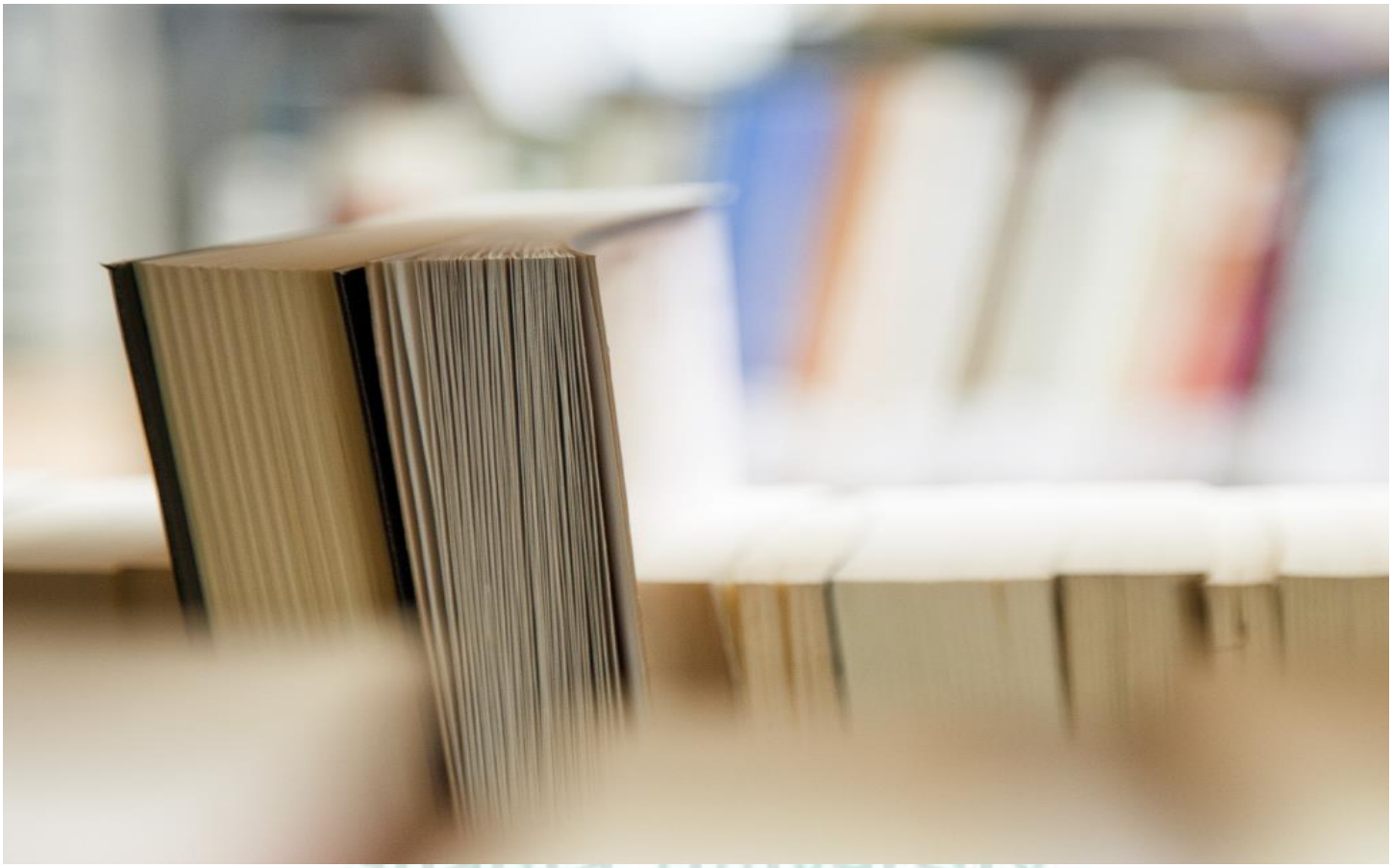
جامعة شقراء
Shaqra University

College of Computing and Information Technology



Graduation Project

Student Handbook

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A. Graduation Project Description

The Graduation Project (GP) represents the highest achievement of Computer Science student's undergraduate experience, enabling him or her to apply fundamental computer science principles to the solving technical and business related problems. It provides a systematic process where students can select an area of interest and focus on solving the problem of a specific topic. The GP is known as a compulsory project for the students to complete at the end of their program. Students should regard their graduate projects as an opportunity for integrating what they have learnt during the graduate program and applying these concepts and skills to a real problem at work.

The GP is a capstone of an undergraduate curriculum. In a graduation project, students are expected to apply, demonstrate and integrate comprehensive knowledge acquired across various undergraduate courses. The successful completion of graduation project is an indication of the students' preparedness to pursue a professional career.

The GP is pursued over two consecutive semesters by each group of students. Each GP is supervised by a faculty member in the college. Graduation project starts with a Project Proposal (***usually in the 7th semester of an undergraduate study)*** and followed by the Project Implementation (***in the 8th semester***).

1. Objectives

Students shall utilize computer science techniques to develop the project in a systematic approach. The main requirement for a passing grade in GP is the submission of acceptable and viable project at the end of the semester. The primary objectives of GP are as follows:

- To enable students the ability to employ the skills they have learnt in their course program to solve and/or enhance an opportunity.
- To enable students to explore, study, and develop a specificshowcase, independently.
- To enrich students' business strategy development and operational implementation relevant to their organizations and/or personal needs.

2. Project Topic

Students are strongly encouraged to propose their own topic (project idea) based on their background and interests. In addition to the objectives aforesaid, and through a detailed dialogue between supervisor and student, the criteria for the identification of the Graduation Project topic should include the student's present knowledge and interests as to anticipate the achievement of future professional and career goals. A critical assessment of the student's strengths and weaknesses, including a review of prior academic progress. The students may join any projects offered or sponsored by faculty members.

Choosing a project:

1. The project must meet the implementation of a real application and should not be fake.

2. The project must not be taken from pre-existing implementation without doing any development.
3. The project must, at least, offer one of the following points:
4. New and original ideas.
5. The project complements a previous project.
6. The project offers solution(s) to the problem(s) that exist.
7. The number of students involved in the project cannot exceed two students unless and only approved by the professor supervising the project and the GP committee.
8. Before starting the project planning, the students must co-ordinate with the supervisor and GP committee for registration by filling GP proposal form and obtain the approval.
9. Realizable within two semesters: Students and supervisors should consider the time constraints practically to define the scope of the graduation project and to make realistic plans accordingly.

3. Students and Their Roles

Students are required to accomplish all GP tasks from the beginning (registration) to the end (project implementation, presentation and report writing). These responsibilities include:

- Selecting an acceptable and viable topic.
- Completing the Registration Form.
- Completing the GP Proposal Form.
- Documenting the GP progress using GP Report Form.
- Attending all weekly project meetings.
- Submitting all paperwork required by designated deadlines.
- Presenting their GP progress to the GP Committee for initial, midterm, and final evaluation (***note:*** *students are required to present their projects according to the announced schedule*).

Graduation projects are usually done in a group of students under the supervision and guidance of the supervisor and 2 committee members. Students must work together as a team for a shared goal under the direction of their supervisor. Supervisor and students would carefully review and adopt the comments and feedback received from the committee members during the evaluation.

General guidelines for completing the GP:

- Keep a file containing all important documents related to your GP.
- Document materials and references related to the project.
- Familiarize themselves with all aspects of the graduation project.
- Seek advice and help when needed.
- Fulfill requirements completely and on time.
- Do their very best work on the graduation project.

- Be prepared for the assessment portion of the graduation project, by practicing the presentation before the scheduled time.

The College Policy:

- Only Students with greater that 2.00 GPA may register for GP.
- Project groups should be consist of at least two (2) students.
- Evaluation Committee Members are elected by department of Computer Science, this group consists of three professors, including project supervisor.
- GP Evaluation Committee members score the GPs at the end of the semester with percentages of 40% supervisor and 60% each GP Evaluation Committee member.

4. Project Phases

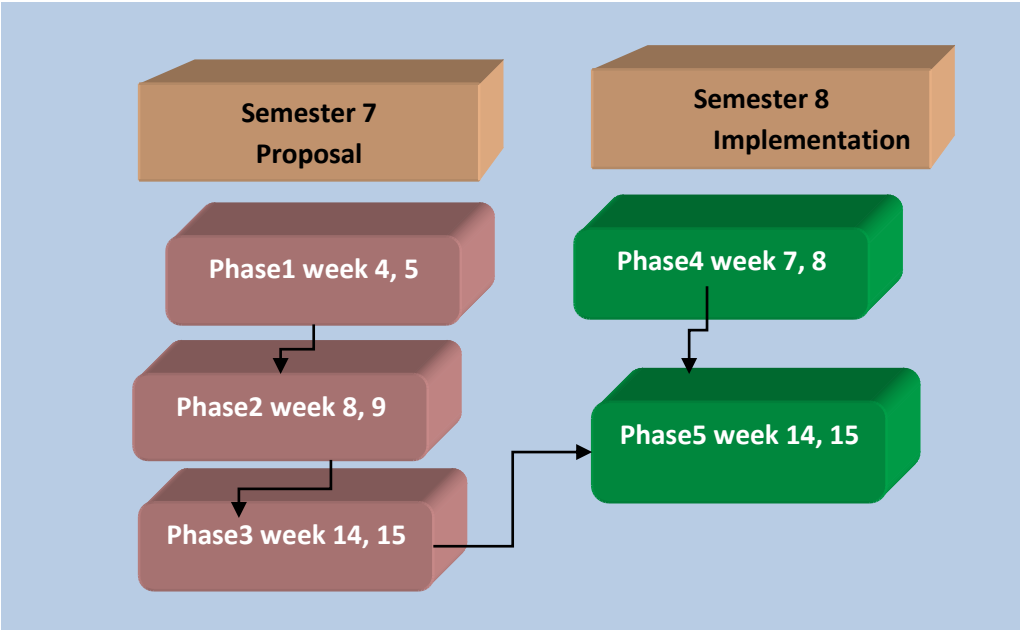
Phase1: Project Proposal - Initial Evaluation

(Report must be submittedin Week 4, Presentation in Week 5, Semester 7)

In Phase 1, the students will be assessed for their understanding and preparedness for the project. Towards the end of this phase, the students should be able to demonstrate their ability to analyze the problem, identify, and define the computing requirements for the project. They should be also able to illustrate the local and global impact of their project on individuals, organizations, and society as a whole. The students are expected to provide the following sections in their report and presentation:

- Background of the project
- Motivation for the project
- Problem statement
- Scope of the project
- Project baseline requirements
- Expected outcomes
- Identified tasks and a tentative work plan
- Technical tools used and why?

In this early stage of project evaluation, the evaluators (supervisors and GP Committee members) will not only give grades, they will also provide valuable feedback to the students to improve on the project quality.



Phase 2: Project Proposal - Midterm Evaluation

(Report must be submittedin Week 8, Presentation in Week 9, Semester 7)

During this phase, the students are expected to show their maturity in handling the project by making significant progress as planned. By the end of this phase, the students should be able to demonstrate their ability to apply their progressive knowledge of computing and mathematics and define the computing requirements appropriate for proposed solution. The students are expected to provide the following sections in their report and presentation:

- Background of the project
- Motivation for the project
- Problem statement
- Scope of the project
- Comprehensive analysis of related work
- Detailed project requirements
- Identification of alternative solutions/approaches and justification of selecting a solution/approach
- Expected outcomes
- Identified tasks and a realistic work plan
- Futures scope of development

Some items above are inevitably accumulated from the initial phase and work progressed to the final phase. Any such revision and update should be explained or justified in detail. The new items/information are highlighted in bold.

Phase 3: Project Proposal - Final Evaluation

(Report must be submittedin Week 14, Presentation in Week 15, Semester 7)

During the final phase of project proposal students should prepare and present a comprehensive Project Proposal. By the end of this phase students should be able to show their competency in analyzing the problem at hand and designing a computer-based system, process, component, or program to meet desired need of the project. They should also demonstrate their ability in using current tools and techniques and engaging themselves in continuing professional development. They are expected to show their awareness about professional, ethical, legal, security and social issues and responsibilities by the end of this phase. The students are expected to present and defend a comprehensive project proposal during the final proposal evaluation containing the following information:

- Background of the project
- Motivation for the project
- Problem statement
- Scope of the project
- Comprehensive analysis of related work
- Project requirements
- Identification of alternative solutions/approaches and justification of selecting a solution/approach
- Discussion of tools and techniques used during project proposal
- Appropriate analysis
- Details of proposed design conforming to the problem statement
- Description of tools and techniques to be used during project implementation
- Identified tasks and a realistic work plan for project implementation

At the end of this phase, supervisors and GP Committee members will evaluate the final project proposal, and advise the students to, carefully, note all the comments and recommendations. This enables the students to carry on those comments and incorporate them accordingly in the Project Implementation phase.

Phase 4: Project Implementation - Midterm Evaluation

(Report must be submitted in Week 7, Presentation in Week 8, Semester 8)

Starting from Semester 8, the students are expected to make an acceptable progress in implementing the project they have proposed during Semester 7. Although not complete yet and in this phase, students should, now, be able to show their ability to implement and evaluate a computer-based system, process, component, or program to meet desired need of the project. In addition, they should demonstrate their capability to employ current tools and techniques and engage into progressing their professional development. The students are expected to provide the following sections in their report and presentation:

- Background of the project
- Motivation for the project
- Problem statement
- Scope of the project
- Comprehensive analysis of related work
- Project requirements
- Identification of alternative solutions/approaches and justification of selecting a solution/approach
- Appropriate analysis
- Details of partial implementation conforming to the design of the proposal phase
- Commands of tools and techniques being used during project implementation
- Preliminary outcomes/results
- Analysis of preliminary result through comparison, validation or verification
- Remarks on preliminary results and intermediate conclusions
- Identified tasks and a realistic work plan for next phase

In general, in the second half of the project implementation, students will be spending more time in testing and validating their projects as well as writing a comprehensive report. Therefore, by the midterm week, most students are finishing major part of their project implementation. Nonetheless, if there is any major change in project implementation with respect to the project proposal, students should justify/discuss such matters during the midterm evaluation with the supervisor and committee for approval.

Phase 5: Project Implementation

(Report must be submittedin Week 14, Presentation in Week 15, Semester 8)

During the final phase of implementation, students are expected to complete their projects according to their project proposal. They should highlight their achievement and contribution appropriately. By the end of this phase, students should be able to show their ability to implement and evaluate a computer-based system, process, component, or program to meet desired need of the project. They should also demonstrate their capability to use current tools and techniques and engage themselves in continuing professional development. They are expected to show their awareness about professional, ethical, legal, security and social issues and responsibilities by the end of this phase. The students are expected to provide the following information by the end of final phase:

- Background of the project
- Motivation for the project

- Problem statement
- Scope of the project
- Comprehensive analysis of related work
- Project requirements
- Identification of alternative solutions/approaches and justification of selecting a solution/approach
- Appropriate analysis
- Details of project implementation conforming to the project proposal
- Mastery of tools and techniques being used in project implementation
- Overall project outcome/achievements
- Analysis of overall result through comparison, validation or verification
- Comprehensive remarks on overall project outcome and achievements (conclusions and future work).
- They should be able to make minor changes to the project by changing the code of implementations.

B. Discussion and Evaluation

1. Methods Of Discussion and Evaluation

While working on the graduation project, students will have several opportunities to present their work to the supervisor and the GP Committee members for evaluation and feedback. The delivery of GP is twofold phases (1) Project Proposal and (2) Project Implementation. Project proposal and project implementation are to be graded separately, i.e. in semester 7 and 8, respectively.

The GP is designed to have three phases in Project Proposal (**Semester 7**) and two for the Project Implementation (**Semester 8**). At the end of each phase, the students will be required to submit a report and presentation to the GP Committee members. The GP Committee members will use relevant Evaluation Form to evaluate each project independently at each phase.

The evaluation is based on a set of predetermined criteria set forth in the evaluation form. The final score is not unified where each student will be assessed and graded. In other words and whenever possible, the GP Committee members should try to evaluate individual student's achievement (rather than the group performance). The GP Committee members are, also, expected to provide detail written feedback and comments along with the grade. After each phase, the supervisor is expected to carefully review the comments and feedback received from the committee members to further guide his or her students.

The Overall Grade of a student in the proposal or implementation semester will be calculated based on the grades they have received during each of the evaluation phases. The student's overall grade (100%) is calculated from supervisor's grade (40%) and committee members' grade (60%), Table 1.

Phase		Week #	Grade Distribution	
		Evaluation	Committee	Supervisor
Project Proposal (Semester 7)				
1	Initial	5th	10%	10%
2	Midterm	9th	20%	10%
3	Final	15th	30%	20%
Project Implementation (Semester 8)				
1	Midterm	8th	20%	15%
2	Final	15th	40%	25%

2. Grading Policy

- **Pass:**Studentpassesthe project upon receiving a grade no less than 60%.

- **Fail:** Student fails the project if s/he fall into one of the following cases:
  - Get an overall result less than 60%.
  - According to the GP supervisor and corroborate excuses provided on the student status.
- **Incomplete:**projects might be delayed in one of the following cases:
  - If the student cannot complete the project at the desired time for reasons related to the project and upon the approval of the GP supervisor.
  - If the student needs extra time after the submission of the project to make important adjustments or complete missing parts. In these two cases, the appropriate duration for delaying project submission will be determined but the project discussion is no later than the second week of the next semester.
  - If the student declares the inability to complete the project for acceptable reasons, e.g. healthy or other. In this case, a discussion with the GP Committee to approve or decline the student claim for project delay.The period of postponement may reach full semester according to the case and the excuses.

For the above three cases, the student's degree of incomplete will be registered.The student should not request a second delay of the project; otherwise, Fail score will, then, be assigned.

3. Frequent Questions during the Discussion

While there are no specific questions to list, below you will find some generally asked questions where each student can prepare for prior to the discussion:

1. What is the main goal of your project?
2. What are the main benefits of you project?and who can benefit from it?
3. What are the main obstacles you are facing? and how do you tackle them?
4. Do you have future plan for your project and how will you develop it?
5. What are the mistakes you have encountered in your project?
6. What were the steps you follow to analyze and solve the problem?

4. Formatting Structure of the Report

The following components are required for your project reports:

- **Cover Page**

  Use university name and logo, Student Name, Student ID, Department Name, Project Title, Project Team and Date of Submission.
- **Acknowledgments**
- **Table of Contents**
- **List of Figures**
- **List of Tables**
- **Abstract**

Write around 200 words briefly describing the work accomplished through the project, including 1-2 sentences on the outcomes of the project.

- **Chapter One: Introduction** [2-3 pages]

  1.1 What is the problem?

  1.2 How has it been resolved?

  1.3 What was your main idea for the solution?

  1.4 What are the key technical details of your solution?

  1.5 How did you evaluate your solution (2-3 key results)?

  1.6 Provide ahigh-level figure of your solution, or evaluation method.

  1.7 List of the contributions (3-4) that you can claim from this work.

- **Chapter two: Background or Literature Review** [2-3 pages]

  2.1 Provide a background of the problem, in easy-to-understand terms. This should not be tied to your solution. Here you can provide some context about the problem – why it is important, where it is used, etc.

  2.2 Give a high-level view of the different approaches used to solve the problem until now. Within each approach, there might be multiple papers close to your approach, give 1-2 sentence describing about their contribution.

- **Chapter Three: Design Overview** [1-2 pages]

  3.1 High-level conceptual figure on how your solution works

  3.2 Workflow of the solution – the detailed pieces will come in the next section – you can give forward pointers to the details

  3.3 What kinds of failures your solution designed to handle?

  3.4 One or two common use cases – how end users will use your solution.

- **Chapter Four: Solution Details** [Longest single section]

  Here you describe the detailed techniques of your solution. For each part of the solution, put it in the context of the overall system or solution – where does it fit, what is its functionality? Do not just give pseudo code, but explain, in words, what was design benefits behind the technique. If there are alternatives of doing this, describe them and say why one is better than the others. If your technique expands some prior technique, refer to that, and point out the addition that you have done.

- **Chapter Five: Implementation** [As much as you need]

  What are the programming languages, IT infrastructure used? What are the pragmatic trades-offs that you had to make? What is the complexity of the implementation – LOC, other metrics? What are the dependencies of your implementation?

- **Chapter Six: Experiments and Results**

For each result, explain: what is the goal of the experiment, what have you did, then draw the plot, and interpret it. Try and have some comparative results with prior work.

- **Chapter Seven: Discussion**

  Explain your solution's benefits and limitations.

- **Chapter Eight: Conclusion and Future Work**

  Summarize the main contributions of the work and suggest further work to make the solution better.

- **References**

  Use proper referencing techniques such as IEEE, Harvard.

- **Appendices** (If any)

  Contain your simulation code, long tables, etc.

Note:

- **References:** A reference in the text of the report should be numbered (surrounded by brackets, for example: [1]), and its corresponding source should be listed in the References section, in one of the following formats, depending if it's a book (or a report), a journal article, or an Internet source:

  [1]Book Author(s), Book Title, Publisher, Place of Publication, Date of Publication

  [2] Article Author(s), Article Title, Journal/Magazine Name, Volume Number (if identified),Issue Number, Page Numbers (for example, pp. 22-35), Year (or Month and Year, if available)

  [3] Article Author(s) or Company Owning the Webpage, Article Title, Publisher (that is, company which produced this article), Place of Publication (ifavailable), Date (if unspecified on the webpage, use the date of your access), URL(Providing only URL as a source is UNACCEPTABLE and subject to penalty!)

- **Rules:** The report has to be written in 12 pts font, Times New Roman, with 1 and 1/2 space between lines, Report Quality &Writing Skills (Spelling and Grammar, Punctuation), page numbers on each page.

3. Project Presentation

The presentation will be judged on the basis of the following categories:

A. Content

- Presentation delivery in 30 minute
- The availability of supporting information
- The indicate importance, value, or impact of the project
- The listing of information sources
- The vocabulary relevant to the topic
- The conclusion

B. Effective Speaking

- Presentation of one's self with poise and professionalism
- Maintaining consistent eye contact with the review panel
- Enunciating clearly
- The varying tone, volume, and speed to enhance presentation
- The individual speaking, without the aid of an interpreter

C. Organization

- The use of engaging beginning and thoughtful ending
- The support of clear idea
- The smooth and coherent transition from one idea to the next

D. Visual Media

- The effectiveness of using graphic design
- The communication of significant information and sights at appropriate place
- The clarity, accuracy, and precisionof communicating information in the visual media
- The inclusion of photos that are mounted on poster board, organized in an album, or
- The use of computer/slide presentation

E. Response to questions

- The effectiveness of response to all questions from the panel
- The awareness of latest technologies related to topic

General Notes

- Try to use new presentation tools like prezi and manipulate your videos, images, animation, audio, and more into a presentation. To maintain a clear message and to keep your audience attentive and interested, keep the number of slides in your presentation to a minimum and don't use too much text.
- Choosing the right font style, such as Helvetica or Arial, helps to get your message across. Avoid narrow fonts, such as Arial Narrow, and avoid fonts that include fancy edges, such as Times.
- Choose a font size that your audience can read from a distance.
- Keep your text simple by using bullet points or short sentences, don't copy and paste from your project document.
- Try to explain slide and don't read it.
- Make slide backgrounds subtle and keep them consistent.
- Use high contrast between background color and text color.
- Check the spelling and grammar.
- Use screenshot from uses project application if possible.

5. Academic Integrity/Plagiarism

All work completed for the GP must be a student's own work and must represent his/her best effort. Students who purchased and/or copied any portion of their research paper will receive a zero grade and will be required to complete the project on a new topic. Any information that is not the student's own knowledge must be correctly cited. Direct quotations must be in quotation marks and cited internally. Paraphrasing must be completely in the student's own style of writing and must also have its source placed in internal citations. Any flagrant evidence of plagiarism will result in a grade of zero.

C. Appendices

Students are advised to use Graduation Project Related Forms

- Appendix A: GP Registration Form
- Appendix B: GP Proposal Form
- Appendix C: GP Report - weekly Meeting