



**POLITECHNIKA
GDAŃSKA**

WYDZIAŁ ELEKTRONIKI,
TELEKOMUNIKACJI I INFORMATYKI



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Kierunek studiów: Informatyka
Specjalność/profil: Aplikacje rozproszone i
systemy internetowe

PRACA DYPLOMOWA MAGISTERSKA

Tytuł pracy w języku polskim: Stworzenie i rozpowszechnienie otwartego webowego narzędzia do współpracy przy edycji danych pomiarowych w czasie rzeczywistym

Tytuł pracy w języku angielskim: Creation and popularization of web-based open source tool for effective real-time collaboration on measurement data.

Potwierdzenie przyjęcia pracy	
Opiekun pracy	Kierownik Katedry/Zakładu
podpis	podpis
dr hab. inż. Jerzy Balicki, prof. nadzw. PG	

Data oddania pracy do dziekanatu:



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OŚWIADCZENIE

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Ja, niżej podpisany(a), wyrażam zgodę/nie wyrażam zgody* na korzystanie z mojej pracy dyplomowej zatytułowanej: Stworzenie i rozpowszechnienie otwartego webowego narzędzia do współpracy przy edycji danych pomiarowych w czasie rzeczywistym do celów naukowych lub dydaktycznych.¹

Gdańsk, dnia

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podpis studenta

Świadomy(a) odpowiedzialności karnej z tytułu naruszenia przepisów ustawy z dnia 4 lutego 1994 r. o prawie autorskim i prawach pokrewnych (Dz. U. z 2006 r., nr 90, poz. 631) i konsekwencji dyscyplinarnych określonych w ustawie Prawo o szkolnictwie wyższym (Dz. U. z 2012 r., poz. 572 z późn. zm.),² a także odpowiedzialności cywilno-prawnej oświadczam, że przedkładana praca dyplomowa została opracowana przeze mnie samodzielnie.

Niniejsza(y) praca dyplomowa nie była wcześniej podstawą żadnej innej urzędowej procedury związanej z nadaniem tytułu zawodowego.

Wszystkie informacje umieszczone w ww. pracy dyplomowej, uzyskane ze źródeł pisanych i elektronicznych, zostały udokumentowane w wykazie literatury odpowiednimi odnośnikami zgodnie z art. 34 ustawy o prawie autorskim i prawach pokrewnych.

Potwierdzam zgodność niniejszej wersji pracy dyplomowej z załączoną wersją elektroniczną.

Gdańsk, dnia

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podpis studenta

Upoważniam Politechnikę Gdańską do umieszczenia ww. pracy dyplomowej w wersji elektronicznej w otwartym, cyfrowym repozytorium instytucjonalnym Politechniki Gdańskiej oraz poddawania jej procesom weryfikacji i ochrony przed przywłaszczeniem jej autorstwa.

Gdańsk, dnia

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podpis studenta

*) niepotrzebne skreślić

¹ Zarządzenie Rektora Politechniki Gdańskiej nr 34/2009 z 9 listopada 2009 r., załącznik nr 8 do instrukcji archiwalnej PG.

² Ustawa z dnia 27 lipca 2005 r. Prawo o szkolnictwie wyższym:

Art. 214 ustęp 4. W razie podejrzenia popełnienia przez studenta czynu podlegającego na przypisaniu sobie autorstwa istotnego fragmentu lub innych elementów cudzego utworu rektor niezwłocznie poleca przeprowadzenie postępowania wyjaśniającego.

Art. 214 ustęp 6. Jeżeli w wyniku postępowania wyjaśniającego zebrany materiał potwierdza popełnienie czynu, o którym mowa w ust. 4, rektor wstrzymuje postępowanie o nadanie tytułu zawodowego do czasu wydania orzeczenia przez komisję dyscyplinarną oraz składa zawiadomienie o popełnieniu przestępstwa.

ABSTRACT

The **Abstract** should include a definition of the scientific or practical problem to be solved, the aim and scope of the thesis, the applied methods of research, the results and the most important conclusions.

If the thesis is written by more than one author, the **Abstract** must specify what each author has prepared and contributed. Moreover, the particular authorship of each chapter and subchapter must also be specified (see **Table of Contents**). If a writer is named as the author of a particular subchapter it should be assumed that all the items in the subchapter are the work of that particular writer. For example, if the thesis is co-authored by writer A and writer B, in the Table of Contents it may be stated that writer A co-authored chapters 1 and 7, individually authored chapter 2 as well as subchapters 3.1 and 4.2, etc. A writer B, on turn, may be named as the co-author of chapters 1 and 7 as well as the individual author of subchapters 3.2 and 4.1, etc.

Keywords:

Field of science and technology in accordance with OECD requirements: <field>, <technology>,...

STRESZCZENIE

The **Streszczenie** should correspond to the **Abstract** and includes the same key elements. It should be prepared according to faculty rules. The **Streszczenie** is a chapter written only by Polish authors who decide to write the diploma thesis in English and it is not applicable to foreign students.

Słowa kluczowe: [keywords] Zażółć gęślą jaźń.

Dziedzina nauki i techniki, zgodnie z wymogami OECD: <dziedzina>, <technika>, ... [field of science and technology in accordance with OECD requirements: <field>, <technology>, ...]

SPIS TREŚCI

List of important symbols and abbreviations	7
Rozdział 1 Introduction, Objectives and Aims of thesis	9
Rozdział 2 Title of chapter 2	11
2.1. Subchapter title	11
2.1.1. Subchapter section heading	12
2.2. Subchapter heading	12
Rozdział 3 Summary	13
Bibliography	13
List of Figures	14
List of Tables	15
Dodatek Rozdział A Title of Appendix A	17
Dodatek Rozdział B	19

LIST OF IMPORTANT SYMBOLS AND ABBREVIATIONS

e	—	uncertainty of measurement
f	—	frequency [Hz]
i, j, l, m	—	indexes
k	—	Boltzmann constant $1,38 \cdot 10^{-23}$ Ws/K
T	—	time of measurement [s]
CDM	—	Context Driven Model
SOA	—	Service Oriented Architecture

ROZDZIAŁ 1. INTRODUCTION, OBJECTIVES AND AIMS OF THESIS

The general formatting requirements for the diploma thesis are listed below:

- sheet size: A4,
- paper orientation: vertical,
- font: Arial,
- basic font size: 10 pt.,
- line spacing: 1.5,
- mirror margins:
 - top: 2.5 cm,
 - bottom: 2.5 cm,
 - internal: 3.5 cm,
 - external: 2.5 cm,
- the thesis text should be justified (aligned to both margins),
- each paragraph should begin with a 1.25 cm indentation.

The thesis should be prepared for double-sided printing. The page numbering should be in the page footer and centred. The title page should include the author's (authors') Statement (Statements) and the page number should not be printed. Page numbering, should be in Arabic numerals using a 9 pt. Arial font. It should begin on page 3 (the Table of Contents) and continue to the last page.

An example of the correct way of presenting information in points (bulleted list) is shown above. Each point (line of text) should be preceded by a bullet. It should begin in the lower case and end with a comma or semi-colon, except for the last point (line of text), which should end with a full stop.

The title of a table should be directly above the table, with a 9 pt. font size and not ended with a full stop, as shown above. Paragraph spacing for the text in the table is as follows:

- top 6 pt.,
- bottom 0 pt.

The correct headings are presented in Table 1.1.

Tablica 1.1. Sizes and styles of headings

Level of heading	Example	Font size and style
Heading 1	1. CHAPTER TITLE	12 pt., CAPITALS, bold
Heading 2	1.1. Subchapter title	10 pt., bold and in italics
Heading 3	<i>1.1.1. Subchapter section</i>	10 pt., italics

Data should be presented in the table as in Table 1.1, shown above, i.e. using a 9 pt. font and aligning text to the left edge of the cell.

Table numbering is continuous within the chapter. The table sequence number (table title) is preceded by the word Table and the number of the chapter, ended with a dot (e.g. Table 1.1. Size. . .). Every table must be referred to in the thesis text, e.g. 'Table 1.1. contains. . .'.

If a table needs to be continued on more than one page, the table heading should appear on each subsequent page, using the option: TABLE PROPERTIES -> row -> repeat as heading row at the top of every page.

The first paragraph below a table should begin with a top margin of 12 pt.

Lines of text should not end with short prepositions, such as: a, an, the, in, on, etc. In such cases the non-breaking space (NBSP), using ctrl, shift and space, is recommended instead of an ordinary space.

ROZDZIAŁ 2. TITLE OF CHAPTER 2

The title of a subsequent chapter should always appear on a new page. Every paragraph containing the title of a chapter or subchapter has the following intervals:

- top 12 pt.,
- bottom 6 pt.

Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox. Here is some text to get rid of Underfull Badbox.

2.1. Subchapter title

References in the text to literature should show in square brackets their reference number from the **Bibliography** [?] or the name of the author/s and year of publication [Kowalski J., 2002] and page number in the case of citations [Kowalski J., 2002, p. 3].

The **Bibliography** should be arranged alphabetically or in the order items are mentioned in the chapter. If several items of literature are referred to at one point in the text, a dash may be used in the square brackets [1-5] if they are in consecutive order in the **Bibliography**, or if their order is not consecutive, using commas, as follows: [1, 3, 5].

An example of bibliographic entries is shown in the Bibliography chapter.

Figures are numbered in the order in which they appear in the chapter. In the caption below a figure, the number of the figure is preceded by the abbreviation 'Fig.' and the appropriate chapter number, e.g. 'Fig. 2.1.'

Figures appearing in the thesis should be centred. The spacing in a paragraph containing a figure should be:

- top 12 pt,
- bottom 0 pt.

Every figure must be referred to in the text, for example as follows: 'Fig. 2.1. presents... '.

If the thesis is written in English, all the tables and figures must also be presented in the English language.

An example of a properly presented figure and caption is provided below.



Rys. 2.1. Emblem of Gdańsk University of Technology.

The caption below the figure should be centered, have a 9 pt. font size and end with a full stop. The top margin should be 6 pt., the bottom margin 12 pt. and the spacing should be single.

The first paragraph below a figure should have a top margin of 12 pt.

2.1.1. Subchapter section heading

Every paragraph containing a subchapter section heading should have the following spacing:

- top 12 pt.,
- bottom 6 pt.

2.2. Subchapter heading

Variables should be written in italics, e.g. x , ni , $ni + 1$, whereas symbols denoting vectors or matrices should be written in bold, e.g. \mathbf{v} , \mathbf{A} . The minus sign should directly precede the number without a space, e.g. -20 . There must always be a space between a numerical value and unit of measurement, e.g. 1 V or 10 km.

Preferably, the insertion of equations (INSERT -> Equation) directly into the text should be avoided. If there is a possibility of legibly inserting an equation in one line, it should be done as in the following examples: $1/2t^2$ or e^{2x+1} . This should be immediately followed by an explanation as to what the particular symbols denote, e.g. where: t — time [s].

Equations that might become illegible when written in a single line should be written in a separate paragraph, e.g.

$$s = v_0 \cdot t + \frac{a \cdot t^2}{2} \quad (2.1)$$

where:

s	—	linear displacement with constant acceleration [m],
v_0	—	initial velocity [m/s],
t	—	time of object motion [s],
a	—	acceleration [m/s ²].

Every equation should be centered. Its number should be preceded by the chapter number and a dot, in parentheses. Every equation has to be referred to in the text, e.g. 'Equation (2.1) allows us to estimate. . . '.

Any footnotes should appear below a line at the bottom of the page,¹ and there numbering should be consecutive throughout the thesis. To make footnotes use NUMBERING OPTIONS -> add footnote.

¹Footnotes should be written using Arial 9 pt.

ROZDZIAŁ3. SUMMARY

Every diploma thesis must include a chapter entitled **Summary**. It should appear before the **Bibliography** and include a review of the main points of the thesis and/or obtained results. The chapter should also state what should be realized if research into the subject of the thesis is continued.

SPIS RYSUNKÓW

2.1. Emblem of Gdańsk University of Technology.	11
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SPIS TABLIC

1.1. Sizes and styles of headings.....	9
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DODATEKA. TITLE OF APPENDIX A

Appendices should be consecutively denoted with letters of the alphabet. An Appendix should include necessary supplementary data, e.g. calculations or schematic diagrams.

DODATEKB. TITLE OF APPENDIX B

Detailed guidelines regarding the content of Appendices should be established by the faculty, taking into account the specificity of a given field and course of study.