COLLEGE OF ENGINEERING
Department OF OF Electrical Engineering

EngEE 590 – Senior Project (I)
(Capstone Design)
Proposal Procedure

Proposals can be submitted by students, faculty or industry. The deadline for submission is First of September, and First of April. Each project will be completed under the supervision of one or more department or college staff members with expertise in the project area. Each student team will normally consist of Three to Four Department or college engineering seniors.

Each project must meet the following criteria:

1. Project can be completed during TWO semesters (ONE academic year.)
2. Project must meet ABET design criteria:
   a) Open ended
   b) Non-unique solutions
   c) Student decisions required
   d) Involve advanced engineering analysis
   e) Design configuration decisions required
   f) Visibility studies and market needs

The main emphasis of the project is design. If construction is involved it must not override the engineering design aspects of the project.

Each proposal should be outlined as listed below:

A. Proposer's name, address, phone number and affiliation.
B. Choice of faculty advisor if known.
C. Number of students desired and student design team choice if known.
D. Type of analysis that project may involve such as (Department specialties)…….
   ……..
E. State tentative project name followed by a description of the project not more than one page in length.
F. If the project is from industry please state what your company is willing to donate to the project to offset student travel, duplication expenses, etc. Estimated Budget around 5000 SR or budget accepted by the university

The proposals will be reviewed by the department and confirmed by the Advisory Board. Students will be assigned to selected projects early at 10th September and April

Please submit proposals with formal attached Form by Email to:

College Coordinator of Capstone Design
Dr. Refaat Khater
ref_khater@yahoo.co.uk,
Department Coordinator of Capstone Design
Name:……
Email: ……

COLLEGE OF ENGINEERING
Department OF OF Electrical Engineering

EngEE 590 – Senior Project (I)
(Capstone Design)

Proposal Format

Academic year	**1440– 1441 - 2019–2020**
Semesters	**Fall / Spring**
Academic Level	**Nine / Ten**
Project Title	**Impact of Smart Grid on distribution system design**
Supervisors	**Pr.Dr. Fathi GHODBANE**
Number of Student Team	**05**

1- Introduction & Background

There has been much recent discussion on what distribution systems can and should look like in the future. Terms related to this discussion include smart grid, distribution system of the future, and others. Functionally, a smart grid should be able to provide new abilities such as self-healing, high reliability, energy management, and real-time pricing. From a design perspective, a smart grid will likely incorporate new technologies such as advanced metering, automation, communication, distributed generation, and distributed storage.

2- Problem Statement and Objective (ABET – 3e)

Problems are classified as follows: i) Smart Grid ii) Power Distribution iii) High reliability iv) Advanced metering, automation and communication.

From the above problems the students identify distribution system of the future, self- healing and energy management. Also, the students can formulate and solve engineering problems appear during project.

3- Problem justification and Outcomes (ABET - 3e)

In this project the students justified the engineering problems and formulate how to solve these problems. This project includes electrical design, New grid energy management, real-time pricing, new technologies and communication. The network evolutions for the smart grid are studied. Then the model parameters and model generation are defined taking economic considerations. Services and applications for the smart grid are presented.

4- Literature Review (ABET – 3j)

i). Power grid design ii) smart grid iii) new distribution network

5- Problem Constraints (ABET - 3c)

Problem constraints are: i) motivation for the future grid ii) Visions of new grid iii) Power engineering approach for power lines design iv)Smart grid services and applications.

6- Design Approach and Methodology (ABET - 3a, 3b, 3e, 3k)

i) Knowledge of mathematic and engineering principles
ii) Components to conduct design circuit and comparison with theoretical
iii) Methods used to formulate and solve engineering problem
iv) Using software to solve engineering problems

7- Tasks and Time Schedule

(Level: 9, First Term, 143..)

Task No.	Task Name	Duration (Weeks)
1	Data collections	
2	Comparison old and new grid	
3	Motivation of the future grid	
4	Visions of new grid	
5	Report & seminar	

(Level: 10, Second Term,143..)

Task No.	Task Name	Duration (Weeks)
1	Revision of the tasks on first semester	
2	Power engineering approach for power lines design	
3	Building new distribution networks	
4	Smart grid services and applications	
5	Discussion, conclusion and final report	

8- Budget & Expenditures Sheet

Items	Description	Estimated Price
1		
2		
3		
4		
5		
6		

9- Visibility of the product and market needs (ABET -)

Connection with Ministry of electricity and industry of KSA

Supervisors	
Name	Signatures
Pr.Dr.Fathi GHODBANE	

Senior Project (Capstone Design) Presentation

EngEE 590 Case Study Presentations

I have invited Guest lecturers and students to provide you with actual projects or situations for your review.

• Review your notes and presentation slides
• Study the information
• Use what you have learned in project class to identify various issues/topics of interest

- Working in your teams, select one of the Guest Lecturer projects for review.
- Please identify why you have selected the guest lecture or video for case study review.
- Please identify the Engineering Challenges for the Case Study.
- Review and discuss the project within the framework of the course topics including:

  - Need Identification and Problem Definition
  - Project Planning
  - Technological Innovation
  - Concept Generation and Evaluation
  - Legal and Ethical Issues

Your Case Study review should be between 8 to 10 minutes. Because of time constraints, I may cut off teams in excess of 10 minutes. Therefore please plan your time wisely.

You should prepare your presentation with PowerPoint and have a copy on a USB memory stick. Please do not show up with a floppy disk and expect to load onto the computer. Please be prepared to present at your selected time. If you have a significant delay in setting up that effect the timing of other presentation, your score will be deducted.

A good rule of thumb is one slide per minute. Therefore, I recommend that you limit to more than 12 slides.

Recommended Presentation Outline

- Title Slide: Case Study Project,
- Team Members,
- Date
- Agenda – organization of the presentation materials
- Case Study Selection – Why you have chosen or selected this project for review

- Background – Provide summary or overview of the case study project
- Engineering or Technical Challenges – Identify the challenges as presented
- Case Study Review – Identify and discuss various course topics as they relate to the case study. You should be able to describe the Design Process or Methodology for your case.
- Summary/Conclusions, what is your outcomes, visibility, marketing
- References/Acknowledgements

Your presentation will be assessed by the following criteria:

- Organization and Style of Presentation
- Case Study Review – identification of topics, significance of review

EngEE 590 – Senior Project
(Capstone Design)

Catalog Data: *EngEE590* – Senior Project. (4:6,0)
Continuous Assessment two semesters (Duration – 32 weeks)

Fall/Spring 1440/1441

Department of: Electrical Engineering

Senior Project Sign-Up Sheet

Project Title: **Impact of Smart Grid on distribution system design**
Project Advisor: *Fathi GHODBANE*

	Name	E-mail Address
Team Leader	(1) Basem DHIK	201600305
Team Members	(2) Mohammed Kriri	201320341
	(3) Mohammed Habloul	201517296
	(4) Ali Momadi	201603063
	(5) Abderrahman Loghbi	201600160

Please identify the everyday item that will be addressed by the design project.
Your team will also address the Case Study assignment.
Please identify a Team Leader to address communication responsibilities.
Team must have a minimum of 3 members and no more than 5 members.

Signature

(1) …… (2) …… (3) ……. (4) ……..

[This page must be signed and returned no later than the start of the 2rd Session. Students who are not comfortable signing this document should meet with the course coordinator before the third week of the semester to review the requirements as necessary.]