Department of Computer Engineering
Faculty of Engineering
University of Tripoli
Tripoli, Libya

Graduation Project Handbook

April 20th, 2023

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1. Introduction

This handbook is prepared to help both department and students carry out the graduation projects in accordance with the department's guidelines towards achieving the program objectives and students' outcomes. This Handbook was discussed and adopted at the 5th ordinary Department Meeting on Sunday, 02/04/2023, and will be acted upon from Spring 2023. This document outlines the graduation projects selection criteria, responsibilities of students and supervisors, and milestones.

1.1 Terminology Used:

A. Graduation Project (GP)

Every student must complete a "culminating activity" in order to fulfill graduation requirements. This "culminating activity" is referred to as the Graduation Project. The purpose of the graduation project is to assure that students are able to analyze, synthesize, evaluate, apply, and demonstrate their knowledge and skills in their respective program of study.

B. Project Team (PT)

A group of 1 to 2 students working together on the graduation project is called Project Team or PT.

C. Department Members (DM)

Department faculty members are in charge of all Graduation Projects (GPs) and ensures that all projects are properly implemented according to the department of computer engineering (EC) Major, Vision and Mission.

D. Main Project Advisor (MPA)

A faculty member, who coordinates a Graduation Project (GP), advises the project team and is responsible for reporting the assessment data.

E. Supporting Advisor (SA)

A Supporting advisor is optional. The supporting advisor may be a person from within the faculty or outside, and is assigned the job of advising the students on specialized aspects of the project.

1.2 Objectives of GP

The GP provides an opportunity for students to apply concepts, rules, methods and techniques learned in their undergraduate education toward a realistic computer engineering project. The main objectives of the graduation project are:

1. To make the students understand and practice the basic concepts of engineering design for multidisciplinary computer engineering project.
2. To expose the students to group learning and teamwork by working on a multidisciplinary project.
3. To improve the oral and written communication skills of the students
4. To make students capable of integrated project planning, scheduling, and cost analysis for computer engineering project.
5. To let the students, demonstrate their abilities in all Student Outcomes (SOs) as prescribed by the department.

1.3 Graduation Project Procedure and Approval Mechanism

1. Identifying project topics must be in the same line with the specialties, vision and objectives of the Department of Computer Engineering.
2. Students need to fill and submit Project Proposal Form attached with student's Academic Record Form.
3. The proposed project topic must be approved by MPA first, and then with the DM on the day of the proposal presentation.
4. In coordination with the Study and Examinations Unit of the Department of Computer Engineering, the period of presentation of proposals will be determined once at the beginning of each semester, as well as the period of final projects defense will be determined twice at the beginning and the end of each semester with no exceptions.
5. Students need to fill Graduation Project Registration Form showing the status of project registration in the first semester and the number of previous registrations should be present.
6. Students allowed to register EC499 graduation project for two semesters.
7. In case that the student is unable to complete the graduation project in two semesters, student need to submits a written application to the DM explaining the reasons for not completing the project, after the approval of the DM, the student can register again for a third semester as a last chance, and in the case that the student is unable to complete the project in the third semester, the project will be graded zero and the project will be re-registered as EC499A by four credits with the change of MPA and project title.
8. Students must provide student's academic record to ensure that the project registration requirements are met:
    a. Student must pass EC441 and EC483 courses.
    b. Student must pass all EC300 courses.
    c. The number of completed credits must be (126 units) or more in the last semester.
9. Student is allowed to change MPA or the title of the project once and the student is required to obtain the approval of the MPA and submit a written request to the project coordinator explaining the reasons.
10. Students must complete all required courses (143 units) before get approved to present the final project defense. Students are not allowed to defense their project before completing all general and department courses. In case if two students are working in one project, the result of the student that has not completed his/her courses will be withheld.
11. It is forbidden to hold presentations of graduation projects or project proposals in the public and shared halls with other departments.
12. It is not allowed to bring and distribute sweets or drinks inside the presentation hall or in the corridors of the presentation hall.

1.4 Project Selection Criteria

The graduation project is intended to provide capstone design experience; it builds on the students' skills and knowledge gained from previous years of coursework in computer engineering design. The project should be sufficient in scope and technical content to demonstrate the technical competence in computer engineering field. The successful completion of the project is indicative of the students' preparedness to pursue professional practice at industry. The following guidelines are provided to help computer engineering department students to identify appropriate and suitable project topics:

1. The project design problem has several possible solutions and realistic constraints.
2. Project objectives are well defined and clearly stated without ambiguity.
3. The project objectives are achievable within two semesters.
4. The project is based on the department's coursework and is not an open research project.
5. The project should emphasize hardware design, experimentation and hands-on skills. Beside hardware design and implementation, developing algorithms and software systems.
6. The project should offer opportunity for creativity, and should not have been done in past years.
7. The project should have concrete and measurable goals and well-defined deliverables.

1.5 GP Duration:

The duration of the graduation project is two semesters.

1.5.1 First Semester (Sem-1)
1.5.2 Second Semester (Sem-2)

The detailed description of the tasks for each semester is shown below in this document.

2 Student and Supervisor Responsibilities

2.1 Student's Duties:

a. Students must meet and consult with their supervisor periodically.
b. Perform the work assigned and put significant individual effort towards the completion of the group task.
c. Maintaining honesty and personal conduct when searching for and obtaining relevant information.
d. Submitting all reports on time as specified by project supervisors.
e. Attend meeting scheduled by the project advisor.
f. Attend in person for the oral examination at the end of the term.

2.2 Supervisor's Duties:

g. Regularly meet with the students and provide assistance.
h. Approve the schedule of the different project tasks.
i. Control and monitor the progress of the project.
j. Assess students both collectively as well as individually.
k. Ensure that the team keeps the project binder up-to-date.
l. Correct and evaluate the final report, presentation, posters, etc.
m. Approve the submission of the final project report.

3 Project Major Milestones

A generic time table for major milestones in the project is shown below, and the projects' supervisors are strongly advised to ensure that the schedule is followed as closely as possible to ensure successful timely completion of the projects.

3.1 Project Timeline: Phase #1 (1st semester)

Week: 1 - 2 Project Identification
Week: 3 - 4 Project Definition, Specification and Background Research
Week: 5 - 7 Project Planning and Task Definition
Week: 8 - 9 Literature Review and Presentation
Week: 10 – 14 Preliminary Design and Parts Acquisition
Week: 15 Preliminary Report
Week: 16 Presentation / Assessment

3.2 Project Timeline: Phase #2 (2nd semester)

Week: 1 - 3 Detailed Design Development
Week: 4 - 5 Design Review and Presentation
Week: 6 - 10 System Simulation, Optimization, Design Iteration, Construction and Testing
Week: 11 – 14 Final Design and Draft Report / Presentation
Week: 15 Final Report
Week: 16 Presentation / Assessment

4 Copyright and Intellectual Property Rights

At the completion of the graduation project, students are required to submit all deliverables and outputs of the projects (software, hardware and data used and produced by the project; source codes with carefully written readme or how-to instructions) to their supervisors.
The Department of Computer Engineering is the rightful owner of copyright and all intellectual property rights of all student's work. Any tangible and intangible benefits (including publications, financial proceeds) from students' project should be shared among the students, the supervisor and the university based on the Department's policy in line with the university's intellectual property regulations.

5 Academic Integrity and Plagiarism

Academic integrity is the pursuit and presentation of learning and scholarship in an honest, transparent, and respectful way that values personal responsibility, original expression, and proper attribution.
Plagiarism, a specific subset of academic dishonesty - violation of academic integrity, is the representation of another person's work, words, thoughts, or ideas, as one's own. Plagiarism includes, but is not limited to, copying material and using ideas from an article, book, unpublished paper, or the Internet without proper documentation of references or without properly enclosing quoted material in quotation marks. Plagiarism also includes sentences that follow an original source too closely, often created by simply substituting synonyms for another person's words.

Any incident of violation of either academic integrity or plagiarism will be dealt by the MPA and the DM and subsequently reported to the Department Committee for Academic Integrity to decide on appropriate action.

6 Graduation Project Final Report Format

Student's GP report must be according to the prescribed format which is available in Appendix A. Three copies of the graduation project report will be required from students to be submitted to the department.

7 Guidelines for Poster Presentation

The following guidelines outline the major sections of the poster presentation and provide a brief synopsis of the content that should be presented within each section. Each section of the poster should not have more than 5 points.

Sections of the Poster: The major sections of the poster should include: Title, Abstract, Introduction, Methods, Results (if any), and Discussion. Listed below are the suggested content guidelines for each section.

Title:

The title of the poster should include the title of the student's GP as well as his name and the name of the department.

Abstract:

The abstract is a short informative and descriptive summary of your GP. The abstract should be descriptive and as such should identify the statement of purpose and scope of the GP. In addition, the abstract should also be informative and summarize the entire GP, giving the reader an overview of the methods, findings, and conclusions of your project. The abstract must, however, be short in length and should not exceed 1 to 2 paragraphs. In total, the abstract should not exceed 400 words. The abstract should be followed by a list of 3 to 5 key words that would be used to describe and index the GP.

Introduction:

1. Introduction should include clear statements about the question or problem which to be tackled in the GP.
2. Provide theoretical grounding for the GP.
3. Introduction must end with a clear purpose of the GP.

Method:

1. This section should explain procedures and methods that you completed within your study.
2. Be sure to describe your processes, procedures and, any method, protocols that were followed within the scope of your GP.
3. Students are encouraged to use block diagrams, algorithms, flow charts or any other visual aids to express their GP.

Results:

The results section is where you will describe the main findings from your GP. You are encouraged to use tables, charts, and figures to illustrate your results. Be sure to include the findings from all your analysis of data.

Conclusion:

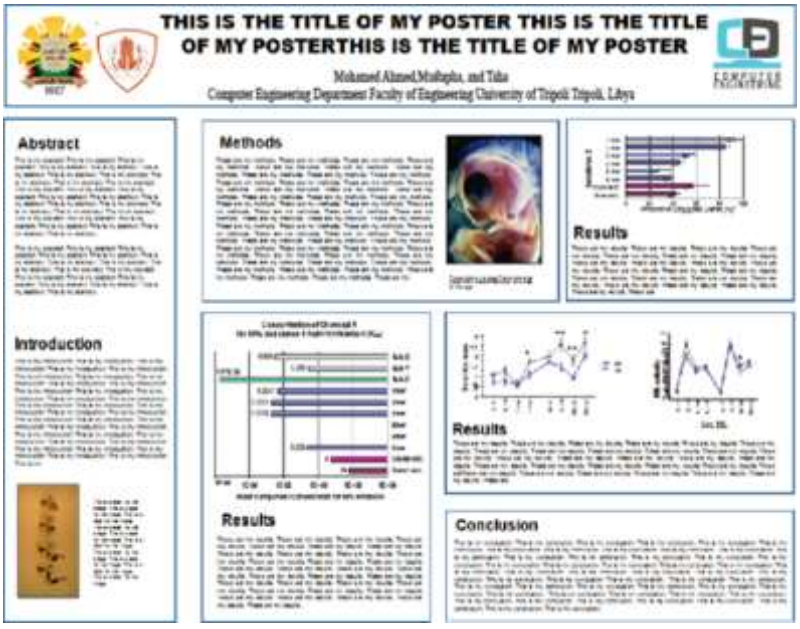
In this section students need to provide detailed outcomes of the project.

7.1 Design Tips for Poster Presentation

1. Most students use Microsoft PowerPoint to design posters. Be sure to begin by setting the page size to your final poster size. More sophisticated programs such as Adobe InDesign, Illustrator, or Photoshop are other design options that can be used.
2. Use large text (text should be at least 18-24 pt; headings 30-60 pt; title > 72 pt)
3. Do not use more than 2-3 font styles in total
4. Use fonts that are easy to read (such as Time New Roman, Garamond, and Arial)
5. Avoid jagged edges: left-justify text within text boxes or fully justify blocks of text
6. Avoid too much text
7. Choose colors carefully and pay attention to contrast. If in doubt, dark print on light background is best. Remember - some colorblind people cannot distinguish between red and green
8. Organize and align your content with columns, sections, headings, and blocks of text
9. White space is important to increase visual appeal and readability (this is the "empty" space between sections, columns, headings, blocks of text, and graphics)
10. Selectively incorporate charts, graphs, photographs, key quotations from primary sources, maps and other graphics that support the theme of your poster
11. Avoid fuzzy images; make sure all graphics are high-resolution (at least 300ppi) and easily visible
12. Include the University, Faculty and Department logo in your poster
13. Edit the poster carefully for typographic or grammatical mistakes and image quality before the final print-out (use the print-preview function)

7.2 Project Poster Sample

The students prepare a Poster of size 23.39 x 33.11inches (59.4 x 84.1 cm) which are placed on an open display and are reviewed by the Supervisory Committee.



8 Forms

8.1 Project Proposal (Form A)

Department of Computer Engineering
Faculty of Engineering
University of Tripoli

Graduation Project Proposal

Project Proposal Title

Student's Name:

Student's ID:

Student's Email:

Supervisor's Name:

Term ----------

1. **Problem Statement:**----------

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2. **Objective:**----------

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3. **Procedure**:----------

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4. **Resources and Tools**:----------

   ---

5. **Keywords**:----------

I/We understand that all work on my Graduation Project must be my original work. Students will clearly site all resources used in accordance with Department of Computer Engineering guidelines. Any plagiarism will invalidate my project and jeopardize my graduation credit.

I/We understand that at the completion of the graduation project, students are required to submit all deliverables and outputs of the projects (Software, Hardware and data used and produced by the project; source codes to our supervisors.

The Department of Computer Engineering is the rightful owner of copyright and all intellectual property rights of all student's work.

Student's Signature: ---------- ----------

Signature Date: ---------- ----------

==========

As the Advisor for this Graduation Project:

---------- **I accept the proposal as written**

---------- **I do not accept the proposal because** ----------
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Advisor's Signature: ---------- ----------

Signature Date: ---------- ----------

Committee Decision

Graduation Project Examiners:

1. ----------

2. ----------

Graduation Project Coordinator's Signature: ----------

Signature Date: ----------

8.2 Intellectual Property Rights (Form B)

Department of Computer Engineering
Faculty of Engineering
University of Tripoli

Intellectual Property Rights Identification Form for Projects and Scientific Research

This form must be read and signed by students working on graduation projects, master's theses or any other research activities conducted at University of Tripoli / Faculty of Engineering / Department of Computer Engineering.

Intellectual property rights for projects and research activities and their results (such as graduation projects, master's theses, patents and any marketable research product) belong to the University of Tripoli/Department of Computer Engineering. These rights are subject to the laws, regulations and instructions of the University relating to intellectual property and patents.

I agree (Student's Name): _____
Student's ID: _____

As a condition of my participation in the graduation project entitled:
_____
_____
_____

All intellectual property rights of the above-mentioned project or scientific research shall be attributable to the University of Tripoli/Department of Computer Engineering This requires me to inform the competent authority of the University of any invention or discovery that may result from such research and to be fully confidential therein and to work through the University to obtain the patent that may result from such research. I am also committed to placing the name of Tripoli University/Department of Computer Engineering and the names of all researchers involved in the research on any scientific bulletin for full research or its results, including publication of graduation projects, master's theses, doctorates, publication in journals, scientific conferences in general and posting on websites. I must adhere to the principles of copyright approved by the University of Tripoli/Department of Computer Engineering.

Student's Signature: ----------

Date: ----------

8.3 Plagiarism Declaration (Form C)

Department of Computer Engineering
Faculty of Engineering
University of Tripoli

Plagiarism Declaration

I (Student's Name): _____
Student's ID: _____

hereby declare that I am the sole author of the graduation project entitled:
_____
_____
_____

and that neither any part of the thesis nor the whole of the thesis has been submitted to any University or Institution for obtaining any degree / diploma / academic award.

This project was written by me and in my own words, except for quotations from published and unpublished sources which are clearly indicated and acknowledged as such. I am conscious that the incorporation of material from other works or a paraphrase of such material without acknowledgement will be treated as plagiarism, subject to the custom and usage of the subject, according to the University Regulations on Conduct of Examinations.

I shall be solely responsible for any dispute or plagiarism issue arising out of the graduation project.

.

Student's Signature: ----------

Date: ----------

9 Appendix A

9.1 Graduation Project Final Report Format (Template A)

Department of Computer Engineering
Faculty of Engineering
University of Tripoli

A graduation project is submitted in partial fulfilment of requirements for the degree of Bachelor in Computer Engineering

Project Title

By:

……...

Supervised By:

……..

Term (Spring or Fall) year

Department of Computer Engineering
Faculty of Engineering
University of Tripoli

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Intellectual property rights for projects and research activities and their results (such as graduation projects, master's theses, patents and any marketable research product) belong to the University of Tripoli/Department of Computer Engineering. These rights are subject to the laws, regulations and instructions of the University relating to intellectual property and patents.

I agree (Student's Name): _____
Student's ID: _____

As a condition of my participation in the graduation project entitled:

_____
_____
_____

All intellectual property rights of the above-mentioned project or scientific research shall be attributable to the University of Tripoli/Department of Computer Engineering This requires me to inform the competent authority of the University of any invention or discovery that may result from such research and to be fully confidential therein and to work through the University to obtain the patent that may result from such research. I am also committed to placing the name of Tripoli University/Department of Computer Engineering and the names of all researchers involved in the research on any scientific bulletin for full research or its results, including publication of graduation projects, master's theses, doctorates, publication in journals, scientific conferences in general and posting on websites. I must adhere to the principles of copyright approved by the University of Tripoli/Department of Computer Engineering.

Student's Signature: ----------

Date: ----------

Department of Computer Engineering
Faculty of Engineering
University of Tripoli

Plagiarism Declaration

I (Student's Name): _____
Student's ID: _____

hereby declare that I am the sole author of the graduation project entitled:

_____
_____
_____

and that neither any part of the thesis nor the whole of the thesis has been submitted to any University or Institution for obtaining any degree / diploma / academic award.

This project was written by me and in my own words, except for quotations from published and unpublished sources which are clearly indicated and acknowledged as such. I am conscious that the incorporation of material from other works or a paraphrase of such material without acknowledgement will be treated as plagiarism, subject to the custom and usage of the subject, according to the University Regulations on Conduct of Examinations.

I shall be solely responsible for any dispute or plagiarism issue arising out of the graduation project.

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Student's Signature: ----------

Date: ----------

Table of Contents

Abstract

- Briefly summarizes the report.
- Should describe motivations, methods, results, and conclusions.
- One paragraph long (Have words limit, e.g., maximum 500 words)

Acknowledgement

- Acknowledge every person or institution involved in funding, supporting, guiding, and working on the project and thank those who have helped in the process of obtaining the degree.

Chapter 1 Introduction

Should briefly stat and explain:

- What is the problem
- The importance of the experiment being reported, and WHY it is important
- The main steps in your project to solve the problem
- Overview on the following chapters

Chapter 2 Background

- Present some background information on the key equipment and tools and WHY this was tools was chosen.
- This chapter can, for example, include the following sections:

Microcontrollers

Sensors and Switches

Programming Languages

Chapter 3 Related Work

- Survey and describes previous work that is similar to your work.
- Should focus on closely related work which have been developed and introduced in the recent years (last 5 years).

Chapter 4 Your Project

This chapter should describe and contain:

- Enough details to enable someone else to duplicate your work.

- Report only the final results
- This chapter can, for example, include the following sections:

Design

Experiments

- Determine the experiments and what the requirement to do these experiments

Testing & Evaluation

- Present the row data or equipment that were used to test the experiments and the measures that were taken during the test.

Results and Discussion

- The final results of the experiment are reported and discussed here.

Chapter 5 Conclusion

- Short restatement of important points being presented in the report
- Explain how useful the methodology and the results are.
- Mention any restrictions, limits or weak points related to the use of the results.

Chapter 6 Future Work

Suggest what the next step in the study should be to overcome the limitation or advance the study further.

Reference

- C**ommon knowledge in the field** does not need to be referenced such as PI=3.14159 or F=ma.
- References from books, essays, journals, World Wide Web, and personal communications must be clearly stated here.

Appendices

- Includes extra information and any other supporting information such as code, maps

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Graduation Project Coordinator
Department of Computer Engineering
Faculty of Engineering
University of Tripoli

20/04/2023