



Al-Hussein Bin Talal University

Engineering College

Department of Electrical Engineering

Graduation Projects Guideline

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1. Introduction:

The graduation project is a requirement for obtaining the BSc. degree in electrical engineering. Working closely with an academic advisor and committee, a student will develop and complete a significant graduation project.

Students are eligible to register for the graduation project after successful completion of **115** credit hours. Graduation project consists of two phases:

- Graduation Project I (Project Proposal) worth one credit hour
- Graduation Project II (Project Implementation) worth three credit hours

Both are generally conducted over two consecutive and full semesters (only first and second semester) with at least eight months of work. It is highly recommended not to take many other classes with Graduation Project (9 credit hours are recommended). In most cases, students will conduct their graduation projects in group (2-4 students) and under the close guidance of a supervisor. A co-supervisor can be nominated if needed. Students who fail to create a group, select a graduation project title and /or advisor will be randomly allocated by the project coordinator.

Graduation project constitutes an important phase of the student's future career where it provides an opportunity to practice design in a way that mimics professional practice. In this subject, students try to apply their knowledge comprehensively in solving a complex and realistic problem. Student also prove that he/she has gained essential knowledge and skills of research and implemented appropriate engineering standards and multiple realistic constraints. The main outcome is then to ensure that students can design a system and can effectively communicate the results to an audience. Although various forms of assistance will be made available, the primary initiative for completion of the project lies on each student. This subject is **SO** important because students:

- Apply what they have learned during their study at university including the engineering knowledge and proficiencies (hard skills)
- Develop soft skills: Leadership Skills, Teamwork, Communication Skills, Problem Solving Skills, and Work Ethic.
- Gain new knowledge: Software, Microsoft tools, Hardware installation, Measurements and Experimental works.

This guideline is designed to familiarize students with the department of electrical engineering regulations regarding graduation projects towards achieving the program objectives and students' outcomes. The goal here is to help student prepare a professional report and renders his/her findings easily accessible to the readers.

2. General Guidelines

A Graduation project challenges student to go beyond the courses that prescribed in educational program; it intends to provide student with a venue to express or demonstrate his/her intellectual, physical and creative abilities based upon research of the chosen subject area and knowledge gained from previous years of coursework in mathematics, sciences, and engineering.

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Personal growth and satisfaction are additional goals associated with the Graduation Project. Student will derive a sense of accomplishment through the completion and ownership of graduation project which is reflection of his/her interests and abilities. Opportunities to expand his/her personal knowledge, explore career paths, and apply learning to real-life situations will serve to benefit the student's growth and promote lifelong learning, as well as to benefit the local society by solving existed problems.

This guide contains all of the detailed information you will need to help guide you along this path of documentation and planning. **There are two major assessment tasks in the subject:** a major report and a presentation. Both have specific requirements that you will need to meet in order to pass the subject. Pay close attention to these! These specific requirements will guide you to make the most of this learning and development opportunity but also to ensure that all students achieve a minimum standard that will not diminish the strong reputation of AHU graduates. What you get out of this subject will very much depend on what you are prepared to invest in it.

2.1 Project Topics

Selection of a project topic will be derived from the **supervisor and/or student** based on such factors as interest and knowledge. There are certain qualifications that must be met if the project is to be accepted; the project **must**:

- be independent of class related projects.
- involve a type of research.
- has a measurable goals and well defined deliverables.
- draw on the students' skills and knowledge gained from coursework.
- demonstrate the ability to analyse, synthesize, and apply knowledge and to present information effectively.
- benefit the student and/or society.

The subject areas of a graduation project might be in of the following **forms**:

- Designing an experiment and/or implementing some experimental research.
- Learning a computer program to simulate or solve an engineering or management problem.
- Conducting data analysis through various statistical analysis techniques.
- Theoretical analysis where the student tackles and solves some theoretical problem.

2.2 Responsibilities of the Graduation Project

Student is responsible for the successful completion of the Graduation Project under the guidelines established by the department and school. The student is responsible for preparing a graduation project report and a presentation.

Academic Supervisor is responsible for providing the necessary guidelines for the student to successfully choose and complete the project. Supervisor meets regularly with the student during academic advisement to provide the appropriate assistance and motivation. Supervisor monitors the progress of the project and assess students individually and collectively. Furthermore, supervisor evaluate the final report and presentation, and then approve the final report to submit it to Assessment committee.

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Assessment committee is responsible for reviewing and evaluating the graduation project report, and oral presentation of the student. The assessment committees consist of three members from the Electrical Engineering Department .

Graduation project coordinator, a staff member is nominated by the department to serve as a Graduation Project Coordinator, who is responsible for the overall mechanics, scheduling, and will provide support to the academic advisors and students. Graduation Project Coordinator, in cooperation with the concerned department head, has the following tasks:

- Collect and organize suggested project titles and submit them to the department board for approval and announce the approved projects titles to the students.
- Form the project examination committees in consultation with project supervisor and the department members.
- Organize the presentation sessions. Coordinate the recording of graduation project presentations on videos (if required).
- Collect the evaluation forms from the supervisors and committee and work out the final grades.
- Maintain a project database, which may include hard and soft copies of the project' reports, samples of logbooks, posters and presentations.

2.3 Project Calendar and Deadlines

Graduation project students should stick to the following regulation and deadlines. Failure to follow these deadlines and rules will result in grade reduction or possible withdrawal from the Graduation Project.

Graduation Project 1 Calendar		
NO	Learning Activities	Week number
1	Project topic/Grouping students/ Allocating Project Supervisor	1-3
2	Project planning and task definition	7
3	Literature review and preliminary project design	12
4	Project Proposal Submission and Discussion	13
5	Full Project Proposal Submission (first three chapters)	14
6	Oral Presentation	15

Graduation Project 2 Calendar		
NO	Learning Activities	Week number
1	Detailed project design and review with the supervisor	1-3
2	Data analysis and simulation analysis	6-9
3	Implement the project and test the main outcomes	12
4	Submit a draft report to the supervisor for reviewing	13
5	Submit a full report to the Graduation Project Coordinator	15
6	Presentation and Examination	16
7	Submit a revised final report to the Graduation Project Coordinator	16

3. Graduation Project Instruction

Student is responsible for preparing a graduation project document.

3.1 Graduation Project I Proposal

Students should submit and discuss the **Project Proposal** with their supervisor by week 14-15 of the semester. Students are also expected to provide the following information convincingly in a written proposal:

- Background of the project
- Motivation for the project
- Problem statement
- Scope of the project
- Literature review
- Project requirements
- Identification of alternative solutions/ approaches and justification of selecting a solution/approach
- Expected outcomes
- Identified tasks and a tentative work plan for project implementation

Note: Some items above are to be adapted further in the implementation phase.

The Project Proposal should be submitted to supervisor by week 14 of the semester. Oral presentation should be presented by week 15 in front of students' supervisor. The overall grade of a student in project proposal will be calculated based on the marks received from their supervisor (100 marks).

3.2 Graduation Project II Report

Students are expected to develop the proposal that submitted for Graduation Project I. Students should complete implementation of their project in this phase. Furthermore, Students are required to add the project implementation detail to the final project report including:

- Background of the project
- Motivation for the project
- Problem statement
- Scope of the project
- Literature review
- Project requirements
- Identification of alternative solutions/ approaches and justification of selecting a solution/approach
- Outcomes
- Identified tasks and a tentative work plan for project implementation

Project full report should be submitted to Graduation Project Coordinator by week 15 of the semester. Oral presentation should be presented by week 16 in front of the Assessment Committee that will evaluate the project. The overall grade of a student in project will be calculated based on the marks received from the Assessment Committee.

Students submit a revised final report to the Graduation Project Coordinator after updating it according to examination committee comments and requests. A hard copy and a soft copy, and any related programs of the final report are submitted to be kept in department's database. The number of hard copies is determined by the Graduation Project Coordinator.

4. Project Evaluation

There are two major assessment tasks in the subject: a major report and a presentation. Both have specific requirements that you will need to meet in order to pass the subject. Reports and Presentations for each phase of evaluation should be organized logically and prepared professionally using correct spelling, grammar, format, and style. Students **SHOULD** follow the recommended formatting and style in preparing their reports and presentations. The technical contents should be presented clearly, precisely, and comprehensively to highlight their contributions and achievements. Use the Graduation Project Report Template in the electrical engineering department website.

5. Submission Requirements

The report must be submitted to AHU-Elearning (in either .doc or .pdf format) by the due date and time, otherwise the late penalty will be applied. students need to submit a hardcopy report. For the report to be accepted for submission and assessment, the report must have the following elements:

- Your name and student number
- A table of contents with page numbers
- The main body of the report that carefully and precisely addresses the assessment criteria. As with any good report, it must have an introduction, body, and summary/conclusion.
- The report must have specific references

6. Presentation Format

The second major assessment task in this subject is **(20-25) minute** presentation. The aim of this assessment task is to allow you to further develop your oral communication skills. Presentation must be supported by slides which will be reflected by data show projectors. For this presentation, you will need to plan your content and delivery carefully in order to meet the assessment criteria. The presentation must include, but is not restricted to, the following basic topics:

- Introduction
- Project problem statement
- Project objective(s)
- Literature review/background
- Methodology
- Results and discussion
- Summary

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The presentation must demonstrate your oral communication competency. In order to do so, you should do the following:

- **PLAN** your structure and content carefully. Make decisions about what to include and/or exclude based on the above requirements and the assessment criteria. Make sure your presentation has a beginning, middle and end.
- **PRACTISE** your presentation. This is critical to ensure that you meet the timing requirement (20-20 minutes).
- **Turn up early**; familiarise yourself with the venue and technical equipment;
- **Speak clearly** and at an appropriate speed and volume. Avoid reading directly from notes. Maintain eye contact with the audience as well as the convenor.
- **Minimise nervousness** by PLANNING and PRACTISING. It's the only way!

APPENDICES

Evaluation Forms



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Graduation Project I Evaluation Form (for each student)

Project Title: _____

Student Name: _____

Supervisor Name: _____

Evaluation Criterion	Weight	Grade
Punctual Attends the group meetings regularly and arrives on time (be in-touch with the others regularly)	10	
Effective Contribution Contributes meaningfully in group discussions (can be face-to-face, social media groups etc.)	10	
Collaboration Cooperative and supportive towards each other's work and collaborative attitude towards the success	10	
Contribution Significantly contributes to the success of the project	10	
Total for each student (out of 40):		
Problem domain and research questions Project value, complexity, and completeness	5	
Background and Project Objective Comprehension of the theoretical background of the project	10	
Project Requirements Analysis and Specification Understanding the details of the project and the implications of the results	15	
Discussion and argumentation skills Ability to successfully involve in discussion of the project details	10	
Oral Presentation Ability to make an effective oral presentation	15	
Technical writing professionalism Ability to communicate the results in a written format	5	
Total for each student (out of 60):		

Supervisor:

Graduation project coordinator:

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Graduation Project II Evaluation Form

Project Title: _____

Group: _____

Supervisor Name: _____

Evaluation Criterion	Weight	Grade			
Documentation background, organization, written language, completeness, references, timeliness	15				
Project Complexity implementation challenges, interdisciplinary scope	10				
Project Value usefulness, relevance, applicability	5				
Project Completeness prototype, results, conclusions, expandability	5				
Engineering Employed design, analysis, simulation, methodology	15				
Development Performed self-made, not outsourced, little plug-and-play	10				
Total (out of 60):					
Individual Assessment	Student 1	Student 2	Student 3	Student 4	
Contribution to Team Project					
Personal Growth					
Technical Knowledge					
Presentation Skills					
Total (out of 40):					

Note: Final Grade = 50% Examiners + 50% Supervisor

Committee Decision

Pass Pass with minor changes Need to do further work for an extra semester

Supervisor:

Committee Chair

1st member

2nd member

3rd member

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