Jazan University

College of Engineering

Civil Engineering Department

Senior Design Project Guidelines

2023

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1. Overview

The senior design project in the civil engineering program is constituted to develop the design skills of students to solve the real time problems of the society. The project flow is planned in such a way that the students can be guided to identify and understand the problem. Further, the students are also guided to propose a solution and plan to execute such solution in the related domains.

First of all, the project supervisor submits the design project proposal (*FORM 3: Project Idea Proposal Form*, Appendix I). The proposal must include the project title, project domain, problem description (containing the information about design, such as; constraints, specification, standards, codes, sustainability, environmental impact, cost analysis), design content (at least two civil engineering domains), proposed solution (at least two alternatives), project scope and the skill required. The design project committee review the proposal and after approval, it is displayed on the notice board to inform the students. Based on the student's order of choice and performance, the students are registered in the opted design project.

Once the students are registered in a particular design project, the students have to prepare a work plan and an initial presentation for the approval of design project. The initial presentation must include the design problem statement/objective, expected outcomes, the background of the design problem, design methodology to execute the design project, civil engineering domain of the design, most effective solution with an alternate solution, impact of the solution, and the approximate cost analysis. The initial presentation is presented in front of the design project committee for the approval.

After getting approval from the design project committee, the students' team start working on the project. Throughout the project duration, the students must fulfil few requirements such as submitting the monthly progress reports, presenting their work progress in front of the committee (the detail is explained in the respective section).

After completion of the design project, the students' team submit the report to the design project coordinator. The coordinator checks the availability of all the component fulfilling the ABET definition of the design project. If the design project report contains all the component to fulfil the ABET requirement, the report will be approved and the students' team present their work in front of design project review committee. The peer review committee review the design project report and conduct a senior design project oral exam. Based on all these criteria, the marks are awarded to the students by review committee members as well as by the supervisor in the rubric form (*FORM 9: Rubrics Assessment*).

2. Objectives of Senior Design Project

The objective of the senior design project is to provide students the skills of identification and formulating the complex engineering problem in the society and applying the engineering design to suggest the best solution based on impact on public health, safety, economy, and environment. Further, the communication skills will be developed so that students can present their work in form of report and/or presentation in front of the audience by proper consideration of the ethics. Also, the students will gain the skills of working in the team, conducting the experiments (if needed), and will develop the ability of gaining and applying knowledge through appropriate learning strategy.

3. Outcomes of Senior Design Project

By the end of the senior design project, the student should be able to:

1. Define the problem in terms of engineering domain to be solved technically.
2. Propose the design methodology including complete plan of design.
3. Execution of experiments (if needed) which will lead to a solution for the problem.
4. Prepare a complete technical report including the design procedure and calculations for alternatives.
5. Set a project schedule plan and cost estimation of the proposed solution.
6. Develop efficient presentation skills.

4. Students Outcomes (ABET Criteria)

The following student outcomes are addressed by the course:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions.

7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

5. Steps to Assign a Senior Design Project

A list of senior design project proposals offered by the faculty members of the department is reviewed by the senior design project committee for approval. The approved list of senior design projects with corresponding faculty names is displayed on notice board. The students can select the project of their choice after technical discussion with concerned faculty. The procedure for senior design project approval and selection is as follow:

1. The design project proposal submitted by the faculty contains the brief introduction about the design project (*FORM 3: Project Idea Proposal Form*, Appendix I).
2. Senior design project committee reviews the submitted proposal.
3. After approval of the proposals, it is made available to the students by online mode.
4. The students get an opportunity to make their priority list in the form provided by senior project committee (*FORM 6: Senior Design Project Student Selection*, Appendix I).
5. Based on the priority and performance of the students, they will be registered in the selected senior design project.

6. Project Teams

One of the very important purposes of introducing a senior design project in the curriculum of civil engineering is to train the students to work in a team and achieving the desired results. The senior design project team formation is controlled by the following regulations:

1. The execution of the complete design project works should be carried by all team members.
2. A senior design project team must have minimum of three and maximum of five students.

7. Senior Design Project Proposal

The senior design project proposal (*FORM 3: Project Idea Proposal Form*, Appendix I) is prepared by the faculty member alone or with a group of students for submission. The submitted design project proposal is reviewed by the senior design project committee to meet the ABET requirements. All the senior design project proposal should contain the following information:

- Project Title
- Design Project Domain

- Description of the Problem
- Design Contents
- The Proposed Solution with Alternatives
- Project Scope (At least two different context of civil engineering)
- Skill Required for the Design Project

8. Senior Design Project Duration and Academic Level

The senior design project is part of final year curriculum for the civil engineering study plan and evaluated at the end of each semester. In the first semester, the evaluation is done for Senior Design Project-I (CE498-1). At this stage, the students are expected to fully understand the real-life problem considered and exploring the solution with alternatives for such problem. Also, the students develop a design methodology and perform initial design as minimum requirement. At the end of this semester, students present their work and submit a project report with a checklist (*FORM 1: Senior Design Project I (CE498-1) Checklist*). The progress of the students is evaluated by using the rubric form (*FORM 9: Rubrics Assessment*) and percentage of work completed is submitted by the Project Supervisor to the Senior Design Project Committee (*FORM 10: Design Project I (CE498-1) Progress Report*). In the second semester, final evaluation is done for Senior Design Project-II (CE499-3). At this stage, the students start working in-depth on the design part of both the proposed solutions and start writing the Senior Design Project Report in the format prepared by the Civil Engineering Department as enclosed in this guideline. A report for percentage of work completed is submitted by supervisor to the Senior Design Project Committee (*FORM 11: Design Project II (CE499-3) Progress Report*) and the performance of students is evaluated using the rubric (*FORM 9: Rubrics Assessment*). At the end of the final semester, the students present their complete work and submit the final version of the report in hard copy and in digital form along with the checklist (*FORM 2: Senior Design Project II (CE499-3) Checklist*).

9. Project Supervision

Every student's team in the senior design project is assigned to supervisor from main domain and co-supervisor from the secondary domain of the design project. The progress of the design project is reviewed periodically and reported during the meeting. The co-supervisor might be from different domain in the department or from industry.

10.Senior Design Project Coordinator

The civil engineering department identify a faculty as the Senior Design Project Coordinator whose tasks are as follow:

- Providing the approved design project proposals in the notice of prefinal year students.
- Arranging a preselection meeting between the students and the supervisors.
- Guiding the project team in completing the remaining tasks.
- Select the examiners committee for each senior design project.
- Scheduling the design project presentations.
- Monitoring the progress reports of the senior design projects.
- Reviewing all the senior project reports.
- Approving the final project reports after conforming the completion of all requirements using a checklist containing all ABET requirements for design project (*FORM 2: Senior Design Project II (CE499-3) Checklist*, Appendix I).

11.Senior Design Project Requirements

The students enrolled in the senior design project has to fulfil the following requirements:

- The students enrolled in senior design projects has to attend all technical lectures delivered by the supervisors.
- A project activities plan must be developed by the students/project advisor and submit to coordinator.
- An initial presentation for each senior design project has to be prepared and submitted to coordinator which must include all necessary details about the requirements and execution plan of the project.
- The comments and suggestions in the initial presentation must be attended and presentation should be modified.
- After modification as per the comments, the design project proposal with all required information should be presented again for approval.
- After approval, the student's team will submit the time line of the design project and will start working on the approved design project.
- The senior design project team must focus on the design part of the project.
- If required, students' team can obtain necessary data for design by performing laboratory test.
- Students has to prepare a monthly progress report and submit it to the supervisor and to the design project coordinator if required.
- Before submitting the report, the students have to check the similarity (plagiarism) in the content of report to fulfil the ethics requirements.

12.Final Project Delivery

To finalize the senior design project and to obtain the final grade, the student should submit the following required documents to the project coordinator.

- A final-coloured copy of senior design project report (hard copy), in addition, students should submit three extra copies (black and white) of the final report for the examiners.
- A soft copy of the final report, posters, and brochure of the project.

13.Appendices

- **Appendix I** (Senior Design Project Forms)
- **Appendix II** (Code of Ethics for Engineers)

APPENDIX I

Senior Design Project Forms

1. **Form 1:** Senior Design Project I (CE498-1) Checklist.
2. **Form 2:** Senior Design Project II (CE499-3) Checklist
3. **Form 3:** Project Idea Proposal Form
4. **Form 4:** Project Approval Form
5. **Form 5:** Graduation Project Registration Undertaking
6. **Form 6:** Senior Design Project Student Selection
7. **From 7:** Announcement of Declared Graduation Projects for Student
8. **From 8:** Announcement of Seminars of Senior Design Project Student
9. **From 9:** Rubrics Assessment
10. **From 10:** Design Project I (CE498-1) Progress Report
11. **From 11:** Design Project II (CE498-2) Progress Report
12. **Form 12:** Senior Design Project Gantt Chart

FORM 1: Senior Design Project I (CE498-1) Checklist

(Project Title)

Supervisor:

Student Name(s):

Item	Implemented			Note
	Yes	**No**	***Indicate page(s)* in the report for yes, *cite reason(s)* for no**	
Problem definition				
Alternative solutions				
Contexts of civil engineering (two min.)				
Specifications, regulations, and standard (to be determine)				
Realistic constraints				
Utilization of CE Curriculum				
Initial Design				

FORM 2: Senior Design Project II (CE499-3) Checklist

(Project Title)

Supervisor:

Student Name(s):

Item	Implemented			Note
	Yes	**No**	***Indicate page(s)* in the report for yes, *cite reason(s)* for no**	
Problem definition				
Alternative solutions				
Specifications, regulations, and standard				
Realistic constraints				
Impact of engineering solutions				
Cost analysis				
Utilization of CE Curriculum				
Designed Elements				
Result analysis				
Final product				

FORM 3: Project Idea Proposal Form

Project Idea Proposal Form

Section 1: (*To be filled by the advisor*)

Date:

Project Title:

Design Project Domain:

Description of the Problem:

_____

_____

Design Content:

_____

_____

The Proposed Solution:

_____

_____

Project Scope:

_____

_____

Skills Required:

_____

_____

1. Project Title

The Project Title is the heading reflecting the domain of design project.

(***Example:*** *Design of Runway Subgrade Using Guar Gum Stabilized Soil*)

2. Design Project Domain

The Design Project Domain is the area in which the supervisor wants to involve the students for senior design project.

(***Example:*** *Geotechnical Engineering*)

3. Description of Problem

It is the brief of the design project which must include the problem definition, specifications, regulations and standards required, realistic constraints, statement about impact of engineering solution, cost analysis, sustainability, and design elements and the same must be highlighted.

(***Example:*** *Jazan is located along the Red Sea in the South-West part of the Kingdom of Saudi Arabia. Due to its location along the sea, in depth study of the soil is required before construction of any geotechnical structure (**Location Constraint**), especially the structure which experiences heavy and/or impact load. In the present project, the local soil will be collected from Jazan and will be stabilized using the Guar Gum biopolymer. The geotechnical properties such as index property, compaction, unconfined compressive strength (UCS), and California Bearing Ratio (CBR) of un-stabilized soil will be evaluated according to the ASTM standard (**Specification, standard and code**).*
*Further the soil will be stabilized and the geotechnical property of the stabilized soil will be evaluated. To understand the durability of the stabilized soil, alternate wetting-drying durability (**sustainability**) test will be performed. Further, based on the result obtained in the laboratory, an analytical study for utilizing the stabilized soil as Subgrade material in runway will be performed using available Software (**experimental result analysis**).*
*The impact of the solution will be analyzed in term of environmental impact, social impact (Impact of engineering solutions), and the impact on the cost. The cost analysis of the construction of the runway will be performed in term of material, transportation, and manpower cost (**Cost analysis**).*)

4. Design Content

In this section, mention at least two components with different engineering domain which will considered for design.

(***Example:***

- *Design of thickness of different layers of Runway (Geotechnical aspect).*
- *Geometric Design of Runway including the length and width of the runway (Transportation aspect).*)

5. The Proposed Solution

In this section, write the proposed solution for the problem along with an alternate solution.

(***Example:*** *The utilization of the Guar Gum stabilized soil as runway subgrade material will reduce the thickness of different layer such as thickness of HMA surface and thickness of crushed aggregate layer.*
An ***alternate solution*** *will also be produced by stabilizing the soil using other biopolymer such as Xanthan Gum.*)

6. Project Scope

In this section, write all the work which is in the scope of the proposed senior design project.

(***Example:*** *The Scope of this project include the stabilization of the locally available soil using the Guar Gum and finding the geotechnical property of the stabilized soil and the stabilized soil will be used as a Subgrade Material.)*

7. Skill Required

Mention the special skill required in the students to get enrolled in the proposed design project.

(***Example:***

- *Students must be aware about different tests conducted on the soil.*
- *Students must be willing to learning new software.*
- *Students must know the _____ software)*

FORM 4: Project Approval Form

Project Approval Form

Date: _____

Project Title:

_____

Supervisor:

_____

Project summary:

Supervisor
(Signature)

SDP Coordinator
(Signature)

1. Project Title

The Project Title is the heading reflecting the domain of design project.

(***Example:*** *Design of Runway Subgrade Using Guar Gum Stabilized Soil*)

2. Supervisor

It is the name of faculty who is going to supervise the proposed design project.

3. Project Summary

In this section write the summary of the proposed senior design project.

(***Example:*** *Jazan is located along the Red Sea in the South-West part of the Kingdom of Saudi Arabia. Due to its location along the sea, in depth study of the soil is required before construction of any geotechnical structure, especially the structure which experiences heavy and/or impact load. In the present project, the soil will be collected from Jazan and will be stabilized using the Guar Gum biopolymer. The geotechnical properties such as index property, compaction, unconfined compressive strength (UCS), and California Bearing Ratio (CBR) of stabilized soil will be calculated as per the ASTM standard. To understand the durability of the stabilized soil, alternate wetting-drying durability test will be performed. Further, based on the result obtained in the laboratory, an analytical study for utilizing the stabilized soil as Subgrade material will be performed using available Software. Further, the cost analysis will be performed and the impact of the proposed solution will be evaluated.*)

FORM 5: Graduation Project Registration Undertaking

Academic advisor	
Student Name	
ID	
Department	
Number of hours completed from the plan	
GPA	
Mobile number:	
E-mail:	
Date of application submission (day and date)	

I pledge, I am the student whose data is shown above, in the event that my registration for the graduation project course for the first semester of the academic year 144_/144_ is accepted, I pledge to contact the project supervisor / or the head of the department no later than a week from the date of adding the course and I pledge to abide by attendance at the dates that Determined by the department and the research supervisor, and if 25% of the total number of project lectures failed to attend or were vacated by one of the project's conditions, the department has the right to take whatever it deems appropriate and committed to fully cooperate with the research team of students in the graduation project and implement what is required of me to complete the graduation project in an honorable manner. Project report and presentation will be delivered at specified times

Student Name: **Signature:**

FORM 6: Senior Design Project Student Selection

Kingdom of Saudi Arabia
Ministry of Education
Jazan University

College of Engineering
Civil Engineering Department

المملكة العربية السعودية
وزارة التعليم
جازان جامعة

كـــلية الـهـندسة
قسم الهندسة المدنية

Senior Design Project Selection Form

(Return the form to the Senior Design Project Coordinator by deadline)

This form has to be completed by the students for doing a team project student. The group students will be assigned one project by the program on the basis of the group choices. In case of conflict between some groups, the average of the group cumulative GPA will be considered.

No	Project Title	Professor Supervisor	Student choose
1			
2			
3			
4			
5			
6			
7			

Student Name	
ID	
Number of Hours	
GPA	
Mobile No.	
Email Address	
Signature	

FORM 7: Announcement of Declared Graduation Projects for Student

Jazan University
College of Engineering
Civil Engineering Department
Senior Design Project Committee

جامعة جـــــازان
كلية الهندســـــة
قسم الهندسة المدنية
لجنة مشاريع التخرج

Announcement of Declared Graduation Projects for Student Civil Engineering Semester 202__- 1

S.N.	Project Title	Professor Supervisor	Remakes
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Head of Civil Engineering Department **Senior Design Project Committee**

Dr. ……..

FORM 8: Announcement of Seminars of Senior Design Project Student

Jazan University
College of Engineering
Civil Engineering Department

Announce of ……. Design Project présentation of Student of Civil Engineering Department 20…__Week No..

S. No	ID	Name	Professor Supervisor	Project Title	Exam Committee	Exam date
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Head of Civil Engineering Department **Senior Design Project Committee**

Dr. …

FORM 9: Rubrics Assessment

Rubric Assessment for Graduation Project Evaluation (Senior Project)

Exmaminer Name: .....

Title: _____

_____

Advisor: _____ Section: _____

	Outcome	Marks	1 ID	1 name	2 ID	2 name	3 ID	3 name	4 ID	4 name	5 ID	5 name	6 ID	6 name
SO1	**An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.**	**16**												
PI 1.2	Analyze alternative solutions to an engineering problem.	5												
PI 1.4	Recognize the need for multiple solutions.	5												
PI 1.5	Justify a solution to an engineering problem.	6												
SO2	**An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.**	**16**												
PI 2.2	Establish "fitness" criteria for evaluating potential solutions and tradeoffs.	5												
PI 2.3	Supports design procedure with documentation, codes and references.	6												
PI 2.4	Develops a solution that considers economic, safety, environmental and other realistic constraints.	5												
SO3	**An ability to communicate effectively with a range of audiences.**	**18**												
PI 3.1	Organize the material in a logical sequence.	5												
PI 3.2	Present content in own words to demonstrate ideas clearly and concisely.	4												
PI 3.3	Provide data to support claims or inform audience	5												
PI 3.4	Demonstrate proper use of English	4												
	Final marks	**50**												

Rubric Assessment for Graduation Project Evaluation (Senior Project)

Title: _____

_____

Advisor: _____ Section: _____

	Outcome	Marks	1 ID	1 name	2 ID	2 name	3 ID	3 name	4 ID	4 name	5 ID	5 name	6 ID	6 name
SO4	**An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.**	**12**												
PI 4.1	Recognize ethics and abide by institutional code of conduct.	4												
PI 4.3	Takes personal responsibility for self-actions.	4												
PI 4.4	Uses institutional value system to support actions, but understands the role of professional ethical s	4												
SO5	**An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.**	**18**												
PI 5.1	Contribute to the team's work with fair workloads.	5												
PI 5.2	Interact with teammates.	5												
PI 5.3	Shares information with others and provides assistance to others.	5												
PI 5.4	Remains non-judgmental when disagreeing with others/seeks conflict resolution; does not "point fin	3												
SO6	**An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.**	**10**												
PI 6.3	Acquire data on appropriate variables.	5												
PI 6.4	Compare data to appropriate theory.	5												
SO7	**An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.**	**10**												
PI 7.1	Demonstrates ability to learn independently.	3												
PI 7.2	Learns from mistakes and practices continuous improvement.	3												
PI 7.3	Demonstrates capability to think for one's self.	2												
PI 7.4	Is able to understand, interpret, and apply learned materials and concepts.	2												
	Class work marks	**50**												
	TOTAL MARKS	100												

FORM 10: Design Project I (CE498-1) Progress Report

Dear faculty members supervising Graduation Project
Civil Engineering Department
Peace, Mercy and Blessings of God

The Projects Committee invites you to hold a meeting to discuss the progress of the projects in the department and the percentage of completion or obstacles at the following dates:

Time	Meeting Date	Project

We also hope that you will fill out the attached table with the signature and send it before the meeting date, with sincere regards and appreciation

Supervisor name	
Number of students	
Project Title	
Project summary (100 words)	
Project Objective	
Completion percentage (Table 1)	
Obstacles (if any)	

The following table (Table 1) shows the extent of completion of graduation projects

CE 498-1		Currently
Introduction	10%	
Design Background	10%	
Design Approach and Methodology	20%	
Alternative Solution (Minimum 2)	20%	
Initial Design	20%	
Report	10%	
Presentation	10%	
	100%	

Signature Date

FORM 11: Design Project II (CE499-3) Progress Report

Dear faculty members supervising Graduation Project
Civil Engineering Department
Peace, Mercy and Blessings of God

The Projects Committee invites you to hold a meeting to discuss the progress of the projects in the department and the percentage of completion or obstacles at the following dates:

Time	Meeting Date	Project

We also hope that you will fill out the attached table with the signature and send it before the meeting date, with sincere regards and appreciation

Supervisor name	
Number of students	
Project Title	
Project summary (100 words)	
Project Objective	
Completion percentage (Table 1)	
Obstacles (if any)	

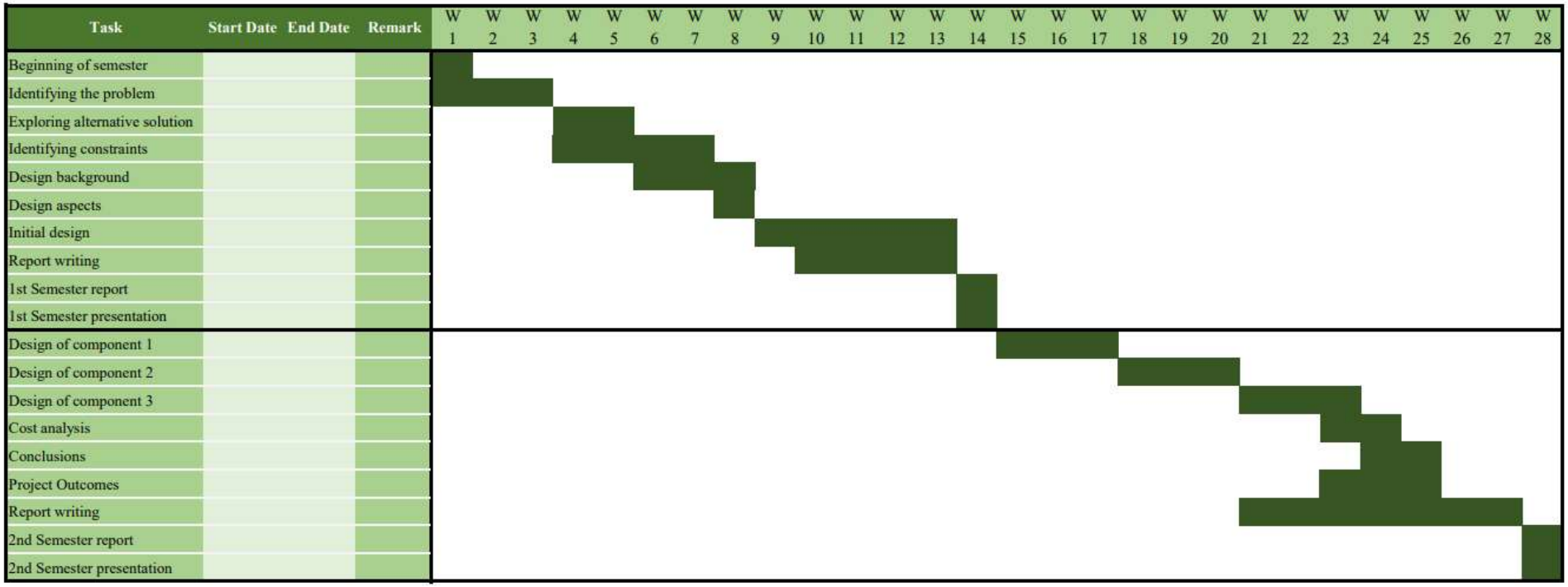
The following table (Table 1) shows the extent of completion of graduation projects

CE 499-3		Currently
Introduction	5%	
Design Background	10%	
Design Approach and Methodology	10%	
Design Aspects (Minimum 2)	40%	
Conclusion	15%	
Report	10%	
Presentation	10%	
	100%	

Signature Date

FORM 12: Senior Design Project Gantt Chart

Senior Design Project Gantt Chart



Guidelines to Prepare the Design Project Report (Template)

Kingdom of Saudi Arabia
Jazan university
College of Engineering
Civil Engineering Department

Project Title, Times New Roman, 24 pt, Bold

By

Team Members **University ID**

PROJECT ADVISOR

Name of Supervisor, Times New Roman, 16pt, Bold

A Senior Project report submitted in partial fulfillment
of the requirement for the degree of BACHELOR OF Science (B.Sc.)

in
Civil Engineering

(Year)

Kingdom of Saudi Arabia
Jazan university
College of Engineering
Civil Engineering Department

Project Title, Times New Roman, 24pt, Bold

APPROVAL RECOMMENDED:

Examination Committee ……

……

……

……

PROJECT ADVISOR

……

Date

……

DEPARTMENT HEAD

……

Date

……

DEPARTMENT HEAD

……

Date

APPROVED:

……

DEAN, COLLEGE OF ENGINEERING

……

DATE

ABSTRACT

Title of Project, Times New Roman, 18pt, Bold

Senior project submitted to the Civil Engineering Department

……

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……

DEDICATION

We dedicate this work to our parents and brothers who has given the financial and moral support throughout the duration of project.

ACKNOWLEDGEMENT

This project was written under the direction and supervision of ***(Name of the Supervisor, Times New Roma, 12pt, Bold)***. We would like to express my sincere appreciation to him for the interest and assistance given to me.

TABLE OF CONTENTS

(NOTE: Insert the table of content using command in the MS word)

LIST OF FIGURES

LIST OF TABLES

NOMENCLATURE

Symbols	DESCRIPTION	UNITS
a	acceleration	m^2/s
g	gravity acceleration	m^2/s
P	Pressure	Pa

CHAPTER 1: INTRODUCTION

1.1 General

All the first heading should be in Times New Roman, 14pt, Bold. Make the Introduction as first heading. Write few sentences about the problem in Times New Roman, 12 pt with Double spacing between the line……

1.2 Problem Statement

Write the Problem Statement in Times New Roman, 12 pt with Double spacing between the line……

1.3 Project Objective

Write the Project objective in Times New Roman, 12 pt with Double spacing between the line……

Start each Chapter on new page.

CHAPTER 2: DESIGN APPROACH

2.1 Project Description

Write the project description in this section.

(*Example: This senior design project is intended to design foundation system of a high-rise building in the Jazan near the red sea. Foundation is the lowermost part of any structure. The performance of the super structure depends on the performance of the foundation.*)

2.1.1 Second Heading (if required)

Write the content of second heading if it is required. The Figures and Tables should have a caption as below and must be explained within the text of the body.

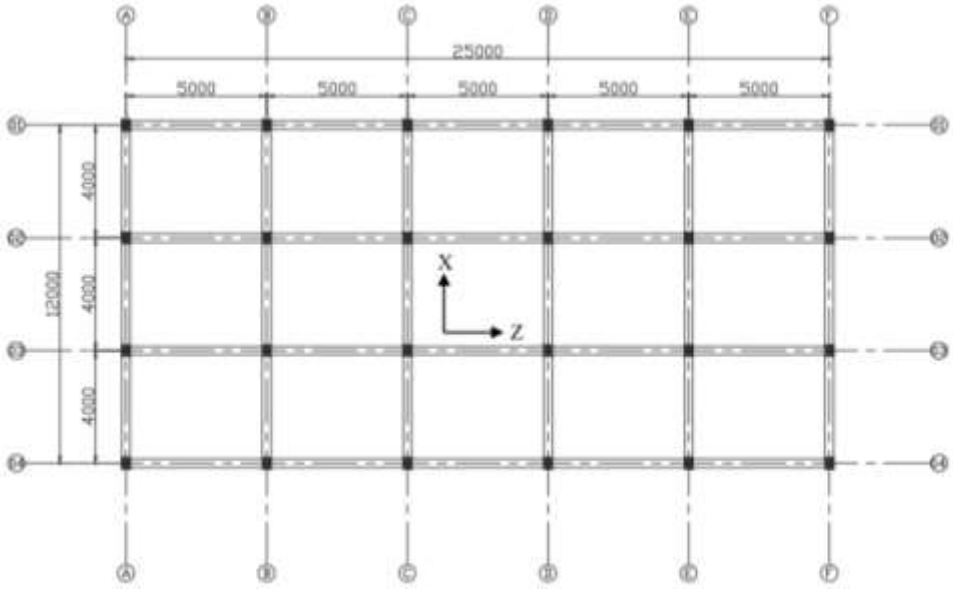

Figure 1: Plan of the building taken into consideration

Table 1: Values of different factor in the equation given by Purkayastha and Char (1977)

D_f/B	a	k
0.00	1.862	0.73
0.25	1.811	0.785

2.2 Proposed Solution (Minimum 2 Alternatives)

Write the proposed solution in under this heading in Times New Roman, 12 pt.

2.2.1 Alternative 1

Write about the Alternative 1 in this section

(Example: As the bearing capacity of the soil is poor, it is observed that the sized of individual footing is very large and overlapping with nearby column. So, to make the foundation safer, raft foundation has been taken into consideration as shallow foundation and has been designed for vertical load. ……)

2.2.2 Alternative 2

Write about the Alternative 2 in this section

(Example: As a second alternative, friction pile is designed in term of length and diameter required to transfer the maximum load to the ground. For the design of the pile, corrected N-Value of the soil, which is loos sand……..)

2.3 Design Aspect (Civil Engineering Context Minimum 2)

Write about the design Aspect in this section. There should be minimum two civil engineering contexts.

2.3.1 First Aspect

Write about the first aspect of the design.

(Example: Geotechnical Design of Foundation)

2.3.2 Second Aspect

Write about the second aspect of the design.

(Example: Structure Design of Foundation)

2.4 Constraints

Write the constraints of design in this section.

2.4.1 Site/Location Constraint

Write about the site/location constraints in this section.

(Example: The current project is located in Jazan which is located in the Southern Part of Kingdom of Saudi Arabia as shown in the Figure 2)

Figure 2: Project Location

2.4.2 Environmental Constraint

Write about the environmental constraint here.

2.4.3 Local and International Legislation

Write about the local and International legislation here. Add more constraints if required.

2.5 Codes and Specifications

Mention all the Codes, Book, Specifications in this section.

- ACI 318-95: Building code requirements for structural concrete

CHAPTER 3: DESIGN OF (Component or Aspect 1)

3.1 First Heading

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3.1.1 Second Heading

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3.2 First Heading

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3.2.1 Second Heading

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CHAPTER 4: DESIGN OF (Component or Aspect 2)

4.1 First Heading

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4.1.1 Second Heading

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4.2 First Heading

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4.2.1 Second Heading

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CHAPTER 5: COST ANALYSIS

5.1 First Heading (Cost for First Solution/Alternate)

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5.1.1 Second Heading

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5.2 First Heading (Cost for Second Solution/Alternate)

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5.2.1 Second Heading

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CHAPTER 6: CONCLUSION

Without giving any heading, Write some sentence about this chapter in Times New Roman, 12pt with double spacing.……

6.1 Conclusion

Write the conclusions drawn from the design project in bullet point or in sentence.……

6.2 Impact of Project

Write the impact of your design project in different dimensions such as sustainability, environmental, social, health safety, society, etc.…...……

6.3 Project Outcomes

Write the Project Outcome in this section. For Example: Drawing, Prototype etc.

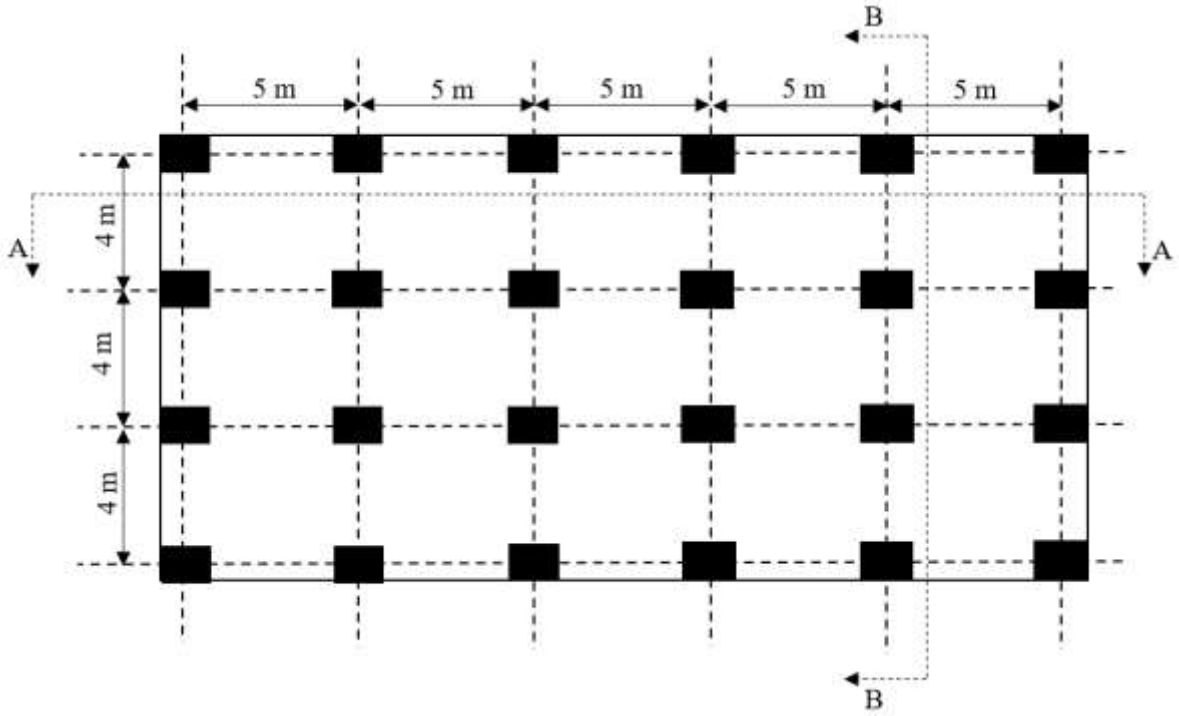


Figure 3: Plan of the Raft Foundation

REFERENCES

1. ACI 318-95. (1995) Building code requirements for structural concrete. American Concrete Institute.
2. Das, B. M. (2010). Principles of Foundation Engineering, Seventh Edition." CENGAGE Learning.
3. Meyerhof G. G. (1953). An Investigation for the Foundations of a Bridge on Dense Sand. Proceedings of the 3rd International Conference on Soil Mechanics and Foundation Engineering, 2, pp. 66-70.
4. Purkayastha, R. D., Char, R. A. N. (1977). Sensitivity analysis for eccentrically loaded footings. Journal of Geotechnical Engineering, ASCE, 103(6), 647.
5. SBC 304-CR. (2018). Saudi concrete structure code. Saudi Building Code National Committee.
6. ……
7. ……..
8. ……..

APPENDICES

Appendix A: Checklist

(Project Title)

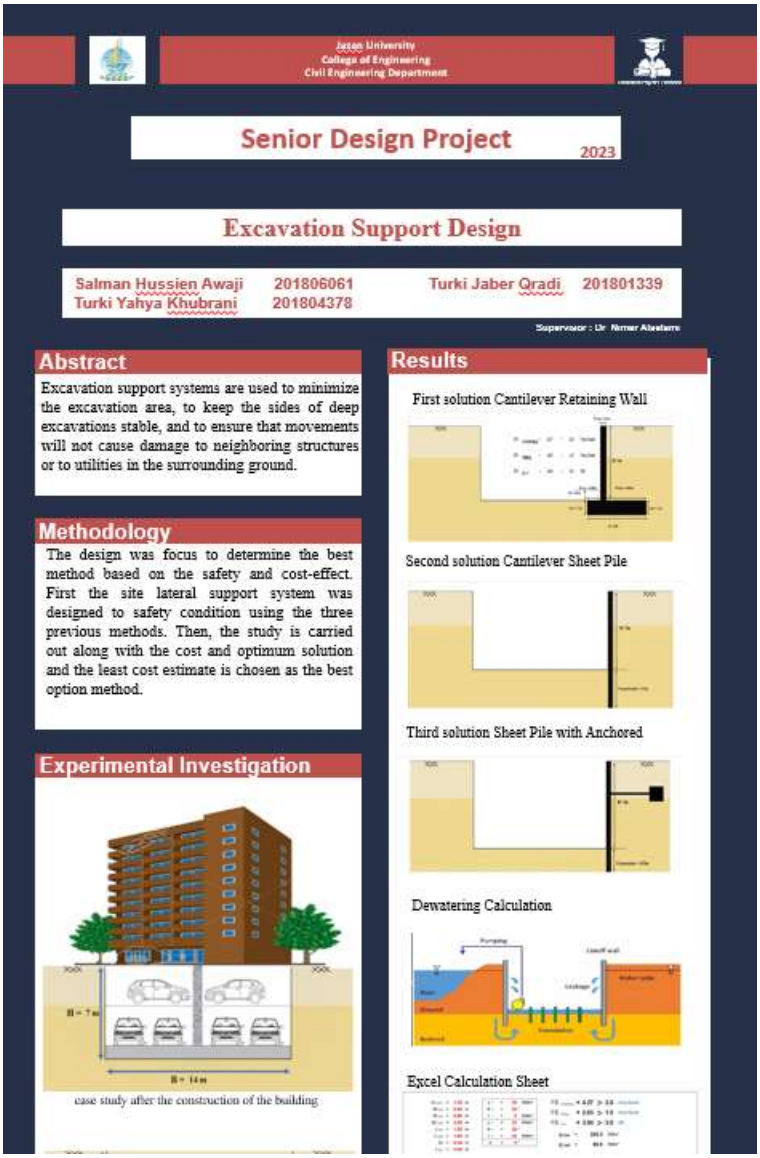
Supervisor:

Student Name(s):

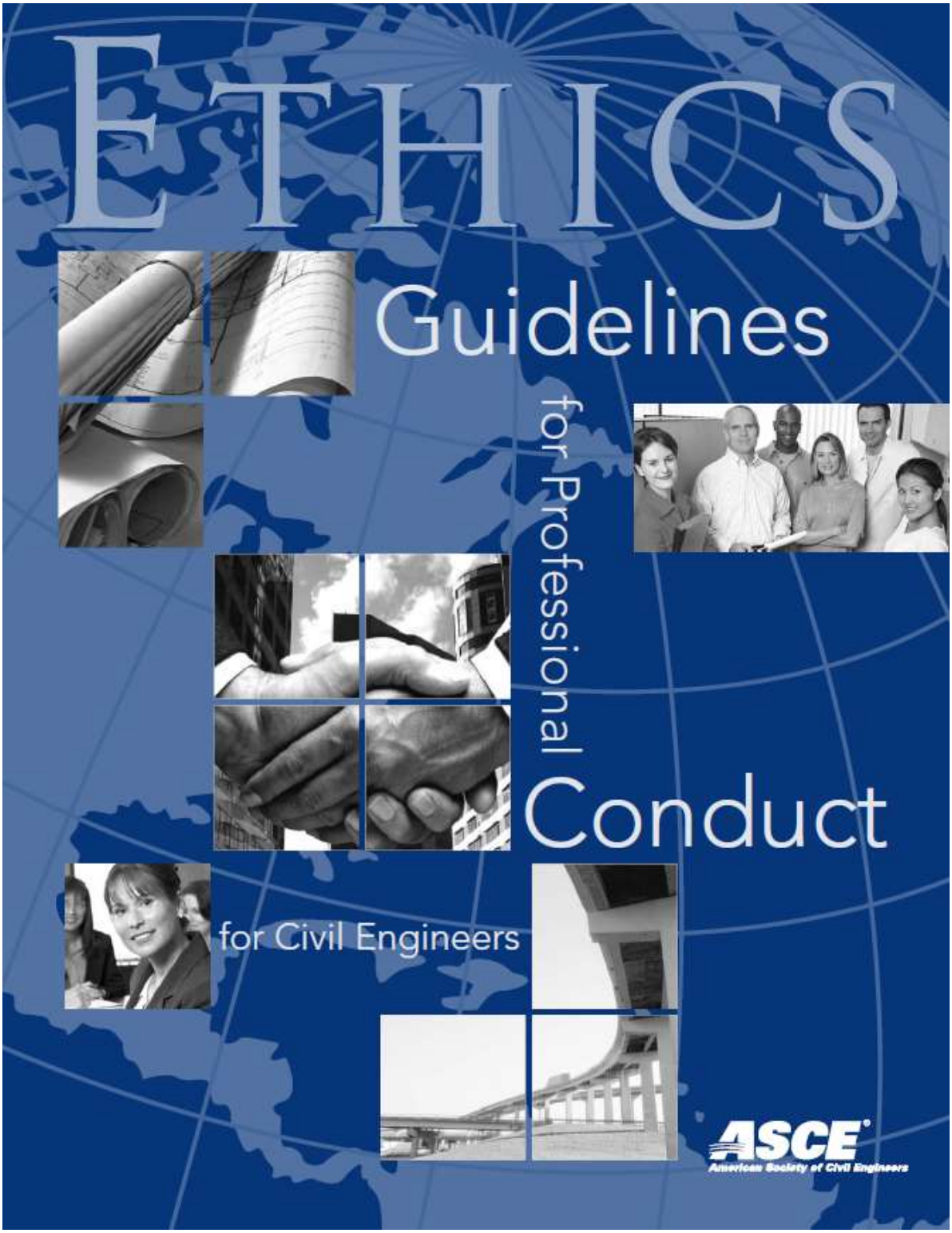
Item	Implemented			Note
	Yes	No	*Indicate page(s)* in the report for yes, *cite reason(s)* for no	
Problem definition				
Alternative solutions				
Specifications, regulations, and standard				
Realistic constraints				
Impact of engineering solutions				
Cost analysis				
Utilization of CE Curriculum				
Designed Elements				
Result analysis				
Final product				

Presentation Sample

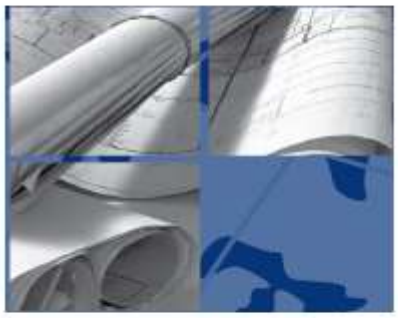
Poster Sample



APPENDIX II


ETHICS
Guidelines
for Professional
Conduct
for Civil Engineers
ASCE
American Society of Civil Engineers

ETHICS



Guidelines for Professional Conduct

for Civil Engineers

American Society of Civil Engineers
January 2008

1. Conflict of Interest

All professional and business decisions shall be made in the best interest of the public, the client, the employer, and the profession. Actual or perceived conflicts of interest can arise in many situations. Playing favorites or otherwise allowing personal interest to influence a professional decision is contrary to the expectation of just and ethical conduct to which members are obligated. In addition, it may be inappropriate for an engineer to take part in a decision where a conflict of interest exists, even if the engineer does not believe that his/her objectivity will be affected. ASCE members are expected to avoid any relationship, influence, or activity that may be perceived to, or actually, impair their ability to make objective and just decisions when performing their work. When in doubt, they should share the facts of the situation with their leadership and work to resolve the conflict.

2. Ensuring Legal Compliance

ASCE members shall conduct their professional lives in accordance with applicable laws and regulations. Compliance with laws does not necessarily fulfill a member's entire ethical responsibility, but it is paramount for performance of one's professional duties. Members shall be truthful and responsive in all dealings with regulatory bodies or governmental agencies that establish rules or oversee their professional operations.

3. Employee and Public Safety

ASCE members shall be committed to maintaining a drug- and alcohol-free, safe, and healthy work environment. Engineers shall comply with applicable environmental, health, and safety laws and regulations. Violations of safety rules or conditions that endanger the welfare of other employees, contractors, clients, or the public shall be reported immediately to the appropriate person or authority.

4. Workplace Quality

ASCE desires a workplace where its members are respected and professionally satisfied. Harassment, racism, or discriminatory behavior of any kind shall not be tolerated. Providing a safe and healthful workplace environment that ensures all employees have the opportunity to achieve excellence is the responsibility of every ASCE member.

5. Use and Protection of Employer's Assets

All employers have many valued assets such as cash, physical property, proprietary trade secrets, and confidential information. Protecting these assets against loss, theft, and misuse is every employee's responsibility. An employer's property shall not be used for

personal benefit, nor shall it be loaned, sold, or given away without authorization from the employer. Where certain facilities are made available to ASCE members for personal use (such as computers), rules applicable to the specific use of those facilities shall be agreed upon and strictly upheld. An employer's assets shall be used for the employer's business purposes during employment with that employer. Removing employer's assets from the company's facilities shall be prohibited unless specifically authorized by the employer in advance. Improper use includes unauthorized personal appropriation (theft) or use of assets or resources, including computer equipment, software, and data, for any purpose other than the employer's business. The Internet and electronic mail are valuable resources available to employees in the performance of job-related duties. The Internet shall not be used to view, copy, save, or distribute unauthorized material or material unrelated to the employer's business. Electronic mail should not be used in the conduct of outside employment or for personal activities unless authorized by the employer.

6. Maintaining Accurate and Complete Records

The importance of maintaining accurate and complete records cannot be overstated. Transactions between a company or its affiliates and its clients, vendors, regulators, outside individuals, and organizations shall be entered in the employer's records promptly, accurately, and honestly. Financial records shall be maintained in accordance with generally accepted accounting practices, principles, and established employer guidelines. Misrepresenting facts or falsifying records is illegal, shall not be tolerated, and should result in appropriate disciplinary action.

7. Gifts, Meals, Services, and Entertainment

It is improper for an ASCE member or family member to request, accept, or offer anything that could reasonably be construed as an attempt to influence the performance or judgment of another (public officials, government employees, contractors, and others) or to favor a customer, supplier, or competitor. Generally, this includes receipt of gifts, payments, travel, or other benefits from any existing or potential customers, suppliers, competitors, or other special interest groups. It is also improper for an ASCE member or family member to provide a gift (other than gifts of nominal value) to public officials, government employees, or the immediate family of such persons, unless the member has a familial or other close personal relationship with the recipient and the gift will not create the perception of inappropriate influence. It is similarly inappropriate to make loans to a customer, supplier, or competitor or to borrow from such sources, unless the source is a recognized lending institution. Gifts of nominal value motivated by commonly

accepted business courtesies may be accepted or given, but not if accepting or giving such gifts may cause the perception

of prejudice toward or obligation to the donor. Before accepting any gift or gratuity, the ASCE member or family member shall ask himself or herself whether he or she has the opportunity to influence decisions regarding the employer's business dealings with the donor, or if acceptance might be perceived by others as creating an obligation to the donor. If so, the gift or gratuity shall not be accepted. When in doubt the member shall share the facts of the situation with the employer and a course of action regarding acceptance shall be determined. Meals provided by an existing or potential client, supplier, or competitor may be acceptable if they are for a bona fide business purpose, reasonable in amount, and not repetitive.

8. Confidential or Proprietary Information

In the course of normal professional activities, ASCE members may have access to information that is proprietary, confidential, privileged, or of competitive value to the employer. In addition, clients and even competitors may sometimes divulge information to ASCE members that is proprietary to their business. ASCE members must respect these confidences by protecting the confidentiality and security of documents and related information. The use or disclosure of confidential information shall be at the employer's sole discretion and for the employer's purposes only and shall not be used for personal benefit of the member or the benefit of others (including the benefit of a new employer). To preserve confidentiality, the disclosure and discussion of confidential or competitive information should be limited to those who specifically need to know the information.

9. Outside Employment/Activities

Outside employment or business activities not related to those of the employer must not diminish the employee's ability to properly fulfill his or her professional responsibilities to the employer. Such outside employment or business activity shall not create, or appear to create, a conflict of interest. Company time or facilities, including telephone or electronic media, shall not be used in the conduct of outside employment or personal business activities without the employer's prior knowledge and approval. Employment with an outside organization that has no actual or potential business relationship with the employer is acceptable as long as it does not impair the employee's ability to fulfill all job-related functions and does not compromise the quality, productivity, or safety of the employer's operation. ASCE members shall notify their employer in writing of current or

contemplated outside employment. The employer shall evaluate the specific circumstances and provide direction with respect to the issue of conflict of interest.

10.Purchases of Goods and Services

The acquisition of goods and services from external vendors may constitute a significant portion of an employer's annual expenditures. Consequently, employers should establish guidelines and practices governing procurements within their organization to ensure that the interests of their clients and the public are best served and protected. Similarly, employers should ensure that their corporate work environment emphasizes and conscientiously supports adherence to the procurement guidelines that are established. It is the responsibility of ASCE members to maintain the good name of the employer and to develop and maintain good business relations between the employer and its vendors by maintaining an awareness that personal relationships may form much of the basis for the supplier's opinion of the employer. All sales and purchases by the employer should be based on price, service, quality, and the consistency and dependability of the business relationships underlying each transaction. Most of an employer's transactions relating to purchasing are likely confidential, especially with regard to the employer's vendors. It is inappropriate, as well as damaging to the employer, to allow proprietary information about one vendor's quotation or pricing structure to pass to another vendor. Unauthorized discussions between the employer's personnel and vendor representatives regarding product or vendor preferences shall be avoided.

11.Bribes and Kickbacks

ASCE prohibits its members from offering or accepting bribes, kickbacks, and all other forms of payoffs and benefits to or from suppliers, regulators, government officials, trade allies, or customers. As stated on page 5 in guideline 7, ASCE members and agents are also prohibited from giving or receiving anything of value, directly or indirectly, to or from an outside source in connection with a transaction entered into by the employer. To offer or accept bribes or kickbacks is morally wrong and illegal.

12.Relationships with Competitors

ASCE members shall be aware that the employer operates in a competitive economic environment. Discussions with existing or potential competitors regarding common issues shall be conducted with care to protect all employer information that may be of a sensitive or proprietary nature or that could otherwise benefit competing parties.

13.Relationships with Clients, Outside Contractors, and Consultants

Clients, outside contractors, and consultants shall be treated honestly, without discrimination or deception, in a manner conforming to local, state, and national laws and consistent with good business practices. ASCE members shall not make misleading or false remarks about others, including the employer's competitors.

14.Environmental Protection

The employer and ASCE members shall comply with both the letter and the spirit of applicable environmental laws and foster an open and constructive relationship with regulatory agencies, environmental groups, other ASCE members, and the public with respect to environmental issues. ASCE members who are aware of situations in which the employer may not be complying with environmental laws or is improperly handling, discarding, or otherwise discharging any toxic or hazardous substance, shall immediately notify the employer of the infraction or offending conduct.

15.Whistle Blowing

"Whistle blowing" describes the action taken by an employee who notifies outside authorities that the employer is breaking a law, rule, or regulation or is otherwise posing a direct threat to the safety, health, or welfare of the public. Employees who "blow the whistle" on their employers are afforded certain protections under U.S. law. If an employee is fired or otherwise retaliated against for whistle blowing, an attorney should be consulted to identify legal protections available to the employee. If it becomes necessary to blow the whistle, the employee must advise the appropriate regulatory agency or a law enforcement agency of the illegal act. Simply complaining to someone inside the company is not whistle blowing and leaves the employee without protection of whistle blower laws. ASCE members are encouraged to notify and assist employers to comply with all applicable laws, rules, and regulations. ASCE members should look upon the act of whistle blowing as the last available measure to be used for ensuring a safe, healthful, and legally compliant workplace. If after an ASCE member makes a good faith effort to notify an employer of illegal operations or actions and the offending condition continues, the member shall, as a

protection to the public, notify the appropriate regulatory or other law enforcement agency.

ASCE's Code of Ethics

1. Fundamental Principles

Engineers uphold and advance the integrity, honor, and dignity of the engineering profession by using

a) their knowledge and skill for the enhancement of human welfare and the environment;
b) being honest and impartial and serving with fidelity the public, their employers and clients;
c) striving to increase the competence and prestige of the engineering profession; and
d) supporting the professional and technical societies of their disciplines.

2. Fundamental Canons

a) Engineers shall hold paramount the safety, health, and welfare of the public and shall strive to comply with the principles of sustainable development3 in the performance of their professional duties.
b) Engineers shall perform services only in areas of their competence.
c) Engineers shall issue public statements only in an objective and truthful manner.
d) Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
e) Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
f) Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession and shall act with zero tolerance for bribery, fraud, and corruption.
g) Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

Saudi Council of Engineers: Code of Ethics

Preface

The engineering profession and the services provided by engineers depends significantly on the progress of civilization and the protection and harnessing of natural resources to serve the community and increase the standard of living. Thus, it becomes necessary for engineers to provide their professional services according to ethical standards and rules observing honesty, truthfulness and perfection.

Since the Saudi Council of Engineers is concerned with and aims to promote the profession of engineering and all that would develop and raise the level of the profession and its practitioners under its law promulgated by the Royal Decree No. 36 on 26/09/1423H, and since its vision is to "sophisticate the profession of engineering and enable engineers and institutions of engineering to reach optimal solutions, to improve performance level, and to encourage creativity and innovation to achieve a prestigious international position," the Council has opined to present these rules to engineers and technicians in various positions to serve as professional rules determining proper professional dealing among themselves and with others to serve society.

Since justice, integrity, honesty, truthfulness, keeping one's word, never exposing secrets, mutual advice, mastery of work, and getting away from hurting others are in their entirety the morals and values advocated by Islam that urges to stick to them and to abide by applying them in everyday life, the Saudi Council of Engineers has taken into account these foundations, principles and values when preparing the rules and ethics governing the practice of the profession. Thus, all engineers should abide by these rules in all their professional practices in accordance with the Engineer Agreement signed in this regard.

May Allah grant us all success to all that is good

Rules and ethics of the practice of the engineering profession

General rules:

Rule One: Every engineer should build her/his professional reputation based on efficiency and proficiency of her/his services, and away from unfair competition with others.

Rule Two: Every engineer should seek to develop her/his personal abilities and efficiency and should also provide professional development opportunities for engineers and technicians working under his supervision.

Rule Three: Every engineer should be committed to promoting the fundamental values and principles of the ethics of the engineering profession and should plant them within society. Regarding her/his conduct, every engineer should be s in ways that support and enhance the prestige and dignity of the profession and the secretariat of the locally and globally.

Rule Four: Regarding professional issues, every engineer shall act as a careful agent to the employer, and shall avoid any conflict of interests.

Rule Five: When submitting her/his ideas, views and decisions, every engineer should be keen to be objective and honest and confined to her/his field of expertise and professional experience.

Rule Six: When providing professional services, every engineer seeks to apply the highest standards of safety and environmental protection to achieve the public interest of individuals and society.

Rule One:

Every engineer should build her/his professional reputation based on efficiency and proficiency of her/his services, and away from unfair competition with others.

1.1 It is obligatory on every engineer not to directly or indirectly pay or offer commissions, gifts or rewards for getting a job with the aim of influence its accreditation. In addition, it is obligatory on every engineer not to make concessions irrelevant to the profession that may be used to influence the other competitors.

1.2 It is obligatory on every engineer not to compete with any other engineer in contradiction with the regulatory rules in order to replace the latter in a particular job, whether after knowing that specific steps have been taken towards her/his appointment or after s/he has already been appointed.

1.3 It is obligatory on every engineer not to criticize the reputation or performance of other engineers inappropriately, whether through criticizing and mutilation directly or indirectly.

1.4 It is obligatory on every engineer neither to overestimate the degree of her/his responsibilities in previous work, to be dishonest in the presentation of her/his professional and academic qualifications and past achievements, whether regarding her/him or her/his workers, nor to be dishonest in the presentation of the facts concerning employers, colleagues, or partners.

1.5 Every engineer shall review professional service contracts based on competence, professional qualifications and experience, and volume and scope of work, taking into account the equity of appropriate compensations to other professionals and keening on enhancing trust between all contracting parties.

1.6 Every engineer shall consider the public interest in estimating the engineering services' cost.

1.7 Every engineer shall not undertake or agree to perform any engineering service for free in a way that may affect the professional level of the service provided.

1.8 No engineer shall unobjectively declare the engineering services as a means of propaganda. In addition, no engineer shall allow the use of her/his name in commercials by manufacturers, contractors and suppliers, unless the engineer has a real role in the advertisement.

Rule Two:

Every engineer shall continue the professional development by developing her/his personal efficiency and abilities and shall provide professional development opportunities for engineers and technicians who work under his supervision.

2.1 An engineer shall work on developing his abilities to raise his professional level by every appropriate means, such as attending professional events, submitting specialized studies and research, participating in meetings and activities of international professional bodies, and encouraging and urging his staff of engineers and technicians to do the same.

2.2 Every engineer shall give proper credit for engineering works to those to whom credit is due and shall recognize the proprietary rights of others. Every engineer shall name the person(s) responsible for designs, inventions or accomplishments wherever possible.

2.3 Every engineer shall be fair in assigning works and tasks to other engineers, in proportion to the level of their expertise and training.

2.4 Every engineer shall provide all information regarding working conditions to engineers nominated for employment and inform them of all matters relating to the proposed position. After hiring, he shall inform them of all changes that may happen and the commitment to the principle of estimating lucrative compensations, salaries, and allowances for workers in the engineering field.

Rule Three:

Every engineer shall commit to promote the fundamental values and principles of the ethics of the engineering profession and establish them in the society. In his behaviour, he shall adhere to the techniques that support and promote the prestige, dignity and integrity of the profession locally and globally.

2.1 Every engineer shall commit to apply rules and ethics of the profession in all her/his professional practices, and participate in educational, training and professional activities in institutes, universities and business and professional institutions, in order to promote and establish professional concepts and raise the engineering awareness in society.

2.2 Every engineer shall assume his professional responsibility based on the rules respected by members of the community, and not contribute to any products that may be easy to use for unethical or banned purposes or result in immediate or long-term risks.

2.3 Every engineer shall refer to the Saudi Council of Engineers in case of disputes related to the ethics of the practice of the profession. In all cases, the priorities shall be determined according to the following order:

- Government regulations and judicial decisions shall have the priority over professional regulations and laws.
- Professional regulations and laws shall have the priority over contracts and individual interests.

2.4 Every engineer shall not participate in or allow the use of his name or the names of his partners on business by a person or an entity which he believes that it involved in a business or a professional practice based on fraud and cheating.

2.5 Every engineer shall not use the relationship, solidarity or participation with others as a means of covering up behaviours that are inappropriate to the profession.

Rule Four:

Regarding professional issues, every engineer shall act as a careful agent to the employer and shall avoid any conflict of interests.

4.1 Every engineer shall dedicate their technical knowledge and experience to the benefit of their employers/clients. Every engineer shall assume the responsibilities for their professional practices, and admit mistakes as it occurred, they shall avoid twisting or warping facts to justify wrong decisions.

4.2 Every engineer shall maintain the confidentiality of the information received by the same in the framework of the duties entrusted thereto and shall not disclose such information only after obtaining an approval to do so; with exception of the cases permitted by the regulations in force and appear to be in line with the applicable principles and code of ethics. Moreover, every engineer shall not use such information to obtain personal gain only after obtaining the approval of the Employer. In any case it shall not be permissible to use such information if such use conflicts with the interests of the Employer or the society.

4.3 Every engineer shall deal with all parties with the utmost integrity and fairness whenever administrating any contracts or recruiting any personnel. Every engineer shall enter into an agreement before working for those parties to the extent that allows the same to make improvements, designs, innovations, and other facilities that require keeping the rights thereof in writing or innovation; without resorting to deception as a means to induce others to work therewith.

4.4 Every engineer shall not perform any professional service for the account of any party outside of regular work hours only after informing the Employer of the same. Furthermore, every Engineer shall not use any equipment, materials, laboratories, or office facilities pertaining to the Employer for personal purposes without obtaining the approval of the Employer on the same.

4.5 Every engineer shall not inspect the work of another engineer without informing the same or after the expiration of the contract relevant to such work unless it is required by virtue of the nature of the job thereof.

4.6 Every engineer, working in the field of sales and manufacturing, is entitled to make comparisons between the products thereof and the products of other suppliers, taking into account not to offer or provide any engineering consultancy, designs, or advice except as specifically related to the equipment, materials or systems sold thereby or displayed for sale.

4.7 Every engineer shall avoid any conflict with the Employer's interests and shall notify the Employer immediately after being aware of the existence of any relations, business interests or circumstances that may affect the decisions thereof or the quality of the services provided thereby. Moreover, every Engineer shall avoid performing any work appears to conflict with Employer's interests.

4.8 Every engineer shall not accept any remuneration paid by a party for the services provided thereby in the same project or in exchange for any services relating to the same work unless it is expressly agreed in advance between all concerned parties. Moreover, every engineer shall not request nor accept any rewards, whether in cash or in kind; including any free engineering designs provided by the suppliers of materials; further to any equipment, devices or systems used in the description or identification of the products of those suppliers in the work carried out by this engineer. Furthermore, every engineer shall not, directly or indirectly, request nor accept any gifts given by any party dealing with the Employer or relevant to the work entrusted to the same.

Rule Five:

When submitting the ideas, views and decisions thereof, every engineer should ensure that such ideas, views and decisions are objective, authentic and fall within the area of specialization and professional experience of the same.

8.1 Every engineer shall be objective, honest and independent in making any engineering decisions that exclusively fall within the field of the scientific and practical qualification; to the extent that such decisions are only made in accordance with scientific and professional considerations. Every engineer shall benefit from all available specialized expertise and ask the assistance of his colleagues in accomplishing any work falling outside the field of the engineer's specialization.

8.2 When the engineer appears before courts or official commissions as an expert or witness to provide a technical testimony, the engineer shall show the engineering standpoint of the same based on the experience, expertise and knowledge of facts bearing in mind the utmost integrity, honesty and honor of the profession.

8.3 Every engineer shall not issue any reports, statements, or comments about engineering issues if such reports, statements or comments are issued for the purposes of serving the interests of any party or parties unless a prior explicit statement identifying those parties acting on their own behalf is issued.

8.4 Every engineer shall be modest and moderate, while presenting his works and efficiency. Furthermore, the engineer shall avoid committing any act tending to promote his own interest at the expense of the profession's honesty, status and dignity.

8.5 In case of any conflict arising between the values and principles, and the professional services, engineers shall set their priorities as follows:

- Giving priority to human values over the nature's considerations.
- Giving priority to issues related to human rights over production and exploitation of technology.
- Giving priority to the society's general welfare over private interests.
- Giving priority to safety and security over functionality and material gains of technical solutions.

Rule Six:

When providing professional services, every engineer seeks to apply the highest standards of safety and environmental protection to achieve the public interest of individuals and society.

6.1 Every engineer shall comply with the approved standards of public safety and environmental protection, while preparing designs and schemes or upon approval and endorsement. The engineer shall also verify of such compliance, while making decisions and judgments, besides all relevant engineering practices. If the engineer must provide engineering solutions that appear to cause threatening to public safety, health of environment or interest of society, the employer shall, in such case, be informed of all possible consequences.

6.2 Every engineer shall, as much as possible, provide brochures, including examining standards systems and quality control procedures, to the extent that allows the public to understand the degree of safety and security or the life span of designs, products and systems that he was responsible for.

6.3 Every engineer shall exert all efforts for the purpose of providing constructive services to the nation, in line with the applicable standards and values, promoting the society's interest and welfare, and complying with providing safety measures in all provided professional services.

6.4 When observing circumstances or conditions posing a threat to public safety, health of environment or interest of the society, the engineer shall notify the concerned entity of the available information, provide the required assistance, and undertake the proper check to ensure safety and reliability of products or systems.