



**YILDIZ TECHNICAL UNIVERSITY
FACULTY OF CHEMICAL AND METALLURGICAL
ENGINEERING**

DEPARTMENT OF CHEMICAL ENGINEERING

GRADUATION THESIS GUIDELINES

2024

1. THE PREPARATION OF THE GRADUATION THESIS

The graduation theses are prepared in accordance with the detailed guidelines given in the following sections. The completed graduation thesis is submitted to the advisor faculty member for auditing. Once the approval of the advisor is obtained, the graduation thesis is ready for its presentation to the jury and the student can be examined.

2. THE SUBMISSION OF THE GRADUATION THESIS

According to the current regulation, the graduation theses that are recorded on a CD are submitted to the student office on the last day of the semester, with the advisor faculty member's approval/disapproval of the student's entrance to the examination. The distribution of the theses to the jury members is done by the **student**.

CD Content:

The graduation thesis in PDF format (with the signature of the certificate of conformity to Scientific Ethics)

The Turnitin report in PDF format

An example of CD cover is shown below:

The Semester of the Graduation Thesis:

Student Name-Surname:

Student Number:

The Name of the Graduation Thesis:

The Advisor of the Graduation Thesis:

3. THE EVALUATION OF THE GRADUATION THESIS

The achievement (passing) grade of the graduation thesis is determined with respect to the evaluation of the interim and final reports, along with the presentations that are prepared by the student/students. The numerical and percentage value equivalents of the achievement grade are given in Table 3.1.

Table 3.1 Numerical and percent value equivalents of the achievement grade

Achievement Grade	Coefficient	Percentage Points
AA	4.00	90-100
BA	3.50	80-89
BB	3.00	70-79
CB	2.50	60-69
CC	2.00	50-59
DC	1.50	40-49
DD	1.00	30-39
FD	0.50	20-29
FF	0.00	0-19
F0	0.00	Absences

The achievement grade of the graduation thesis is calculated as below:

$$\text{Achievement Grade} = 0.3 \times \text{IR} + 0.7 \times \text{GT}$$

IR: Interim report grade

GT: Graduation thesis report and presentation grade

The evaluation juries contain at least three members, one of which is the thesis advisor, that are formed by the department head. The achievement evaluation is designated by the jury with respect to the criteria present in form FR-1583 (The Department of Chemical Engineering Graduation Thesis Evaluation Form and Jury Report).

In the specified week of the graduation thesis calendar, an interim report regarding the thesis study is submitted to the advisor faculty member.

4. THE PREPARATION OF THE GRADUATION THESIS INTERIM REPORT

The interim report of the graduation thesis should be prepared considering the points indicated below:

The length of the interim report text should be 10-20 pages. It should be saved in PDF format and handed only to the advisor faculty member. The achievement evaluation is designated by the advisor faculty member with respect to the criteria present in form FR-1579 (The Department of Chemical Engineering Graduation Thesis Interim Report Evaluation Form)

➤ Cover Page

The outer cover format of the graduation thesis should be used as the cover page format.

➤ Abstract

The scope and procedure of the thesis, the original value of the topic and the obtained results should be briefly stated. The abstract should contain 150-250 words.

➤ Aim / Motivation

The aim and motivation of the thesis should be clearly indicated.

➤ Literature Survey

The national and international literature that is related to the graduation thesis topic and up to the interim report period should be searched; and a literature analysis summary should be given. While performing the literature evaluation, a summarized analysis should be presented instead of an unrefined list of literature. The used references have to be cited within the text in accordance with the graduation thesis guidelines and a list of references should be created.

➤ Methodology

The applied methodology and the used materials should be defined in line with the aim and scope of the graduation thesis. The experimental set-up and the experimental studies have to be explicated.

➤ Studies Made

This section should cover all of the studies made by the student up to the interim report submission. If possible, the obtained results should be presented with suitable tables and figures.

➤ **Studies Planned**

Information should be given regarding the studies planned after the report submittal and the interim report should be completed.

5. THE EXAMINATION OF THE GRADUATION THESIS

The graduation thesis examinations are made on the second week of the final exam period, in accordance with the current regulations. The graduation thesis examination will be in the form of an oral presentation.

6. THE GENERAL EXPRESSION OF THE GRADUATION THESIS

The first and most important step during the preparation of the graduation thesis is to determine the content of the thesis. A good thesis should have a basic idea, and other auxiliary items should be well organized. As a general rule, each paragraph should be preceded by a statement summarizing that paragraph and should be followed by controversial arguments. Avoiding long sentences and trying to express ideas with clear, plain and fluent phrases are important. Expressions that the student does not understand or does not know the meaning of should not be included in the thesis. The graduation thesis should be prepared under the following headings in accordance with the thesis being an experimental study or a literature study (Table 6.1).

Table 6.1 The general expression of the graduation thesis

EXPERIMENTAL STUDY	LITERATURE STUDY
THE OUTER COVER PAGE (APPENDIX-1)	
THE INNER COVER PAGE (APPENDIX-2)	
ON THE FRONT PAGES	
PREFACE	PREFACE
TABLE OF CONTENTS	TABLE OF CONTENTS
LIST OF SYMBOLS	LIST OF SYMBOLS
LIST OF ABBREVIATIONS	LIST OF ABBREVIATIONS
LIST OF FIGURES	LIST OF FIGURES
LIST OF TABLES	LIST OF TABLES
ETHICS DECLARATION (APPENDIX-3)	ETHICS DECLARATION (APPENDIX-3)
ÖZET	ÖZET
ABSTRACT	ABSTRACT
IN THE THESIS TEXT	
INTRODUCTION	INTRODUCTION
LITERATURE SURVEY	LITERATURE SURVEY
MATERIALS AND METHODS	ANALYSIS AND EVALUATION
EXPERIMENTAL RESULTS AND DISCUSSION	COMMENTS AND DISCUSSION
GENERAL CONCLUSIONS AND RECOMMENDATIONS	GENERAL CONCLUSIONS AND RECOMMENDATIONS
AT THE END OF THE THESIS	
REFERENCES	REFERENCES
APPENDIX	APPENDIX

➤ **Ethics Declaration**

Here, it should be declared that the graduation thesis has been prepared with respect to ethical conduct (APPENDIX-3), **signed by the student** and submitted in a CD, including the TURNITIN report and the text of the graduation thesis. In order for the graduation thesis to be accepted, the similarity ratio should not exceed 30 %.

➤ **Özet and Abstract**

In this section, the purpose and scope of the research should be explained and the general results should be summarized. References should not be given in the abstract. "Key Words" should be specified below the abstract, as demonstrated in the following example.

Key Words: Energy, wind, renewable (“Times New Roman” 12 pt font, lower-case letters should be used after the comma.)

➤ **Table of Contents**

In the table of contents, the sections present in the text should be given with the page numbers of the main headings and subheadings (An example of the table of contents is given in APPENDIX-4 and APPENDIX-5).

➤ **Lists of Tables and Figures**

The tables and figures present in the text should be listed in these sections, along with their page numbers (Example of the list of tables and list of figures are given in APPENDIX-6).

➤ **Introduction**

The introduction section should elucidate the subject of the research, clarify the importance and motivation of the research and in the last paragraph, summarize the objective of the research. This section will help the reader to understand the approach to the thesis subject and the work being investigated. A good introduction section should clearly present the nature and scope of the studied problem, demonstrate the research methodology and explain the reasons for this methodology selection.

➤ **Sections**

The graduation thesis should be divided into sections, which allow easy pursuit to the readers. If the thesis is a literature study, the aim is to elucidate and discuss the subject with all of its aspects. The information obtained from sources about the subject should be discussed with current data, facts and literature. If the thesis is an experimental study, it should include an “Experimental Study” section. In this section, the experimental study should be defined, the experimental system and the materials used in the study should be introduced and the parameters examined in the study should be explained. The results of the experiment should be discussed and evaluated in a separate section; and controversial opinions or ideas of the student should also be included.

➤ Conclusions and Recommendations

The conclusions and recommendations section should give general conclusions of the relevant debates. In addition, emphasis should be made on issues such as the adequacy of available information, future work, and unanswered questions.

7. INSTRUCTIONS FOR WRITING

7.1 General

- The graduation thesis must be written in a clear English language in accordance with the writing rules. Graduation thesis should be prepared with a computer and the graduation thesis must be delivered electronically to the advisor and jury members.
- “Times New Roman” character should be used in thesis writing. The writing should only be on one side of the paper.
- In the text, abbreviations should be given in parentheses when they are initially used. For example: “... when the thermogravimetric analysis (TGA) curve of the sample is investigated ...”. However, there is no need to disclose standard abbreviations of widely known institutions. For instance, TSE, ISO, ASTM, ... etc. **SI unit system** should be used within the text of the graduation thesis.

7.2 Page Layout and Page Numbering

- The page margins should be as shown below in Figure 7.1.

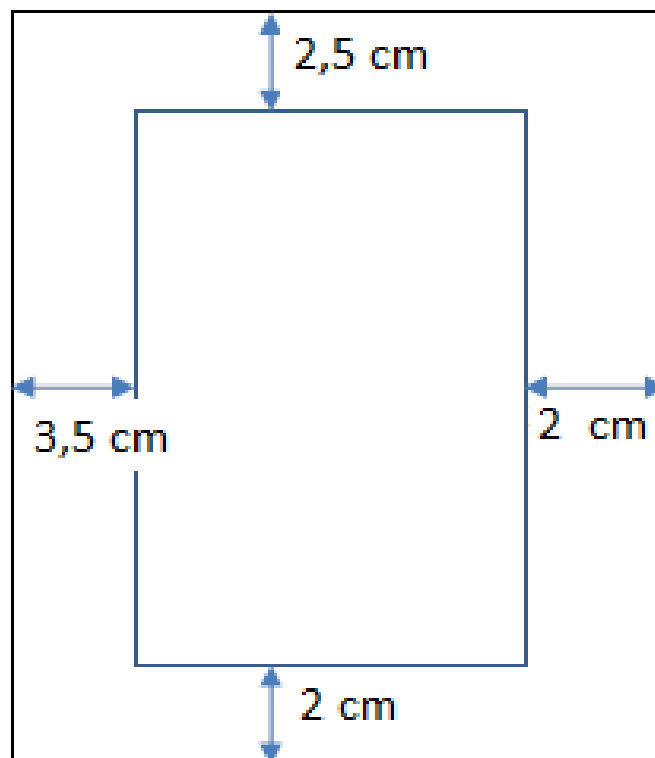


Figure 7.1 Page margins

- The pages before the main text must be numbered with Roman numbers, where the number must be placed at the bottom of the page and centered (the inner cover page is assumed to be “i”, and not written).
- In the thesis text, the page numbers should be placed at the bottom of the page and centered. “Times New Roman” character is used with 12 pt font size.
- All pages of the thesis except the outer and inner covers should be numbered. The beginning part of the graduation thesis consists of the table of contents, list of symbols, list of abbreviations, list of tables, list of figures and abstract sections. The main text part of the graduation thesis consists of the introduction section, the other sections, the results and/or the discussion, references and appendix sections. The beginning part of the thesis must be numbered with small Roman numbers (i, ii, ...); and the main text must be numbered as 1,2, ..., where they are placed at the bottom of the page and centered.

7.3 Line Spacing and Layout

The line spacing that should be applied to various parts of the graduation thesis is summarized in Table 7.1:

- The line spacing should be 1.5 in the text.
- The line spacing should be 1 (one) in the front and last pages, in the description of the figures and tables and in the footnotes.
- The space between the headings of the front and last pages and the section line and heading of the thesis text must be spaced by the prescribed line spacing (1 or 1.5).
- Between paragraphs, a spacing of 1.5 lines should be given.

Table 7.1 Character sizes, line spacing and paragraph spacing

Text Type	Font	Line (*) Spacing	Before Spacing	After Spacing	Style
The name of the thesis	22	1	0	0	BOLD
Section headings	14	1	0	12	BOLD
Subheadings	12	1	6	6	BOLD
Special page headings	12	1	0	12	BOLD
References	12	1	6	0	NORMAL
Text	12	1.5	0	0	NORMAL
Text (footnote)	10	1	0	0	NORMAL
Text (equation)	12	1	0	6	NORMAL

7.4 Typing Features

- The text of graduation thesis should be Times New Roman, with 12 pt font size (10 pt in footnotes).
- One character after the punctuation marks must be left blank.
- Each line should begin from the leftmost edge.
- The lines should be aligned.
- The sections of the front and end pages, along with the main sections of the thesis should begin from a new page.
- The titles of the sections and subsection should be numbered.

- The headings of the front and end pages and the first-degree section (main section) of the thesis should be capitalized. In the second-degree section headings, the first letter of each word should be written in capital letters, while the others should be written in lower case letters.

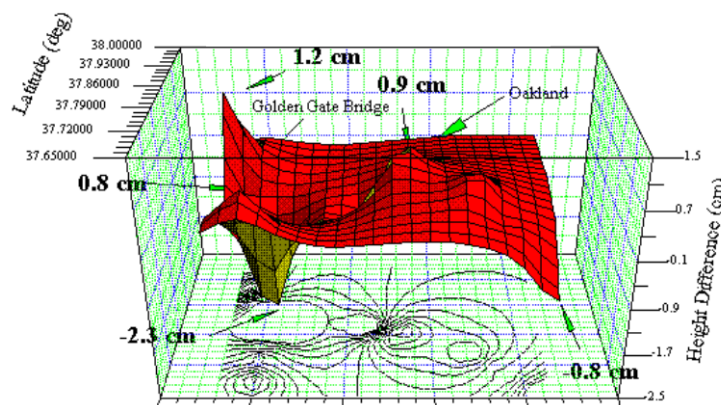
Examples:

Main Heading: **1. MACROSTARTERS and THEIR APPLICATIONS**
 Lower Heading: **1.2 Block Copolymer synthesis with Macroazostarters**
 Subheading: **1.2.1 Initialization and block activity**

- In the third- and fourth-degree headings only the first letter of the heading should be capitalized, and all other words should be written in lower case letters.
- If the first- and second-degree headings include "and, or, etc,", they should be written in lower case letters.
- All chapter headings should start at the left edge of the page and be written in bold characters.

7.5 Figures

- The figure number and the caption must be written below the figure. The line spacing must be 1 (one) in the caption.
- Figure numbers should begin with "1" for each section and consecutively numbered. For instance; The 9th figure of Section 3 should be written as "Figure 3.9".
- One character must be left blank after the figure caption number. Only the first letter of the initial word should be capitalized, and the others should be written in lower case letters.
- 1 (one) line spacing should be given between the figure and its caption.
- Figures and their captions should be centered in the text.
- Shapes taken from another publication **should be cited at the end of the caption.**



Şekil 7.2 Orthometric height differences in GPS and nivelman

7.6 Tables

- The table number and its caption must be written above the table. 1 (one) line spacing must be used in the caption.

- Table numbers should begin with "1" in each section and consecutively numbered. For example; the 7th table of Section 4 should be written as "Table 4.7".
- One character must be left blank after the table caption number. Only the first letter of the initial word should be capitalized, and the others should be written in lower case letters.
- 1 (one) line spacing should be given between the table and its caption.
- Tables and their captions should be centered in the text.
- Tables taken from another publication **should be cited at the end of the caption.**

Table 7.2 Products and codes

Product Code	Product
101.010	Compaq Deskpro EP
001.005	Pentium II 400 512C
004.003	64 MB 168 Pin SDRAM
003.003	4.3 GB HDD

7.7 Equations (Equalities, relations)

- The equations should be written on the left side of the page.
- The equations should begin with "1" in each section and consecutively numbered; with numbers being indicated in parenthesis at the end of the line. For instance; the 14th equation of the Section 2 should be written as "(2.14)".
- The text should have 1.5 spaces above and below the equation.

$$5x^2 + 8xy + 5y^2 = 9\left(\frac{x+y}{\sqrt{2}}\right)^2 + \left(\frac{x-y}{\sqrt{2}}\right)^2 \quad (7.1)$$

7.8 Footnotes

- The footnotes should be mentioned in the text as '*', '**',
- They should be separated from the main text by a line in the page.
- The page should not extend into the margins
- The line spacing should be 1 (one) in their writing.
- The font size should be 10 pt.

7.9 Citing in the Text

➤ References

In the thesis text, the references are indicated by specifying the surname of the author and the year of publication. The reference addresses related to the internet should be placed in the last part of references section, by using square brackets ([..]) in the thesis text.

- Referring to an unknown source present in a reference;
...According to Şahin (1996), Mize et al. have defined the system as a set of elements that have mutual relations or dependencies.

...by Mize et al., the system is defined as a set of elements that have mutual relations or dependencies (Şahin, 1996).

- Single-author reference representation: (Şahin, 1996).
- Two-authored reference representation: "and" should be placed between the authors' last names.
Example: (Boursier and Mullon, 1993).
- For authors with the same surname: The initial letters of the authors along with their surnames should be given.
Example: In the works of H.T. Kalaycı (2015) and E. Kalaycı (2017)...
N. Kalyoncu and Mermerci (2017) and N. Kalyoncu and Candemir (2017)...
- Reference citing for sources having more than two authors: "et al.," should be used after the first author's last name.
Example: (Ershun et al., 1993).
- Reference citing for more than one source at the same time: Publications should be sorted from the oldest to the newest, with a "semicolon" between them.
Example: (Long, 1987; Campbell et al., 1990; Antenucci et al., 1991).
- Citing an author's publications of different years at the same time: The surname of the author should be written once, and "comma" should be placed between the publication dates from the oldest to the newest.
Example: (Welty, 1988, 1991).
- Citing same year publications of an author: After the publication dates, the letters a, b, ... should be used respectively, and a "semicolon" must be inserted between them.
Sample; (Welty, 1988a; 1988b).
- For studies without an author or anonymous studies:
Example: Death reasons in occupational accidents ("Death reasons in occupational accidents, 2017")
If the study is given to be anonymous, then the word "Anonymous" should be written followed by a comma and the year of publication.
Example: (Anonymous, 2017)
- For the specific part of a reference:
(Kalaycı and Candemir, 2016 p.72)
(Demir, 2015, Section 5)
- For publications made by groups:
When the reference is first made:
(Yüksek Öğretim Kurumu [YÖK], 2017)
- For specific computer programs:
If a licensed computer program is cited within the text, the name of the software should be given and the version date has to be indicated in parenthesis.
Example; Microsoft Word, (2010)

➤ **Citing Figures, Tables and Equations**

Examples of citing are given below.

Citing a figure:

...These steps, which can be divided into several operations and can be changed in sequence, are shown in Figure 2.3.

... These stages can be divided into many processes and their order can be rearranged (Figure 2.3).

... These stages (Figure 2.3) can be divided into many operations and their order can be rearranged.

Citing a table:

... The point, line and area markers for geographical entities are shown in Table 4.8.

... For geographical entities, points, lines and area symbols are determined (Table 4.8).

... Point, line and area symbols for geographical entities (Table 4.8) are determined.

... Graphical data are brought to the appropriate state for use in physical design (Table 4.8).

Citing an equation:

... nd multiplication with sufficient accuracy can be calculated with the help of equation (2.24).

...The thickness d can be easily calculated with n value calculated by (2.21).

...Using the refractive index n (2.21), nd multiplication with sufficient accuracy can be calculated.

7.10 Spelling Rules for References

• Journals and E-Journals:

Example: Kökü, N., (2001). Eğitim Eylem Araştırması - Öğretmen araştırması. Ankara Üniversitesi Eğitim Birimleri Fakültesi dergisi, 34 (1-2), 35-43.

Example: İnci, N., (2017), İş Sağlığı ve Güvenliğinde Risk Faktörlerinin Analizi, <http://İşSağlığıveGüvenliği.nergi.net/yıl/2016/0504005.pdf>

• Single author article in periodical publications:

Structure; Author's surname, The initial of the author's name. (Year). Name of the article. Name of the Periodical Publication, volume (number of the periodical publication), page range.

Turkish; Işın, G. (2003). Savaş – barış ve Alfred Nobel. Pivolka, 1 (10), 9-12.

English; Coren, S. (1986). An efferent component in the visual perception of direction and extent. Psychological Review, 93 (4), 391- 411.

• Chapter of an edited book:

Structure: Author's surname, The initial of the author's name. (Year). Name of the chapter. The initial of the editor's name. Editor's surname, (Ed.), *Name of the book* (Edition number) in (Page range of the chapter). Publication place: Publishing house.

Turkish; Sucuoğlu, B. (1997). Özürlü çocukların aileleriyle yapılan çalışmalar. A. N. Karancı, (Ed.), Farklılıkla yaşamak aile ve toplumun farklı gereksinimleri olan bireylerle birlikteliği içinde (35-56). Ankara: Turk Psikologlar Derneği Yayınları.

English; Pinker, S. (1998). Language acquisition. In M. I. Posner, (Ed.). Foundations of cognitive science (6th ed.) (359-400). Massachusetts: MIT Press.

- **Book, translated book or editored Book:**

Çingir, E. (1994). *Örnekleme Kuramı* (2. Baskı). Ankara: Hacettepe Üniversitesi Basımevi.
Pieper, A. (1994). *Etiğe Giriş*. (Çev. V. Atayman ve G. Sezer). İstanbul: Ayrıntı Yayınları.

Richey, R. C., & Klein, J. D. (2008). Research on design and Developmen. In J. M. Spector, M. D. Merrill, J. Van Merrienboer, & M. P. Driscoll (Eds.), *Handbook of Research for Educational Communications and Technology* (3rd ed., pp. 748-757). Newjersey: Lawrence Erlbaum associates, Publishers.

- **Formal publications**

Structure; The name of the institution in which the formal publication is published. (Year). *Name of the publication* (Publication serial number). Publication place: Publishing house.

English; National Institute of Mental Health. (1990). *Clinical training in serious mental illness* (DHHS Publication No. ADM 90-1679). Washington, DC: U. S. Government Printing Office.

- **In Official Gazette:**

(T.R. Official Gazette, Publication date in day, month and year, issue, subject and the related article)

Example: [T.C. Resmi Gazete], 25 Nisan 2013, sayı: 28628, İş Ekipmanlarının Kullanımında Sağlık Ve Güvenlik Şartları Yönetmeliği, Madde 5).

- **Thesis:**

Examples of M.S. or Ph.D. theses obtained from a database:

Author, M. M. (2017). The name of the M.S. or Ph.D. Thesis (M.S. Thesis or Ph.D. Thesis). Obtained from www. database. (access date or sequence number)

Ünal, A., (2016), İş Sağlığı ve Güvenliği eğitiminde Eğitim Yöntemlerinin kullanımı. Yayınlanmamış Yüksek Lisans Tezi. Gedik Üniversitesi. Sosyal Bilimler Enstitüsü, İstanbul. <http://www.yok.gov.tr>. (Aralık, 2016).

- **Proceedings:**

Ünal, A., (2016). İş sağlığı ve Güvenliği Eğitiminde Kullanılan Eğitim Yöntemleri. I. Uluslararası İş Sağlığı ve Güvenliği Kongresi, Temmuz İstanbul, Türkiye.

- **Internet site:**

Structure; Author's surname, The initial of the author's name. (Publication or update date). *Name*. access date, internet address.

Turkish; İltir, H. K. (9 Şubat 2004). *kilter online*. 11 Şubat 2004, <http://www.baskent.edu.tr/~kilter>.

English; Walker, J. R. (1995). *MLA – style citations of electronic sources*. Retrieved October 26, 1995, from <http://www.cas.usf.edu/english/walker/m्ला.html>.

- **Article in a periodical internet publication:**

Structure; Author's surname, The initial of the author's name. (Year of publication). Name of the article. *Name of the Publication, volume* (number), date of research, internet address.

Turkish; İlbaş, C. (Mart, 2004). Siber dünyanın bombacıları. *Pivolka*,3 (13), 5-6. 24 Eylül 2004, <http://www.elyadal.org/pivolka/13/siber.htm>.

English; Lee, D. S., Austin, P. C., Rouleau, J. L., Liu, P. P., Naimark, D., & Tu, J. V. (November 19, 2003). Predicting mortality among patients hospitalized for heart failure. *The Journal of the American Medical Association*, 290 (19), 2581-2587. Retrieved November 23, 2003, from <http://jama.ama-assn.org/cgi/content/abstract/290/19/2581>.

- **Journal article obtained from a database, single author:**

Structure; Author's surname, The initial of the author's name. (Year). Name of the article. *Name of the Publication, volume* (number), page range. date of research, name of the database.

English; Foster J. (2001). Education as sustainability. *Environmental Education Research*, 7, 153-165. Retrieved June 22, 2001, from ERIC database.

- **Newspaper article of news with a known author:**

Structure; Author's surname, The initial of the author's name. (Date of publication). The name of the article. The name of the newspaper. Page range.

Turkish; Türker, Y. (2 Şubat 2003). Godot'nun 50 yılı. *Radikal İki*. 3.

English; Schwartz, L. (1992, November 3). Obesity and its affects. *The Washington Post*, 1-

- **Newspaper article of news with an unknown author:**

Structure; The name of the article. (Date of publication). The name of the newspaper. Page range.

Turkish; Karar seçimi etkilemez. (24 Ocak 2003). *Radikal*, 6.

English; New drug appears to sharply cut risk of death from cholesterol. (1993, July 15). *The New York Times*, 12.

- **Encyclopedia article:**

Structure; Author's surname, The initial of the author's name. (Year). Heading. The name of the encyclopedia.in (volume, page range). Publication place: Publishing house.

Turkish; Seyidoğlu, H. (1999). Kadro. *Ekonomik Terimler Ansiklopedik Sözlük* (2. Baskı) içinde. (1,304). İstanbul: Guzem Can Yayınları.

English; Bergmann, P. G. (1993). Relativity. In *The New Encyclopedia Britannica* (26, 501-508). Chicago: Encyclopedia Britannica.

- **Compilation of different works of the same authors:**

The works made by the same authors at different times are compiled regarding their dates. Kaptan, S. (1999).

Kaptan, S. (2014).

Kaptan, S. (2017).

APPENDIX-1 OUTER COVER



**YILDIZ TECHNICAL UNIVERSITY
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DEPARTMENT OF CHEMICAL ENGINEERING**

THE NAME OF THE THESIS

**Student's Name SURNAME
Student ID**

GRADUATION THESIS

ISTANBUL, 2024

APPENDIX-2 INNER COVER



**YILDIZ TECHNICAL UNIVERSITY
FACULTY OF CHEMICAL AND
METALLURGICAL ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING**

THE NAME OF THE THESIS

**Student's Name SURNAME
Student ID**

GRADUATION THESIS

It has been approved by me.

The advisor for Graduation Thesis: Title Name and Surname

The term for Graduation Thesis: 2023-24 Spring

ISTANBUL, 2024

APPENDIX-3 ETHICS DECLARATION

ETHICS DECLARATION

I declare that all information in this graduation thesis has been obtained in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Signature / Date

Student Name SURNAME

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