COE ABET COMMITTEE

Activity Report

Term T102

COMPUTER ENGINEERING

Program

at

King Fahd University of Petroleum & Minerals
DHAHRAN, SAUDI ARABIA

October 2011

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PLANNING AND ASSESSMENT FOR NEXT TWO YEARS

The ABET Program Assessment Committee approved the following Action Plan for the following two academic years.

Action Plan

First Year 2010-2011:

1. Addressing the comments raised by ABET in the Final Statement as well as those that were verbally formulated:

    1. Proposing some revisions,
    2. Seeking approval by COE faculty,
    3. Revising the COE the assessment system (rubrics and surveys) based on potential revisions.

2. Develop a policy for the effective implementation of Continuous improvements:

    1. Proposing a policy,
    2. Approval by COE faculty, and
    3. Implementation.

3. Continuous improvement of the COE program, identify programs outcomes that have weak performance indicator using available assessment data, selection of some outcome for improvement, carry out improvement, and documenting.

Second Year 2011-2012:

1. Continuous improvement of the COE program, identify programs outcomes that have weak performance indicator using available assessment data, selection of some outcome for improvement, carry out improvement, and documenting.

2. Develop logistic to address all program outcomes. Provide supporting material.

The above plan can be summarized using the following Table:

COE PLAN	T111	T112	T121	T122
Continuous Improvement	**Two Selected POs**		**Two Selected POs**	
Program Assessment		**Assessing all Program**		**Assessing all Program**

		outcomes (a)-(k)		**outcomes (a)-(k)**

COE ABET ACTIVITIES FOR TERM 102

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As per the above action plan for Term 102, the COE ABET committee carried following tasks:

1. **Balancing the COE Rubric Assessment Process**: developed a proposal for the balancing the rubric assessment and mapping, presented the proposal in COE council, faculty discussion, and COE council resolution to approve the proposal. See sub-section below describing the above proposal and resolution.
2. **Continuous Improvements:** The ABET committee appointed a faculty to serve as "Faculty in Charge" for improving program outcomes:
    a. g(w) "English Writing Skills",
    b. Outcome (f) on Engineering Ethics,
    c. Outcome (h) on the Awareness of the impact of engineering solutions on Society, and
    d. Outcome (j) on knowledge of contemporary issues,

Note that that outcomes (f), (h), and (j) are not injected in the COE program. They have been assessed in the past in an Ad-Hoc manner. The ABET PEV commented of these issues. In other words , there is a pressing need to inject the above in the program (COE 390), prepare material and teaching method. See sub-section below describing the above proposal and resolution.

Balancing the COE Rubric Assessment Process

One of the most important ABET-PEVfeedback is related to the mapping between the courses and the Rubrics. The PEV found the COE Rubric assignment to courses as is unbalanced as there are few 400-level courses where almost all outcomes are evaluated.

To address the above feedback, the COE ABET committee has used the following three criteria to come up with a new mapping that will take into account the PEV's feedback:

1. **Balanced rubric assessment**: In the new mapping, the maximum number of outcomes per course is 8 (for 400) compared to 11 (for COE 400) in the old mapping. In addition, each outcome is assessed in at most 3 courses (different channels).

2. **Early assessment**: Some outcomes could be assessed earlier than 400-level courses such as POs (a) and (b). The student is expected achieved them in the third year of the program. Therefore, we could assess them at the 300-level courses.

3. **Close-to-graduation assessment for important outcomes**: Assess the most important outcomes when the student is close to graduation, i.e. using high level courses. For example engineering design is assessed in COE 351, COE 400, and COE 485.

4. **The three Soft Outcomes ((f):** Engineering Ethics, (h): Awareness of the Impact of Engineering Solutions, and (j): Awareness of the Contemporary Issues) must be injected in the program prior to their assessment.

5. Some POs might be assessed by faculty members other than the instructor, e.g., for COE 400.

In summary, the COE ABET Committee proposes the following revision:

"Mapping for COE PO Assessment"

Math (a) + Experiments (b) ➔ COE 300 level courses

Ethics (f) + Eng. Sol (h) + Contemporary (j) ➔ **COE 390** (COE ABET committee will restructure the course after consultation with the instructors, and will provide all necessary material).

Main POs (c)(d)(e)(g)(i)(k) ➔ **COE 400 + COE 485 + COE 351**

HW/SW (n) ➔ COE 400

Outcomes (l)(m) ➔ Remove

Specifically, the COE ABET Committee recommends the following changes:

1. PO (a) and PO (b) will be assessed using 300-level courses: COE 308, COE 344, and COE 360

2. COE 390 will be used for injecting and assessing the **Engineering Ethics (f), Awareness of the Impact of Engineering Solutions (h), and Awareness of the Contemporary Issues (j)**. The ABET committee will restructure COE 390 and provides all necessary material. This will be part of the current Continuous Improvement Process (2010-2011) which is conducted by Dr. Zubair Baig, a member of the COE ABET Committee.

3. The main program outcomes, i.e. POs (c) (d) (e) (g) (i) (k) will be assessed using COE 400, COE 485, and COE 351.

4. For PO (n) on Hardware/Software integration, COE 400 will be assessing this PO through student course projects. However, PO(n) will not be assessed in COE 351 and COE 485 because this outcome is presently not addressed in these courses.

5. The two extra POs on (1) Probability and Statistics (n), and (2) the Boolean Algebra (m) will be eliminated from the program outcomes because these outcomes are only indirectly addressed in some COE courses.

6. Some POs might be assessed by faculty members other than the instructor, e.g., for COE 400.

Following the above proposal of the COE ABET committee, the COE Faculty were invited to discuss the above proposal. Dr. El-Maleh said that as per his experience with PEV, before removing any POs, we have to give strong justification. So, for removing (l) & (m) POs, the committee will have to justify in this regard. The chairman inquired whether the POs (l) and (m) are removed from the list of POs or not? Dr. Mayez Al-Mouhamed, chairman of the ABET committee, responded by saying that creating specific assessment rubric will be somehow problematic because these outcomes are only indirectly addressed in the program. Also removing them will not affect the program as all ABET basic outcomes (a-k) are present in the current proposal. The Committee is proposing to remove the extra outcomes l and m because they cannot be assessed in the current implementation of the COE program.

One of the council members presented the motion to remove l & m POs. Also, the council unanimously agreed on the above as well as improve COE 390 course to address the soft outcomes.

After some discussions and deliberations, the COE council unanimously agreed to pass the following resolution:

Resolution No. COE/4/25/1431-1432H (2010-2011):

The COE council unanimously recommends approval for the following changes

1. PO (a) and PO (b) will be assessed using 300-level courses: COE 308, COE 344, and COE 360.
2. COE 390 will be used for injecting and assessing the **Engineering Ethics (f), Awareness of the Impact of Engineering Solutions (h), and Awareness of the Contemporary Issues (j)**. The ABET committee will restructure COE 390 and provides all necessary material.
3. The main program outcomes, i.e. POs (c) (d) (e) (g) (i) (k) will be assessed using COE 400, COE 485, and COE 351.
4. For PO (n) on Hardware/Software integration, COE 400 will be assessing this PO through student course projects. However, PO(n) will not be assessed in COE 351 and COE 485 because this outcome is presently not addressed in these courses.

5. The two extra POs on (1) Probability and Statistics (n), and (2) the Boolean Algebra (m) will be eliminated from the program outcomes because these outcomes are only indirectly addressed in some COE courses.
6. Some POs might be assessed by faculty members other than the instructor, e.g., for COE 400.

The following Table shows the approved Rubric Assessment and Mapping to the COE Courses:

Table – Approved Rubric Assessment Mapping to the COE Courses

Outcome / Course	(a) apply knowledge of mathematics, science, and engineering	(b) design and conduct experiments, analyze and interpret data	(c) design a system, component, or process to meet desired needs	(d) function on multi-disciplinary teams	(e) identify, formulate, and solve engineering problems	(f) understanding of professional and ethical responsibility	(g) effective communications	(h) understanding the impact of engineering solutions	(i) life-long learning	(j) knowledge of contemporary issues	(k) use of techniques, skills, and modern engineering tools in design	(l) Knowledge of probability and statistics and their applications	(m) knowledge of discrete Mathematics	(n) design a system through integration of hardware and software
COE 202 - Digital Logic Design														
COE 203 - Dig. Design Lab														
COE 205 - Comp. Org. & Ass. Lang.														
COE 305 - Microcomputer System Design		A												
COE 308 - Computer Architecture	A													
COE 341 - Data & Computer Comm.														
COE 344 - Computer Networks	A	A												
COE 351 - Coop			A	A	A		A		A	A	A			
COE 360 - Principles of VLSI Design.	A													
COE 390 - Seminars						A		A		A				
COE 399 - Summer Training														
COE 400 - System Design Lab			A	A	A		A	A	A		A			A
COE 485 - Senior Design Project			A	A	A		A		A	A	A			
STAT 319														
ICS 252														
IAS 211														
ENGL 214														

Continuous Improvement for the Program Outcome g-W (Writing Skills)

Continuous improvement (CI) is the process of devising and implementing effective corrective actions (CAs) on COE courses and labs to improve on the fulfillment of program outcomes in response to shortcomings identified through ABET assessments.

According to the COE ABET Committee Action Plan for 2010-2011, the ABET Committee should develop a framework for integrating Continuous Improvement into the teaching process. This document outlines the proposed framework for implementing CAs for the g-W (Writing Skills) outcome, which was found to fall short of standards set by the engineering discipline at large, on all students.

Current Situation and Analysis

A thorough investigation was carried out to evidence reasons behind the low quality of technical reports submitted by students as part of course projects and laboratory reports. The following points summarize the findings of the committee:

a. Students did not follow a strict format for their technical reports.
b. Grammar and vocabulary fell short of expectations for a standard technical report.
c. Plagiarism was commonly noticed, especially instances of direct copy-pasting of articles from the Internet.
d. A standard writing template and a mechanism for rating of student writing was not available.

Plan of Action

In light of the above shortcomings, the ABET committee agreed that the department needs to take effective measures to address this important requirement that must be possessed by all its students. The following corrective actions were proposed by the committee based on deliberations and analysis.

a. Provide students with a copy of the attached writing guide, to ascertain that all students adhere to the formatting and template requirement for any writing assignment that they carry out.
b. Assign (if not done yet) a **20%** weight of the entire course to laboratory reports submitted by the students.
c. A **20%** or higher weight of each course must be assigned for the course term project (if a course project is part of the syllabus) *p.s. this may already be the case in most courses*.
d. It is suggested that advance-level courses be assigned a higher weight for writing components, based on the discretion of the instructor.

e. A writing guide, attached herewith, prepared by myself, is to be adhered to by all course instructors for student report evaluation, as well as by all students writing project or laboratory reports. The guide (template) will consist of the following sections, the contents of which will be duly explained within the template, to be followed for each course:

1. ***Abstract***
2. ***Introduction & Background***
3. ***Technical Content***
    a. ***Problem Statement***
    b. ***Design of the Solution***
4. ***Experiments/Simulations and Results (including snapshots of simulations)***
5. ***Conclusions***
6. ***References***

f. Encourage students to use built-in tools such as Microsoft spell-checker to ensure that spelling mistakes are avoided.

g. Provide students with regular reading assignments, to help improve their awareness of the quality of internationally published articles. Such assignments can be evaluated through a review or a summary of the article to be provided by the student. In addition, if such assignments are given on sections/chapters of the textbook, it will also make students aware of the importance of a textbook, and the support that it can provide to them to aid the learning process.

h. It is suggested to have a short writing assignment for ***COE 3xx*** and above courses, to be blind assessed by peer students, wherein the students will gain a strong feel of their level of competence for technical writing within a given class. Such an assignment will also provide the instructors with a general opinion on how a student rates himself, as well as to make students aware of their level of competence in writing, as compared with their peers.

i. It is suggested to complement writing skills with enhancement of oral communication skills through video recordings of project demos by peer students, and subsequent presentation of the video in class for critical review by all students.

The above continuous improvement has been implemented for courses: COE 203, 390, 360, 351, 400, and 485. The Web-Syllabi where the curricular actions were injected is available at:

http://www.ccse.kfupm.edu.sa/coe/?page_id=680&_login=1285a3dd66/

See Appendix A: Components of a high-quality written report for more information.

Appendix A: Components of a High-Quality Written Report

Writing as a skill is built upon by an individual over a period of time, based on reading, assessment, and analysis skills acquired through team work and effort placed in reading articles on contemporary engineering issues and findings, during their respective undergraduate programs.

Motivation for improving writing skills:

1. It is very convenient to convey your ideas and findings in clear language – understandable by the larger audience.
2. Writing a large collection of jargon will not help you in delivering useful and at times earth-breaking ideas to stakeholders (which include your project partners, instructors, bosses, and the global engineering family).
3. When you write well, you gain more respect from your bosses and colleagues – most high ranked professionals in the corporate world possess strong writing skills, since writing skills are a key factor in promotion decisions.
4. An engineer's inability to write quality reports will invariably affect outcomes of crucial projects, which require clear and easy reporting of findings, diagnoses, investigation results, solution scenarios, test cases, and final results.

Scenario of a poorly written document and its effect:

A person working as a Network Engineer with a local firm writes a report with incomplete details as to the network device deployment locations, types of devices to be used, types of cabling to be used, and human resources that need to be involved in the project. The project manager will not be able to provide the necessary management support for timely completion of such a project. Such delays will not only the affect the company profile and reputation, but will also hinder any progress an engineer can make in his career.

A neat and well-written report will also portray a company as being competitive, and possessing employees who have worked hard through their careers in all aspects (including writing skills), and not just technical abilities.

Every person begins and ends writing a report differently. Some people prefer to clearly write all details related to the problem, solution, and results, and subsequently wish to write the introduction and conclusion. Others work on the introduction first, and subsequently complete the remaining sections in sequential order, based on the table of content.

A standard technical report written by an engineering student consists of the following components:

1. **Abstract – around 200 words**
2. **Introduction and Background**
3. **Technical Content (this section may have varying titles)**
4. **Experiments and Results**

5. **Conclusions**
6. **References**

Template for Grading a Report

		Suggested Grade Distribution (out of 100)
Report Quality & Writing Skills	Spelling and Grammar	3%
	Punctuation	2%
	Structure and Organization	3%
	Figures and Tables	3%
	Formulae & Equations (Proper Use)	2%
	Proper Use of References	2%
	Proper Use of Appendices (If Applicable)	-
Technical Content	The Abstract	2%
	Problem description and motivation (Introduction)	10%
	Objectives & Deliverables (Introduction)	8%
	Project Management Plan (Introduction)	10%
	Technical Content	20%
	Experiments/Simulations	15%
	Results and Discussion	15%
	Conclusions	2%
	Overall Quality of Engineering Documentation	3%

Structure and Organization

1. Consistent use of fonts for titles, sub-titles, chapters, sub-chapters, sections, sub-sections, to enhance the readability and understanding of the report.
2. Consistent and correct display of information in the Table of Content, List of Figures and the List of Tables.

The Abstract

1. Should not be longer than a single paragraph (2 paragraphs for a longer report).
2. Outlines the importance of what you have accomplished through the project or assignment.
3. Contains a summary of all work done.
4. Contains a summary of results obtained through experiments or simulation.
5. Try to write the abstract after the entire report is written.
6. Is a strong symbol of what will follow in the rest of the report (so work hard on writing a good one!).

The Introduction

1. Provides all the background information required for understanding your project work as well as the results.
2. Contains several statements to describe the motivation behind the project.
3. Contains references to past work done in this area. For example, for a project on Computer Network Routing, the references must include recent work on computer networking as well as routing. A reference on digital system design is not relevant to this project.
4. Clearly write down your hypothesis in the Introduction. The hypothesis is a statement that can either be proven correct or incorrect through the work accomplished by your-self through the project. An example of a hypothesis is: '***If a router placed at the fourth floor of a 9-floor high building is connected to two other routers on the same floor, with the same data transfer rate, then the overall computer network of the building will have a 4 times higher throughput***'.
5. Clearly mention the significance of the problem that is addressed through this project, the number of team members involved, and how this team can help achieve the goals of the project.

Technical Content

This section contains a detailed set of information associated with the project. For instance, a project on computer network routing for a university campus will contain the following sections or subsections: Campus floor-plan, Type and Quantity of the networking devices used, Configuration of all switches and routers, the network

topology, statistics on usage of the campus network, and miscellaneous technical details associated with such a project.

Experiments and Simulations

1. Provides detailed text to describe all procedures, techniques, and resources used for running the experiments or simulations for the project.
2. Contains complete referencing to known techniques for performing experiments and simulations. E.g. ***The experiment was conducted on a Xilinx DS09 Spartan03 board, with two additional block RAMs. A total of 109 logic gates were connected to form a circuit associated with a traffic light control system. 10 of these gates were logical AND gates, ……***
3. Contains schematic diagrams of all experiments (such as that of a logic circuit design), and other diagrams.

Results

1. Contains all experimental or simulation results either tabulated or in the form of a graph.
2. Contains all the necessary information that a reader of the report may look for.
3. Clear figures and tables will help the reader appreciate your work better.
4. Contains both usual (expected) as well as unusual (anomalous) results. Do not hesitate to report negative results of an experiment or simulation.

An example of a decent snapshot of a network topology and its accompanying simulation results*:

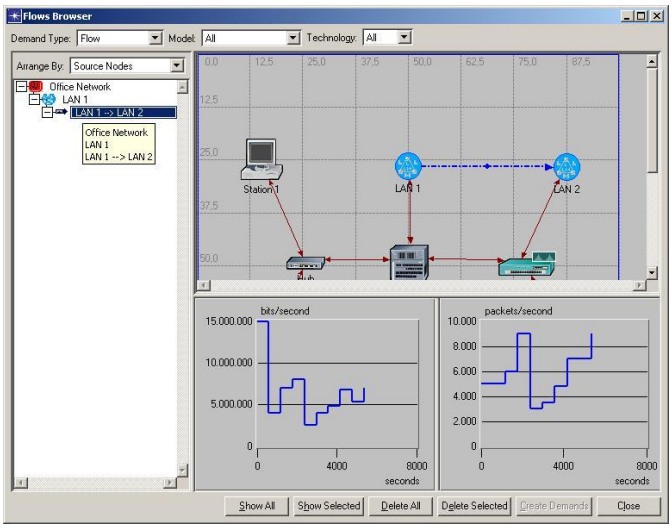

Figure 1. A network topology for a single Local Area Network deployed inside a 3-storey hotel, accompanied with results on the data rate experienced by this network for two different scenarios (Src: http://homes.esat.kuleuven.be)

Summary or Conclusions

1. Contain a brief summary of technical aspects associated with the project.
2. Contains a summary of achievements, problems faced, and solutions proposed.
3. Contain a brief outline of the results obtained from experiments or simulations.
4. May contain future directions of work to extend the work already done through this project.

References

Use standard templates for listing all resources that were referred to in the project report. A commonly used template is the IEEE template, found at:

http://www.ieee.org/documents/ieeecitationref.pdf

Appendices

1. Contain miscellaneous content that may help the user better understand your accomplishments.

Examples of such content include: Source code, Large set of snapshots for experiments or simulation, maps, large scale tabulated data, etc.

Using the newly developed PEOs, the ABET committee developed surveys for (1) exposing the new PEOs to all program constituents, and (2) offer them the opportunity for reformulating the PEOs. The results of these surveys are presented next.

Appendix B. Writing Guide for Project and Term Reports

A standard technical report written by an engineering student must include the following components:

1. Abstract – around 200 words
2. Introduction and Background
3. Technical Content (this section may have varying titles)
4. Experiments and Results
5. Conclusions
6. References

Template for Grading a Report

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4. Contains a summary of results obtained through experiments or simulation.
5. Try to write the abstract after the entire report is written.
6. Is a strong symbol of what will follow in the rest of the report (so work hard on writing a good one!).

The Introduction

1. Provides all the background information required for understanding your project work as well as the results.
2. Contains several statements to describe the motivation behind the project.
3. Contains references to past work done in this area. For example, for a project on Computer Network Routing, the references must include recent work on computer networking as well as routing. A reference on digital system design is not relevant to this project.
4. Clearly write down your hypothesis in the Introduction. The hypothesis is a statement that can either be proven correct or incorrect through the work accomplished by your-self through the project. An example of a hypothesis is: '***If a router placed at the fourth floor of a 9-floor high building is connected to two other routers on the same floor, with the same data transfer rate, then the overall computer network of the building will have a 4 times higher throughput***'.
5. Clearly mention the significance of the problem that is addressed through this project, the number of team members involved, and how this team can help achieve the goals of the project.

Technical Content

This section contains a detailed set of information associated with the project. For instance, a project on computer network routing for a university campus will contain the following sections or subsections: Campus floor-plan, Type and Quantity of the networking devices used, Configuration of all switches and routers, the network topology, statistics on usage of the campus network, and miscellaneous technical details associated with such a project.

Experiments and Simulations

1. Provides detailed text to describe all procedures, techniques, and resources used for running the experiments or simulations for the project.

2. Contains complete referencing to known techniques for performing experiments and simulations. E.g. ***The experiment was conducted on a Xilinx DS09 Spartan03 board, with two additional block RAMs. A total of 109 logic gates were connected to form a circuit associated with a traffic light control system. 10 of these gates were logical AND gates, ……***
3. Contains schematic diagrams of all experiments (such as that of a logic circuit design), and other diagrams.

Results

1. Contains all experimental or simulation results either tabulated or in the form of a graph.
2. Contains all the necessary information that a reader of the report may look for.
3. Clear figures and tables will help the reader appreciate your work better.
4. Contains both usual (expected) as well as unusual (anomalous) results. Do not hesitate to report negative results of an experiment or simulation.

Summary or Conclusions

1. Contain a brief summary of technical aspects associated with the project.
2. Contains a summary of achievements, problems faced, and solutions proposed.
3. Contain a brief outline of the results obtained from experiments or simulations.
4. May contain future directions of work to extend the work already done through this project.

References

Use standard templates for listing all resources that were referred to in the project report. A commonly used template is the IEEE template, found at:
http://www.ieee.org/documents/ieeecitationref.pdf

Appendices

Contain miscellaneous content that may help the user better understand your accomplishments. Examples of such content include: Source code, Large set of snapshots for experiments or simulation, maps, large scale tabulated data, etc

Appendix C: Sample Web Syllabi for COE 390

King Fahd University of Petroleum and Minerals
College of Computer Sciences and Engineering
Department of Computer Engineering
Standard Syllabus for COE 390: Seminar (1-0-1)

General:

Course Code: COE 390
Title: Seminar
Credit Code: 1-0-1
Pre-requisite(s): Junior Standing

Catalog Description:

The purpose of this course is to help improve students' ability for presenting their technical work. It also teaches students about the nature of engineering as a profession, codes of professional conducts, ethics & responsibility, and the role of engineering societies and organizations world-wide. Case studies of conflict between engineering professional ethical values and external demands. The course features students' participation in discussion held by COE faculty members and invited guests. Each student is required to deliver a short talk toward the end of the semester.

Textbook:

There is no assigned text book for this course. However, the following references are highly recommended:

1. Bowyer, Kevin W. *Ethics and Computing*. IEEE Computer Society Press, 1996.
2. Johnson, D. G. *Computer Ethics.* Prentice Hall, Englewood Cliffs, NJ, 1994.
3. Kizza, Joseph M. *Ethical and Social Issues in the Information Age*. Springer, 1997.
4. Gary Kroehnert *Basic Presentation Skills*, McGraw-Hill, 1999.
5. Nido R. Qubein *How to Be a Great Communicator: In Person, on Paper, and on the Podium,* John Wiley & Sons, 1996.
6. http://www.businessballs.com/presentation.htm
7. http://ethics.csc.ncsu.edu/

Grading Policy:

• First Presentation	**10%**
• Second Presentation	**10%**
• Short Essay on Computing Ethics (Rubrics)	**20%**
• Short Essay on Impact of Eng. Solutions (Rubrics)	**20%**
• Short Essay on Contemporary Issues (Rubrics)	**20%**

• Attendance & Critique of Two Seminars **10%**
• Attendance of One Invited Talk by a Guest Speaker **10%**

Course Objectives:

After successfully completing the course, students will be able to:

1. Make effective presentation,
2. Engage in long-life learning,
3. Understand the impact of engineering solutions in a global and social context,
4. Appreciate the importance of ethics in engineering, and
5. Identify some contemporary issues related to computing.

Course Learning Outcomes and Indicators:

Course Learning Outcomes	Outcome Indicators and Details	Assessment Methods and Metrics	Min. Weight
O1. Knowledge of professional and ethical responsibility	• Selecting a topic related to computing ethics • Writing a Short essay and making a presentation of the selected topic	• First presentation • Short essay	25%
O2. Ability to make effective presentation	• Use of professional tools like PowerPoint to prepare presentations • Learning about presentation skills by reading and attending seminars organized by the different departments inside KFUPM	• Two presentations	55%
O3. Knowledge of contemporary issues	• Selection of a recent technical topic in the field of computer engineering	• Approval of instructor	N/A
O4. Understanding the impact of engineering solutions in a global and social context	• Presentation and discussion • Attendance of two seminars and criticizing two seminars delivered by professionals	• Second presentation • Critique of Two Seminars	50%
O5. Ability to engage in self-learning	• Demonstrate the ability to identify and retrieve facts • Demonstrate the ability to apply creative thinking • Demonstrate the ability to	• Second presentation	40%

	criticize and recommend alternatives		

Weekly breakdown of Lecture Course Material

Weeks	Lecture	Activity
1	***Lecture*** on Communication Skills for Engineers: Students will be introduced to the use of professional presentation and document writing skills necessary for the engineering discipline including oral, written and body language ***Based on Instructor Discretion one presentation is to be selected out of three provided below as links- Talk will last for roughly 50 minutes*** 1. Writing Skills Presentation 1 2. Writing Skills Presentation 2 3. Writing Skills Presentation 3 The course instructor is kindly requested to carry out the following actions: 1. Inform the students that their English Writing Skills will be given **10%** of overall submitted assignment grades based on returned reports. 2. Request the students to follow the below attached template. **1. Template for Project Report** 3. Grade the students writing according to the following guidelines: ABET Committee's Writing Guide 4. Evidence of graded student writing skill report/assignment is to be kept with instructors for use in future ABET visits.	Guidelines on Communication Skills is to presented and discussed with the students
2	***Lecture*** on Introduction to Engineering (Computing) Ethics: Students are introduced to the significance of ethically performing engineering practice. An assignment such as the benefits and effects of the use of 'Software Piracy', Copyright issues, Intellectual Property, Reeferencing Other's Work (quote, copy of drawings and figures), etc. on both the engineer as well as other stakeholders ***Based on Instructor Discretion one presentation is to be selected out of three provided below as links- Talk***	• The class may be divided into two groups, with the students required to prepare a 3-4 page report on the implication of engineering ethics on a given problem, such as the use of unlawful means to change grades in a grading

	will last for roughly 50 minutes 1. Ethics Presentation 1 2. Ethics Presentation 2 3. Ethics Presentation 3	server. Secondly, the students prepare a 2-minute presentation
3	***Lecture*** on Engineering (Computing) Ethics – continued Eng. Ethics is to be injected and assessesd in COE 390: there must be one rubrics (stu assignemtn to be graded and get rubric score)	• Students present a debate-style lecture based on the previous week's preparation and submit their reports • **Give a 4-page writing assignment to every student on the above issue to serve as a rubrics on Engineering Ethics**
4	***Lecture*** on Introduction to Contemporary Issues in Engineering: Students are introduced to the opportunities and areas of application of technical material covered in the Computer Engineering discipline. They are introduced to areas of concern in the COE discipline, faced by the local industry, as well as by the global community of computerengineers. ***Based on Instructor Discretion one presentation is to be selected out of three provided below as links- Talk will last for roughly 50 minutes*** 1. Contemporary Issues Presentation 1 2. Contemporary Issues Presentation 2 3. Contemporary Issues Presentation 3	Students carry out research on a contemporary issue of choice and prepare a 3-4 page report on a topic of their choice, relevant to addressing contemporary issues faced by Computer Engineers, as well as a brief 2-minute presentation
5	***Lecture*** on Contemporary Issues in Engineering – continued Contemporary Issues in Engineering is to be injected and assessesd in COE 390: there must be one rubrics (stu assignment to be graded and get rubric score)	• 2-minute presentation is delivered by each student on contemporary issues faced by Computer Engineers in KSA (support using data/statistics), and the

		report is submitted. • **Give a 4-page writing assignment to every student on the above issue to serve as a rubrics on** contemporary issues
6	***Lecture*** on the Impact of Engineering Education on Society: Students are introduced to the effect that the solutions proposed by computer engineers, can have on the society at large. For instance, the use of wireless sensor nodes for monitoring the health of a patient, if deployed irresponsibly, may cause the death of a subject. Or the use of inefficient Programmable Logic Arrays (PLAs), incorrectly programmed, may cause production disruptions and incur financial losses to a company. ***Based on Instructor Discretion one presentation is to be selected out of three provided below as links- Talk will last for roughly 50 minutes*** 1. Impact of Engineering Presentation 1 2. Impact of Engineering Presentation 2 3. Impact of Engineering Presentation 3	Students are expected to write a 3-4 page report on an issue that they feel will impact the society at large, and can be effectively addressed by a computer engineer
7	***Lecture*** on the Impact of Engineering Education on Society (Cont) Impact of Engineering Education on Society is to be injected and assessed in COE 390: there must be one rubrics (student assignment to be graded and get rubric score)	• Students prepare a 2-page paper style proposal on how to effectively write a research paper, as well as how to prepare and deliver a 5-minute presentation • **Give a 4-page writing assignment to every student on the above issue to serve as a rubrics on** contemporary issues
8	***Lecture*** on how to write a proposal or a research paper	Students prepare a 2-page paper style proposal on how to effectively write a

		research paper, as well as how to prepare and deliver a 5-minute presentation
9-10 - 9	***Student Activity*** - class activity to enhance previous concepts and to provide feedback for the student writing assignments.	Students submit their business propositions and deliver their 5-minute presentations
10	***Lecture*** on Professional Ethics	Students prepare their final proposal and presentations based on received feedback
11	***Lecture*** on Introduction to Engineering Design	
12	***Lecture*** on Product Development Cycle/Project Management	
13-14	***Invited Lectures*** delivered by Faculty from either within or from outside the Department	Students Prepare for their Final Presentations
15	***No Lecture***	Students deliver their final presentations (3-hour long class)

Description of assignments other than HWs, e.g. term papers, projects, case studies, etc. (if Applicable)

Assignment	Description	% of Grade
Selecting a topic for the first presentation	Each student is required to select a topic related to computing ethics and write a summary paper and make a presentation of the selected topic. The summary paper should follow the given paper template. Each student will be given 15 minutes to present his paper. Computing ethics topics that need to be covered include: - **Intellectual Property**: copyright laws, patenting laws, software piracy, and related topics. - **Privacy and Anonymity**: email privacy, privacy on the web, encryption, and related topics. - **Computer Abuse and Crime**: hacking, worms, viruses, trojan horses, spamming, and related topics. - **Commerce**: anticompetitive practices, antitrust law, online auctions, fraud, trade, cybersquatting, payment, web ads, and related topics. - **Speech issues**: freedom, misinformation, netiquette, blogs,	20%

	chain letters, and related topics. - **Social-Justice issues**: environmental, equity, noise, workplace, depersonalization, and related topics. - **Rules of practice for Engineers:** competency, objectivity, truthfulness, faithfulness, protection of the public health, safety, and welfare, and related topics. - **Professional obligations for Engineers:** highest standards of honesty and integrity, respect of confidentiality, service to the public interest, and related topics.	
Second Presentation	Every student is to select a recent technical topic in the field of computer engineering and prepare a professional presentation applying effective presentation techniques learned in class. Each presentation will be given 15 minutes. The student is required to select three articles, among which the instructor will choose one for presentation in the class. Articles should be related to computer engineering and should be 4 pages or more. Recent (within the last three years) issues of the following publications may be used. Other sources may not be used except with the explicit approval of the instructor. - IEEE Spectrum - IEEE Computer Magazine - Communications of the ACM - IEEE Network Magazine - Scientific American ACM, IEEE, SIAM, AT&T, BT, Intel, or IBM journal articles.	40%

Note: The Course Instructor is required to assign and subsequently grade each of the following 3 rubrics (as per requirements established by the ABET committee):

1. **R1: Engineering Ethics**
2. **R2: Contemporary Issues**
3. **R3: Impact of Engineering Solutions on Society**

ABET Continuous Improvement Record

Semester	Date	Action	Faculty-In-Charge
T102 (Spring 2011)	April 16, 2011	Prepared standard syllabus	Dr Yahya Osais
T102 (Spring 2011)	June 13, 2011	Updated the Syllabus and Injected a new Weekly Breakdown of Activity, as well as Introduced Rubric Assessment for three Soft Program Outcomes	Dr. Zubair Baig