



CUFE
Cairo University –
Faculty of Engineering

CUFE Credit Hour System
2010/2011
GP Manual



Graduation Project (GP) Manual

September 2010



This page is intentionally left empty



Table of Contents

#	Topic	Page
1	About GP Manual	
2	Introduction	
3	Coding, Catalog Description, ILOs and Grading	
4	Graduation Project Requirements	
5	Duties of the Student	
<u>Appendices of the Graduation Project Manual</u>		
Appendix (1): What is a good essential question?		
Appendix (2): Notes on GP Report and Presentation		
Appendix (3): Graduation Project Forms:		



This page is intentionally left empty



1. About GP Manual

Graduation project (GP) provides students with opportunities to apply and implement the skills gained during all other courses studied in the program toward providing a solution to a specific engineering problem. The graduation project resembles problems that will face the graduate engineer at the work place, when he/she is required to work in a team to tackle a predetermined engineering task. The graduation project provides the opportunity for students to work in groups under staff supervision. This Manual explains Cairo University, Faculty of Engineering (CUFE) efforts to set necessary standards and procedures to its credit hour program students to ensure their smooth integration in the future workforce of tomorrow. The students should find in this document the required information on what is expected from them during their graduation project activities. The document also presents guidelines on the expected contents of the graduation project report and presentation that she/he is required to submit for examination.

2. Introduction

The graduation project is the last step in preparing the student for professional practice after graduation and therefore is considered an opportunity to apply and demonstrate the students' accumulation of knowledge, skills and experiences throughout their undergraduate education at CUFE. All the students' education including lectures, tutorials, discussion groups, labs, seminars, field trips, and industrial training should be reflected in the graduation projects. It requires continuous work and commitment to achieve the required goals.

It is recommended that the selected project represents an actual need of the industry or the community. This reflects the mission and strategic objective of CUFE. Students are encouraged to select new topics and involve other engineering disciplines, where applicable, in their graduation projects.

3. Coding, Catalog Description, ILOs and Grading

3.1. Course Coding

There are two graduation project courses, namely Graduation Project-1 (XXXN480) and Graduation Project-2 (XXXN481) where the XXX stands for the program code. For example, Graduation Project-1 in ABT program will be coded as ABTN480 and Graduation Project-2 in ABT will be coded as ABTN481.



3.2 Team Size

One of the objectives of the Graduation Project is to practice team work and synergy. Students are expected to efficiently work in teams. The minimum team size is 4 (Four) students and the maximum is 6 (six). See details of each program for prerequisites for registration of graduation project courses.

3.3 Catalog Description

The catalog descriptions of the two graduation project courses are as follows:

XXX N480	<u>Graduation Project-1</u> All students undertake a major project as part of the program. The aim of the project is to provide the students - in groups - with an opportunity to implement the appropriate concepts and techniques to a particular design. Students are required to choose and research the expected project to be designed and implemented in course project-2. The student is expected to give an oral presentation to be approved.
XXX N481	<u>Graduation Project-2</u> All students undertake a major project as part of the program. The aim of the project is to provide the students - in groups - with an opportunity to implement the appropriate concepts and techniques to a particular design. A dissertation on the project is submitted on which the student is examined orally.

Graduation Project-1 is carried by the students under the supervision of a faculty member. It includes clear identification of the Essential Question (EQ) that will be addressed as well as completion of the preliminary research work and market analysis. A progress report has to be submitted at the end of the semester detailing the Essential Question and the proposed solution approach and/or design. The students should present the expected cost and required material, tools and facilities as well as a timed list of deliverables.

The graduation project-1 is graded on a **Pass/Fail** basis based on three-progress reports, which are detailed as follows:

Deliverables	Content	Submitted on
Report # 1	Essential Question, Project Title, Problem Description and Importance (2 pages)	Week 3
Report # 2	Preliminary research work and market analysis	Week 8
Report # 3	Proposed solution approach Required Materials, tools and facilities Time plan with list of deliverables	Week 11



Graduation Project-2 is the second phase of the graduation project. It fulfills the deliverables stated in Graduation Project-1 under the supervision of the same faculty member.

3.4. Intended Learning Outcomes (ILOs) of Graduation Project Courses

The graduation project proceeds as Graduation Project-1 and Graduation Project-2.

3.4.1. ILOs of the Graduation Project-1:

On successful completion of Graduation Project-1 course, students will be able to:

1. Formulate an essential question for a real-life problem using engineering context.
2. Apply the engineering knowledge and skills acquired during their course of study to engineering problems.
3. Collect and interpret market data on a particular problem in the specialized discipline.
4. Survey the literature related to a problem or technology in the area of expertise.
5. Practice various skills including IT, technical report writing, presentation skills, communication and team working.
6. Work under stress and constraints of quality, time and cost.
7. Explore the relevant skills, tools, and/or material to implement a project.
8. Establish links with industry.

3.4.2. ILOs of the Graduation Project-2:

On successful completion of Graduation Project-2 course, students will be able to:

1. Select scientific concepts, engineering techniques and business aspects to effectively solve a problem in the area of expertise.
2. Integrate and exchange scientific concepts, engineering techniques and business aspects to effectively solve a problem in the area of expertise.
3. Develop innovative solutions to problems encountered during the implementation process taking into consideration technical, economical, social and environmental requirements.
4. Enhance various skills including IT, technical report writing, presentation skills, communication and team working.
5. Enhance the ability to work under stress and constraints of quality, time and cost.
6. Assess and evaluate effectively the characteristics and performance of components, processes and systems.
7. Deal with risks associated with the project.
8. Investigate the failure of components, processes and systems.
9. Use computational facilities, techniques, and/or measuring instruments to construct process, experiment, component or system.



3.5 Grading

Graduation project is evaluated by a three member committee as follows:

- 1- Project Advisor
- 2- Internal Reviewer; who is usually a senior CUFE staff member
- 3- External Reviewer; who is usually a Non-CUFE expert

In a given semester, both the internal and external reviewers are common to all graduation projects of a certain program. The basis of evaluation is as follows:

- 30% for the timely submission of the deliverables as prescribed by the project advisor. These points are given by the project advisor
- 40% for the report
- 30% for the oral presentation (20% for communication skills, 50 % for the project evaluation and 30 % for the scientific discussion of each student).

The project advisor and the two reviewers agree by consensus on the 40% of the report and the 30% for the oral presentation. Evaluation forms are given in appendix-3.

4. Graduation Project Requirements

The graduation project shall consist of the following components:

- 1) **The Essential Question (EQ):** This is the foundation of the project. The EQ must reflect genuine inquiry and must be complex, interesting, and lend itself to a concrete product/improvement in an existing product or facility. The EQ is submitted as a 2-page handout.
- 2) **The Report:** The report should detail the EQ, its objectives and benefits to the industry/community, its relevance to the CUFE vision and mission, should review the basics and details of the engineering approach used to tackle the problem, should present and analyze the major results and presents direct conclusions. The report should reflect the student ability to write a technical report as detailed in the Technical Writing course GENN101. The report should be written following a standard template as detailed in appendix-2. References/bibliography should follow a standard citation format. Students are expected to include their resumes as an appendix to the report. The report should be bound professionally with a plastic/hard cover.
- 3) **The Oral Presentation:** Each group of students are expected to summarize the Essential Question, its relevance to the CUFE vision and mission, major findings into a power-point presentation. The group presentation is carried before a panel of three



judges (the project advisor, the program common internal and external reviewers). The presentation should follow all the guidelines as detailed in the Communication and Presentation Skills course GENN201. The presentation time for each group of students is usually limited to 20 minutes plus five minutes for questions.

- 4) **The Product (Optional):** The product is a physical manifestation of the results of the research.

5. Duties of the Student

- Being creative, responsible and prompt.
- Researching existing scientific and market information through online resources, department libraries, CUFE library, CU central library, new papers, etc....
- Attending all meetings with the project advisor and recording the progress in Student Log (**Form GP-1**).
- Being prepared in all meetings to demonstrate and explain progress and/or inquire about technical issues.
- Recording all meeting days and topics discussed/assignments given in the meetings in the student log.
- Observing the student code of conduct, CUFE bylaws and the Graduation Project Manual.
- Proper working in teams with synergy and with minimum advisor interference to resolve inter-team problems.
- The student is the party responsible for the completion of the project on time.
- The student is required to fill the Graduation Project Ethics Agreement (Form GP- 4)



Appendices of the Graduation Project Manual

Appendix (1): What is a good essential question?

Appendix (2): Notes on GP Report and Presentation

Appendix (3): Graduation Project Forms:

Form GP-1: Student Log

Form GP-2: Report Evaluation Form

Form GP-3: Oral-Presentation Form

Form GP-4: Graduation Project Ethics Agreement

Appendix (1): What is a good essential question?

A good essential question is...

- **Clearly limited** in scope; it sets boundaries on the breadth and depth of your research. If your topic is too broad, it will lack depth.
- **Deep**; it asks what requires an involved, in-depth response, not a simple answer. If the answer is obvious, throw away the question and try again.
- **A clear, direct, and precise sentence.** The essential question (interrogative) will become the declarative thesis of your report.
- **uses evaluative** key words and phrases:

Affect/effect	Emergence	Initiate	Relate
Align	Engender	Inspire	Revolve
Alter	Evolve	Instigate	Significance
Bring about	Facilitate	Involve	Support
Cause	Force	Link	Concern
Generate	Mold	Consideration	Have an effect on...
Motivate	Continue to...	Impact	Necessitate
Contribute to...	Importance	Parallel	Create
Influence	Produce	Develop	Inform



Appendix (2): Graduation Project Report and Presentation

I- Final Report Requirements

Language of the report: English

General appearance: Formal and professional. Apply rules of Technical Report Writing

Contents of GP Report

- **Cover page:** Student name, Program title, Dates, Names of supervisors and their affiliations and institutions. See sample below
- **Acknowledgement:** Acknowledge the advisor and the examiners all those who helped you during the GP.
- **Executive Summary:** Summarize the complete report, and highlight the conclusions
- **Table of Contents: Lists of Tables and Figures** (if necessary)
- **Introduction & Background**
 - The Essential Question (two or three lines)
 - Relevance
 - Engineering Approach
 - Road map to the sections of the report
- **Body of the report**
 - Information about the EQ
 - Review
 - Scientific and engineering details
 - Assumptions and analysis
 - Conclusions
 - Case histories
 - Software applications
 - Technical excerpts
 - How the GP complemented the academic study
- **Conclusions**
- **Recommendations and/or suggestions:** Things to facilitate further studies related to this topic
- **References:** Books, notes, magazines, personal communications, websites, technical articles, manuals, technical pamphlets, etc...
- **Appendixes:** Include details, samples of documents, examples, etc...



II- Final Presentation Requirements

Length: about 20 minutes for each group plus 5 minutes for questions

Language: English

Content: a summary of the report, with focus on your achievements and learning outcomes

Parts of the presentation:

- Outline: State the main points in your presentation
- Body: State the EQ, its relevance, your analysis and conclusions. Include suggestions to help future students.
- At the end, thank the panel for their time.

Considerations:

- Review your contents carefully and thoroughly before going live in the presentation. You may have a copy of your report with you on the presentation day for reference to specific sections
- Remember that the presentation is not a copy of your report; you need to add your input and draw the jury's attention to the important points in your report.
- A presentation needs adequate use of visuals to appeal to the jury; integrate photos, videos, charts ...,etc. where possible. Yet, do not overuse those.
- Maintain balanced eye contact with all the panel members; do not show favoritism to any of them as this may not be good for you later.
- Talk to your panel, not to your slides. Remember, you are giving this presentation to the panel members.
-

Final Remarks:

1. The report and the presentation reflect the essence of your work. They should not be simple replicas or collections of cut-and-paste incoherent material. Be ready to defend your arguments, not those who have helped you.
2. The contents of the graduation project report and presentation should not be only a mere collection of incoherent Xerox copies of catalogs or articles or materials from the internet. Try to show understanding of the essence and principles of operations.
3. Pay attention to the style, and physical appearance of the report and the presentation and show originalities of your work.
4. For pagination of the report pages, use Roman numbers (upper and lower cases) for parts before the introduction and Arabic numbers for the introduction till the end of the report.
5. The report should be written using Microsoft Word. Submit one hardcopy and one e-copy of the final version to your mentor (s)



6. Consider the graduation project as an investment you do while you are at the university to capitalize on your chances of getting work because of the practical sense you should gain from exposure to real life environment.
7. Do not limit your exposure to include only the technical “stuff”; be aware of the importance of managerial, human resource, safety and environment and all other issues that form the work environment.

Important Notes

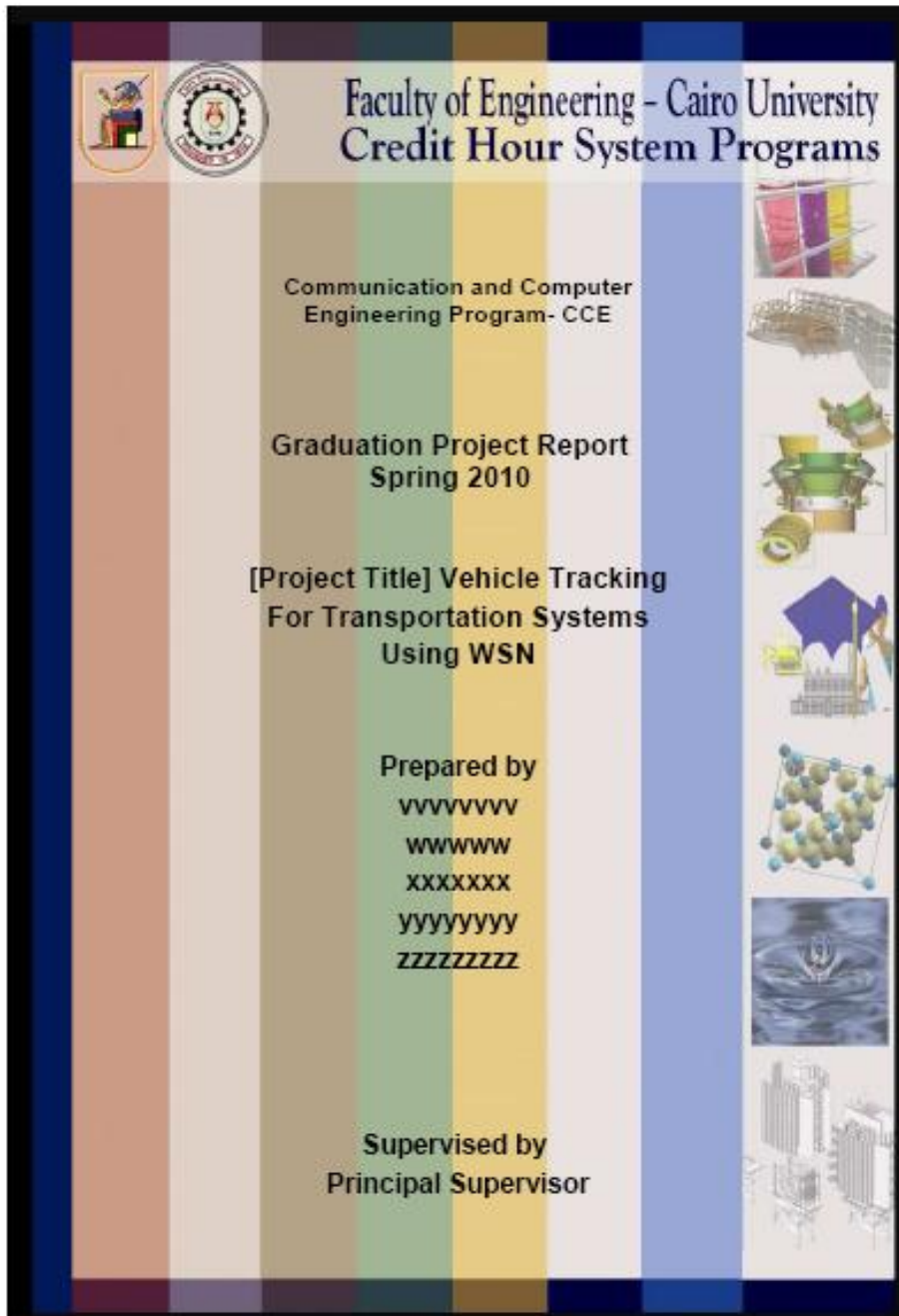
The design of the GP report binding should follow the sample provided below for the front and back covers.

Each graduation project group is required to prepare a one-page project info sheet to be included in the program graduation project directory. Sample of the GP summary sheet is provided below.

All credit hour students are required to present their graduation projects in a one day poster conference. A sample of GP poster format is provided below. Guidance on how to prepare GP Poster are usually provided on credit hour web site.



Sample of GP Report Front Cover









Sample of GP Report Back Cover





Sample of Graduation Project Directory Data

Project Code	GP-[CEM]-[2010]	
Project Title	El - Sewedy Cement Plant	
Keywords	Cement manufacturing, Industrial plant, Construction project management	
Students	<p>Name: Ahmad Mohammed Wageeh Email:ahmedwageeh_170@hotmail.com Phone:0117763367 Address: Nasr city</p> 	<p>Name: Mina Gad About Beshara Email:mina.beshara@hotmail.com Phone:0125157774 Address: Nasr city</p> 
	<p>Name: Waleed Mohammed Youssef Email:waleedyoussef87@hotmail.com Phone:0102414052 Address:5th settlement</p> 	<p>Name: Mohammed Moad Younes Email:Mohamed.moad@hotmail.com Phone:0106361249 Address: Faisal st.</p> 
Supervisor	Dr. Maged Ezzat Georgy	
	Signature: <i>Maged E. Georgy</i>	E-mail: magedgeorgy@yahoo.com Phone: 010-584-8060
Project Summary	<p>During recent years, the Egyptian cement industry has undergone drastic change. Large extensions and upgrades to existing plants to raise production efficiency have been accompanied by new private companies entering the market to establish their own plants; and multi-nationals acquiring a number of local companies.</p> <p>The scope of work in El-Sewedy Cement Plant is divided into two main packages: the first one involves the production of cement and the second one involves the packing and loading part of cement. The graduation project primarily focuses on the construction project management of the latter, that is the packaging and loading facilities, e.g., cement silos.</p> <p>The graduation project discusses the project of manufacturing of cement in El Sewedy cement plant from different point views such as: developing work break down structures for different activities, method of statement for the scope of work, scheduling of the project on a software program, developing (quality, risk, safety) plans, etc.</p>	



Sample GP Poster

The poster is titled "Faculty of Engineering – Cairo University Credit Hour System Programs" and "Communication and Computer Engineering - CCE Graduation Project – Spring 2010". It features a central grid of nine purple boxes labeled "Slide 1" through "Slide 8" and "Slide Abstract". A large blue banner at the top contains the text "Title xxx". The bottom section includes fields for "Prepared By:" (with options 1-6) and "Supervised By:" (with "Dr. supervisor ZZZ").

Faculty of Engineering – Cairo University
Credit Hour System Programs

Communication and Computer Engineering - CCE
Graduation Project – Spring 2010

Title xxx

Abstract

Slide Abstract

Slide 1

Slide 2

Slide 3

Slide 4

Slide 5

Slide 6

Slide 7

Slide 8

Prepared By:

1-Student YYY 2-Student YYY
 3-Student YYY 4-Student YYY
 5-Student YYY 6-Student YYY

Supervised By: Dr. supervisor ZZZ



Appendix (3): Graduation Project Forms

Form GP-1: Student Log

Form GP-2: Report Evaluation Form

Form GP-3: Oral-Presentation Form

Form GP-4: Graduation Project Ethics Agreement

GP-Form-1: Student Log				
To be filled by student in collaboration with CUFE Advisor				
Student Data				
Name			Mobile	
Home Address			Email	
CHS- Program			Status	
Completed Credit Hours			C-GPA	
First or Second Course	GP-1		GP-2	
Advisor Name				
	Telephone		Email	
Meeting Date				
Progress				
Meeting Date				
Progress				
Meeting Date				
Progress				
Meeting Date				
Progress				

Use additional sheets



GP-Form-2: Report Evaluation Form

Student Data				
Name			Mobile	
Home Address			Email	
CHS- Program			Status	
Completed Credit Hours			C-GPA	
First or Second Course	GP-1		GP-2	
Report Title				
Date of Submission				
Comment on Overall Quality of the Report				
Final Evaluation				
Grade Examiner 1				
Grade Examiner 2				
Grade Examiner 3				
Average				
Final Decision	<u>Pass</u>		<u>Fail</u>	

Additional Comments of Examiners

.....

.....

.....

.....

Examination Panel			
Examiner- 1 (Name and Affiliation)			Signature
Examiner -2 (Name and Affiliation)			Signature
Examiner -3 (Name and Affiliation)			Signature
Date of Examination Meeting			



GP-Form-3: Oral Presentation Evaluation Form

Student Data				
Name		Mobile		
Home Address		Email		
CHS- Program		Status		
Completed Credit Hours		C-GPA		
First or Second Course	GP-1		GP-2	
Presentation Title				
Date of Presentation				
Comment on Presentation Quality and Student Response to Oral Questions				
Final Evaluation				
Grade Examiner 1				
Grade Examiner 2				
Grade Examiner 3				
Average				
Final Decision	<u>Pass</u>		<u>Fail</u>	

Additional Comments of Examiners

.....

.....

Examination Panel			
Examiner- 1 (Name and Affiliation)		Signature	
Examiner -2 (Name and Affiliation)		Signature	
Examiner -3 (Name and Affiliation)		Signature	
Date of Examination Meeting			



GP- Form 4: Graduation Project Ethics Agreement.

Students are required to follow the code of conduct and to sign the following affidavit (which is part of the report template)

"I (We) hereby declare that this submission is my (our) own work and that, to the best of my (our) knowledge and belief, it contains no material written by another person nor material that has any sign of plagiarism, including but not limited to material directly copied from the internet, except where due acknowledgment has been made in the text.

I (We) understand that violation of the above is against the student code of conduct and may result in disciplinary action taken by CUFE as severe as dismissal according to procedures delineated in section CUFE's By Laws"