Thesis with the committee and colleagues.

70. The presentation must include:
    - Overview of the problem and relevance;
    - The aim and objectives of the work;
    - A description of the methodology used;
    - Results and findings;
    - Conclusions and recommendations;
    - A list of the author's publications and presentations.

71. Some basic tips for formatting slides:
    - The text must be readable for the audience (especially text in tables and images);
    - Only key words or phrases should be included on the slides;
    - Where possible, replace tables with diagrams, images, graphs, etc.;
    - Ensure that all graphs and tables are understandable;
    - Do not use automatic slide transition settings, it is recommended to manually transition slides;
    - Check spelling.

72. Please note that the final thesis presentation should not exceed 7 minutes.

Preparing for the presentation

> - It is recommended to practice presenting the material before the defense.
> - If necessary, work on improving diction.
> - Check to ensure that the allotted presentation time is not exceeded.
> - Before presenting, verify that the audience's computer and projector are working properly.

73. It is recommended to wear appropriate attire for the defense, similar to how people dress for job interviews or conferences.
74. On average, one student's defense (presentation, answers to questions, video presentation) takes 20 to 30 minutes, so it is advisable to bring a bottle of water.
75. When answering questions, the student is allowed to use a printed version of their Thesis. However, the student should be aware that printed copies of the Thesis are not provided during the defense; if the student wishes, a printed version of the Thesis to the defense must be brought along.
76. After the student's presentation, the defense committee and the attendees will ask questions and engage in discussions about the defended Thesis. Answering questions provides the student with the opportunity to expand on the information already presented and demonstrate their understanding of the topic.

> Some tips, that are helpful when answering questions:
> - Listen to the entire question, regardless of how long it takes for the defense committee member or another student to ask it (if necessary, take notes).
> - Before answering, take a moment to think about the question.
> - If needed, briefly rephrase the question.
> - Answer the question as thoroughly as possible.

77. After the defense, the reviewer will ask questions and provide their evaluation.
78. After the reviewer, the assessment of the Thesis, its development process, and the recommended grade, is provided by the scientific supervisors.
79. The final stage of each final work defense is the demonstration of the video presentation (film) on the topic of the final work. Please note that:
    - The video presentation (film) may show, for example, the process of developing the practical part of the final Thesis (work in the laboratory, modeling, interviews, surveys, etc.), key discoveries, and results.
    - The maximum duration of the video presentation (film) is 3 minutes.
    - When creating the video presentation (film), copyright laws regarding sources used in the creation of the video (e.g., music and images) must be observed.