KUWAIT UNIVERSITY

College of Engineering & Petroleum

Office of Academic Assessment

Annual Report

2019-2020 Academic Year

September 2020

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Introduction

The Office of Academic Assessment (OAA) mission is to serve the academic programs, faculty, staff, and administration within the College of Engineering and Petroleum at Kuwait University. It is designed to foster continuous assessment for achieving academic excellence. The goals of the office are:

- To help coordinate program assessment processes
- To develop and implement regularly scheduled and special-purpose student, alumni, and employer surveys
- To assist academic, administrative, and student-support units with data from assessments, and to develop or evaluate their own assessment processes
- To facilitate assessment training and awareness programs

Accordingly, the purpose of this report is to cover the activities of OAA in the academic year 2018/19. The main activities are summarized. Recommendations and plans for the next academic year are given.

Online Course Assessment

The office has provided the course assessment form to the faculty through an online system. Faculty members could leave the system at any time before submitting the form without losing any of the data they entered; they also were able to view the previously submitted forms. After submitting the form, an instruction page appeared. It contains guidelines on how to prepare the course assessment file to be submitted to the departmental assessment coordinator.

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to seven student outcomes (1-7).

Starting Fall Semester of the 2018/19 academic year, the online assessment form, and the ICEF report were modified to reflect the revised SO's changes. The results were accordingly prepared and issued.

The assessments were conducted for the Fall, Spring, and Summer semesters of 2018/19. A comprehensive report including all the details and the results has been prepared and issued. A summary is given in Appendix A.

Exit Survey

Students upon graduation are required to submit the exit survey form in order participate in the design exhibition. The survey was filled online by students graduating at the end of the Fall, Spring and Summer semesters of the academic year 2018/19. A comprehensive report including all the details and the results has been prepared and issued. The statistics are calculated according to the new student outcomes (1-7); acquired at Kuwait University–Engineering programs. A mapping framework was developed to properly implement the changes. A summary is given in Appendix B.

Coordination of Departmental Assessment Activities

The director of OAA along with the Vice Dean for Academic Affairs organized a series of briefings for the faculty councils of all Departments regarding academic assessment. In these meetings the status of academic assessment in the respective departments was reviewed. The concerns and questions of the faculty members were addressed, and their feedback on the process was sought. A sample presentation is given in Appendix C.

The Course Assessment Response Statistics for the Fall Semester of the academic year 2019/20 are given below. They were prepared during January and February 2020. For the Fall Semester 2019/20, Tables 1a and 1b show the total number of faculty members who taught courses, the total courses taught, and the number of responses

according to faculty and courses, for each department. Table 1a shows early response statistics that was undertaken in the month of January, while Table 1b shows the response statistics by February 2020.

A total response of 56 was recorded out of 210 faculty members who were teaching courses during the semester (26.7% response rate). The responses covered 93 different courses. Our target response rate for all departments is 80%.

Table 1a: Course Assessment Response Statistics –Fall Semester 2019/20 (Jan. 26, 2020)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	21	52	13	7	25.0	33.3
CIVIL	57	86	5	5	5.8	8.8
COMPUTER	37	19	17	14	89.5	37.8
ELECTRICAL	20	74	10	4	13.5	20.0
IMSE	12	28	2	1	7.1	8.3
MECHANICAL	43	85	19	12	22.4	27.9
PETROLEUM	20	43	15	6	34.9	30.0
TOTAL	210	387	81	49	20.9	23.3

Table 1b: Course Assessment Response Statistics –Fall Semester 2019/20 (Feb 2, 2020)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	21	52	17	9	32.7	42.9
CIVIL	57	86	7	7	8.1	12.3
COMPUTER	37	19	23	17	121.1	45.9
ELECTRICAL	20	74	10	4	13.5	20.0
IMSE	12	28	2	1	7.1	8.3
MECHANICAL	43	85	19	12	22.4	27.9
PETROLEUM	20	43	15	6	34.9	30.0
TOTAL	210	387	93	56	24.0	26.7

For the Spring Semester 2019/20, the process of submission is still ongoing. The OAA has also been coordinating the following activities:

Program Assessment Plans Revision

Program assessment plans have been revised to reflect ABET Criterion 3 changes, from 11 to 7 Student Outcomes (SO). Implementation of the new SO was the Fall Semester of 2018/19. A mapping between the revised (7) and current (11) SO with some thoughts and suggestions provided to all programs are presented below:

			New Student Outcomes (2019-2020 cycle)						
			1	2	3	4	5	6	7
Previous Student Outcomes	1	*a*	✓						
	2	*b*						✓	
	3	*c*		✓					
	4	*d*					✓		
	5	*e*	✓						
	6	*f*				✓			
	7	*g*			✓				
	8	*h*				✓			
	9	*i*							✓
	10	*j*				✓			
	11	*k*	✓	✓				✓	

Previous version of Student Outcomes

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. an ability to function on multidisciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. a recognition of the need for, and an ability to engage in life-long learning
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Revised version of Student Outcomes

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.

Summary thoughts and suggestions:

Based on the discussion during the joint CAC and UPC meeting the mapping of the current to the revised version of the SO is given in the table above. Please observe the following:

- Except for revised SO (1) and (4), the rest are one-to-one mapping to the current version.

- SO (j) and (k) of the current version are now part of revised Criterion 5: Curriculum. If needed, some of the elements of these outcomes may be included in the revised version of the SO.

All program assessment plans, with a certain degree of diversity, consist of the following elements:

1. Relationship of SO to Program Educational Objectives (PEO): The relevant table can be revised immediately.
2. Curriculum (courses) contribution to student outcomes: The relevant table can also be revised immediately. It can serve as a starting point to revise the course outcomes and the contribution of the course to SO (if it was overdone).
3. Outcome indicators (performance criteria).
4. Course measurable outcomes (outcome attributes).
5. Implementation practices (strategy).
6. Assessment methods and tools.

Most of the elements of the assessment plans mentioned above can be revised relatively easy. A slight difficulty may arise from SO (1) and (4). As can be seen from the table, both are the result of merging two different current outcomes. Also, in the assessment process development for all 7 revised SO, we must pay close attention to the new language that is being used.

Assessment and Accredition SharePoint

The Assessment and Accreditation group was created on Office 365 by OAA to collect/share assessment and accreditation items/activities among the various departments of the College of Engineering and Petroleum.

There are common documents that are shared by all departmets in addition to department-specific document repository which contains the following folders.

- Course Assessment Files
- Sample Design Reports
- Student Transcripts
- Outcome Assessment Files
- Self Study Report
- Assessment Plan

OAA Operation Plan (Fall 2015 – Spring 2020)

At the beginning of the 2015/16 academic year, the OAA operation plan for the following five academic years was formulated as shown in the following:

Academic Year 2015/16 - Fall 2015

- Prepare OAA annual report for 2014/15.
- Prepare 2014/15 student exit survey report.
- Prepare 2014/15 on-line course assessment report.
- Coordinate revision of program assessment plans.
- Coordinate assessment activities among engineering programs.
- Conduct Seminar visits to Departments.
- Conduct Faculty Workshops.
- Ensure that observations/concerns/deficiencies based on the final statement of ABET (Fall 2013 evaluation visit) have been addressed.
- Establish a timeline for activities leading to the next ABET visit.
- Administer end of Semester Student Exit Survey.

Academic Year 2015/16 - Spring 2016

- Coordinate revision of program assessment plans.
- Coordinate assessment activities among engineering programs.
- Conduct Seminar visits to Departments.
- Conduct Faculty Workshops.
- Revisit Assessment Toolbox.
- Establish College/Programs Industry Advisory Boards.
- Request placement data from ETAC.
- Administer end of Semester Student Exit Survey.

Academic Year 2016/17 - Fall 2016

- Prepare OAA annual report for 2015/16.
- Prepare 2015/16 student exit survey report.
- Prepare 2015/16 on-line course assessment report.
- Launch Alumni Survey.
- Analyze placement data obtained.
- Coordinate assessment activities among engineering programs.
- Formulate and propose corrective actions that are based on assessment results.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2016/17 - Spring 2017

- Prepare Alumni Survey Report.
- Organize an alumni gathering.
- Launch Employer Survey.
- Coordinate assessment activities among engineering programs.
- Conduct internal review.
- Formulate/Implement corrective actions if any.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2017/18 - Fall 2017

- Prepare OAA annual report for 2016/17
- Prepare 2016/17 student exit survey report.
- Prepare 2016/17 on-line course assessment report.
- Prepare Employer Survey Report.
- Organize an employer gathering.
- Coordinate assessment activities among engineering programs.
- Formulate and propose corrective actions that are based on assessment results.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2017/18 - Spring 2018

- Coordinate assessment activities among engineering programs.
- Launch Faculty Survey.
- Formulate/Implement corrective actions if any.
- Evaluation College/Programs Educational Objectives based on assessment data.
- Conduct Faculty Workshops.
- Administer end of Semester Student Exit Survey.

Academic Year 2018/19 - Fall 2018

- Prepare OAA annual report for 2017/18
- Prepare 2017/18 student exit survey report.
- Prepare 2017/18 on-line course assessment report.
- Coordinate assessment activities among engineering programs.
- Prepare Faculty survey report.
- Send request for evaluation to ABET.
- Request placement data from ETAC.
- Conduct internal review.
- Start preparing Self-Study reports.
- Administer end of Semester Student Exit Survey.

Academic Year 2018/19 - Spring 2019

- Coordinate assessment activities among engineering programs.
- Evaluation College Educational Objectives based on assessment data.
- Coordinate organizing student works and assessment evidences at the departments.
- Conduct internal review.
- Finalize Self-Study reports.
- Send Self-Study reports.
- Administer end of Semester Student Exit Survey.

Academic Year 2019/20 - Fall 2019

- Prepare OAA annual report for 2018/19
- Prepare 2018/19 student exit survey report.
- Prepare 2018/19 on-line course assessment report.
- Coordinate assessment activities among engineering programs.
- Prepare for ABET evaluation visit.
- Host ABET evaluation visit: Sunday – Tuesday (November 2019)
- Administer end of Semester Student Exit Survey.

Academic Year 2019/20 - Spring 2020

- Study ABET evaluation final statement.
- Respond to ABET observations/concerns/deficiencies.
- Coordinate assessment activities among engineering programs.
- Launch Alumni Survey.
- Launch Employer Survey.
- Administer end of Semester Student Exit Survey.

Evaluation of the OAA Operation Plan (Fall/Spring 2019 – 2020)

The accomplishments and evaluation of the OAA operation plan, which was presented in the previous section, are given below for the academic year 2019/20:

Academic Year 2019/20 - Fall 2019

- Prepare OAA annual English and Arabic reports for 2018/19
  - Sent on 23/7/2019
- Prepare 2018/19 student exit survey report.
  - Sent on 21/10/2019
- Prepare 2018/19 on-line course assessment report.
  - Sent on 13/10/2019
- Coordinate assessment activities among engineering programs.
  - Getting all the departments prepared for the ABET visit
  - Mock visit 3 conducted on 13/10/2019-27/10/2019
- Update the college's website
  - Checking the content of each department website, coordinating between the responsible staff and the office of E-services and making sure that all contents are up to date.
  - Checking the addition of 132 Curriculum.
  - The regular update of the office of academic assessment website's contents.
  - Currently in the process of transferring the whole contents of the college's website to the new server - Shuwaikh.
- Prepare for ABET evaluation visit.
  - Hotel booking for the 10 PEV done
  - Sight-seeing finalized and arranged
  - Transportations arranged
  - Lunch and invitation for Sunday, 3rd November done
  - Book meeting rooms (for the team and an extra one)
  - Reserve the restaurants for the team dinners
  - Obtain SIM cards (if required)
- Host ABET evaluation visit: **Saturday- Monday (2-4 November 2019)**
- Administer end of Semester Student Exit Survey.

Academic Year 2019/20 - Spring 2020

- Study ABET evaluation final statement.
- Respond to ABET observations/concerns/deficiencies.
- Coordinate assessment activities among engineering programs.
- Launch Alumni Survey.
- Launch Employer Survey.
- Administer end of Semester Student Exit Survey.
- Migrate the Alumni and Exit survey to Shuwaikh servers
- Look into redoing the Reporting Tool

ABET site visit schedule and preparations

The ABET EAC visit to the College of Engineering and Petroleum was confirmed to be on November 2-4, 2019 (Saturday to Monday). The purpose of this visit was to evaluate the seven programs (Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial and Management Systems Engineering, Mechanical Engineering, and Petroleum Engineering). The following presents the OAA preparation for the ABET site visit.

Overview of ABET Visit Schedule and Preparations:

September 2019:

- Request flight schedules for each of the ABET team members once they are finalized.
- Prepare detailed visit schedule for all team members in coordination with the departments.
- Ask Service Department to provide transportation, and the hotel reservations for ABET team for the whole duration of the visit. Mention in the letter that the college will pay any expense not covered by the University so that the team members are not charged. Also, ask for arranging the use of VIP lounge for arrivals.
- Prepare publications containing information about Kuwait, (requested from Ministry of Information, KUNA, and Ministry of Planning, etc.) to be given to ABET team members upon arrival.
- Reserve a meeting room for the team members (Preferred the Dean's conference room) for the whole visit duration.
- Arrange cell phones for team members.

October 2019:

- Send letters to all departments for nominating one faculty member to be the department's representative before ABET evaluator.
- Send letters to all departments requesting the nomination of one faculty member to escort ABET team members to supporting departments.
- Arrange meetings between nominated faculty members and supporting department representatives (KUCS, ELU, Library, College of Science, College of Arts, College of Social Science, etc.) to discuss the preparation requirements for meeting with ABET members.
- Finalize hotel reservation arrangements upon determination of the departure and arrival dates.
- Prepare textbooks for all the common courses for ABET team. These textbooks can be borrowed from the Book Store.
- Ask departments to finalize the tentative schedule with their evaluator.
- Finalize preparations to deliver lunch for the team members in the chosen meeting room.
- Request eight computers and a printer to be available for the team members so that they can type and print their reports.

Sunday-Tuesday 20-22 October 2019:

- Check with Services Department for the details of meeting the team members at the airport. Make sure the names of the people who will meet the team are sent to the authorities for permission.

Sunday-Tuesday 23-25 October 2019:

- Prepare a package containing: updated tables of SSR, tentative schedule of each member prepared by the corresponding engineering department to be delivered upon arrival.

- Prepare bags containing info about Kuwait to be delivered at the college the first day.
- Prepare an A4 paper with "ABET TEAM" written on it to be used to meet the team at the gate.

Thursday-Friday 31 October -1 November 2019 - Days of arrival of ABET team:

- Make sure a faculty member meets the team.
- Make sure to be at the airport 30 minutes prior to the scheduled arrival time (Do not count on the updates provided by the airport information).

Saturday-Monday 2-4 November 2019 – Evaluation visit:

- **Day 0: Saturday**:

  The ABET Team will come to the college (1-4 pm) to:
  - Visit departments
  - Check laboratories
  - Check display materials
  - Other items on the schedule to be determined (possible visit to the new campus could be arranged)
- **Day 1: Sunday**:
  - Morning – Team will meet, Dean, associate deans, program chairs, and assessment /research officers. Dean presents what is common to the programs that is used to meet the Engineering Criteria [1.5 hrs].
  - Morning – Team Chair will meet the President, VPs and Secretary General [1.5 hrs].
  - Morning – Program Evaluator meets Program Chair [1 hr].
  - Morning – Program Evaluator meets with team responsible for the assessment and accreditation process [1.5 hrs]
  - 12:00-1:00 pm – Team has lunch with extended number of representatives from each department at the cafeteria (needs to be reserved)
  - Afternoon – Team chair and Program Evaluators meet support area/department representatives [1 hr].
  - Afternoon – Program Evaluator meets with group of students [1hr].
  - Afternoon – Program Evaluator meets with additional teams responsible for the process [2 hrs].
  - Afternoon – Team Chair and Dean meet to discuss issues of concern identified during day 1 [0.5 hr].
- **Day 2: Monday:**
  - Morning - Team Meeting to Prepare Final Statement
  - **11:00-12:00 pm** – Team Chair briefs Dean, and Evaluators brief department chairs
  - **12:00-2:00 pm** – Team prepares exit statement during lunch
  - **2:00 pm or 2:30 pm** – Exit meeting with the President, Dean and the Chairs. The President's conference room must be reserved.
  - Other items on the schedule to be determined

- Confirm the meetings of each day one day before each meeting.
- Confirm the flight departures for all members with the proper airline.
- Coordinate with the drivers for the transportation of the team to and from the College daily.

First week after the visit:

- Send a thank you letter to all the members who participated in preparation for the visit.

Detailed ABET Visit Schedule and Activities:

October 2019

Mock Visit 3:
A final Mock Visit was arranged on the 13th to 27th October 2019, where a handpicked team of faculty members were chosen to do a final review of the labs, classrooms and assessment rooms. A team consisting of two faculty members met with the UPC and/or AC coordinators; and in their absence they met with assessment assistant and chief engineer. Within the following week, the team of faculty members submitted their feedback which was forwarded to the department coordinators for improvements.

Lunch with TC and ABET Team:
A team lunch was arranged for the visiting team-chairs and ABET team with the president, vice presidents, deans, and other invited administrators and outside advisors on November 3, 2019. In preparation for this lunch, letters were sent out to all the concerned personnel and their schedules were finalized.

Arrival of the ABET Team:
In preparation for the arrival of the ABET Team, transportation for the pick-up of each team member along with a faculty member to greet them was arranged. The ABET team members visas were arranged to be given to them via Marhaba service to avoid any delays inside immigration. Letters were written to the concerned departments to make sure that a university representative and a driver would be present to receive the team and transport them to their hotel.

ABET Common Course Room:
Samples were collected from the concerned departments of each common course for the college assessment room, which was to be used by the ABET team to carry out their assessment of the common courses. These samples included assessment reports from previous semesters along with common course textbooks.

ABET Team's Room:
In preparation for the team's visit, we needed to arrange a printer, shredder and a laptop for the team during their private meetings. They were kept along with the common course materials in a sealed private room.

Welcome Package:
A folder for each team member was made to welcome them. This folder consisted of each member schedule, a sim card to use locally, a set of pamphlets of various departments, labs and other materials related to the College of Engineering and Petroleum.

November 2019

Sightseeing:
The ABET Team accompanied by Dr. Bader Alhajji, Dr. Souhaila AlMutawa, Eng. Freya Saldanha and Eng. Movin Nazareth to the various sightseeing places in the State of Kuwait followed with lunch. This was arranged in order to show the team the cultural and social aspects of Kuwait.

Day 0 of the Visit:

- The ABET Team visited the College of Engineering and Petroleum for Day 0 of the visit. They visited the departments, laboratories and other display materials to conduct the evaluation. The department evaluators were accompanied by their respective department representatives.
- The team chairs were accompanied by the Dean and OAA Director to visit the new facilities at Sabah Al-Salem Kuwait University City at Al Shadadiya.

Day 1 of the Visit:

- The department evaluators meet the chairmen and then had a meeting with the team who deals with assessment and accreditation process. They met some professors from the department who were decided by the evaluator before the visit. After that, there was a lunch arranged by the College of Engineering and Petroleum in the Farukh Bargash hall. Each department evaluator's table had a combination of invited administrators, industry advisors and assessment coordinators. After the lunch, each department had to meet their support area/department representatives. The evaluators met with a group of students from their respective departments and then any other additional team which is responsible for the assessment and accreditation process.
- The team chairs started off their day by meeting various administrative leaders of Kuwait University. They had a common lunch with their other team members and then continued the meeting with other administrative leaders.

Day 2 of the Visit:

The entire ABET team after a meeting with the dean and respective chairmen, entered the Dean's meeting room for a closed session in order to prepare the ABET Statements for each department as well as the college.

Thank You Letters:

Appreciation letters were sent to all those involved in the entire visit which includes the various UPC, CAC and other individuals who were vital during the visit.

Post ABET Visit:

30-day Reponses:

Petroleum Engineering department had to prepare a 30-day response in order to submit to the ABET evaluator. The Director of Assessment and Accreditation along with the PE Chairman, UPC and CAC coordinators had several meetings to prepare it and submitted it to ABET on 19th December 2019.

Post 30-day Responses:

To send the post 30-day response, the Petroleum Engineering department accumulated various materials requested by the ABET evaluator and was sent by 6th May 2020. The submission, however, was incomplete due to the pandemic current plaguing the world.

Recommendations

- After updating and migrating the ICEF survey and reporting tools to KU website, we need to start similar procedures for the rest of the OAA's surveys (configuring the host, creating backup of website files, and upload website files to new host's server).
- Keep updating the new college website, and make sure there are no inconsistencies with other documentation. Each college department/office should be responsible for updating its own pages.
- The assessment plans of all the programs need to be revised to reflect the new language and our understanding and interpretation of the 7 student outcomes.
- Course assessment is a continuous process and should be encouraged so we could achieve >70% participation by the faculty.
- Encourage all the programs to follow the assessment and evaluation process and submit a yearly report to the college.
- Launch the Alumni and Employer surveys in the Fall 2020/21 and Spring 2020/21 respectively, and repeat during 2024/25 academic year.
- Be on the alert for revisions and updates of ABET criteria/documents.
- The next accreditation visit will be in the Fall of 2025/26 academic year. A new five-year OAA operational plan should be formulated accordingly.

APPENDIX A

Online Course Assessment

For Academic year 2018-2019

October 2019

Introduction

The online assessment submission system was developed by the Office of Academic Assessment (OAA). The system is monitored and maintained by OAA. At the end of each semester the assessment response statistics are reported to all programs for a follow-up in order to improve them. This report presents the results of the online course assessment at the College of Engineering and Petroleum conducted by instructors during Fall, Spring, and Summer Semesters for the academic year 2018-2019. The first part of the report presents the response statistics for all the programs, and the second part presents the measured student performance college-wide according to the Student Outcomes (SO).

Preparation and Implementation of the Process

The form was provided to the faculty through an online system. Faculty members were able to leave the system at any time before submitting the form without losing any of the data they entered. They were also able to view the previously submitted forms. After submitting the form, an instruction page appears. It contains guidelines on how to prepare a course assessment file to be submitted to the departmental assessment coordinator.

For the Fall Semester (Table 1), a total course assessment response of 216 was recorded from 115 faculty members in the college (53.7% faculty response rate). The response was out of total 427 course sections (50.6% course response rate).

For the Spring Semester (Table 2), a total course assessment response of 179 was recorded from 92 faculty members in the college (41.8% faculty response rate). The response was out of total 433 course sections (41.3 % course response rate).

For the Summer Semester (Table 3), a total course assessment response of 28 was recorded from 24 faculty members in the college (14.5% faculty response rate). The response was out of total 165 course sections (17% course response rate).

Results and Discussion

The ABET SO (1-7) were adopted at the College for all its programs in the Fall of 2018/2109. They had been modified from the previous ABET SO (a-k) for programs seeking accreditation in 2019-2020 cycle and later.

The new SO (1-7) are as follows:

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.

The online assessment form, and the ICEF report were modified to reflect these changes. Therefore, beginning with the Fall Semester of the 2018-19 academic year, assessment has been conducted for the new 1-7 student outcomes.

Tables 4, 6, and 8 show the average rating of student performances in all courses in the college during Fall, Spring and Summer Semesters, respectively, according to the new 7 student outcomes. The results are presented graphically in Figures 1, 3, and 5, respectively. As it can be seen the students have achieved the desired outcomes.

Tables 5, 7, and 9 show the comparison of the weighted average scores of student performance between individual program courses, engineering core courses, and college-wide courses according to the new 7 student outcomes during Fall, Spring and Summer Semesters, respectively. The results are presented graphically in Figures 2, 4, and 6, respectively.

As it can be seen with some exceptions of 0% and 100% ratings, most of program averages are between 60%-80% and close to the college average. The reasons for the too small and too high averages are: the lack of data in those outcomes and programs and/or the small number of data available for those outcomes and programs.

The relevance ratings given for each course are used as weights in the performance calculations. Since the response rate is somewhat low, and therefore, some courses are not represented in a balanced way, the results may not be valid for some programs.

More detailed results are presented below in the program tables, where both relevance ratings and student performance are given for all outcomes. Also included are comments by the instructors. The student performance was calculated using all the courses and only 400-level courses as shown at the bottom the tables. The programs should review and analyze the results, along with the assessment files at the TAG and UPC levels and make necessary conclusions and adjustments.

Table 1: Response statistics – Fall Semester

Course Assessment Response Statistics –Fall Semester 2018/19 (17th Sept 2019)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	18	44	37	16	84.1	88.9
CIVIL	53	89	37	28	41.6	52.8
COMPUTER	37	54	41	25	75.9	67.6
ELECTRICAL	37	90	27	12	30.0	32.4
IMSE	14	34	24	9	70.6	64.3
MECHANICAL	40	84	29	15	34.5	37.5
PETROLEUM	15	32	21	10	65.6	66.7
TOTAL	214	427	216	115	50.6	53.7

Table 2: Response statistics – Spring Semester

Course Assessment Response Statistics –Spring Semester (17th Sept 2019)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	20	50	34	12	68.0	60.0
CIVIL	55	89	22	16	24.7	29.1
COMPUTER	37	59	31	19	52.5	51.4
ELECTRICAL	37	88	14	7	15.9	18.9
IMSE	13	30	15	7	50.0	53.8
MECHANICAL	42	83	37	19	44.6	45.2
PETROLEUM	16	34	26	12	76.5	75.0
TOTAL	220	433	179	92	41.3	41.8

Table 3: Response statistics – Summer Semester

Course Assessment Response Statistics –Summer Semester (17th Sept 2019)

Departments	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	19	19	5	5	26.3	26.3
CIVIL	32	32	2	2	6.3	6.3
COMPUTER	24	24	1	1	4.2	4.2
ELECTRICAL	34	34	7	4	20.6	11.8
IMSE	10	10	0	0	0.0	0.0
MECHANICAL	33	33	8	8	24.2	24.2
PETROLEUM	13	13	5	4	38.5	30.8
TOTAL	165	165	28	24	17.0	14.5

College: 18/19 Fall

RESPONSE

Department	Total Responses	Unique Responder
CHEMICAL	37	16
CIVIL	37	28
COMPUTER	41	25
ELECTRICAL	27	12
IMS	24	9
MECHANICAL	29	15
PETROLEUM	21	10
TOTAL	216	115

Table 4: Students performance – College (Fall 2018-2019) according to the new 1-7 student outcomes (2019-2020 cycle ABET updates)

O	Outcome	5	4	3	2	1	0	Average	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	36	82	54	13	0	31	3.8	3.8
		17%	38%	25%	6%	0%	14%	76%	76%
2	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.	23	51	42	9	1	90	3.7	3.8
		11%	24%	19%	4%	0%	42%	74%	76%
3	Communicate effectively with a range of audiences.	24	41	46	5	0	100	3.7	3.8
		11%	19%	21%	2%	0%	46%	74%	76%
4	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.	19	60	48	0	1	88	3.8	3.8
		9%	28%	22%	0%	0%	41%	76%	76%
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	33	48	24	2	1	108	4	4.2
		15%	22%	11%	1%	0%	50%	80%	84%
6		19	43	22	2	1	129	3.9	4

	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	9%	20%	10%	1%	0%	60%	78%	**80%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	16	70	43	3	1	83	3.7	**3.8**
		7%	32%	20%	1%	0%	38%	74%	**76%**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

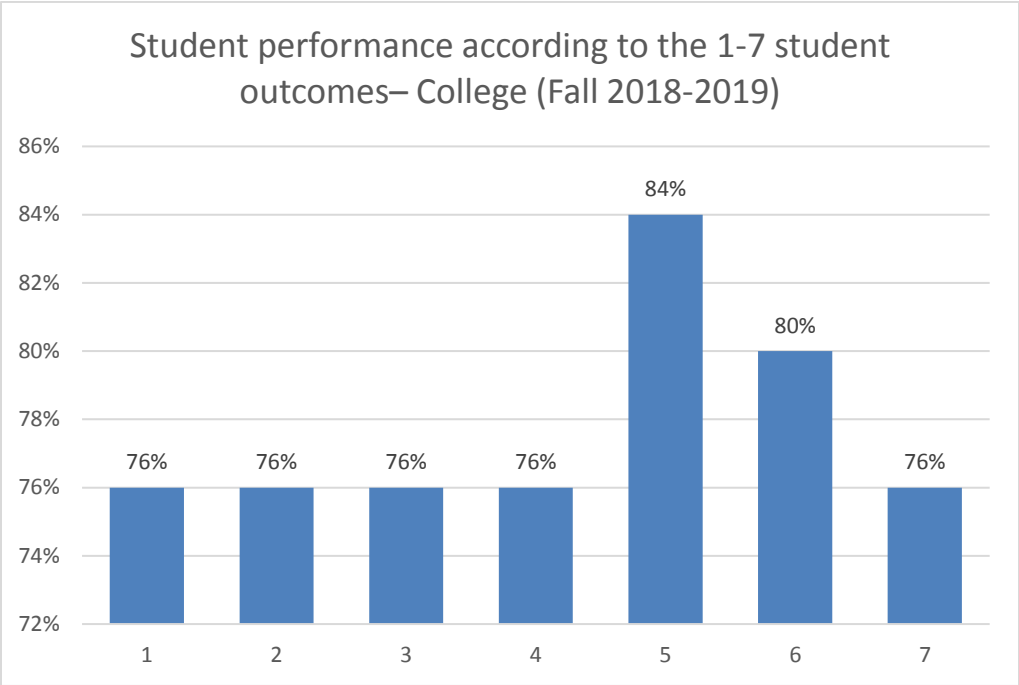

Figure 1: Students performance according to the 1-7 student outcomes – College (Fall 2018-2019)

Table 5: Students performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2018-2019) according to the new 1-7 student outcomes (2019-2020 cycle ABET updates)

O	Student Outcomes	Chemical	Civil	Computer	Electrical	Ims	Mechanical	Petroleum	Core	College
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	82%	78%	84%	72%	84%	60%	76%	72%	**76%**
2	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.	78%	82%	78%	72%	74%	62%	80%	46%	**76%**
3	Communicate effectively with a range of audiences.	78%	72%	90%	78%	84%	66%	76%	68%	**76%**
4	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.	84%	76%	82%	70%	74%	68%	78%	76%	**76%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	88%	76%	90%	76%	86%	74%	88%	78%	**84%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	82%	80%	86%	74%	74%	62%	90%	80%	**80%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	74%	72%	82%	74%	82%	70%	80%	70%	**76%**

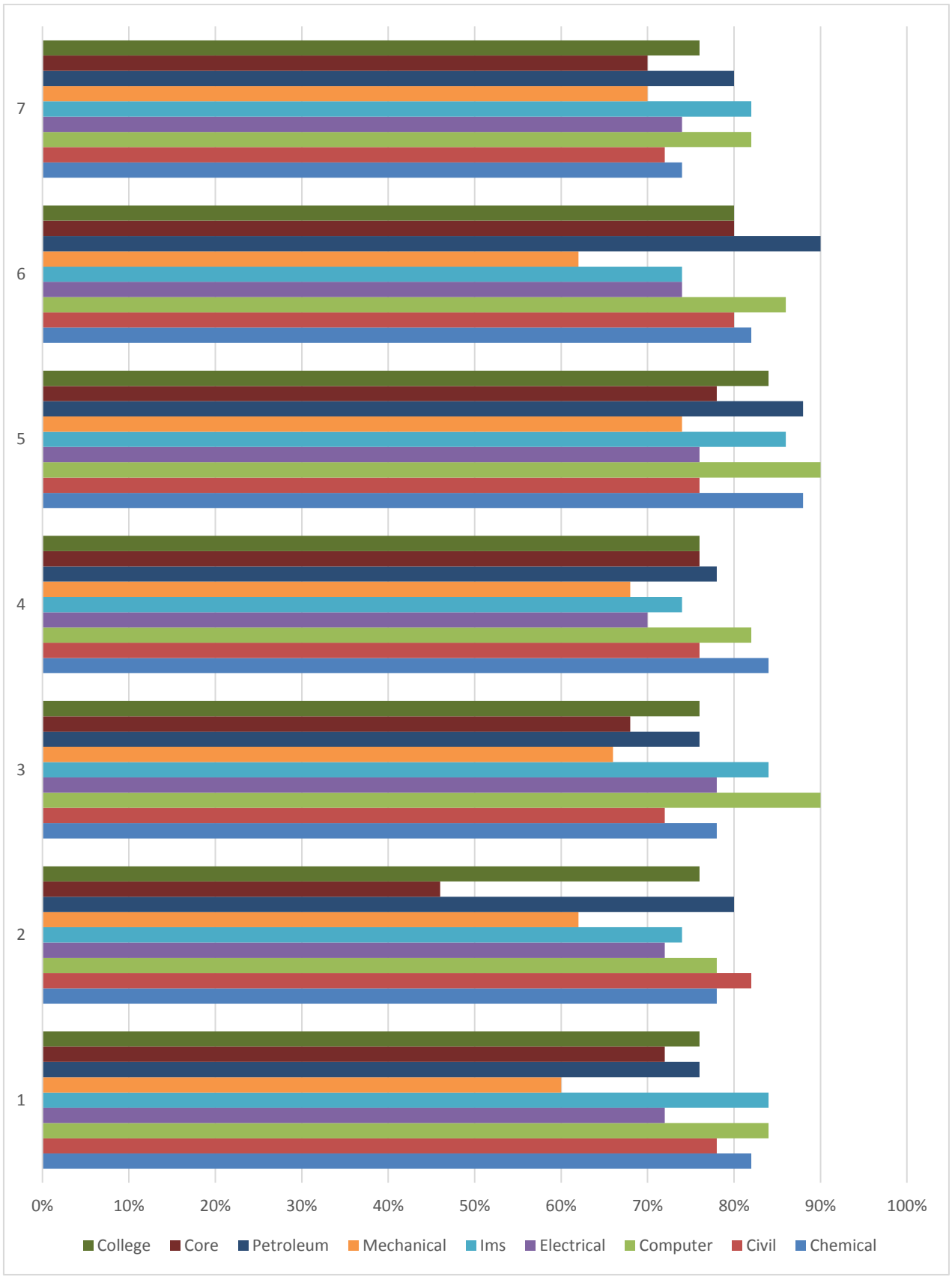

Figure 2: Students performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2018-2019) (According to the new 1-7 student outcomes)

College: 18/19 Spring

RESPONSE

Department	Total Responses	Unique Responder
CHEMICAL	34	12
CIVIL	22	16
COMPUTER	31	19
ELECTRICAL	14	7
IMS	15	7
MECHANICAL	37	19
PETROLEUM	26	12
TOTAL	179	92

Table 6: Students performance – College (Spring 2018-2019) according to the new 1-7 student outcomes (2019-2020 cycle ABET updates)

O	Outcome	5	4	3	2	1	0	Average	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	26	73	42	7	1	30	3.8	**3.7**
		15%	41%	23%	4%	1%	17%	76%	**74%**
2	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.	28	54	25	5	1	66	3.9	**4**
		16%	30%	14%	3%	1%	37%	78%	**80%**
3	Communicate effectively with a range of audiences.	24	30	44	1	2	78	3.7	**3.9**
		13%	17%	25%	1%	1%	44%	74%	**78%**
4	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.	19	41	36	3	1	79	3.7	**3.9**
		11%	23%	20%	2%	1%	44%	74%	**78%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	23	35	26	3	1	91	3.9	**4.1**
		13%	20%	15%	2%	1%	51%	78%	**82%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	20	32	19	0	3	105	3.9	**4.1**
		11%	18%	11%	0%	2%	59%	78%	**82%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	19	44	40	4	3	69	3.7	**3.8**
		11%	25%	22%	2%	2%	39%	74%	**76%**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

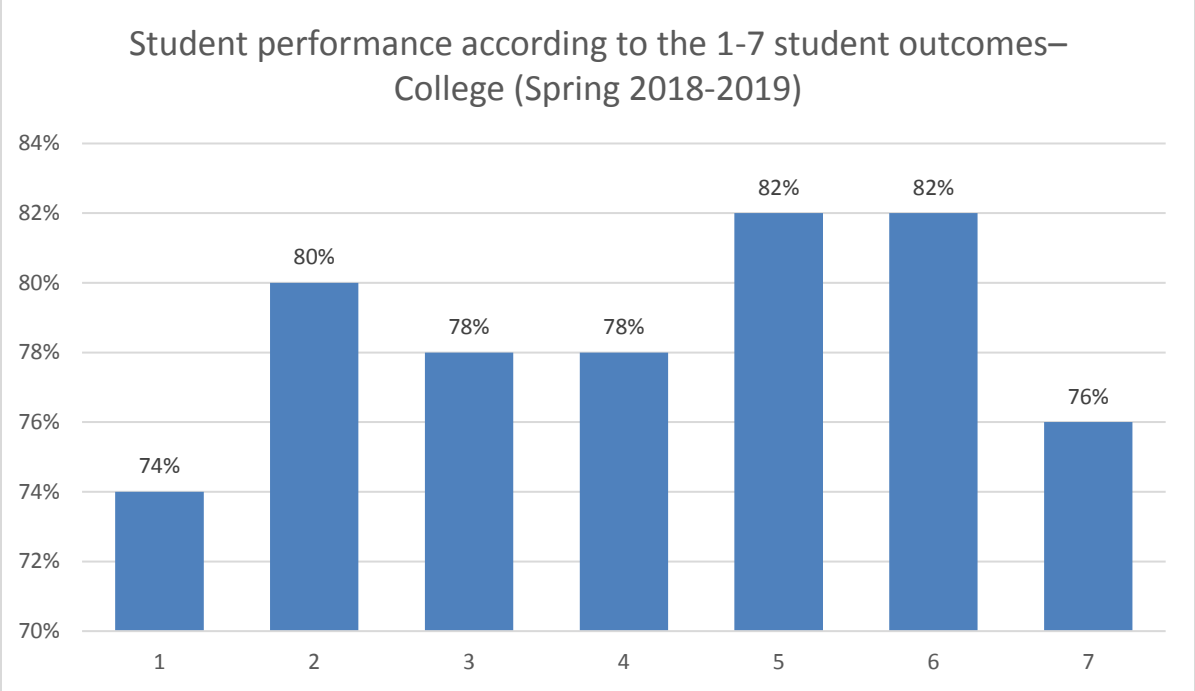

Figure 3: Students performance according to the 1-7 student outcomes – College (Spring 2018-2019)

Table 7: Students performance (weighted averages) – comparison between programs, engineering core, and college (Spring 2018-2019) according to the new 1-7 student outcomes (2019-2020 cycle ABET updates)

O	Outcome	chemical	civil	computer	electrical	ims	mechanical	petroleum	core	college
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	84%	76%	82%	70%	78%	66%	76%	72%	**74%**
2	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.	86%	86%	82%	80%	84%	70%	80%	70%	**80%**
3	Communicate effectively with a range of audiences.	84%	74%	86%	76%	84%	68%	78%	60%	**78%**
4	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.	84%	78%	84%	80%	78%	72%	78%	74%	**78%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	84%	84%	90%	76%	86%	72%	80%	60%	**82%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	80%	82%	94%	72%	78%	78%	82%	86%	**82%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	80%	74%	92%	74%	84%	64%	74%	70%	**76%**

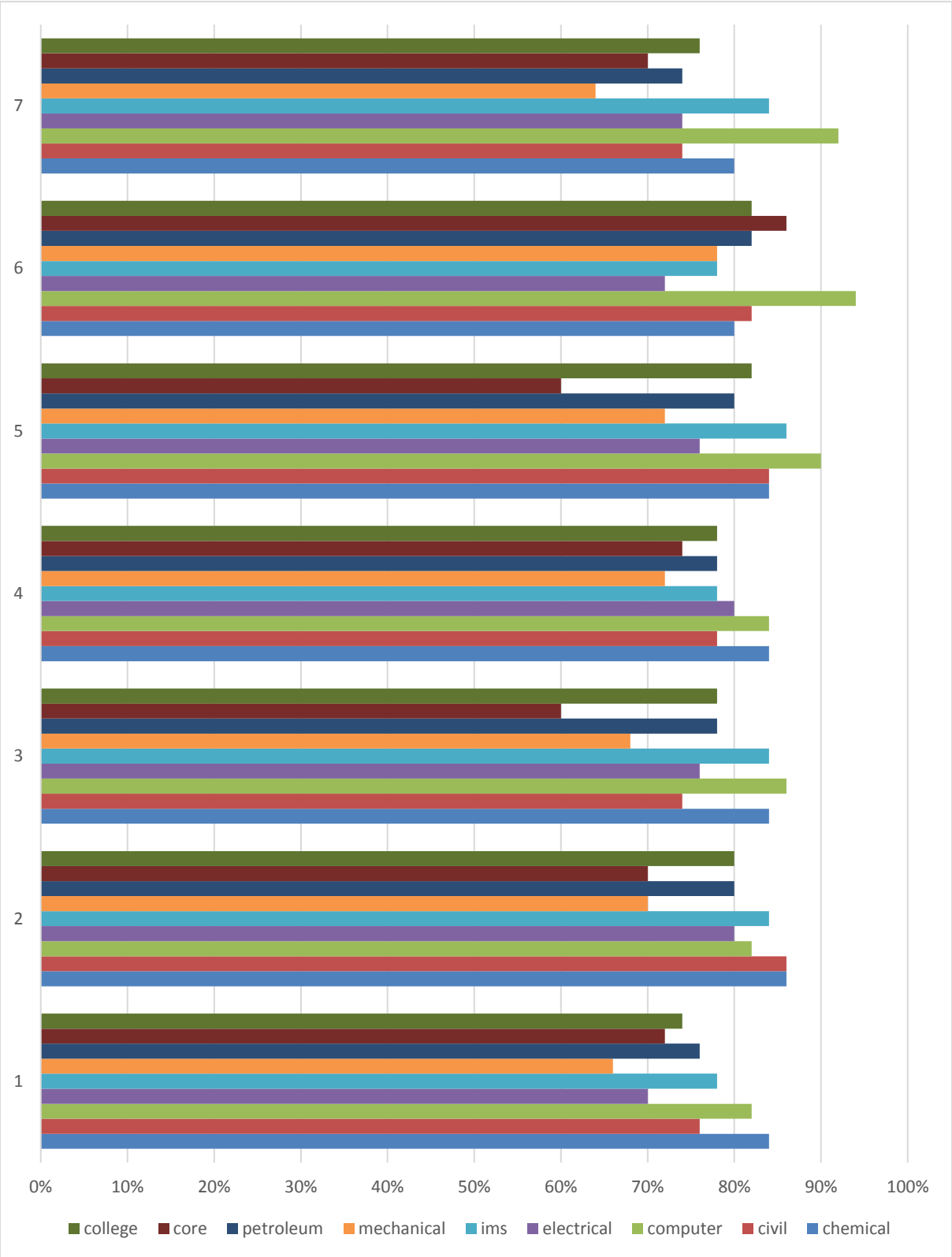

Figure 4: Students performance (weighted averages) – comparison between programs, engineering core, and college (Spring 2018-2019) (According to the new 1-7 student outcomes)

College: 18/19 Summer

RESPONSE

Department	Total Responses	Unique Responder
CHEMICAL	5	5
CIVIL	2	2
COMPUTER	1	1
ELECTRICAL	7	4
IMS	0	0
MECHANICAL	8	8
PETROLEUM	5	4
TOTAL	28	24

Table 8: Students performance – College (Summer 2018-2019) according to the new 1-7 student outcomes (2019-2020 cycle ABET updates)

O	Outcome	5	4	3	2	1	0	Average	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	5	8	8	2	0	5	3.7	**3.6**
		18%	29%	29%	7%	0%	18%	74%	**72%**
2	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.	2	4	3	1	0	18	3.7	**3.7**
		7%	14%	11%	4%	0%	64%	74%	**74%**
3	Communicate effectively with a range of audiences.	0	6	6	0	0	16	3.5	**3.5**
		0%	21%	21%	0%	0%	57%	70%	**70%**
4	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.	1	4	6	2	0	15	3.3	**3.3**
		4%	14%	21%	7%	0%	54%	66%	**66%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	1	5	3	0	0	19	3.8	**3.8**
		4%	18%	11%	0%	0%	68%	76%	**76%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	3	3	5	0	0	17	3.8	**4.1**
		11%	11%	18%	0%	0%	61%	76%	**82%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	2	7	9	0	1	9	3.5	**3.5**
		7%	25%	32%	0%	4%	32%	70%	**70%**

The weighted average for an outcome is calculated by $\frac{\sum(performance \times relevance)}{\sum relevance}$

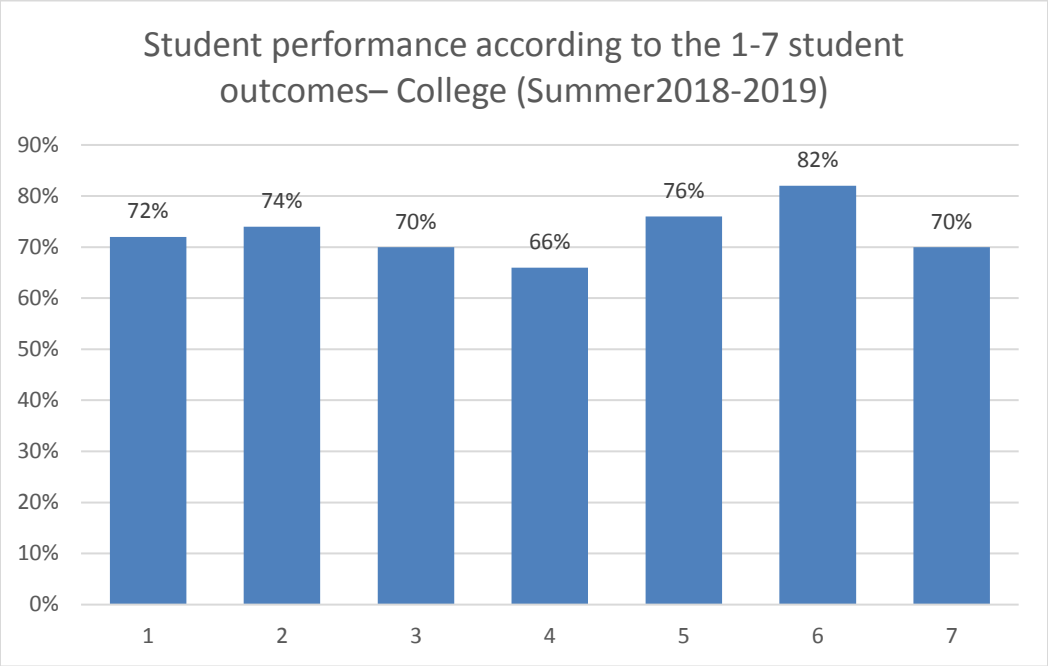

Figure 5: Students performance according to the 1-7 student outcomes – College (Summer 2018-2019)

Table 9: Students performance (weighted averages) – comparison between programs, engineering core, and college (Summer 2018-2019) according to the new 1-7 student outcomes (2019-2020 cycle ABET updates)

O	Outcome	chemical	civil	computer	electrical	ims	mechanical	petroleum	core	College
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	90%	70%	0%	76%	0%	50%	60%	76%	**72%**
2	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.	76%	100%	80%	0%	0%	64%	0%	0%	**74%**
3	Communicate effectively with a range of audiences.	60%	70%	0%	74%	0%	72%	80%	0%	**70%**
4	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.	80%	54%	0%	0%	0%	76%	60%	60%	**66%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	68%	80%	0%	80%	0%	80%	0%	80%	**76%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	74%	0%	0%	90%	0%	76%	0%	80%	**82%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	66%	100%	0%	70%	0%	60%	60%	72%	**70%**

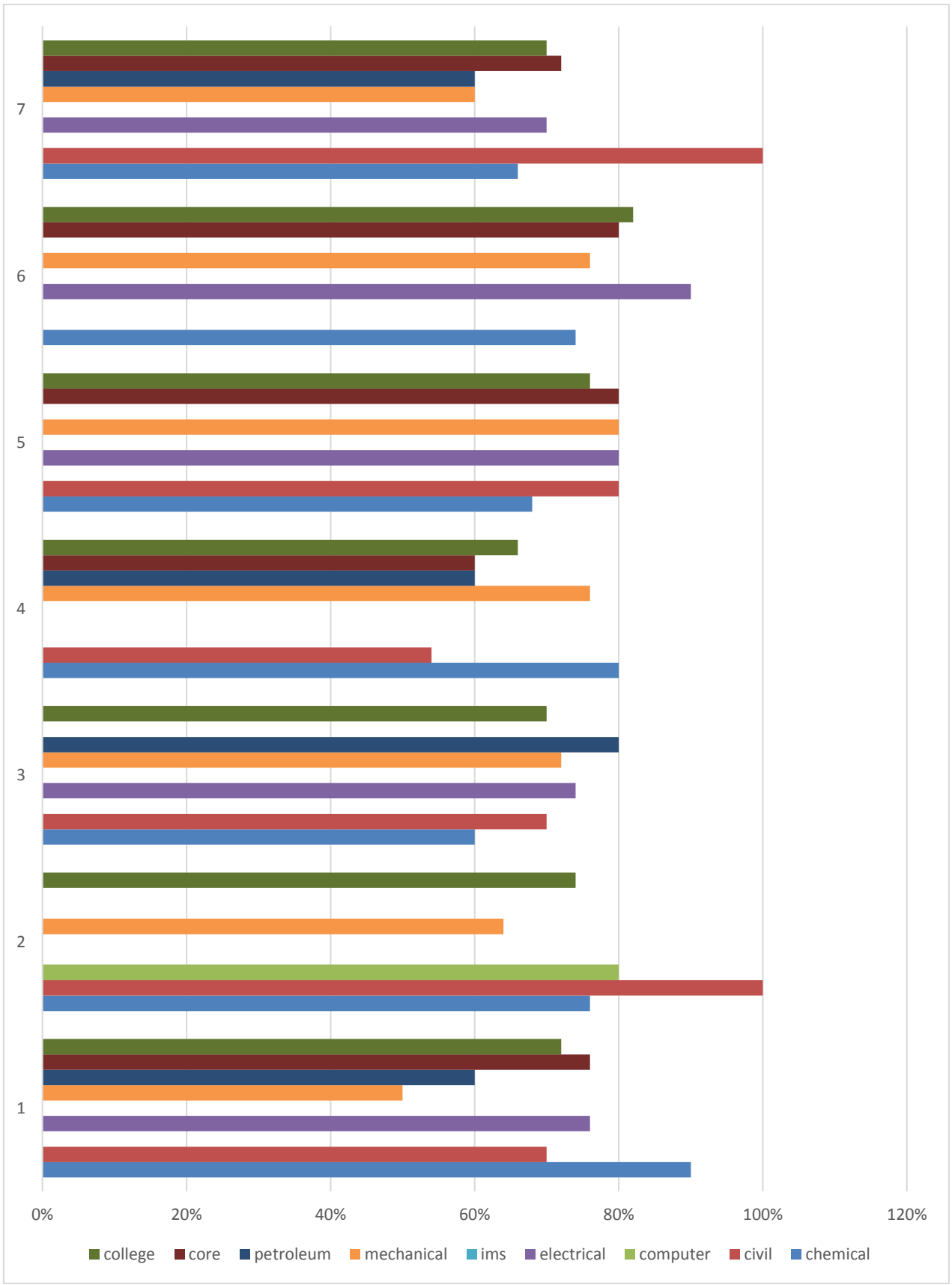

Figure 6: Students performance (weighted averages) – comparison between programs, engineering core, and college (Summer 2018-2019) (According to the new 1-7 student outcomes)

Program results for of the online course assessment

Chemical Engineering Program

Fall semester 18/19

Instructors: **16**
Courses: **37**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-								
0640-211	Chemical Engineering Principles I	H	L		L			
0640-211	Chemical Engineering Principles I	H	L		L			
0640-215	Physical Chemistry	H		M	M	H	H	L
0640-241	Fluid Mechanics	H	M	L	M	L		H
0640-241	Fluid Mechanics	M	M				M	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-291	Fundamentals of Chemical Engineering Design		H	M	H	L		M
0640-321	Chemical Engineering Thermodynamics	H					M	
0640-324	Kinetics and Reactor Design (A)	H	H					
0640-327	Corrosion Engineering	H		M	M		L	L
0640-343	Heat Transfer	H	M	L			L	
0640-345	Mass Transfer	H	M	L		L	L	
0640-345	Mass Transfer	H	M	L		L	L	
0640-351	Process Dynamics and Control	H	M				L	
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-440	Mass Transfer Operations	H	H				L	
0640-440	Mass Transfer Operations	H	H	M	M	M	L	M
0640-443	Mass Transfer Operations Laboratory							
0640-461	Water Desalination	M	H		M	L		M
0640-462	Introduction to Biochemical Engineering	H	H		M		M	
0640-465	Air Pollution	H	M	L	H	L	L	
0640-472	Petroleum Refining Engineering	M		M	L	M	L	L
0640-472	Petroleum Refining Engineering	M	H	M	M	M	M	M
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-		4	4	4	4	4	4	4
0640-211	Chemical Engineering Principles I	3	3		3			
0640-211	Chemical Engineering Principles I	4	3		3			
0640-215	Physical Chemistry	3		3	3	3	3	3
0640-241	Fluid Mechanics	3	3	3	3	3		3
0640-241	Fluid Mechanics	4	3				4	
0640-242	Fluid Mechanics Laboratory	5		4		4	5	
0640-242	Fluid Mechanics Laboratory	5		4		5	5	
0640-242	Fluid Mechanics Laboratory	4		4		4	4	
0640-242	Fluid Mechanics Laboratory	5		5		5	5	
0640-291	Fundamentals of Chemical Engineering Design	4	4	3	5	4		4
0640-321	Chemical Engineering Thermodynamics	3					3	
0640-324	Kinetics and Reactor Design (A)	4	4					
0640-327	Corrosion Engineering	5		5	5		5	5
0640-343	Heat Transfer	4	3	3			4	
0640-345	Mass Transfer	4	3	3		4	3	
0640-345	Mass Transfer	4	3	3		4	3	
0640-351	Process Dynamics and Control	4	3				3	
0640-391	Chemical Process Synthesis	5	5	3	3	5		4
0640-391	Chemical Process Synthesis	4	4	3	3	5		4
0640-440	Mass Transfer Operations	4	4	3	3		4	
0640-440	Mass Transfer Operations	4	4	3	4	3	3	3
0640-443	Mass Transfer Operations Laboratory	3	3	3	4	4	3	3
0640-461	Water Desalination	5	5		5	5		5
0640-462	Introduction to Biochemical Engineering	5	5		5		5	
0640-465	Air Pollution	4	5	4	4	4	4	
0640-472	Petroleum Refining Engineering	4	4	3	4	4	4	4
0640-472	Petroleum Refining Engineering	4	4	4	4	4	4	4
0640-491	Plant Design	5	4	5	5	5		4
0640-491	Plant Design	5	4	5	5	5		4
0640-491	Plant Design	4	4	5	4	5	3	3
0640-491	Plant Design	4	4	4	4	5	4	3
	Weighted Average	**4.1**	**3.9**	**3.9**	**4.2**	**4.4**	**4.1**	**3.7**
	Weighted Average for 400-level Courses	**4.3**	**4.3**	**4.3**	**4.4**	**4.6**	**4.1**	**3.7**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-343	Heat Transfer	Students did not follow instructions about immediate studying of each chapter and did not practice solving problems other than the posted homework. Students always do badly in the first exam and they always do excellent in the final. The best way to study for the heat transfer course is by solving problems and link it to real-life application.
0640-440	Mass Transfer Operations	Students performed overall satisfactorily in the class

0640-472	Petroleum Refining Engineering	The students in this course performed well
0640-472	Petroleum Refining Engineering	the students performance was very good. I gave the students bonus grade on a team project which most of the teams were enthusiastic about and did very well. The students who did low on the HW and Project scored the lowest grades in the course. Those students attribute their low performance to the high demand from other courses such as plant design.

Spring Semester 18/19

Instructors: **12**

Courses: **34**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-215	Physical Chemistry	H		M	M	H	H	L
0640-241	Fluid Mechanics	M	M				M	
0640-241	Fluid Mechanics	M	M				M	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-242	Fluid Mechanics Laboratory	L		M		M	H	
0640-291	Fundamentals of Chemical Engineering Design		H	M	H	L		M
0640-321	Chemical Engineering Thermodynamics	H					M	
0640-324	Kinetics and Reactor Design (A)	H	H					
0640-327	Corrosion Engineering	H		M	M		L	L
0640-343	Heat Transfer	H	M	L			L	
0640-345	Mass Transfer	H	M	L		L	L	
0640-345	Mass Transfer	H	M	L		L	L	
0640-351	Process Dynamics and Control	H	M				L	
0640-353	Mathematical Methods in Chemical Engineering							
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-427	Kinetics and Reactor Design (B)							
0640-427	Kinetics and Reactor Design (B)							
0640-440	Mass Transfer Operations	H	H				L	
0640-443	Mass Transfer Operations Laboratory							
0640-443	Mass Transfer Operations Laboratory							
0640-472	Petroleum Refining Engineering	M		M	L	M	L	L
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H
0640-491	Plant Design	M	H	H	M	H		H
0640-493	Equipment Design		H	M				M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-215	Physical Chemistry	3		3	3	3	3	3
0640-241	Fluid Mechanics	4	4				4	
0640-241	Fluid Mechanics	3	4				4	
0640-242	Fluid Mechanics Laboratory	5		4		4	5	
0640-242	Fluid Mechanics Laboratory	5		5		4	5	
0640-242	Fluid Mechanics Laboratory	5		5		4	5	
0640-242	Fluid Mechanics Laboratory	5		5		5	5	
0640-291	Fundamentals of Chemical Engineering Design	4	4	4	4	4		5
0640-321	Chemical Engineering Thermodynamics	4					3	
0640-324	Kinetics and Reactor Design (A)	4	4					
0640-327	Corrosion Engineering	4		4	4			4
0640-343	Heat Transfer	4	4	3			3	
0640-345	Mass Transfer	3	3	3		2		
0640-345	Mass Transfer	5	5	1		5	1	
0640-351	Process Dynamics and Control	4	3				3	
0640-353	Mathematical Methods in Chemical Engineering	5	5	4		3	4	
0640-391	Chemical Process Synthesis	5	5	4	3	5		4
0640-391	Chemical Process Synthesis	5	5	4	3	5		4
0640-427	Kinetics and Reactor Design (B)	4	4	3	3	3	4	4
0640-427	Kinetics and Reactor Design (B)	4	3	3	3	3	4	3
0640-440	Mass Transfer Operations	5	5				1	
0640-443	Mass Transfer Operations Laboratory	3	4	3	3	4	3	3
0640-443	Mass Transfer Operations Laboratory	3	3	3	3	3	3	3
0640-472	Petroleum Refining Engineering	5		3	4	4	5	1
0640-491	Plant Design	5	4	5	5	5		4
0640-491	Plant Design	5	4	5	5	4		5
0640-491	Plant Design	4	5	5	5	4		4
0640-491	Plant Design	4	4	5	5	4		4
0640-493	Equipment Design		5	4				4
	Weighted Average	**4.2**	**4.3**	**4.2**	**4.2**	**4.2**	**4**	**4**
	Weighted Average for 400-level Courses	**4.7**	**4.5**	**4.6**	**4.9**	**4.2**	**3.0**	**4.0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-241	Fluid Mechanics	This class performance was good
0640-343	Heat Transfer	Student performance is satisfactory/Very good. Students showed strong interest in the subject and developed abilities and skills to formulate and solve complex problems that requires several steps of
0640-345	Mass Transfer	• Time was not enough during the course to give more CAD assignments to design amine absorption and regeneration system. I plan to add this next semester. • Section 11 am did better for two reasons (1) the students were higher GPA when the section was offered and the

		students with lower GPA who did not make it to register in this section were offered section 02AX, and (2) the lecture time at 2 pm is very late for the students who are used to eat lunch and rest after 2 thus they appeared very tired and unable to pay attention during the lecture. Its better not to offer classes during national rest period (2-4 pm).
0640-440	Mass Transfer Operations	Time was not enough during the course to give more CAD assignments to design amine absorption and regeneration system. I plan to add this next semester.

Summer Semester18/19

Instructors: **5**

Courses: **5**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0640-351	Process Dynamics and Control	H	M				L	
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-440	Mass Transfer Operations	H	H				L	
0640-472	Petroleum Refining Engineering	M		M	L	M	L	L

P E R F O R M A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0640-351	Process Dynamics and Control	5	3				3	
0640-391	Chemical Process Synthesis	4	4	3	4	3		4
0640-440	Mass Transfer Operations	4	4				3	
0640-472	Petroleum Refining Engineering	5		3	4	4	5	1
	Weighted Average	**4.5**	**3.8**	**3**	**4**	**3.4**	**3.7**	**3.3**
	Weighted Average for 400-level Courses	**4.4**	**4.0**	**3.0**	**4.0**	**4.0**	**4.0**	**1.0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-391	Chemical Process Synthesis	New Content of the course is very good, but it needs to be examined more and some tuning with other Design classes (291 and 491) * Note all class grading is done through schoology. The final grade is given on the examples. Final Report C is corrected thoroughly by hand.
0640-472	Petroleum Refining Engineering	Students did very well in this class

Civil Engineering Program

Fall Semester 18/19

Instructors: **28**
Courses: **37**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-201	Introduction to Design	M	H	H	M	M		M
0620-252	Engineering Materials	L	M	L	L		H	
0620-271	Structural Analysis I	H		H	L			
0620-310	Fluid Mechanics	H	L					
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-371	Structural Analysis II	H		M				L
0620-373	Reinforced Concrete I	M	H	H	M			L
0620-373	Reinforced Concrete I	M	H	H	M			L
0620-401	Coastal Engineering Fundamentals	H	L	M	L	L	H	L
0620-413	Groundwater Hydraulics	H	M	L	L	L		L
0620-414	Hydraulic Engineering	H	H	M		M		H
0620-430	Legal, Professional, and Social Aspects of Engineering			H	H	H		H
0620-430	Legal, Professional, and Social Aspects of Engineering			H	H	H		H
0620-435	Construction Engineering and Management	M	M	H		M		H
0620-437	Concrete Construction and Technology	H	H	M	M	M		M
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-456	Sustainability and green engineering	M	H	M	H	L		M
0620-473	Reinforced Concrete II	M	H	H				L
0620-475	Prestressed Concrete	H	H	L	M	L		L
0620-476	Computer Applications in Structural Engineering	M	H	H	L	M		L
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-201	Introduction to Design	3	5	4	4	4		1
0620-252	Engineering Materials	2	5	3	4		5	
0620-271	Structural Analysis I	3		3	3			
0620-310	Fluid Mechanics	3	3					
0620-350	Soil Mechanics	4	3	3		4	4	
0620-350	Soil Mechanics	5	3	3		3	4	4
0620-350	Soil Mechanics	3	4	4		4	4	4

0620-371	Structural Analysis II	4		3				4
0620-373	Reinforced Concrete I	3	3	3	3			3
0620-373	Reinforced Concrete I	3	3	2	3			3
0620-401	Coastal Engineering Fundamentals	5	2	4	3	4	4	3
0620-413	Groundwater Hydraulics	3	4	3	4	4		3
0620-414	Hydraulic Engineering	5	5	4		4		5
0620-430	Legal, Professional, and Social Aspects of Engineering			3	4	3		3
0620-430	Legal, Professional, and Social Aspects of Engineering			4	4	4		4
0620-435	Construction Engineering and Management	3	4	4		4		4
0620-437	Concrete Construction and Technology	5	2	4	5	4		4
0620-451	Foundation Engineering	5	4	3	3	4	3	3
0620-451	Foundation Engineering	3	3	3	3	3	3	3
0620-451	Foundation Engineering	4	4	3	3	2	3	3
0620-456	Sustainability and green engineering	3	4	4	4	3		4
0620-473	Reinforced Concrete II	3	4	2				3
0620-475	Prestressed Concrete	5	4	3	4	1		3
0620-476	Computer Applications in Structural Engineering	5	5	5	3	5		4
0620-490	Capstone Design Course		5	5	5	5		4
0620-490	Capstone Design Course		5	5	4	4		4
0620-490	Capstone Design Course	4	5	3	4	5		4
0620-490	Capstone Design Course	5	5	4	4	5		4
	Weighted Average	**3.9**	**4.1**	**3.6**	**3.8**	**3.8**	**4**	**3.6**
	Weighted Average for 400-level Courses	**3.9**	**4.2**	**3.8**	**4.0**	**3.8**	**3.5**	**3.8**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-310	Fluid Mechanics	The overall class performance was satisfactory
0620-350	Soil Mechanics	This batch of students is very good in applying science and mathematical knowledge in solving the problems.
0620-373	Reinforced Concrete I	Class size is adequate. For 75 minutes class, the board length is not enough. One more extra board shall be installed. No colored chalks are supplied in the class room.
0620-413	Groundwater Hydraulics	This a class of 27 female students. Overall performance was very good. I noted that some students lack the ability to use Microsoft excel basic tools. Students performance in term project was satisfactory. The course does not include strong design content and outcome should be revised in this regard
0620-430	Legal, Professional, and Social Aspects of Engineering	Proactive attitude of students toward the course content is not to the desired level
0620-437	Concrete Construction and Technology	- The analysis and evaluation is based on 7 students, which are all the students registered in the course. Such a small population size could affect the accuracy of the analysis. - As the performance in the majority of the student outcomes is between Very Good - Excellent, no immediate actions are needed for these outcomes. - The evaluation may indicate the need for more discussions/tutorials on formwork design problems.

0620-451	Foundation Engineering	1. Course project as well as field work were carried out. 2. To cover thoroughly the material, I suggest to split the course into two: shallow and deep foundations; and earth retaining structures 3. Students lack the basics English to make a valuable understanding of the reading materials. 4. students can not relate that all engineering design issues are related and need to be thoroughly understood.
0620-451	Foundation Engineering	Students prefer to solve numerical problems than to answer descriptive questions and questions requiring reasoning and causes of a particular phenomena. This may be in part due to the weakness in English language expression. Students lack the imagination to solve a new problem that they are not familiar with.
0620-456	Sustainability and green engineering	Participation of the students in local conferences and workshops , as well as class visits to recycling plants proved to be very successful and fruitful.
0620-475	Prestressed Concrete	This is an elective course and students usually come motivated with high GPA. This was an 'excellent 'class and is evidenced by good grades attained by the students
0620-490	Capstone Design Course	The course requirements are clear to students. The exhibition requirements, however, should be clearly set at the beginning of the course.
0620-490	Capstone Design Course	It is an excellent course to expose students to the new practical technology

Spring Semester 18/19

Instructors: **16**

Courses: **22**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-236	Construction Surveying	M	L			M	H	L
0620-236	Construction Surveying	M	L			M	H	L
0620-236	Construction Surveying	M	L			M	H	L
0620-271	Structural Analysis I	H		H	L			
0620-311	Water Resources	H	M	L	L	M	H	
0620-311	Water Resources	H	M	L	L	M	H	
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-350	Soil Mechanics	H	L	L		L	H	L
0620-371	Structural Analysis II	H		M				L
0620-373	Reinforced Concrete I	M	H	H	M			L
0620-373	Reinforced Concrete I	M	H	H	M			L
0620-430	Legal, Professional, and Social Aspects of Engineering			H	H	H		H
0620-451	Foundation Engineering	H	H	L	L	M	L	L
0620-473	Reinforced Concrete II	M	H	H				L
0620-473	Reinforced Concrete II	M	H	H				L
0620-476	Computer Applications in Structural Engineering	M	H	H	L	M		L
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M
0620-490	Capstone Design Course	L	H	H	M	M		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-236	Construction Surveying	3	4			4	4	3
0620-236	Construction Surveying	3	3			4	4	3
0620-236	Construction Surveying	3				4	4	3
0620-271	Structural Analysis I	3		3	3			
0620-311	Water Resources	5	4	3	4	4	5	
0620-311	Water Resources	4	5	5	4	4	5	
0620-350	Soil Mechanics	4	3	3		4	3	3
0620-350	Soil Mechanics	3	3	3		4	4	3
0620-371	Structural Analysis II	4		3				4
0620-373	Reinforced Concrete I	4	5	3	4			
0620-373	Reinforced Concrete I	4	3	3	4			
0620-430	Legal, Professional, and Social Aspects of Engineering			3	4	3		3
0620-451	Foundation Engineering	4	4	3	3	4	3	3
0620-473	Reinforced Concrete II	4	5	3				5
0620-473	Reinforced Concrete II	3	4	4				3
0620-476	Computer Applications in Structural Engineering	5	5	5	3	5		4
0620-490	Capstone Design Course	4	4	5	4	5		5
0620-490	Capstone Design Course	4	5	4	5	5		4
0620-490	Capstone Design Course	5	5	5	4	5		5
	Weighted Average	**3.8**	**4.3**	**3.7**	**3.9**	**4.2**	**4.1**	**3.7**
	Weighted Average for 400-level Courses	**4.1**	**4.6**	**4.1**	**4.0**	**4.4**	**3.0**	**4.0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-311	Water Resources	This is a group of 30 male and female students of section 02AD & 02AN. The students has a mixed academic standing ranging from Excellent to above average. Relatively, compared to previous classes , the small number of students in a large class room made it easy to teach the course and give attention to individual student. Conducting lab experiments was easy for a group of students 12 per lab seession
0620-373	Reinforced Concrete I	The rating outcome 4 is (H) and is over-rated. It is suggested to lower it. Students have to solve in logical manner and to draw details of structural elements and reinforcement, etc, but the course does not involve team-based project nor an oral presentation and hence, a lower rating is logical.
0620-430	Legal, Professional, and Social Aspects of Engineering	Female students avoid active interaction in class due social reasons. An issue need to be discussed at the college level.
0620-490	Capstone Design Course	Having the course tought in one semester is not long engough for the studnet to accomplish all objectives of the course. I suggest to have the capstone desiign course over span of two semesters. Also, having more than one

		descipline in the capstone sourse is very demanding on the course instructir and studnets.
0620-490	Capstone Design Course	I think the design course must be a two-semester course to ensure the quality of the outputs.

Summer Semester 18/19

Instructors: **2**

Courses: **2**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-271	Structural Analysis I	H		H	L			
0620-490	Capstone Design Course	L	H	H	M	M		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-271	Structural Analysis I	3		3	2			
0620-490	Capstone Design Course	5	5	4	3	4		5
	Weighted Average	**3.5**	**5**	**3.5**	**2.7**	**4**	**0**	**5**
	Weighted Average for 400-level Courses	**5**	**5**	**4**	**3**	**4**	**0**	**5**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-271	Structural Analysis I	Class performance was satisfactory. Weekly tutorial on 'hard' topics and practice on areas with weak student performance seemed to had a positive impact on overall student performance. Knowledge of drawing internal force diagrams as gained from two earlier courses (Statics and Strength of materials) was not up to the desired standard and the instructor had to spend extra time in tutorials. Use of programming or Excel in solving ILD problem is recommended.
0620-490	Capstone Design Course	The course shall be two semester long.

Computer Engineering Program

Fall Semester 18/19

Instructors: **25**
Courses: **41**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-207	Data Structures	H					H	
0612-221	Software Engineering I	H	H	H	H	H		
0612-221	Software Engineering I	H	H	H	H	H		
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-264	Digital Logic Laboratory			H		H	H	
0612-264	Digital Logic Laboratory			H		H	H	
0612-264	Digital Logic Laboratory			H		H	H	
0612-300	Design and Analysis of Algorithms	H	H					
0612-300	Design and Analysis of Algorithms	H	H					
0612-321	Software Quality Assurance		H	H	H		H	
0612-325	Human Computer Interaction		H	H	H			
0612-341	Database Systems-I	H	H		H			
0612-363	Introduction to Embedded Systems		H					
0612-363	Introduction to Microprocessors		H					
0612-364	Microprocessors Laboratory			H		H	H	
0612-368	Computer Organization		H					
0612-368	Computer Organization		H					
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-434	Robotics	H	H		H		H	H
0612-445	Operating System Principles	H	H				H	
0612-453	Cryptography and Network Security	H	H	H	H			H
0612-469	Computer Architecture Laboratory		H	H			H	
0612-469	Computer Architecture Laboratory		H	H			H	
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-207	Data Structures	3					3	

0612-221	Software Engineering I				4			
0612-221	Software Engineering I		4		5			
0612-262	Fundamentals of Digital Logic		3					
0612-262	Fundamentals of Digital Logic		4					
0612-262	Fundamentals of Digital Logic		3					
0612-264	Digital Logic Laboratory							
0612-264	Digital Logic Laboratory							
0612-264	Digital Logic Laboratory							
0612-300	Design and Analysis of Algorithms		2					
0612-300	Design and Analysis of Algorithms	3	3					
0612-321	Software Quality Assurance		4		5			
0612-325	Human Computer Interaction		4	5				
0612-341	Database Systems-I		4		3			
0612-363	Introduction to Embedded Systems		3					
0612-363	Introduction to Microprocessors		4					
0612-364	Microprocessors Laboratory					4	4	
0612-368	Computer Organization		3					
0612-368	Computer Organization		4					
0612-395	Computer Systems Engineering	4	3	4	4	5	4	4
0612-395	Computer Systems Engineering	5	5	5	5	5	5	4
0612-395	Computer Systems Engineering	4	3	3	1	4	5	3
0612-395	Computer Systems Engineering	4	4	4	4	4	4	4
0612-395	Computer Systems Engineering	5	5	5	5	5		5
0612-434	Robotics		4					
0612-445	Operating System Principles		4					
0612-453	Cryptography and Network Security				4			
0612-469	Computer Architecture Laboratory		4					
0612-469	Computer Architecture Laboratory		4					
0612-495	Capstone Design	4	5	5	4	5	4	4
0612-495	Capstone Design	4	4	4	3	4	4	3
0612-495	Capstone Design	4	4	4	4	4	4	4
0612-495	Capstone Design	5	5	5	5	5	5	5
0612-495	Capstone Design	5	5	5	5	5	5	5
	Weighted Average	**4.2**	**3.9**	**4.5**	**4.1**	**4.5**	**4.3**	**4.1**
	Weighted Average for 400-level Courses	**2.8**	**3.9**	**2.9**	**3.6**	**4.6**	**2.4**	**3.0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0612-262	Fundamentals of Digital Logic	None
0612-300	Design and Analysis of Algorithms	Students were able to understand and apply the concepts taught in class as seen in the assignments but I noticed that they struggled with solving problems using formal mathematical notation. The students that did the homeworks succeeded in doing well in the exams, while the students that did poorly in the exams were seen to either have skipped homeworks, which contain vital practice problems, or only did them partially.
0612-368	Computer Organization	No comment

0612-395	Computer Systems Engineering	It is highly recommended that students get more involved in communication with stakeholders to have realistic useful projects to the community.
0612-395	Computer Systems Engineering	No suggestions

Spring Semester 18/19

Instructors: **19**

Courses: **31**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-207	Data Structures	H					H	
0612-221	Software Engineering I	H	H	H	H	H		
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-262	Fundamentals of Digital Logic		H					
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-300	Design and Analysis of Algorithms	H	H					
0612-300	Design and Analysis of Algorithms	H	H					
0612-325	Human Computer Interaction		H	H	H			
0612-325	Human Computer Interaction		H	H	H			
0612-325	Human Computer Interaction		H	H	H			
0612-363	Introduction to Embedded Systems		H					
0612-363	Introduction to Embedded Systems		H					
0612-363	Introduction to Embedded Systems		H					
0612-368	Computer Organization		H					
0612-368	Computer Organization		H					
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-395	Computer Systems Engineering	H	H	H	H	H	H	H
0612-437	Intelligent Algorithms	H	H				H	
0612-445	Operating System Principles	H	H				H	
0612-451	Wireless and Mobile Networking	H	H	H	H			
0612-468	Computer Architecture		H					
0612-468	Computer Architecture		H					
0612-476	Computer Networks II	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H
0612-495	Capstone Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-207	Data Structures	4					4	
0612-221	Software Engineering I		4		4			
0612-262	Fundamentals of Digital Logic		3					
0612-262	Fundamentals of Digital Logic		4					
0612-262	Fundamentals of Digital Logic		3					
0612-262	Fundamentals of Digital Logic		5					
0612-264	Digital Logic Laboratory		4					
0612-264	Digital Logic Laboratory		4					
0612-300	Design and Analysis of Algorithms	4	3					
0612-300	Design and Analysis of Algorithms		3					
0612-325	Human Computer Interaction		4	4	3			
0612-325	Human Computer Interaction		4		3			
0612-325	Human Computer Interaction		4	4	4			
0612-363	Introduction to Embedded Systems		4					
0612-363	Introduction to Embedded Systems		3					
0612-363	Introduction to Embedded Systems		5					
0612-368	Computer Organization		3					
0612-368	Computer Organization		4					
0612-395	Computer Systems Engineering	4	5	5	4	5		4
0612-395	Computer Systems Engineering	4	5	5	4	5		5
0612-395	Computer Systems Engineering	2	4	3	3	3		4
0612-437	Intelligent Algorithms		5					
0612-445	Operating System Principles		5					
0612-451	Wireless and Mobile Networking		4		5			
0612-468	Computer Architecture		4					
0612-468	Computer Architecture		4					
0612-476	Computer Networks II	5	5	3	5	5	5	5
0612-495	Capstone Design	4	4	5	5	4	5	5
0612-495	Capstone Design	4	5	4	5	4	4	4
0612-495	Capstone Design	5	5	5	5	5	5	5
0612-495	Capstone Design	5	5	5	5	5	5	5
	Weighted Average	**4.1**	**4.1**	**4.3**	**4.2**	**4.5**	**4.7**	**4.6**
	Weighted Average for 400-level Courses	**2.9**	**4.6**	**3.7**	**5.0**	**4.6**	**3.4**	**4.8**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0612-262	Fundamentals of Digital Logic	Students generally performed well in designing and simulating the project.
0612-262	Fundamentals of Digital Logic	The outcome has also been evaluated with homeworks which also include design components. However, only the class project is included here.
0612-300	Design and Analysis of Algorithms	Most students proved to grasp the fundamental concepts for designing and analyzing their solutions in this class. After implementing an attendance recording system, it was observed that students with a good attendance record and/or completed the homeworks independently did well

		on the exams. Based on exam performance and discussions with office hours attendees, it seems that some of the students' studying techniques heavily relied on memorizing solutions to homework problems. This was incompatible with the outcomes of this course, which consisted of correctly understanding a new given problem and solving it using the techniques developed in class.
0612-300	Design and Analysis of Algorithms	The outcome has also been evaluated with other homework sets which also include design algorithms using various algorithmic techniques (Divide & Conquer, Greedy, etc.). However, only homework set 4 is included here in which students had to justify their choices and prove the correctness of their algorithms. Students were able to understand and apply the concepts when presented in a form similar to the lecture notes. However, they seem to be struggling when the problem is not a straightforward application of what is taught in class. The students lack problem-solving skills.
0612-363	Introduction to Embedded Systems	It have been observing this for the longest time, I believe students should be taught on how to write report and organize them in a efficient way.
0612-363	Introduction to Embedded Systems	Students need more programming experience which is a prerequisite of the course..
0612-368	Computer Organization	See the attachment.
0612-395	Computer Systems Engineering	None
0612-468	Computer Architecture	See the attachments.
0612-476	Computer Networks II	None
0612-495	Capstone Design	none
0612-495	Capstone Design	The problem domains and solutions novelty and creativity were satisfying. Students may need to interact more with projects' stakeholders to produce better quality final products.
0612-495	Capstone Design	None

Summer Semester 18/19

Instructors: **1**

Courses: **1**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-363	Introduction to Embedded Systems		H					

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-363	Introduction to Embedded Systems		4					
	Weighted Average	**0**	**4**	**0**	**0**	**0**	**0**	**0**
	Weighted Average for 400-level Courses	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions

Electrical Engineering Program

Fall Semester 18/19

Instructors: **12**
Courses: **27**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-213	Linear Circuits Analysis	M						H
0610-230	Semi-conductors							
0610-297	Corner-Stone Design							
0610-297	Corner-Stone Design							
0610-297	Corner-Stone Design							
0610-312	Signals and Systems	H						H
0610-312	Signals and Systems	H						H
0610-318	DSP							
0610-320	Electromagnetic Field Theory	H						H
0610-320	Electromagnetic Field Theory	H						H
0610-333	Electronics II	H						H
0610-333	Electronics II	H						H
0610-343	Energy Conversion I	H						M
0610-343	Energy Conversion I	H						M
0610-370	Control Theory I	H	M		M		M	
0610-374	Control Laboratory I	H	M	M	M	M	H	
0610-381	Communication Theory	H				M	H	H
0610-381	Communication Theory	H				M	H	H
0610-421	Microwave Engineering	H		M		M		H
0610-432	Analog Integrated Circuits	H						M
0610-454	Electrical Power Systems Laboratory II	H					H	M
0610-458	Electric Power Distribution Engineering	H		M				H
0610-460	Introduction to Communication Networks	H		M		M	M	H
0610-472	Control Theory II	H	M		M	M		M
0610-477	Optimization Techniques	H			M		M	M
0610-497	Engineering Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-213	Linear Circuits Analysis	4						4
0610-230	Semi-conductors	2						
0610-297	Corner-Stone Design	5	4	4	4	4	4	4
0610-297	Corner-Stone Design	4	4	3	5	3	5	4
0610-297	Corner-Stone Design	4	4	4	3	4	4	4
0610-312	Signals and Systems	4						3
0610-312	Signals and Systems	3						3

0610-318	DSP	3	3	4	4	4	3	4
0610-320	Electromagnetic Field Theory	4						4
0610-320	Electromagnetic Field Theory	4						4
0610-333	Electronics II	4						4
0610-333	Electronics II	2						2
0610-343	Energy Conversion I	4						4
0610-343	Energy Conversion I	3						4
0610-370	Control Theory I	4	3		4		3	
0610-374	Control Laboratory I	3	4	4	3	4	4	
0610-381	Communication Theory	4				4	4	3
0610-381	Communication Theory	3				3	4	4
0610-421	Microwave Engineering	4		3		4		4
0610-432	Analog Integrated Circuits	4						4
0610-454	Electrical Power Systems Laboratory II	4					4	4
0610-458	Electric Power Distribution Engineering	3		3		3		3
0610-460	Introduction to Communication Networks	4		4		3	1	5
0610-472	Control Theory II	3	3		3	3		3
0610-477	Optimization Techniques	4			3		3	4
0610-497	Engineering Design	4	4	5	4	5	5	4
	Weighted Average	**3.6**	**3.6**	**3.9**	**3.5**	**3.8**	**3.7**	**3.7**
	Weighted Average for 400-level Courses	**3.8**	**3.6**	**3.9**	**3.4**	**3.9**	**3.5**	**3.9**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-312	Signals and Systems	I do not think there is any issue with the course structure. The only issue (which is a major issue) is that the students just do not recall any of the basics or fundamentals of EE.
0610-318	DSP	Some weaknesses in the mathematical backgrounds.
0610-320	Electromagnetic Field Theory	Students are of week scientific background
0610-320	Electromagnetic Field Theory	Students are of week scientific background
0610-333	Electronics II	Weak class in a fundamental course. Average GPA 1.95. Home-works copies, many absence in Quizzes, poor performance n exams. No questions in office hours, careless about understanding fundamental issues.
0610-381	Communication Theory	Mathematical background need to be improved.
0610-458	Electric Power Distribution Engineering	The students attendance was not satisfactory and the homework solving was not taken seriously. The students mathematical and engineering background need more emphasize and enhancement

Spring Semester 18/19

Instructors: **7**

Courses: **14**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-212	Engineering Math	H						H
0610-212	Engineering Math	H						H
0610-213	Linear Circuits Analysis	M						H
0610-312	Signals and Systems	H						H
0610-312	Signals and Systems	H						H
0610-333	Electronics II	H						H
0610-334	Electronics Laboratory II			M		M	H	M
0610-334	Electronics Laboratory II			M		M	H	M
0610-334	Electronics Laboratory II			M		M	H	M
0610-381	Communication Theory	H						H
0610-410	Active Filter Design	H	M					M
0610-458	Electric Power Distribution Engineering	H		M				H
0610-460	Introduction to Communication Networks	H		M		M	M	H
0610-497	Engineering Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-212	Engineering Math	3						3
0610-212	Engineering Math	3						3
0610-213	Linear Circuits Analysis	3						4
0610-312	Signals and Systems	3						4
0610-312	Signals and Systems	4						3
0610-333	Electronics II	4						4
0610-334	Electronics Laboratory II			4		4	4	4
0610-334	Electronics Laboratory II			4		4	4	4
0610-334	Electronics Laboratory II			4		4	4	4
0610-381	Communication Theory	4						4
0610-410	Active Filter Design	4	4					4
0610-458	Electric Power Distribution Engineering	3		3				3
0610-460	Introduction to Communication Networks	4		4		3	1	4
0610-497	Engineering Design	3	4	4	4	4	4	4
	Weighted Average	**3.5**	**4**	**3.8**	**4**	**3.8**	**3.6**	**3.7**
	Weighted Average for 400-level Courses	**3.5**	**4.0**	**3.7**	**4.0**	**3.6**	**2.8**	**3.7**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-212	Engineering Math	Students require enhanced orientations on college as well as department levels. Most the students are unaware of university level work requirements and lack skill of proper time management. Only concerned for the mobile usage and social media.
0610-212	Engineering Math	Students require enhanced orientations on college as well as department levels. Most the students are unaware of university level work requirements and lack skill of proper time management. Only concerned for the mobile usage and social media.

Summer Semester 18/19

Instructors: **4**

Courses: **7**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0610-233	Electronics I	M						M
0610-333	Electronics II	H						H
0610-333	Electronics II	H						H
0610-334	Electronics Laboratory II			M		M	H	M
0610-334	Electronics Laboratory II			M		M	H	M
0610-416	Instrumentation and Measurements	M						M
0610-452	Electrical Power Systems II	H		M				H

P E R F O R M A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0610-233	Electronics I	3						3
0610-333	Electronics II	5						4
0610-333	Electronics II	4						3
0610-334	Electronics Laboratory II			4		4	5	4
0610-334	Electronics Laboratory II			4		4	4	4
0610-416	Instrumentation and Measurements	4						4
0610-452	Electrical Power Systems II	3		3				3
	Weighted Average	**3.8**	**0**	**3.7**	**0**	**4**	**4.5**	**3.5**
	Weighted Average for 400-level Courses	**3.4**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**3.4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions

Industrial & Management Systems Engineering Program

Fall Semester 18/19

Instructors: **9**
Courses: **24**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-221	Introduction to Industrial Engineering	H		H	H	H	H	H
0660-221	Introduction to Industrial Engineering	H		H	H	H	H	H
0660-321	Work Design and Measurement	H	H		H		H	
0660-325	Safety and Health for Engineers			H	H	H	H	H
0660-325	Safety and Health for Engineers			H	H	H	H	H
0660-351	Engineering Statistical Analysis	H					H	
0660-372	Project Management and Control	H		H	H	H		H
0660-372	Project Management and Control	H		H	H	H		H
0660-425	Human Factors Engineering		H	H	H	H	H	H
0660-451	Reliability and Maintainability Engineering	H	H		H		H	
0660-454	Production Planning and Inventory Control	H	H					
0660-457	Quality Control	H			H		H	H
0660-458	Design of Experiments	H	H	H		H	H	
0660-461	Operations Research II	H						
0660-464	Optimization Methods	H						
0660-481	Systems Simulation	H	H	H		H	H	H
0660-496	Industrial Engineering Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-221	Introduction to Industrial Engineering	4			3			
0660-221	Introduction to Industrial Engineering	5		5	4	5	4	5
0660-321	Work Design and Measurement	4	4				4	
0660-325	Safety and Health for Engineers			4	4	4	4	4
0660-325	Safety and Health for Engineers			4	4	4	4	4
0660-351	Engineering Statistical Analysis	3					2	
0660-372	Project Management and Control	5		5	4	5		4
0660-372	Project Management and Control	5		5	4	5		4
0660-425	Human Factors Engineering		4	3	3	4	4	4
0660-451	Reliability and Maintainability Engineering	5	5		4		4	
0660-454	Production Planning and Inventory Control	4	3					
0660-457	Quality Control	4			3		3	4
0660-458	Design of Experiments	4	3	4		4	4	
0660-461	Operations Research II	4						
0660-464	Optimization Methods	4						
0660-481	Systems Simulation	4	3	4		4	4	3
0660-496	Industrial Engineering Design	4	4	4	4	4	4	5
	Weighted Average	**4.2**	**3.7**	**4.2**	**3.7**	**4.3**	**3.7**	**4.1**

	Weighted Average for 400-level Courses	**4.1**	**3.7**	**3.8**	**3.5**	**4.0**	**3.8**	**4.0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0660-351	Engineering Statistical Analysis	The introductory course in probability should be taught by a faculty member in IMSE.

Spring Semester 18/19

Instructors: **7**

Courses: **15**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-221	Introduction to Industrial Engineering	H		H	H	H	H	H
0660-321	Work Design and Measurement	H	H		H		H	
0660-325	Safety and Health for Engineers			H	H	H	H	H
0660-351	Engineering Statistical Analysis	H					H	
0660-352	Production Cost Analysis	H			H			
0660-425	Human Factors Engineering		H	H	H	H	H	H
0660-454	Production Planning and Inventory Control	H	H					
0660-457	Quality Control	H			H		H	H
0660-458	Design of Experiments	H	H	H		H	H	
0660-461	Operations Research II	H						
0660-496	Industrial Engineering Design	H	H	H	H	H	H	H
0660-496	Industrial Engineering Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-221	Introduction to Industrial Engineering	4		4	3	4		
0660-321	Work Design and Measurement	4	4				4	
0660-325	Safety and Health for Engineers			4	4	4	4	4
0660-351	Engineering Statistical Analysis	3					3	
0660-352	Production Cost Analysis	3			4			
0660-425	Human Factors Engineering		4	4	4	4	4	4
0660-454	Production Planning and Inventory Control	4	4					
0660-457	Quality Control	4			3		3	4
0660-458	Design of Experiments	4	4	4		4	4	
0660-461	Operations Research II	4						
0660-496	Industrial Engineering Design	5	5	5	5	5	5	5
0660-496	Industrial Engineering Design	4	4	4	4	5	4	4
	Weighted Average	**3.9**	**4.2**	**4.2**	**3.9**	**4.3**	**3.9**	**4.2**
	Weighted Average for 400-level Courses	**4.2**	**4.2**	**4.3**	**4.0**	**4.5**	**4.0**	**4.3**

Mechanical Engineering Program

Fall Semester 18/19

Instructors: **15**

Courses: **29**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-259	Introduction to Design	L	H	H	M	H		M
0630-318	System Dynamics	H	M	M				
0630-322	Engineering Thermodynamics II	H	M		M	L		L
0630-322	Engineering Thermodynamics II	H	M		M	L		L
0630-331	Fluid Mechanics I	H	L					
0630-351	Mechanical Design I	H	M		L			L
0630-351	Mechanical Design I	H	M		L			L
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-415	Mechanical Vibrations	H	M	M		M		L
0630-415	Mechanical Vibrations	H	M	M		M		L
0630-421	Heat Transfer	H	M	M				
0630-447	Corrosion Control of Engineering Materials	H	M	L	M	L	M	L
0630-451	Mechanical Design II	H	H	M	M	L		M
0630-455	Computer-Aided Design	H	M	M	M	L		M
0630-456	Computer Aided Manufacturing	H	L	M	L	M		L
0630-459	Engineering Design	H	H	H	H	H	M	H
0630-475	Thermal Science Lab. II		M	H	L	M	H	
0630-481	Tribology and Lubrication							

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	3			3		3	3
0630-241	Materials Science and Metallurgy	4			3		3	3
0630-241	Materials Science and Metallurgy	3			3		2	3
0630-259	Introduction to Design	3	4	4	4	4		4
0630-318	System Dynamics	2	2	3				
0630-322	Engineering Thermodynamics II	3	3		3	3		3
0630-322	Engineering Thermodynamics II	3	3		3			4
0630-331	Fluid Mechanics I	2						
0630-351	Mechanical Design I	3	3		3			3
0630-351	Mechanical Design I	3	3		3			3
0630-353	Manufacturing Processes	4	3	3	3	4		
0630-353	Manufacturing Processes	4	3	4	3	4		
0630-415	Mechanical Vibrations	2	3	2		2		2
0630-415	Mechanical Vibrations	2	2	3				2

0630-421	Heat Transfer	2	2	3				
0630-447	Corrosion Control of Engineering Materials	4	4	4	4	4	4	4
0630-451	Mechanical Design II	2	3	3	3	3		3
0630-455	Computer-Aided Design	3	4	3	4	3		4
0630-456	Computer Aided Manufacturing	4	5	4	4	4		5
0630-459	Engineering Design	4	4	5	4	5	3	4
0630-475	Thermal Science Lab. II		1	2	3	3	3	
0630-481	Tribology and Lubrication	4	4	3	3	4		3
	Weighted Average	**3**	**3.1**	**3.3**	**3.4**	**3.7**	**3.1**	**3.5**
	Weighted Average for 400-level Courses	**2.9**	**3.1**	**3.2**	**3.7**	**3.1**	**3.3**	**3.5**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	Overall the class performance was disappointing. Only two students achieved the outcomes at a satisfactory level. Issues with class attendance, English comprehension and motivation remain.
0630-241	Materials Science and Metallurgy	In general, most of the students had a very-good performance throughout the semester. I had a good number of students with excellent performance who were eager to learn and ask questions about the subject. Many students performed satisfactorily in exams and quizzes. The number of students with poor performance was few. I assigned the course TA to provide review sessions before each exam. Also, a review session was given by the TA before the final exam. The new On-line Course System (OCS), http://ocs.eng.ku.edu.kw/, was utilized to take on-line quiz on phase diagram, phase transformation and thermal processing of metals (ch.11, ch.12, and ch.17). Also, the OCS website included many examples, animations and links to useful materials science websites.
0630-259	Introduction to Design	During this course, students are requested to acquire different skills that would need practical knowledge. Therefore, I suggest to dedicate more time for laboratory sessions to allow for students to apply these skills.
0630-322	Engineering Thermodynamics II	1) Most of the students have weak background in Thermodynamics 1 and/or they took it a long time ago. 2) Students do not read the textbook. 3) Students weak in English. 4) Some students do not attend the class. 5) about 10% of the class didn't do the project. Few stopped by the office to discuss the project with the instructor. 6) Need to enforce students to take Thermo 2 immediately after finishing Thermo 1.
0630-322	Engineering Thermodynamics II	Most students have problems in their background in Engineering Thermodynamics. Even-though about five lectures were spend in reviewing Engineering Thermodynamics, still the students have troubles. In addition, the students do not put a lot of effort on trying to understand the topics, and just try to memorize the topics, which in a course like Engineering Thermodynamics II, this approach will cause a lot of deficiency in understanding and fulfilling the requirements of the course. Also, the students do not put a lot of effort in solving homework problems. Engineering thermodynamics II depends heavily on practicing. This was not the case

		with most of the students. Students who worked hard in understanding the material and solving homework problems performed very will in this course, which is the case for four students.
0630-331	Fluid Mechanics I	The overall class performance is weak. It is only two students are seen to read the book and discuss problems with the instructor during the semester. Others are just reading the solution manuals plus other private instructors notes. I strongly believe the book is irrelevant to our students at this level. It covers the boundary layer topic at a late stage in the course. In addition to the difficult wordings of the book. I suggest changing the book for the future semesters.
0630-351	Mechanical Design I	The students show a good sign of interesting in the material. However, lack of knowledge in the mechanics of material affected the performance of the majority. Half of the covered materials were given in mechanics of material, material science, and manufacturing (chapters 1 and 2, three quarters of chapter 3, and half of the chapter 4). Therefore, I emphasized in the materials that they did not cover it in the previous courses such as Castigliano's method, buckling, failures, and fatigues.
0630-353	Manufacturing Processes	Report writing skills are below average for college students. The course can be expanded to include some nanomanufacturing processes.
0630-353	Manufacturing Processes	This course demands more hands on experience and less theory, therefore having field trips to local manufacturing facilities as part of the course curriculum should be mandatory to the student. Many of the students enjoyed the field trips and it help them recognize the theory of Manufacturing processes hands on. Also, the issue of English ability to read and write reports is still impacting the performance of some students in this course.
0630-421	Heat Transfer	Students were weak in math and physics. Their writing skills are below average. The students have difficulty understanding heat transfer problems with industrial applications.
0630-447	Corrosion Control of Engineering Materials	Reading difficulties was noticed and effective communication in writing reports was not to the level needed in senior students. It was mandatory to read external resources other than the text book and not many were able to comprehend the scientific language.
0630-455	Computer-Aided Design	This was a reasonably size small class. There was good interaction between the instructor and the students. We need to emphasize programming skills more. Hopefully, newly introduced Matlab based programming course will be instrumental in addressing this issue.
0630-456	Computer Aided Manufacturing	Course started with 35 students. At the end only 16 students completed the course. Several students withdrew and others decided to forfeit the course by getting an FA. Reasons for this attrition may be because many were Senior students who were overloaded with other courses and project and, therefore, could not keep up with the demands of this course. The students who remained performed well overall and they achieved to get higher grades. All who remained were interested in the topic and put in a lot of effort in the course.
0630-459	Engineering Design	This is my first time teaching this course. My first remark is that 3 months is not enough to completely conduct and

		implement the course requirements. The students are completely occupied by other courses which hindered their concentration on this course and its requirements. Second remark, the course design problems need to be standardized (along all instructors) from the point of view of what kind of engineering requirements (e.g., moving parts, max size and weight, level of control, manual vs automatic, etc.). My final remark is the need to encourage students to built their prototype in our workshop.
0630-475	Thermal Science Lab. II	The students worked well in teams performing the experiments, analyzing the data, and writing the reports. The quality of the reports, however, was below average. The students English writing is weak. The student syllabus was including experimental design activity We recommend, in the future, adding a simple solar energy experiment that includes experiment design and uncertainty analysis.
0630-481	Tribology and Lubrication	In this course, students were requested to develop computer codes to design for oil lubricated slider bearings. However, students showed weaknesses in programming skills, especially in using MATLAB. In addition, the communication skills for students were satisfactory (but lower than what expected from senior students).

Spring Semester 18/19

Instructors: **19**

Courses: **37**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-203								
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-259	Introduction to Design	L	H	H	M	H		M
0630-259	Introduction to Design	L	H	H	M	H		M
0630-311	Theory of Machines	H	M	L				M
0630-318	System Dynamics	H	M	M				
0630-318	System Dynamics	H	M	M				
0630-331	Fluid Mechanics I	H	L					
0630-351	Mechanical Design I	H	M		L			L
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-373	Mechanical Engineering Fundamentals Laboratory	H		H		L	H	
0630-415	Mechanical Vibrations	H	M	M	L			L
0630-415	Mechanical Vibrations	H	M	M	L			L
0630-417	Control of Mechanical Systems	H	H	M		L		L
0630-421	Heat Transfer	H	M	M				
0630-423	Computational Fluid Mechanics and Heat Transfer							
0630-424	Air conditioning and Refrigeration	M	H	M	M	L		L
0630-451	Mechanical Design II	H	H	M	M	L		M

0630-455	Computer-Aided Design	H	M	M	M	L		M
0630-459	Engineering Design	H	H	H	H	H	M	H
0630-459	Engineering Design	H	H	H	H	H	M	H
0630-461	Planned Maintenance							
0630-475	Thermal Science Lab. II		M	H	L	M	H	

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-203		3	3					
0630-241	Materials Science and Metallurgy	3			4		3	4
0630-241	Materials Science and Metallurgy	3			3		3	3
0630-259	Introduction to Design	3	3	4	4	3		4
0630-259	Introduction to Design	4	4	3	4	5		3
0630-311	Theory of Machines	2	2	3				1
0630-318	System Dynamics	2	2	3				
0630-318	System Dynamics	4	4	3				
0630-331	Fluid Mechanics I	4	4					
0630-351	Mechanical Design I	4	4		4			4
0630-353	Manufacturing Processes	4	4	5	5	5		
0630-353	Manufacturing Processes	4	4	3	3	3		
0630-353	Manufacturing Processes	4	3	4	3	4		
0630-373	Mechanical Engineering Fundamentals Laboratory	4		4		4	4	
0630-415	Mechanical Vibrations	3	3	2	1			2
0630-415	Mechanical Vibrations	3	2	3	3			2
0630-417	Control of Mechanical Systems	2	3	3		3		3
0630-421	Heat Transfer	4	4	3				
0630-423	Computational Fluid Mechanics and Heat Transfer	3		3		3	3	3
0630-424	Air conditioning and Refrigeration	3	4	3	3	3		3
0630-451	Mechanical Design II	2	3	3	3	3		3
0630-455	Computer-Aided Design	4	3	3	3	4		5
0630-459	Engineering Design	4	4	3	4	3	4	4
0630-459	Engineering Design	3	4	4	4	2	3	3
0630-461	Planned Maintenance	4	4		4		4	4
0630-475	Thermal Science Lab. II		5	5	5	5	5	
	Weighted Average	**3.3**	**3.5**	**3.4**	**3.6**	**3.6**	**3.9**	**3.2**
	Weighted Average for 400-level Courses	**3.1**	**2.6**	**2.6**	**2.5**	**2.5**	**2.9**	**3.3**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	Overall the performance of the students as a class was disappointing. Only six students passed; three achieved the outcomes at a very good level, and the other three at satisfactory to weak levels. The main issues were class attendance, study habits, English comprehension and motivation. I have tried review sessions, and that did nor work very well.

0630-259	Introduction to Design	The performance of students in this course was average. The main problem that student face in this course is mainly how to manage teamwork and time. All teams faced personal issues between the members and inability to function as a team. Lack of time management skills made two of the teams not being able to present a prototype for their chosen concepts. English language and presentation skills were very good almost for all students.
0630-259	Introduction to Design	The TA needs to be well trained and knowledgeable in evaluating reports and projects.
0630-318	System Dynamics	I believe that students who passed the course with C or above achieved most of the outcomes. In general, students lack some necessary mathematical skills.
0630-331	Fluid Mechanics I	Students did very well in the exams, and show great interest in the subject.
0630-351	Mechanical Design I	The students show a good sign of interesting in the material. However, lack of knowledge in the mechanics of material affected the performance of the majority. Half of the covered materials were given in mechanics of material, material science, and manufacturing (chapters 1 and 2, three quarters of chapter 3, and half of the chapter 4). Therefore, I emphasized in the materials that they did not cover it in the previous courses such as Castigliano's method, buckling, failures, and fatigues.
0630-353	Manufacturing Processes	Most students performed well in this course. The factory tours and extensive use of real-life examples helped maintain their interest.
0630-353	Manufacturing Processes	In general, the students had good-to-very good performance in exams and short tests. Few students did poor in exams and short tests. The assignment focused on long-life learning and communication skills related to manufacturing processes and product making (see assignment report). Trips to local manufacturers were made during the semester. Also, a visit was made to the local mechanical workshop in the College of Engineering and Petroleum. Finally, the instructor utilized OCS to provide lecture notes, on-line quiz (bonus quiz), assignment, practice problems, and tens of movies on different manufacturing processes.
0630-353	Manufacturing Processes	This course can be expanded to include some nanomanufacturing processes.
0630-417	Control of Mechanical Systems	This was relatively small class. Most students were not motivated to excel. They just wanted to pass the class, and they did by doing some minimal work. Some students were not well prepared with respect to pre-requisites (dynamics and system dynamics).
0630-421	Heat Transfer	Good group of students. Most of them did very well during the course. I prefer another textbook for this course, the textbook by Cengel.
0630-423	Computational Fluid Mechanics and Heat Transfer	Students lack good understanding of the physics and the basic concepts of heat transfer and fluid mechanics. They have no problem learning how to use ANSYS software. However, they have difficulties writing their own computer programs using Matlab. Their assignments and project report are not well written and show clearly the lack of technical writing skills.
0630-424	Air conditioning and Refrigeration	I am teaching two classes of ME 424 in which around 30 students were registered per class. I struggled with organizing them into groups due to the large number of

		students. This course is an applied course and therefore, a cap should be set on the number of students. The students were interested in this course when we spoke about Kuwait practice in HVAC. However, some students lacks the motive to interact with any topic outside the courses's curriculum. Some students does not interact or perform the task without any promised reward (i.e., bonus points). As for the course's project, some students lacks the ability to defend their own statements during the oral presentations. I gave two midterms and one final exam and students preformed good in general. The students lean toward the written problem compared to the conceptual problems. However, they do better in the conceptual one. In summary, my recommendation is to keep the number for students low for this course all the time. This is very applied course and students enjoy the application aspect of it.
0630-455	Computer-Aided Design	Regardless of the software being used, building and sharing a collaborative framework for classroom activities will have a significant impact on the outcomes of the course objectives.
0630-475	Thermal Science Lab. II	Excellent group of students

Summer Semester 18/19

Instructors: **8**

Courses: **8**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-311	Theory of Machines	H	M	L				M
0630-318	System Dynamics	H	M	M				
0630-341	Materials Science and Metallurgy II							
0630-428	Power Plant Engineering	H	H		M	M		
0630-475	Thermal Science Lab. II		M	H	L	M	H	

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	3			4		3	3
0630-311	Theory of Machines	3	2					3
0630-318	System Dynamics	2	3	3				
0630-341	Materials Science and Metallurgy II	4	4	3	3	3	3	3
0630-428	Power Plant Engineering	2	3		3	3		
0630-475	Thermal Science Lab. II		5	4	5	5	4	
	Weighted Average	**2.5**	**3.2**	**3.6**	**3.8**	**4**	**3.8**	**3**
	Weighted Average for 400-level Courses	**2.0**	**3.8**	**4.0**	**3.7**	**4.0**	**4.0**	**0**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	Even though the student number was very small, the conclusions are similar to larger classes. The main issue with one of the students was English comprehension. Common to both students was the lack of focus, and weak problem solving skills, which involves reading problems carefully, comprehending the requirements, applying methods correctly, and evaluating the results.
0630-318	System Dynamics	System dynamics is a critical course. They start modeling and solving some open-ended questions. Students must pass this course with good understanding to be able to start the vibration course.
0630-341	Materials Science and Metallurgy II	The performance of students was generally very good since most of the students had good background from the preliminary course (ME 241 Materials Science & Metallurgy). I had a good number of students with excellent performance who were eager to learn and ask questions about the subject. Many students performed good in exams and quizzes. The number of students with poor performance was very low. There was a major assignment to students (conducted as groups) to select a topic on advanced engineering materials (see examples of assignment report). The On-line Course System (OCS) was utilized for lecture notes, examples, and several links to useful materials science videos and websites.
0630-428	Power Plant Engineering	Students writing and communication skills are weak. They lack a good understanding of the basic concepts of thermodynamics and heat transfer. They also were not prepared to perform optimization on energy systems using high-level mathematics.

Petroleum Engineering Program

Fall Semester 18/19

Instructors: **10**
Courses: **21**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-324	Reservoir Engineering	H			L			M
0650-341	Oil Well Drilling and Completion	H	M		L	M		M
0650-342	Mud and Cement Laboratory	L		H	M	H	H	
0650-342	Mud and Cement Laboratory	L		H	M	H	H	
0650-354	Well Logging	M	L	L	L	L	H	H
0650-355	Well Logging Laboratory	M	L	L	L	L	H	H
0650-355	Well Logging Laboratory	M	L	L	L	L	H	H
0650-411	Petroleum Production Engineering	H	H	M	M	M		L
0650-411	Petroleum Production Engineering	H	H	M	M	M		L
0650-427	Secondary Recovery	H	M	M	M	H	M	H
0650-432	Well Testing	H		L	M		H	M
0650-435	Production Equipment Design	H	H	H	M	H		M
0650-437	Numerical Methods in Petroleum Engineering	H	M	M	H	M		H
0650-449	Petroleum Economics	M		M	H	L		H
0650-450	Industrial Training	H	H	H	H	H	H	H
0650-467	Advanced Well Control Operations							
0650-496	Well Design	H	H	H	H	H	H	H
0650-496	Well Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-324	Reservoir Engineering	4			4			4
0650-341	Oil Well Drilling and Completion	5	4	5	4	5		4
0650-342	Mud and Cement Laboratory	3		3	4	5	5	
0650-342	Mud and Cement Laboratory	3		3	4	5	5	
0650-354	Well Logging	4	3	3	4	3	4	4
0650-355	Well Logging Laboratory	5	4	3	3	3	4	4
0650-355	Well Logging Laboratory	3	3	4	4	3	4	4
0650-411	Petroleum Production Engineering	4	5	4	4	5		3
0650-411	Petroleum Production Engineering	2	3	4	3	4		4
0650-427	Secondary Recovery	4	4	3	3	3	5	4
0650-432	Well Testing	4		4	4		4	4
0650-435	Production Equipment Design	3	4	4	5	5		5
0650-437	Numerical Methods in Petroleum Engineering	3	3	4	3	3		4
0650-449	Petroleum Economics	2		2	3	3		3
0650-450	Industrial Training	4	3	4	5	5	4	4
0650-467	Advanced Well Control Operations	5	5		4		4	5
0650-496	Well Design	5	5	5	4	5	5	4

0650-496	Well Design	5	5	5	5	5	5	5
	Weighted Average	**3.8**	**4**	**3.8**	**3.9**	**4.4**	**4.5**	**4**
	Weighted Average for 400-level Courses	**3.5**	**3.1**	**3.3**	**3.7**	**3.0**	**3.0**	**4.1**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-341	Oil Well Drilling and Completion	Only 1 student performed excellent in the class. Most of the student lacks basic fluid mechanics knowledge and application of basic fluid mechanics principles.
0650-411	Petroleum Production Engineering	The student are weak in scientific programming skills. Also, the student may have a reasonable understanding of component of petroleum production system, but they lack the integrative understanding of the inter system at work. Furthermore, the students lack some concepts in phase behavior and fluid mechanics, which was clearly demonstrated in their exams and quizzes.
0650-435	Production Equipment Design	In general, the students in this course showed a significant abilities in applying their engineering and science fundamentals in a complex and challenging problem in which actual field data was used to simulate reality. In addition, the student were able to integrate engineering with social, environmental, economic factors to develop and comprehensive solution. The main weakness of the students is the ability in written communication skills, which requires either to strength the existing technical writing course or add another one.
0650-467	Advanced Well Control Operations	PE467 "Advance Well Control Operations" is an excellent course that teaches students Well control operations thoroughly. Students who take this course always scores the highest in the IADC and IWCF well control certificate exams.

Spring Semester 18/19

Instructors: **12**

Courses: **26**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0650-221	Reservoir Rock Properties	M			L			L
0650-241	Fluid Mechanics	H	L	L	M	L	L	M
0650-251	Introduction to Design	H	H	H	H	H	H	L
0650-322	Reservoir Rock Laboratory	L		H	M	M	H	
0650-323	Phase Behavior of Reservoir Fluids	H		L	M	L		M
0650-324	Reservoir Engineering	H			L			M
0650-333	PVT Laboratory	L		H	M	M	H	
0650-341	Oil Well Drilling and Completion	H	M		L	M		M
0650-341	Oil Well Drilling and Completion	H	M		L	M		M
0650-411	Petroleum Production Engineering	H	H	M	M	M		L
0650-425	Natural Gas Reservoir Engineering	H		H	M			M

0650-432	Well Testing	H		L	M		H	M
0650-435	Production Equipment Design	H	H	H	M	H		M
0650-435	Production Equipment Design	H	H	H	M	H		M
0650-437	Numerical Methods in Petroleum Engineering	H	M	M	H	M		H
0650-437	Numerical Methods in Petroleum Engineering	H	M	M	H	M		H
0650-450	Industrial Training	H	H	H	H	H	H	H
0650-485	Introduction to Geostatistics	H	L	M	L	L	H	H
0650-496	Well Design	H	H	H	H	H	H	H
0650-496	Well Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-221	Reservoir Rock Properties	4			3			3
0650-241	Fluid Mechanics	5	2	1	2	1	4	4
0650-251	Introduction to Design	5	5	5	4	4	5	3
0650-322	Reservoir Rock Laboratory	4		4	3	4	4	
0650-323	Phase Behavior of Reservoir Fluids	1		3	2	3		1
0650-324	Reservoir Engineering	2			3			2
0650-333	PVT Laboratory	3		3	3	3	3	
0650-341	Oil Well Drilling and Completion	4	4		4	3		4
0650-341	Oil Well Drilling and Completion	4	4		5	4		5
0650-411	Petroleum Production Engineering	3	4	3	4	4		4
0650-425	Natural Gas Reservoir Engineering	3		3	3			3
0650-432	Well Testing	3		4	4		4	3
0650-435	Production Equipment Design	5	4	5	4	5		5
0650-435	Production Equipment Design	5	4	5	4	5		5
0650-437	Numerical Methods in Petroleum Engineering	3	2	3	4	3		2
0650-437	Numerical Methods in Petroleum Engineering	3	3	3	4	3		3
0650-450	Industrial Training	5	4	4	5	4	4	5
0650-485	Introduction to Geostatistics	3	3	3		3	3	3
0650-496	Well Design	5	5	5	5	5	5	5
0650-496	Well Design	5	5	5	5	5	5	5
	Weighted Average	**3.8**	**4**	**3.9**	**3.9**	**4**	**4.1**	**3.7**
	Weighted Average for 400-level Courses	**3.9**	**4.0**	**4.0**	**4.1**	**4.3**	**4.2**	**3.9**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-221	Reservoir Rock Properties	student are getting low grades in homeworks. text book is not available due to bookshop delay and ordering of books by previous instructors. Students need more exposure to units conversion. some students are not taking the lab with the course rather they delay it for one semester. copying assignments is a problem.
0650-241	Fluid Mechanics	This is a fundamental course in the PE curriculum. Students learned basic fluid flow fundamentals and how to setup flow problems with some applications to petroleum engineering.

0650-251	Introduction to Design	students are enjoying working to build their projects. some soft skills like presentation need to be improved.
0650-322	Reservoir Rock Laboratory	plagiarism should be checked. class size should be reduced and student should take the lab with its course together
0650-323	Phase Behavior of Reservoir Fluids	I encourage the students to take some basic computer course to learn how to do simple calculations and chart reading. The students needs to learn how to make engineering judgement about the answer when it comes to calculations of fluid property.
0650-324	Reservoir Engineering	This course is the only required reservoir engineering course. The students should exert a lot of effort to comprehend the course and carry the acquired knowledge through their academic career and to the workplace. The prerequisites of this course are very important. To make most benefit of this class, students should have excellent understanding of rock properties and phase behavior of petroleum fluids. I recommend that this course should be given a higher number, i.e., 400 level, so that the students will be more academically prepared to comprehend the material. Furthermore, the students are reluctant to take the extra step of self-learning.
0650-411	Petroleum Production Engineering	I noticed the students lacks scientific fundamental of phase behavior, fluid mechanics, and heat transfer. The students were never exposed to heat transfer physical concepts or predictive models for oil well system in their academic life. There is no course on heat transfer in the PE curriculum. English communication skills of the student, in average, are humble.

Summer Semester 18/19

Instructors: **4**

Courses: **5**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-425	Natural Gas Reservoir Engineering	H		H	M			M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-425	Natural Gas Reservoir Engineering	3		4	3			3
	Weighted Average	**3**	**0**	**4**	**3**	**0**	**0**	**3**
	Weighted Average for 400-level Courses	**3**	**0**	**4**	**3**	**0**	**0**	**3**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-425	Natural Gas Reservoir Engineering	Students should be given some tutorial classes at the beginning of each semester as how to answer a question. what is the difference between the word state, explain, and discuss ? How to make a judgement about the answer? it is logical/ acceptable? How to chose x-axes and y-axes scale?

Core Engineering Courses

Fall Semester 18/19

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-200	Computer Programming for Engineers	H						L
0600-202	Statics	M		M				
0600-202	Statics	M		M				
0600-202	Statics	M		M				
0600-202	Statics	M		M				
0600-203	Dynamics	H						
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-205	Electrical Engineering Fundamentals	H						H
0600-208	Engineering Thermodynamics	H			L			
0600-208	Engineering Thermodynamics	H			L			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING							
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-310	ENGINEERING ETHICS			M	H	L		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-200	Computer Programming for Engineers	3						3
0600-202	Statics	2		3				
0600-202	Statics	3		3				
0600-202	Statics	5		5				
0600-202	Statics	3		3				
0600-203	Dynamics	2						
0600-204	Strength of Materials	4	3					4
0600-204	Strength of Materials	3	2					
0600-204	Strength of Materials	3	2					
0600-204	Strength of Materials	3	2					3
0600-205	Electrical Engineering Fundamentals	4						3
0600-208	Engineering Thermodynamics	5			4			
0600-208	Engineering Thermodynamics	3			3			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			5			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	3			3			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	3			3			
0600-209	Engineering Economy	5			4			
0600-304	Engineering Probability and Statistics	4			4		4	4
0600-304	Engineering Probability and Statistics	3						
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-304	Engineering Probability and Statistics	3			3		3	3
0600-304	Engineering Probability and Statistics	3					3	3
0600-304	Engineering Probability and Statistics	3			3		4	3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4		5				5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4						5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4						4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4				4		4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3				4		3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				5		5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3				3		3
0600-310	ENGINEERING ETHICS			3	4	3		3
	Weighted Average	**3.6**	**2.3**	**3.4**	**3.8**	**3.9**	**4**	**3.5**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-202	Statics	NA
0600-202	Statics	NA
0600-202	Statics	- Both outcomes are evaluated at the "Excellent" level. - Continue to monitor the outcomes in upcoming semesters.
0600-204	Strength of Materials	The course was administered in a unified manner across all six sections. Two outcomes are addressed by this course (1 and 2). Student performance is close to satisfactory for outcome 1 (analysis) while it is weak for outcome 2 (Design). Weak performance in design could be due to the fact that this is the first course in engineering design and students are not familiar with the open-ended nature of a design problem. Student performance in this outcome will be monitored in subsequent semesters.
0600-208	Engineering Thermodynamics	1) Most of students do not read their textbooks. 2) Students are weak in English. 3) Lot of students copy their HW. 4) Some senior students take this 200-level class (Computer, Civil, maybe aother departments)
0600-208	Engineering Thermodynamics	In general, the student's performance was satisfactory. Most of the students lack programming skills, they have difficulty using EES. Some extra lecture should be provided to teach them EES with examples.
0600-209	Engineering Economy	Although it was a relatively large class, I feel that each student benefited from the lectures. Students were mostly attentive and kept up because of the quizzes and homework assignments that they needed to submit. I made sure that they read the textbook and not entirely relied on the class slides during their review for quizzes and exams. Overall, they performed as expected and most of them did very well.
0600-304	Engineering Probability and Statistics	Better command of English is needed. More emphasis on real problems as related to the local culture.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students have to expose more on coding and programming. Most of the students took the calculus, linear algebra, and differential equation long time ago so they show some struggle in understanding the concept of the numerical method. I strongly recommend to increase the weight of the midterms grades to 40% and decrease the final weight to 30%. The remaining 30% will be distributed as 15% lab activity, 7.5% MATLAB quizzes, and 7.5% in-class MATLAB written quizzes or MATLAB assignments. The proposed distribution of the grades will make sure that the students who is not strong enough on MATLAB and does not have adequate knowledge in MATLAB will not pass the class.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	1) Please note that outcome 5 is not applicable to this course. 2) Please change the relevance of outcome 7 to M

Spring Semester 18/19

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-203	Dynamics	H						
0600-204	Strength of Materials	H	M					L
0600-204	Strength of Materials	H	M					L
0600-208	Engineering Thermodynamics	H			L			
0600-208	Engineering Thermodynamics	H			L			
0600-208	Engineering Thermodynamics	H			L			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING							
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING							
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING							
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-308	Numerical Methods in Engineering	H						L
0600-308	Numerical Methods in Engineering	H						L
0600-310	ENGINEERING ETHICS			M	H	L		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-203	Dynamics	3						
0600-204	Strength of Materials	4	4					3
0600-204	Strength of Materials	3	3					3
0600-208	Engineering Thermodynamics	2			3			
0600-208	Engineering Thermodynamics	3			3			
0600-208	Engineering Thermodynamics	4			3			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			4			
0600-209	Engineering Economy	4			5			
0600-304	Engineering Probability and Statistics	4			4		4	4
0600-304	Engineering Probability and Statistics	3					3	3
0600-304	Engineering Probability and Statistics	4			3		4	4

0600-304	Engineering Probability and Statistics	4			3		4	4
0600-304	Engineering Probability and Statistics	4			4		5	4
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-304	Engineering Probability and Statistics	3			4		4	4
0600-304	Engineering Probability and Statistics	4			4		5	3
0600-304	Engineering Probability and Statistics	4			3		4	3
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4		4				5
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4	1	3	2	2	3	4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4	3	3	3	3	3	3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4				3		3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3				3		3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4				3		
0600-308	Numerical Methods in Engineering	4						3
0600-308	Numerical Methods in Engineering	3						3
0600-310	ENGINEERING ETHICS			3	4	3		3
	Weighted Average	**3.6**	**3.5**	**3**	**3.7**	**3**	**4.3**	**3.5**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-203	Dynamics	The performance of this course students is below average. The students have the ability to understand the fundamental but lacks the skill of solving problems which clearly identified in both quizzes and exams.
0600-204	Strength of Materials	This class was weak and students did not have interest to learn. Most of them were searching through the mobiles during the lectures.
0600-204	Strength of Materials	Average / satisfactory class performance. Students should be forced to do more exercises and practice to improve performance. The way transformation of stresses using Mohr's circle is currently taught is not appropriate. Mohr's circle should be taught as a pure graphical technique or it should be removed from the course contents as in the current mixed analytical-graphical way, students use analytical expressions and trigonometric relationships only and do not get the true sense of state of stress in the element. I would also suggest re-introducing indeterminate thermal stress calculations in the course contents. Outcome 7 with a relevance of L is not addressed in the course at all. It should be removed from the course.
0600-208	Engineering Thermodynamics	The homework assigned in this course is not effective --a different strategy should be developed to encourage students to practice problem-solving. Computer programs, such as EES, should be given more time and used to enhance students understanding of the basic concepts. Students have difficulty with units---should be addressed in future teaching of this course.
0600-208	Engineering Thermodynamics	Currently we cover upto chapter 8. I suggest we cover upto chapter 7. Make the course prerequisite for other courses in civil, electrical and computer engineering departments. Many students from these departments take this course in their graduation semester.

0600-208	Engineering Thermodynamics	1- Students weak in English. 2- Students do not read their textbook. 3- Several students copy their HW. 4- The number of Cheating Students is increasing. 5- Then number of students per section should be decreased to allow more time between the professor and his/her students for discussions and interactions (<=25).
0600-209	Engineering Economy	This semester an effort was done by the ENGR 209 Coordinator to unify midterm exams and final exam among three sections. My section was one of the participating sections. The experience was useful and helped standardize the material presented to students.
0600-304	Engineering Probability and Statistics	This was a small class. Except those students who passed the course with a grade above C, overall class motivation was poor. On the other hand, those students who passed the course had a good understanding of the subject and achieved all course outcomes. Minitab experience was very good. There is a need to acquire and adopt a software such as Minitab. With the use of Minitab and a more efficient textbook, it is possible to cover more material and include some introduction to regression analysis as well. Unfortunately, the way the course is coordinated at the college level is hindering course development. Some important topics are left out without justification. Also, the multiple choice exams are not the best method to assess the course outcomes.
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculators. However, most of them have problems in English communication especially reading comprehension, which is essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculators. However, most of them have problems in English communication especially reading comprehension, which is essential in this course to interpret the problems and formulate the solution.
0600-304	Engineering Probability and Statistics	1- Students do not read the textbook. 2- Students are weak in multiple integration. 3- It is better to have a common Tutorial sessions for all students. 4- Individual project is highly recommended for this course. 5- Some topics need to be added and covered for students. 6- Full MCQs exam is not recommended for such a course. 7- The textbook need to be revised.
0600-304	Engineering Probability and Statistics	Must emphasize engineering applications of probability & statistics
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students have to expose more on coding and programming. Most of the students took the calculus, linear algebra, and differential equation long time ago so they show some struggle in understanding the concept of the numerical method. I strongly recommend to increase the weight of the midterms grades to 40% and decrease the final weight to 30%. The remaining 30% will be distributed as 15% lab activity, 7.5% MATLAB quizzes, and 7.5% in-class MATLAB written quizzes or MATLAB assignments. The proposed distribution of the grades will make sure that the students who is not strong enough on MATLAB and does not have adequate knowledge in MATLAB will not pass the class.

0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	I would like to suggest the following: 1. We should implement the common grading system like what is done in electrical engineering department. 2. I suggest having two parts in the 2nd and final exams. The 1st part covers the numerical methods and the 2nd one covers the MATLAB. This will help us to critically identify the deficiency and weaknesses of our students. 3. I think it is better to have programming exam in the lab (5-10%). 4. Give less weight for the homework and lab activities. I may suggest the following grading system: Exam 1 15% Exam 2 20% Final 40% Quizzes in class 10% Programming exams (in the lab) 8% Lab Activities 5% Homework 2%
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Computer programming should be taught in a separate course to dedicate more time in improving students' programming skills.

Summer Semester 18/19

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-208	Engineering Thermodynamics	H			L			
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-304	Engineering Probability and Statistics	H			L		M	M
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING							

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-208	Engineering Thermodynamics	4			3			
0600-304	Engineering Probability and Statistics	3			2		3	4
0600-304	Engineering Probability and Statistics	5			4		4	3
0600-304	Engineering Probability and Statistics	4			3		5	4
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	3				4		3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	4		4				5
	Weighted Average	**3.8**	**0**	**0**	**3**	**4**	**4**	**3.6**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-208	Engineering Thermodynamics	Overall good performance
0600-304	Engineering Probability and Statistics	Students are good in using specialized software and engineering tools related to the course, i.e., programmable hand-held calculators. However, most of them have problems in English communication especially reading comprehension, which is essential in this course to interpret the problems and formulate the solution.

0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students are acquiring good programming knowledge. They can't be considered as good programmers, however, it is believed that they have enough background to understand how programs and applications functions, and most importantly how to use computers and programming in solving engineering problems. For an average student, he/she can become good programmers in MATLAB or any other programming language, provided that they are self motivated. The students are also well prepared for another course (core or elective) that uses MATLAB programming.
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Students have to expose more on coding and programming. Most of the students took the calculus, linear algebra, and differential equation long time ago so they show some struggle in understanding the concept of the numerical method. I strongly recommend to increase the weight of the midterms grades to 40% and decrease the final weight to 30%. The remaining 30% will be distributed as 15% lab activity, 7.5% MATLAB quizzes, and 7.5% in-class MATLAB written quizzes or MATLAB assignments. The proposed distribution of the grades will make sure that the students who is not strong enough on MATLAB and does not have adequate knowledge in MATLAB will not pass the class.

Instructor Class Evaluation Form

Kuwait University

College of Engineering & Petroleum

Instructor Class Evaluation Form

Course Number and Title:
Instructor:
Semester:
Number of times that you taught this course at KU:

EVALUATION METHOD	**GRADING SYSTEM**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
TOTAL	*100 %*

	GRADE DISTRIBUTION													
	A	A–	B+	B	B–	C+	C	C–	D+	D	F *or* FA	Sum	I	W
Weight (W)	4.0	3.6	3.3	3.0	2.6	2.3	2.0	1.6	1.3	1.0	0.0	–	–	–
No. of Students (N)												**ΣN =**		
N*W												**Σ(W*N) =**		

CLASS GPA = Σ (W* N) / Σ N = _____

CLASS GPA without (F or FA) = _____

Program Outcomes	Relevance				Performance					Explanation Activities and Practices	Interpretation & Evidence
	Not Relevant	Somewhat	Moderately	High Relevant	Very Weak	Weak	Satisfactory	Very Good	Excellent		
1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☐	☐	☐	☐	☐	☐		
2. 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. Communicate effectively with a range of audiences.	☐	☐	☐	☐	☐	☐	☐	☐	☐		
4. 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. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	☐	☐	☐	☐	☐		
6. Develop and conduct appropriate experimentation analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☐	☐	☐	☐	☐	☐		
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Remarks and Suggestions:

_____

_____

_____

Instructions for Course Assessment

Kuwait University
College of Engineering and petroleum
Office of Academic Assessment

Instructions for Course Assessment

Introduction

All instructors at the college should carry out course assessment and submit a course assessment file to the departmental assessment coordinators at the end of the term. In the following some guidelines on how to prepare an assessment file are given:

Objectives of Course Assessment

- To obtain direct measurements of student performance
- To assure that students are acquiring the required outcomes
- To assure that learning experiences are consistent with the outcomes
- To establish the required feedback loops

The items to be included in the course assessment file

- A hardcopy of completed instructor class evaluation form (ICEF) submitted online.
- A copy of the list of final grades
- Course syllabus including the following information as a minimum
    - Instructor contact details and office hours
    - Textbook and references
    - Tentative course outline
    - Dates of mid-term and final exams
    - Grading policy
- A list of course outcomes and their relationship with the college or program outcomes (Course description and classification)
- A copy of final exam and major term project(s)
- Summary data and analysis from various assessment tools (e.g., oral and written report evaluation, teamwork, self evaluations)
- Samples of student works supporting the ICEF (e.g., key assignments, homework, exams, project reports, essays etc.)
- Any other supporting material demonstrating student achievement (e.g., sample class portfolios, video recordings, etc.)

Instructor Class Evaluation Form

The main assessment tool used for the course assessment is the Instructor Class Evaluation Form. This form reports the grade distribution as well as the assessment of program student outcomes served by the course. First, the instructors are asked to indicate the level of importance of each outcome as it relates to the course. Normally, this rating should have been already assigned by the Teaching Area Group using the following guidelines:

H (highly relevant (3)): Demonstrating this outcome is critical for the students to perform successfully; or the students may benefit significantly from this course toward the outcome (formal instruction, practice, assessment).

M (Moderately relevant (2)): Demonstrating this outcome has considerable impact on the overall performance of the student, or the students may benefit moderately from this course toward the outcome (informal instruction, practice, and assessment).

L (Somewhat relevant (1)): Demonstrating this outcome has only minor impact on the overall performance of the student. However, there are opportunities to observe this outcome (practice and assessment).

The instructors then evaluate student performance relative to what is normally expected from them at their level according to the following scale:

- Students' performance was very weak (1)
- Students' performance was weak (2)
- Students' performance was satisfactory (3)
- Students' performance very good (4)
- Students' performance excellent (5)

The best method of evaluation of the student achievement is to assess individual students relative to the outcomes. Then, an average rating can be obtained for the whole class. The rating should be justified by referring to specific student works or assessment results.

The instructors are also asked to provide feedback on the course content and outcomes, instructional and assessment methods. They also comment on the achievement of program outcomes and indicate any deficiencies observed.

Assessment Methods

The assessment methods include but not limited to the following:

- Performance Appraisals (e.g., written and oral presentations, teamwork, lab experiments, artwork, etc.)
- Surveys (Online tools, or custom designed forms seeking student perception of learning gains, or their opinions on certain aspects)
- Traditional assessment methods (Exams, homework, project, etc.)

Assessment Tools

The following is a list of available assessment instruments to be used in course assessment. Instructors are encouraged to use standard tools as much as possible to facilitate analysis. However, these tools can be modified to suit a specific course, or additional tools can be adopted.

- Written report evaluation form or rubric
- Oral presentation evaluation form or rubric
- Lab report evaluation form or rubric
- Teamwork evaluation form or rubric
- Term Project evaluation form or rubric
- Final Exam evaluation form or rubric

The instructors are encouraged to submit summary statistical data in addition to the copies of the completed forms.

APPENDIX B:
EXIT SURVEY RESULTS

For Academic year 2018-2019

October 2019

Introduction:

This report presents the College of Engineering and Petroleum Exit Survey Results for the academic year 2018-2019. The exit survey form, given below, was provided to students online. Graduating students presenting their capstone projects during the engineering design day must provide proof of completing the survey to the Engineering Training and of Alumni Center (ETAC).

The survey is maintained and conducted by the Office of Academic Assessment (OAA). The overall college results are analyzed in the following pages. The data for individual departmental results is also given below, and they are provided accordingly for further analysis and reporting as part of their program assessment process.

Survey Statistics:

The exit survey form contains five parts covering different aspects that the College of Engineering and Petroleum consider important for students to assess. The first part is about the assessment of engineering student skills where the first 15 questions are common among all departments, and the rest are customized by each program. The second part is about the assessment of the importance of educational objectives to the careers of graduating students. The third part is about the assessment of the learning environment. The fourth part covers the assessment of support services, and the fifth part is a general assessment that includes open ended questions.

A total of **780** students participated in the exit survey during the academic year 2018-2019. Table 1 shows the number of students participated in the survey according to program and gender.

Table 1 Exit survey participation breakdown

Department	Total Responses	Gender	Response	Percentage
CHEMICAL	110	Male	25	23%
		Female	85	77%
CIVIL	186	Male	28	15%
		Female	154	83%
COMPUTER	88	Male	11	13%
		Female	73	83%
ELECTRICAL	217	Male	42	19%
		Female	174	80%
IMS	47	Male	0	0%
		Female	46	98%
MECHANICAL	81	Male	19	23%
		Female	58	72%
PETROLEUM	51	Male	10	20%
		Female	41	80%
TOTAL	780	Male	135	17%
		Female	631	81%

Survey Results:

Table 2 shows students' intentions for their future plans. Most of the students (74%) expect to work for the government, 54% for the private sector, 29% of the students are planning or at least thinking of joining a graduate program, and 28% start their own business.

Table 3 shows students' feedback for the first group of questions in the exit survey, which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average rating and the satisfaction index (SI) out of 5 and as percentage for each item which is the percentage of the students who evaluated themselves as well prepared and very well prepared. An SI value lower than 50 % may be considered to indicate dissatisfaction.

Table 2 Students Future Plans

Plans	N	%
Intend to work in the government sector.	**581**	**74%**
Intend to work in the private sector.	**421**	**54%**
Intend to go to graduate school.	**227**	**29%**
Intend to start my own business	**222**	**28%**
Intend to do other things	**58**	**7%**
Continue my study		
Freelancing		
continue studying		
pursue masters degree		
oil sector		
Volunteering / part job		
to work on saving the environment.		
continue my studies my master's degree		
Have a rest		
Master degree and PHD		
KOC		
Upgrade my position and go to graduate master degree		
M.A. degree		
Personal projects		
apply to Kuwait's fund		
Improve my skills		

Table 3 Assessment of the outcome attributes acquired at Kuwait University – Engineering programs

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	263	295	174	26	2	25	4	**3.7**
		34%	38%	22%	3%	0%	3%	80%	**74%**
2	Design and conduct experiments, as well as to analyze and interpret data.	215	309	191	33	12	25	3.9	**3.4**
		27%	39%	24%	4%	2%	3%	78%	**68%**
3	Design a system, component, or process to meet desired needs.	216	257	227	51	9	25	3.8	**3.1**
		28%	33%	29%	6%	1%	3%	76%	**62%**
4	Function effectively in teams.	294	252	161	41	12	25	4	**3.6**
		37%	32%	21%	5%	2%	3%	80%	**72%**
5	Identify, formulate, and solve engineering problems.	249	288	189	29	5	25	4	**3.5**
		32%	37%	24%	4%	1%	3%	80%	**70%**
6	Understand professional and ethical responsibilities, (e.g. safety, professional ethics, code of conduct).	287	231	185	37	16	29	4	**3.4**
		37%	29%	24%	5%	2%	4%	80%	**68%**
7	Communicate effectively (written reports).	256	246	196	47	10	30	3.9	**3.3**
		33%	31%	25%	6%	1%	4%	78%	**66%**
8	Communicate effectively (oral presentations).	233	245	205	54	24	24	3.8	**3.1**
		30%	31%	26%	7%	3%	3%	76%	**62%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	256	247	202	44	11	25	3.9	**3.3**
		33%	31%	26%	6%	1%	3%	78%	**66%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	253	244	210	41	7	30	3.9	**3.3**
		32%	31%	27%	5%	1%	4%	78%	**66%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	194	253	216	77	12	33	3.7	**3**
		25%	32%	28%	10%	2%	4%	74%	**60%**
12	Ability to use computing technology in communications.	259	237	203	49	11	26	3.9	**3.3**
		33%	30%	26%	6%	1%	3%	78%	**66%**
13	Ability to use computing technology in engineering analysis/design.	235	241	216	56	11	26	3.8	**3.1**
		30%	31%	28%	7%	1%	3%	76%	**62%**
14	Ability to use state of the art techniques, and tools in engineering practice.	206	219	237	67	15	41	3.7	**2.9**
		26%	28%	30%	9%	2%	5%	74%	**58%**
15	Apply the knowledge of probability and statistics.	184	217	245	82	28	29	3.6	**2.7**
		23%	28%	31%	10%	4%	4%	72%	**54%**

Transition to the New Student Outcomes (1-7)

The student outcomes were recently revised by ABET for programs seeking accreditation in 2019-2020 cycle and later. The proposed modifications changed the eleven student outcomes (a-k) to only seven student outcomes (1-7). A mapping framework is developed to properly implement these changes during the transition period.

Both the previous 11 (a-k) and new 7 student outcomes are shown below. The mapping is then presented:

Previous Student Outcomes (a-k)

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multidisciplinary teams
5. an ability to identify, formulate, and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The New Student Outcomes (1-7) (Implemented, Fall 2018)

8. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
9. 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
10. an ability to communicate effectively with a range of audiences
11. 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. 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
13. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
14. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The mapping framework of student outcomes SOs is given below:

			2019-2020 cycle						
			1	2	3	4	5	6	7
Previous Student Outcomes	1	*a*	✓						
	2	*b*						✓	
	3	*c*		✓					
	4	*d*					✓		
	5	*e*	✓						
	6	*f*				✓			
	7	*g*			✓				
	8	*h*				✓			
	9	*i*							✓
	10	*j*				✓			
	11	*k*	(✓)	(✓)				(✓)	

$$SO_1 = 0.8 * \left(\frac{SO_1+SO_5}{2}\right) + 0.2 * (SO_{11})$$
$$SO_2 = 0.8 * (SO_3) + 0.2 * (SO_{11})$$
$$SO_3 = SO_7$$
$$SO_4 = \left(\frac{SO_6+SO_8+SO_{10}}{3}\right)$$
$$SO_5 = SO_4$$
$$SO_6 = 0.7 * (SO_2) + 0.3 * (SO_{11})$$
$$SO_7 = SO_9$$

Calculation of averages for the new outcomes based on the previous outcomes

As mentioned before, additional outcome attributes were articulated by different programs to further examine specific aspects of students learning. Different departments typically use 15-17 SOs for that purpose. Therefore, another mapping framework is used to map the common 15 outcomes to the 11 SOs.

			Previous cycle										
			1	2	3	4	5	6	7	8	9	10	11
Student Outcomes Elements	1	*a*	✓										
	2	*b*		✓									
	3	*c*			✓								
	4	*d*				✓							
	5	*e*					✓						
	6	*f*						✓					
	7	*g*							✓				
	8	*h*							✓				
	9	*i*								✓			
	10	*j*									✓		
	11	*k*										✓	
	12	*l*											✓
	13	*m*											✓
	14	*n*											✓
	15	*o*	✓										

$$SO_1 = \left(\frac{SO_1+SO_{15}}{2}\right)$$
$$SO_2 = SO_2$$
$$SO_3 = SO_3$$
$$SO_4 = SO_4$$
$$SO_5 = SO_5$$
$$SO_6 = SO_6$$
$$SO_7 = \left(\frac{SO_7+SO_8}{2}\right)$$
$$SO_8 = SO_9$$
$$SO_9 = SO_{10}$$
$$SO_{10} = SO_{11}$$
$$SO_{11} = \left(\frac{SO_{12}+SO_{13}+SO_{14}}{3}\right)$$

Calculation of averages for the 11 outcomes based on the measurements of the 15 outcome elements

Following the mapping procedure outlined above, the statistics of Table 3 are shown in Table 4 according to the new student outcomes (1-7); acquired at Kuwait University – Engineering programs

Figure 1 shows the average rating and satisfaction index for the new student outcomes. As it can be seen, the students are satisfied by the outcomes acquired at the college and university.

Table 5 shows students' feedback for the group of questions about how important the educational objectives are to their careers. Figure 2 shows the average rating and satisfaction index for this group of questions.

Table 6 shows students' feedback for the group of questions about their level of satisfaction for the learning Environment at Kuwait University. Figure 3 shows the average rating and satisfaction index for this group of questions.

Notice that while the averages are at satisfactory levels the SIs are low, which indicates that students are generally not very satisfied with the learning Environment at Kuwait University. Looking at the results, we can see that the satisfaction index is low (mostly below 50%) for the following:

- Quality of instruction and support for learning provided by the faculty members in: science.
- Quality of advice by the staff with respect to: career planning
- Quality of the facilities: classroom, science laboratories, engineering laboratories, computing facilities, and libraries.

Table 7 shows students' feedback for the group questions about the students' assessment of the Support Services at Kuwait University. Figure 4 shows the average rating and satisfaction index for this group of questions. The table also shows the amount of interaction they had with each item. As it can be seen the students are generally not satisfied with:

- Other Services: food services, parking, recreation and athletics.

Tables 8-11 show the differences among departments for each of the four groups of questions mentioned above. Figures 5-8 show the average rating for each of the four groups of questions.

These results are somehow justified by the impact of growing number of students for the same facilities. In addition, currently the College is in transition to move to the new Sabah Al-Salem University City, with excellent facilities.

Table 4 Assessment of the Student Outcomes (1-7) acquired at Kuwait University – Engineering programs

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.9 78%	3.3 66%
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	3.8 76%	3.1 62%
3	an ability to communicate effectively with a range of audiences	3.9 77%	3 63%
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	3.9 77%	3.2 65%
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	4 80%	3.5 70%

6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 76%	**3.1** **62%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	**3.2** **64%**

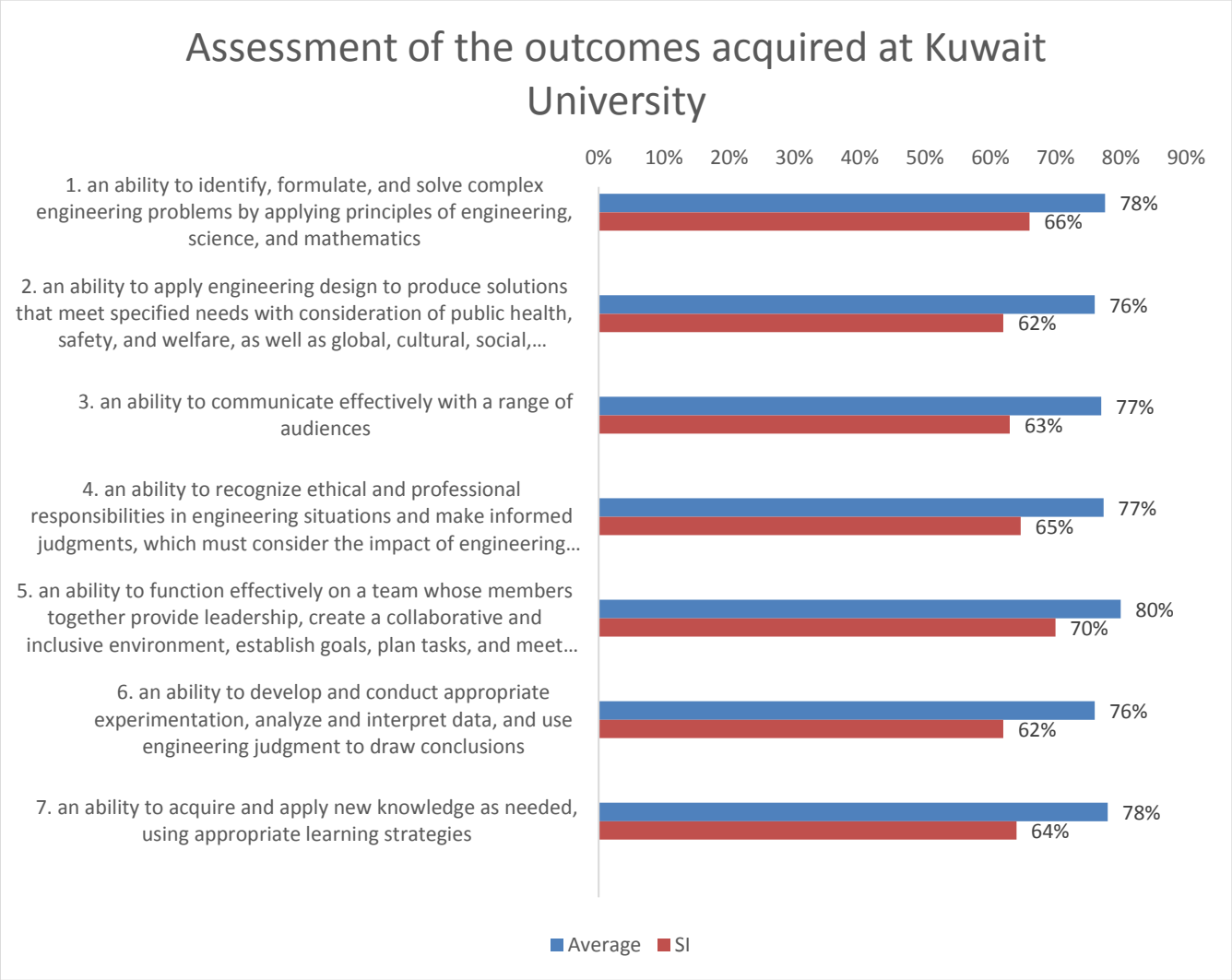

Figure 1 Assessment of the student outcomes acquired at Kuwait University

Table 5 Assessment of the relevance of Educational Objectives – Engineering programs

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	292	246	164	27	4	52	4.1	**3.7**
		37%	31%	21%	3%	1%	7%	82%	**74%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	254	267	176	31	4	53	4	**3.6**
		32%	34%	22%	4%	1%	7%	80%	**72%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	246	240	189	45	8	57	3.9	**3.3**
		31%	31%	24%	6%	1%	7%	78%	**66%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	224	243	195	57	14	52	3.8	**3.2**
		29%	31%	25%	7%	2%	7%	76%	**64%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	207	225	220	52	23	58	3.7	**3**
		26%	29%	28%	7%	3%	7%	74%	**60%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	252	209	191	52	16	65	3.9	**3.2**
		32%	27%	24%	7%	2%	8%	78%	**64%**

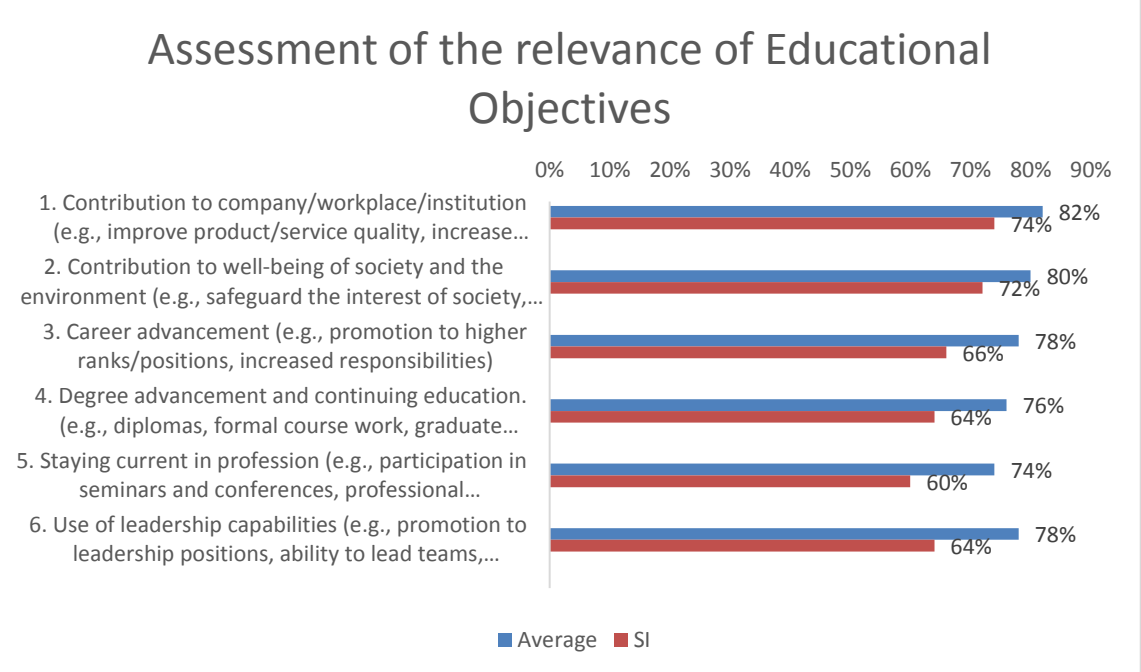

Figure 2 Assessment of the relevance of Educational Objectives at Kuwait University

Table 6 Assessment of the learning environment at Kuwait University - Engineering programs

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	198	169	242	88	62	26	3.5	**2.4**
		25%	22%	31%	11%	8%	3%	70%	**48%**
2	- Computers (Programming and usage of software packages)	152	216	236	99	47	35	3.4	**2.5**
		19%	28%	30%	13%	6%	4%	68%	**50%**
3	- Humanities and Social sciences	162	198	266	72	34	53	3.5	**2.5**
		21%	25%	34%	9%	4%	7%	70%	**50%**
4	- General Engineering	172	260	252	58	19	24	3.7	**2.8**
		22%	33%	32%	7%	2%	3%	74%	**56%**
5	- Engineering within major	249	253	185	50	20	28	3.9	**3.3**
		32%	32%	24%	6%	3%	4%	78%	**66%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		179	223	233	88	24	38	3.6	**2.7**
		23%	28%	30%	11%	3%	5%	72%	**54%**
C. Quality of advice by the staff with respect to:									
7	- Academic planning	189	201	232	93	28	42	3.6	**2.6**
		24%	26%	30%	12%	4%	5%	72%	**52%**
8	- Career planning	152	186	242	112	46	47	3.4	**2.3**
		19%	24%	31%	14%	6%	6%	68%	**46%**
D. Equity of treatment by:									
9	- Academic administrators	172	208	231	96	37	41	3.5	**2.6**
		22%	26%	29%	12%	5%	5%	70%	**52%**
10	- Faculty	163	222	256	83	32	29	3.5	**2.5**
		21%	28%	33%	11%	4%	4%	70%	**50%**
11	- Teaching assistants and engineers	186	242	224	74	30	29	3.6	**2.8**
		24%	31%	29%	9%	4%	4%	72%	**56%**
12	- Fellow students	170	211	243	98	26	37	3.5	**2.5**
		22%	27%	31%	12%	3%	5%	70%	**50%**
E. Quality of the facilities:									
13	- Classrooms	126	140	218	147	123	31	3	**1.8**
		16%	18%	28%	19%	16%	4%	60%	**36%**
14	- Science laboratories	114	145	219	169	103	35	3	**1.7**
		15%	18%	28%	22%	13%	4%	60%	**34%**
15	- Engineering Laboratories	130	138	231	151	101	34	3.1	**1.8**
		17%	18%	29%	19%	13%	4%	62%	**36%**
16	- Computing facilities	114	152	244	149	85	41	3.1	**1.8**
		15%	19%	31%	19%	11%	5%	62%	**36%**
17	- Libraries	160	178	231	122	53	41	3.4	**2.3**
		20%	23%	29%	16%	7%	5%	68%	**46%**

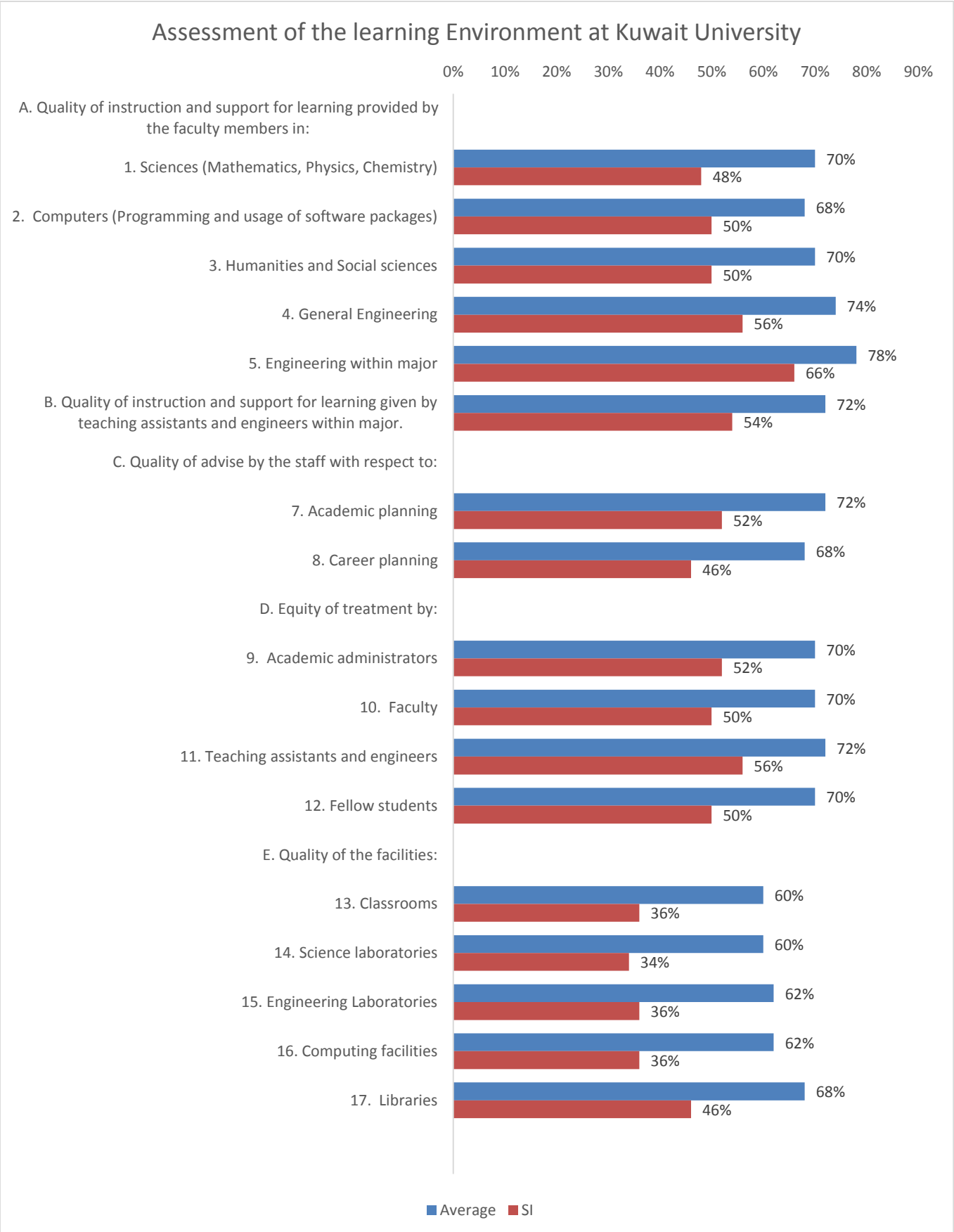

Figure 3 Assessment of the learning Environment at Kuwait University

Table 7 Assessment of the Support Services at Kuwait University – Engineering programs

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	153	229	186	103	70	44	3.4	**2.6**	255	410	106
		19%	29%	24%	13%	9%	6%	68%	**52%**	32%	52%	14%
2	Training office	168	260	168	66	26	97	3.7	**3.1**	190	422	159
		21%	33%	21%	8%	3%	12%	74%	**62%**	24%	54%	20%
3	Libraries	180	275	181	62	30	57	3.7	**3.1**	259	378	134
		23%	35%	23%	8%	4%	7%	74%	**62%**	33%	48%	17%
4	Bookstores	147	255	191	79	35	78	3.6	**2.8**	228	397	146
		19%	32%	24%	10%	4%	10%	72%	**56%**	29%	51%	19%
B. Administrative Offices:												
5	Students affairs office in your department	166	267	170	81	28	73	3.6	**3**	232	403	136
		21%	34%	22%	10%	4%	9%	72%	**60%**	30%	51%	17%
6	Administrative offices in the college	134	270	198	69	30	84	3.6	**2.9**	219	402	150
		17%	34%	25%	9%	4%	11%	72%	**58%**	28%	51%	19%
C. Other Services:												
7	Health services	144	206	173	77	57	128	3.5	**2.7**	191	346	234
		18%	26%	22%	10%	7%	16%	70%	**54%**	24%	44%	30%
8	Food services	112	192	192	150	97	42	3.1	**2**	327	355	89
		14%	24%	24%	19%	12%	5%	62%	**40%**	42%	45%	11%
9	Parking	77	86	73	130	342	77	2.2	**1.2**	322	301	148
		10%	11%	9%	17%	44%	10%	44%	**24%**	41%	38%	19%
10	Recreation and athletics	92	142	111	116	144	180	2.9	**1.9**	186	311	274
		12%	18%	14%	15%	18%	23%	58%	**38%**	24%	40%	35%
11	Others	93	104	92	50	49	397	3.4	**2.5**	163	245	203
		12%	13%	12%	6%	6%	51%	68%	**50%**	21%	31%	26%

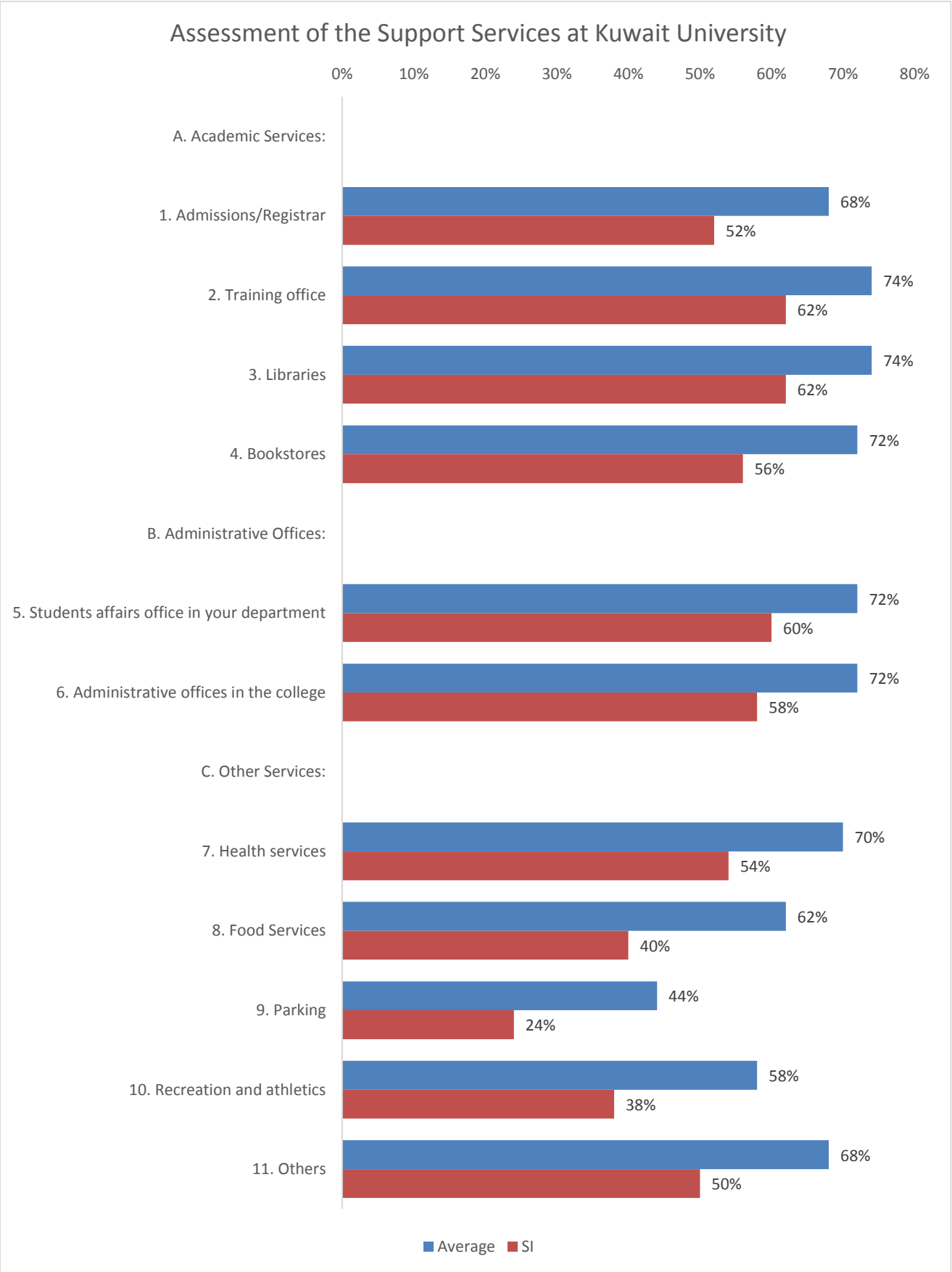

Figure 4 Assessment of the Support Services at Kuwait University

Table 8 Differences among engineering departments – outcome attributes

#	Outcome attributes		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
1	Apply knowledge of mathematics, physics and engineering.	Average Rating	78%	82%	76%	82%	76%	84%	82%	80%
		Satisfaction Index	64%	78%	62%	80%	60%	72%	80%	74%
2	Design and conduct experiments, as well as to analyze and interpret data.	Average Rating	76%	78%	78%	80%	78%	78%	80%	78%
		Satisfaction Index	60%	68%	70%	72%	70%	70%	74%	68%
3	Design a system, component, or process to meet desired needs.	Average Rating	74%	74%	78%	78%	78%	78%	74%	76%
		Satisfaction Index	56%	58%	68%	66%	60%	64%	64%	62%
4	Function effectively in teams.	Average Rating	78%	78%	80%	80%	86%	80%	84%	80%
		Satisfaction Index	68%	66%	72%	76%	82%	68%	78%	72%
5	Identify, formulate, and solve engineering problems.	Average Rating	78%	78%	76%	82%	82%	80%	82%	80%
		Satisfaction Index	64%	70%	62%	76%	74%	72%	74%	70%
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	Average Rating	76%	78%	82%	80%	84%	80%	86%	80%
		Satisfaction Index	56%	66%	76%	68%	74%	70%	78%	68%
7	Communicate effectively (written reports).	Average Rating	76%	78%	80%	76%	84%	82%	82%	78%
		Satisfaction Index	58%	68%	70%	62%	76%	74%	74%	66%
8	Communicate effectively (oral presentations).	Average Rating	74%	72%	78%	78%	78%	76%	84%	76%
		Satisfaction Index	56%	56%	70%	66%	72%	58%	74%	62%
9	Understand and appreciate the impact of engineering in the societal and global contexts.	Average Rating	78%	76%	82%	78%	80%	80%	80%	78%
		Satisfaction Index	64%	60%	74%	68%	70%	68%	70%	66%
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	Average Rating	78%	76%	78%	78%	82%	78%	84%	78%
		Satisfaction Index	62%	62%	68%	66%	72%	66%	76%	66%
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	Average Rating	76%	74%	74%	72%	74%	76%	80%	74%
		Satisfaction Index	60%	56%	60%	58%	56%	62%	70%	60%

12	Ability to use computing technology in communications.	Average Rating	76%	76%	82%	78%	76%	80%	78%	78%
		Satisfaction Index	60%	62%	72%	68%	56%	68%	68%	66%
13	Ability to use computing technology in engineering analysis/design.	Average Rating	76%	74%	80%	78%	76%	78%	78%	76%
		Satisfaction Index	56%	58%	70%	64%	68%	66%	68%	62%
14	Ability to use state of the art techniques, and tools in engineering practice.	Average Rating	72%	70%	78%	76%	76%	76%	76%	74%
		Satisfaction Index	50%	48%	66%	62%	64%	64%	56%	58%
15	Apply the knowledge of probability and statistics.	Average Rating	72%	70%	68%	70%	82%	74%	74%	72%
		Satisfaction Index	50%	50%	48%	52%	72%	58%	60%	54%

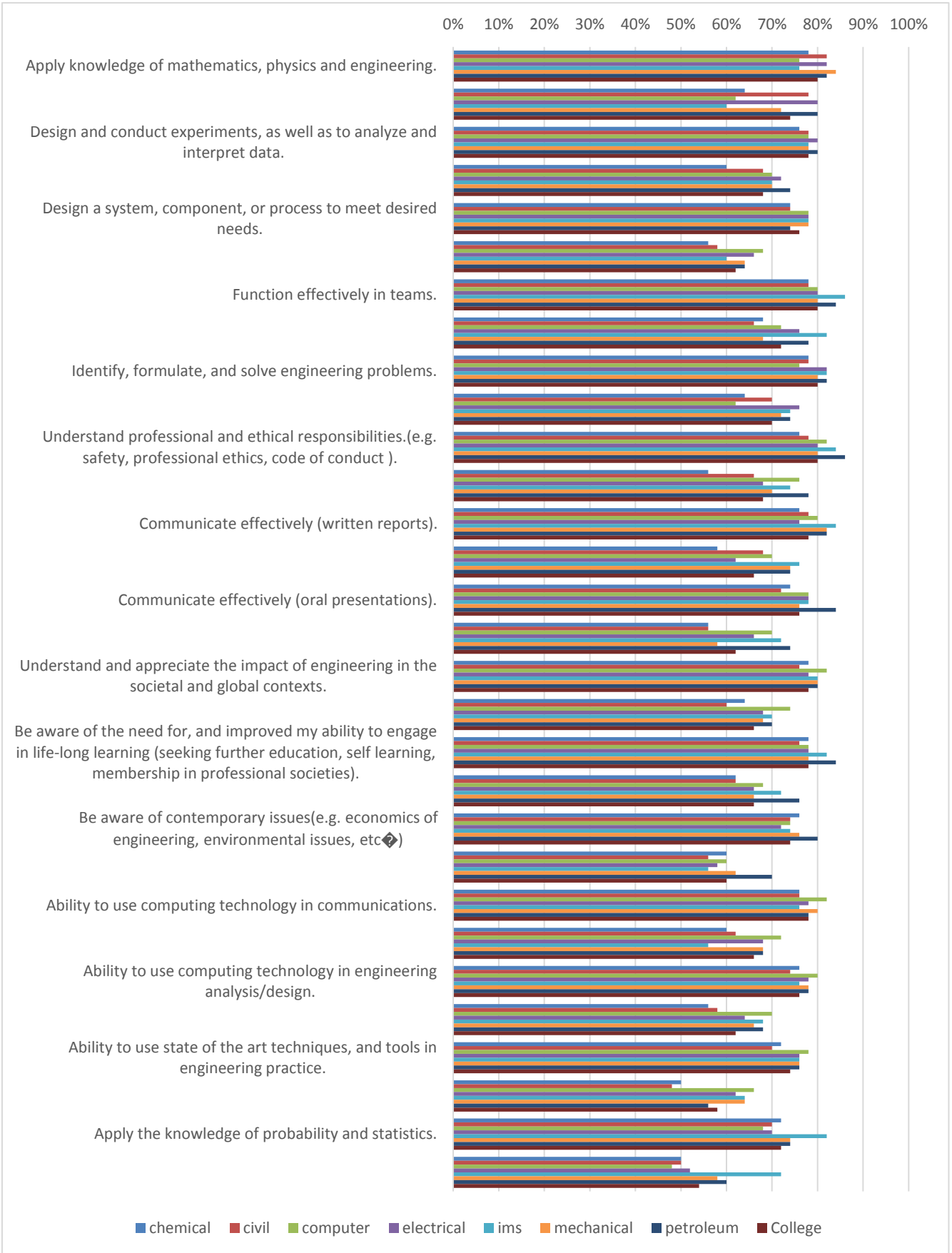

Figure 5 Differences among engineering departments – outcome attributes

Table 9 Differences among departments – Relevance of Educational Objectives

#	Objective elements		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	Average Rating	78%	82%	76%	82%	76%	84%	82%	80%
		Satisfaction Index	64%	78%	62%	80%	60%	72%	80%	74%
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	Average Rating	76%	78%	78%	80%	78%	78%	80%	78%
		Satisfaction Index	60%	68%	70%	72%	70%	70%	74%	68%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	Average Rating	74%	74%	78%	78%	78%	78%	74%	76%
		Satisfaction Index	56%	58%	68%	66%	60%	64%	64%	62%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	Average Rating	78%	78%	80%	80%	86%	80%	84%	80%
		Satisfaction Index	68%	66%	72%	76%	82%	68%	78%	72%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	Average Rating	78%	78%	76%	82%	82%	80%	82%	80%
		Satisfaction Index	64%	70%	62%	76%	74%	72%	74%	70%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	Average Rating	76%	78%	82%	80%	84%	80%	86%	80%
		Satisfaction Index	56%	66%	76%	68%	74%	70%	78%	68%

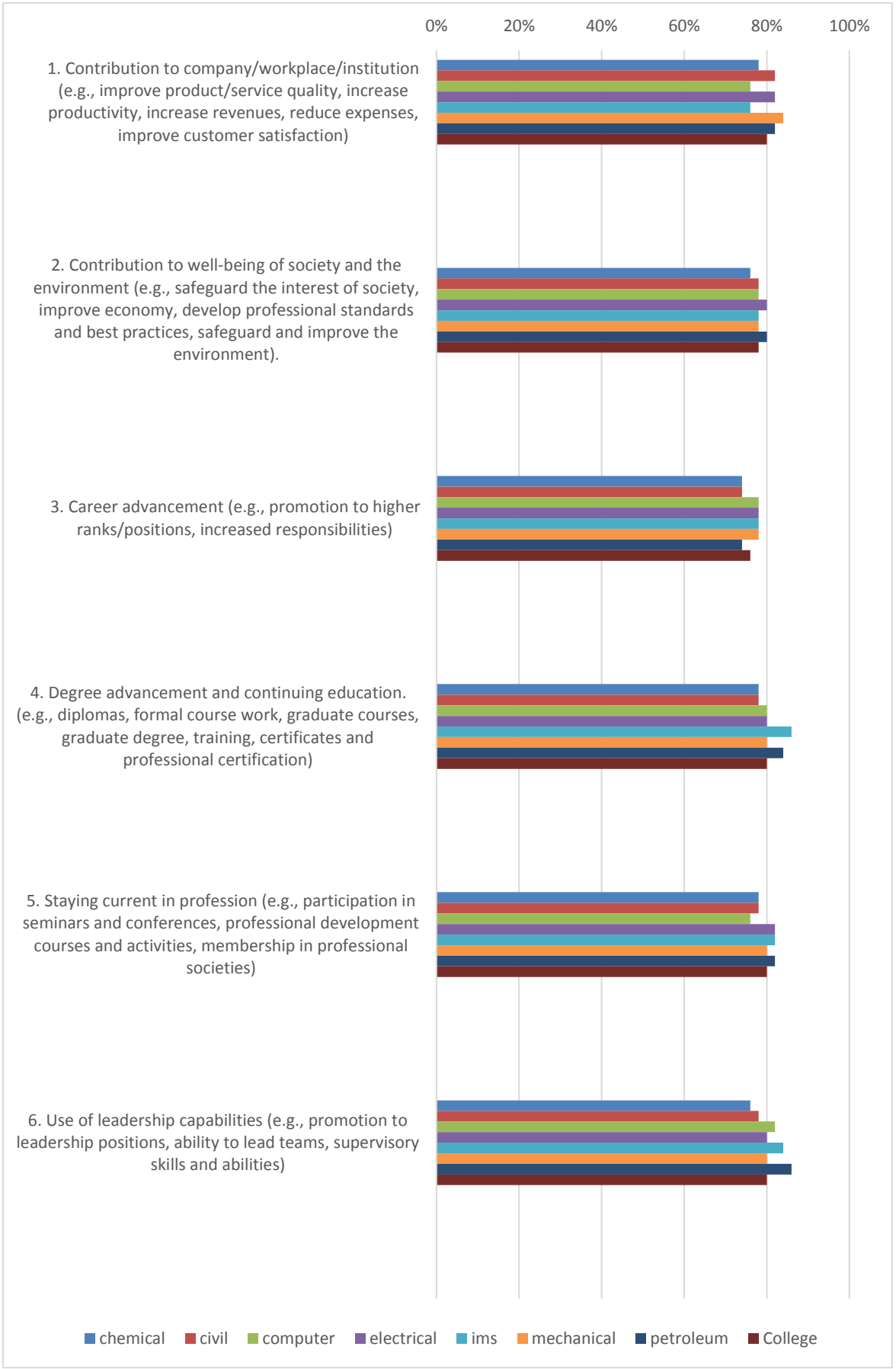

Figure 6 Differences among departments – Relevance of Educational Objectives

Table 10 Differences among departments – Learning environment

#	Item		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
A. Quality of instruction and support for learning provided by the faculty members in:										
1	- Sciences (Mathematics, Physics, Chemistry)	Average Rating	68%	66%	60%	74%	70%	70%	76%	70%
		Satisfaction Index	46%	40%	34%	60%	46%	50%	58%	48%
2	- Computers (Programming and usage of software packages)	Average Rating	64%	66%	72%	72%	70%	68%	72%	68%
		Satisfaction Index	44%	44%	54%	54%	48%	46%	50%	50%
3	- Humanities and Social sciences	Average Rating	68%	66%	68%	72%	78%	74%	72%	70%
		Satisfaction Index	48%	40%	50%	50%	56%	58%	58%	50%
4	- General Engineering	Average Rating	74%	72%	68%	74%	80%	76%	76%	74%
		Satisfaction Index	54%	54%	46%	60%	74%	56%	66%	56%
5	- Engineering within major	Average Rating	76%	76%	74%	78%	84%	80%	78%	78%
		Satisfaction Index	66%	62%	60%	68%	76%	66%	68%	66%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		Average Rating	74%	70%	70%	74%	76%	72%	70%	72%
		Satisfaction Index	56%	50%	50%	58%	64%	48%	54%	54%
C. Quality of advise by the staff with respect to:										
7	- Academic planning	Average Rating	70%	70%	66%	72%	76%	72%	76%	72%
		Satisfaction Index	50%	50%	44%	56%	60%	52%	64%	52%
8	- Career planning	Average Rating	68%	66%	62%	70%	70%	70%	68%	68%
		Satisfaction Index	44%	42%	34%	52%	54%	46%	48%	46%
D. Equity of treatment by:										
9	- Academic administrators	Average Rating	68%	70%	66%	70%	80%	70%	74%	70%
		Satisfaction Index	50%	48%	48%	52%	68%	48%	60%	52%
10	- Faculty	Average Rating	70%	70%	68%	72%	76%	70%	70%	70%
		Satisfaction Index	48%	52%	46%	54%	52%	46%	50%	50%
11	- Teaching assistants and engineers	Average Rating	74%	72%	68%	74%	70%	78%	74%	72%
		Satisfaction Index	58%	56%	52%	56%	50%	62%	60%	56%

12	- Fellow students	Average Rating	70%	70%	68%	72%	74%	68%	72%	70%
		Satisfaction Index	52%	48%	50%	54%	54%	46%	52%	50%
E. Quality of the facilities:										
13	- Classrooms	Average Rating	58%	58%	54%	64%	58%	60%	64%	60%
		Satisfaction Index	32%	34%	22%	42%	28%	38%	46%	36%
14	- Science laboratories	Average Rating	60%	58%	52%	64%	62%	56%	66%	60%
		Satisfaction Index	36%	30%	20%	44%	34%	28%	40%	34%
15	- Engineering Laboratories	Average Rating	60%	60%	56%	66%	64%	56%	66%	62%
		Satisfaction Index	36%	32%	26%	44%	38%	32%	38%	36%
16	- Computing facilities	Average Rating	62%	58%	58%	66%	64%	58%	68%	62%
		Satisfaction Index	36%	28%	28%	46%	34%	32%	48%	36%
17	- Libraries	Average Rating	68%	68%	66%	68%	68%	64%	74%	68%
		Satisfaction Index	46%	46%	42%	46%	46%	42%	54%	46%

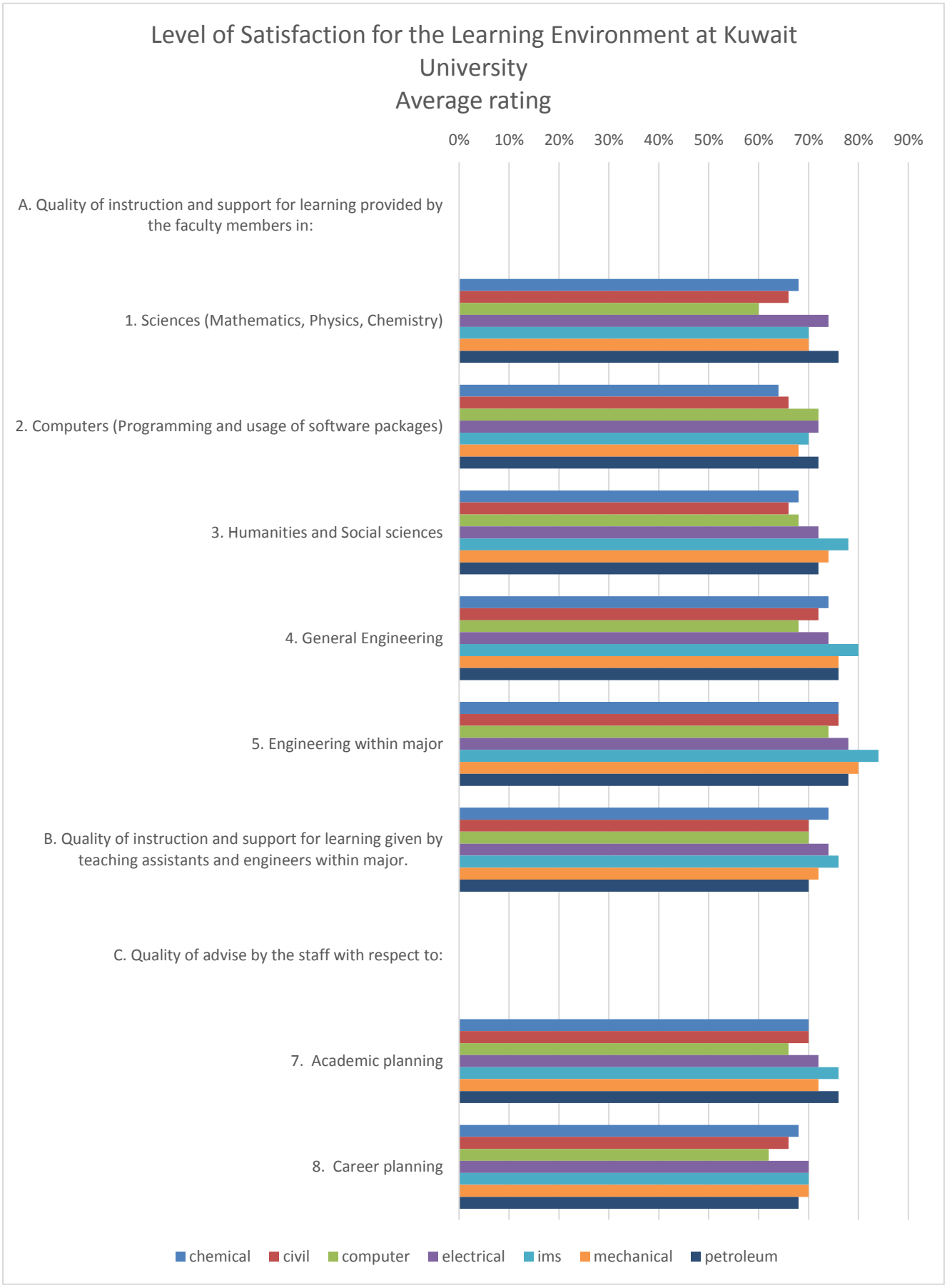

Figure 7 Differences among departments – Learning environment

Cont. Figure 7 Differences among departments – Learning environment

Table 11 Differences among departments – Support Services

#	Item		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
A. Academic Services:										
1	Admissions/Registrar	Average Rating	70%	68%	62%	68%	64%	70%	74%	68%
		Satisfaction Index	52%	50%	40%	56%	40%	60%	60%	52%
2	Training office	Average Rating	76%	72%	72%	76%	72%	74%	76%	74%
		Satisfaction Index	70%	56%	54%	70%	56%	60%	58%	62%
3	Libraries	Average Rating	74%	74%	72%	74%	78%	72%	78%	74%
		Satisfaction Index	60%	64%	54%	64%	72%	60%	72%	62%
4	Bookstores	Average Rating	72%	74%	68%	72%	74%	70%	76%	72%
		Satisfaction Index	58%	60%	48%	56%	56%	54%	64%	56%
B. Administrative Offices:										
5	Students affairs office in your department	Average Rating	72%	74%	72%	70%	74%	76%	76%	72%
		Satisfaction Index	60%	58%	56%	60%	62%	72%	64%	60%
6	Administrative offices in the college	Average Rating	72%	70%	72%	70%	76%	74%	78%	72%
		Satisfaction Index	62%	56%	54%	54%	64%	64%	64%	58%
C. Other Services:										
7	Health services	Average Rating	68%	68%	66%	70%	68%	72%	74%	70%
		Satisfaction Index	50%	52%	44%	56%	48%	62%	60%	54%
8	Food services	Average Rating	60%	60%	58%	62%	64%	60%	72%	62%
		Satisfaction Index	36%	40%	32%	44%	44%	38%	60%	40%
9	Parking	Average Rating	44%	42%	32%	50%	42%	40%	52%	44%
		Satisfaction Index	24%	20%	6%	30%	20%	18%	36%	24%
10	Recreation and athletics	Average Rating	56%	56%	54%	60%	58%	54%	64%	58%
		Satisfaction Index	36%	40%	32%	44%	32%	34%	42%	38%
11	Others	Average Rating	68%	66%	58%	70%	62%	68%	72%	68%
		Satisfaction Index	50%	48%	32%	56%	42%	52%	64%	50%

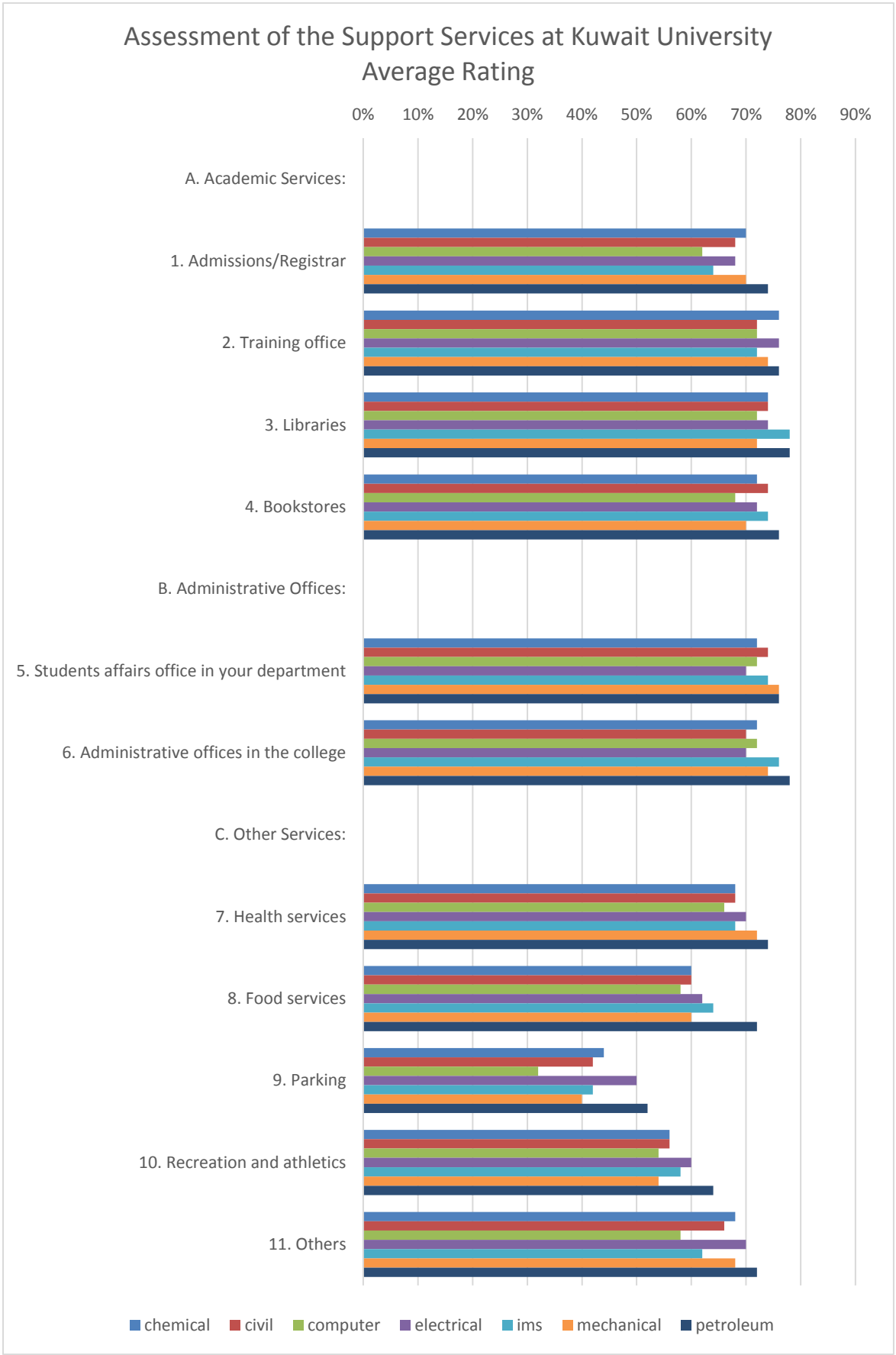

Figure 8 Differences among departments – Support Services

Exit Survey Form

Kuwait University
College of Engineering & Petroleum
Office of Academic Assessment

EXIT SURVEY FORM

P.O. Box 5969, Safat 13060, Kuwait **http://www.eng.kuniv.edu/oaa/** *Tel: 2498-3331*

The faculty and students of Kuwait University are dedicated to the continuous improvement of undergraduate engineering programs. The information that you provide through this survey will be very helpful in this process. We appreciate your help in filling out this survey. Thank you for your cooperation and support.

Engineering major:

☐ Civil ☐ Chemical ☐ Computer ☐ Electrical
☐ Petroleum ☐ Mechanical ☐ Industrial & Management Systems

Name (optional):_____ Gender: ☐ M ☐ F

Year of Graduation: _____

Overall GPA: _____

Future plans (check all that apply)

☐ I intend to work in the government sector.
☐ I intend to work in the private sector.
☐ I intend to go to graduate school.
☐ I intend to start my own business.
☐ I intend to do other things (please specify): _____

Please fill in the tables in the next pages concerning the skills, abilities and attributes that you have acquired while studying Engineering at Kuwait University.

1. Assessment of Abilities, Skills and Attributes Acquired at Kuwait University.

Please rate each of the following skills, abilities or attributes in terms of how well your education at Kuwait University prepared you for them.

Skills, abilities, and attributes	*Level of preparation*					
	Very well prepared	*Well prepared*	*Prepared*	*Somewhat prepared*	*Not prepared*	*Cannot evaluate*
1. Apply knowledge of mathematics, physics and engineering.	☐	☐	☐	☐	☐	☐
2. Design and conduct experiments, as well as to analyze and interpret data.	☐	☐	☐	☐	☐	☐
3. Design a system, component, or process to meet desired needs.	☐	☐	☐	☐	☐	☐
4. Function effectively in teams.	☐	☐	☐	☐	☐	☐
5. Identify, formulate, and solve engineering problems.	☐	☐	☐	☐	☐	☐
6. Understand professional and ethical responsibilities. ***(e.g. safety, professional ethics, code of conduct).***	☐	☐	☐	☐	☐	☐
7. Communicate effectively (written reports).	☐	☐	☐	☐	☐	☐
8. Communicate effectively (oral presentations).	☐	☐	☐	☐	☐	☐
9. Understand and appreciate the impact of engineering in the societal and global contexts.	☐	☐	☐	☐	☐	☐
10. Be aware of the need for, and improve my ability to engage in life-long learning ***(seeking further education, self-learning, membership in professional societies).***	☐	☐	☐	☐	☐	☐
11. Be aware of contemporary issues ***(e.g. economics of engineering, environmental issues, etc...)***	☐	☐	☐	☐	☐	☐
12. Ability to use computing technology in communications.	☐	☐	☐	☐	☐	☐
13. Ability to use computing technology in engineering analysis/design	☐	☐	☐	☐	☐	☐
14. Ability to use state of the art techniques, and tools in engineering practice.	☐	☐	☐	☐	☐	☐
15. Apply the knowledge of probability and statistics.	☐	☐	☐	☐	☐	☐

2. Educational Objectives

Please rate the following educational objectives elements according to how important they are to you career plans.

Objectives Elements	*Importance to career*					
	Extremely important	*Very important*	*Important*	*Somewhat important*	*Not important*	*Cannot rate*
1. Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	☐	☐	☐	☐	☐	☐
2. Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	☐	☐	☐	☐	☐	☐
3. Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	☐	☐	☐	☐	☐	☐
4. Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	☐	☐	☐	☐	☐	☐
5. Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	☐	☐	☐	☐	☐	☐
6. Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	☐	☐	☐	☐	☐	☐

3. Assessment of the Learning Environment at Kuwait University

Please indicate your satisfaction with each of the following aspects of your experience at Kuwait University.

	Level of satisfaction					
	Extremely satisfied	*Very satisfied*	*Satisfied*	*Somewhat satisfied*	*Not satisfied*	*Cannot evaluate*
A. Quality of instruction and support for learning provided by the faculty members in:						
- Sciences (Mathematics, Physics, Chemistry)	☐	☐	☐	☐	☐	☐
- Computers (Programming and usage of software packages)	☐	☐	☐	☐	☐	☐
- Humanities and Social sciences	☐	☐	☐	☐	☐	☐
- General Engineering,	☐	☐	☐	☐	☐	☐
- Engineering within major	☐	☐	☐	☐	☐	☐
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.	☐	☐	☐	☐	☐	☐
C. Quality of advice by the staff with respect to:						
- Academic planning	☐	☐	☐	☐	☐	☐
- Career planning	☐	☐	☐	☐	☐	☐
D. Equity of treatment by:						
- Academic administrators	☐	☐	☐	☐	☐	☐
- Faculty	☐	☐	☐	☐	☐	☐
- Teaching assistants and engineers	☐	☐	☐	☐	☐	☐
- Fellow students	☐	☐	☐	☐	☐	☐
E. Quality of the facilities:						
- Classrooms	☐	☐	☐	☐	☐	☐
- Science laboratories	☐	☐	☐	☐	☐	☐
- Engineering Laboratories	☐	☐	☐	☐	☐	☐
- Computing facilities	☐	☐	☐	☐	☐	☐
- Libraries	☐	☐	☐	☐	☐	☐

4. Assessment of Support Services

Please rate the quality of services provided by the listed offices. In addition, please indicate the amount of interaction that you had with each office.

	Quality of services						*Amount of interaction*			
	Very good	*Good*	*Adequate*	*Poor*	*Very poor*	*No opinion*		*Much*	*Some*	*Little or none*
A. Academic Services:										
Admissions/Registrar	☐	☐	☐	☐	☐	☐		☐	☐	☐
Training office	☐	☐	☐	☐	☐	☐		☐	☐	☐
Libraries	☐	☐	☐	☐	☐	☐		☐	☐	☐
Bookstores	☐	☐	☐	☐	☐	☐		☐	☐	☐
B. Administrative Offices:										
Students' affairs office in your department	☐	☐	☐	☐	☐	☐		☐	☐	☐
Administrative offices in the college	☐	☐	☐	☐	☐	☐		☐	☐	☐
C. Other Services:										
Health services	☐	☐	☐	☐	☐	☐		☐	☐	☐
Food services	☐	☐	☐	☐	☐	☐		☐	☐	☐
Parking	☐	☐	☐	☐	☐	☐		☐	☐	☐
Recreation and athletics	☐	☐	☐	☐	☐	☐		☐	☐	☐
Others (specify) _____	☐	☐	☐	☐	☐	☐		☐	☐	☐

5. General Assessment

Please answer the following questions:

A. Please list some very important skills that you think you had learned in the engineering program.

_____

_____

_____

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

_____

_____

_____

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary).

_____

_____

_____

Chemical Engineering Program
Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Chemical Engineering**

*** Number of Students participated in the survey:**

110	**Male**	**25**	**23%**
	Female	**85**	**77%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**82**	**75%**
Intend to work in the private sector.	**66**	**60%**
Intend to go to graduate school.	**35**	**32%**
Intend to start my own business	**36**	**33%**
Intend to do other things	**13**	**12%**
Continue my study		
continue my studies my master's degree		
Upgrade my position and go to graduate master degree		
not sure yet		
apply to kuwaits fund		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of questions about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	34	35	38	2	0	1	3.9	**3.2**
		31%	32%	35%	2%	0%	1%	78%	**64%**
2	Design and conduct experiments, as well as to analyze and interpret data.	32	32	34	6	4	2	3.8	**3**
		29%	29%	31%	5%	4%	2%	76%	**60%**
3	Design a system, component, or process to meet desired needs.	31	30	35	10	2	2	3.7	**2.8**
		28%	27%	32%	9%	2%	2%	74%	**56%**
4	Function effectively in teams.	36	36	30	3	2	3	3.9	**3.4**
		33%	33%	27%	3%	2%	3%	78%	**68%**
5	Identify, formulate, and solve engineering problems.	32	37	38	1	0	2	3.9	**3.2**
		29%	34%	35%	1%	0%	2%	78%	**64%**
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	36	23	36	7	4	4	3.8	**2.8**
		33%	21%	33%	6%	4%	4%	76%	**56%**
7	Communicate effectively (written reports).	35	28	32	10	3	2	3.8	**2.9**
		32%	25%	29%	9%	3%	2%	76%	**58%**
8	Communicate effectively (oral presentations).	33	27	34	8	6	2	3.7	**2.8**
		30%	25%	31%	7%	5%	2%	74%	**56%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	36	33	31	5	3	2	3.9	**3.2**
		33%	30%	28%	5%	3%	2%	78%	**64%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	33	33	36	3	1	4	3.9	**3.1**
		30%	30%	33%	3%	1%	4%	78%	**62%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	33	30	28	12	2	5	3.8	**3**
		30%	27%	25%	11%	2%	5%	76%	**60%**
12	Ability to use computing technology in communications.	38	27	32	7	3	3	3.8	**3**
		35%	25%	29%	6%	3%	3%	76%	**60%**
13	Ability to use computing technology in engineering analysis/design.	35	25	35	11	1	3	3.8	**2.8**
		32%	23%	32%	10%	1%	3%	76%	**56%**
14	Ability to use state of the art techniques, and tools in engineering practice.	28	24	41	7	5	5	3.6	**2.5**
		25%	22%	37%	6%	5%	5%	72%	**50%**
15	Apply the knowledge of probability and statistics.	31	23	40	10	3	3	3.6	**2.5**
		28%	21%	36%	9%	3%	3%	72%	**50%**
16	Competence in tackling Chemical/process engineering problems that are important to local and regional industries.	33	26	39	7	2	3	3.8	**2.8**
		30%	24%	35%	6%	2%	3%	76%	**56%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 76%	3.0 59%
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	3.7 74%	2.8 56%
3	an ability to communicate effectively with a range of audiences	3.8 75%	2.9 57%
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	3.8 77%	3.0 60%
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	3.9 78%	3.4 68%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 76%	2.9 57%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.1 62%

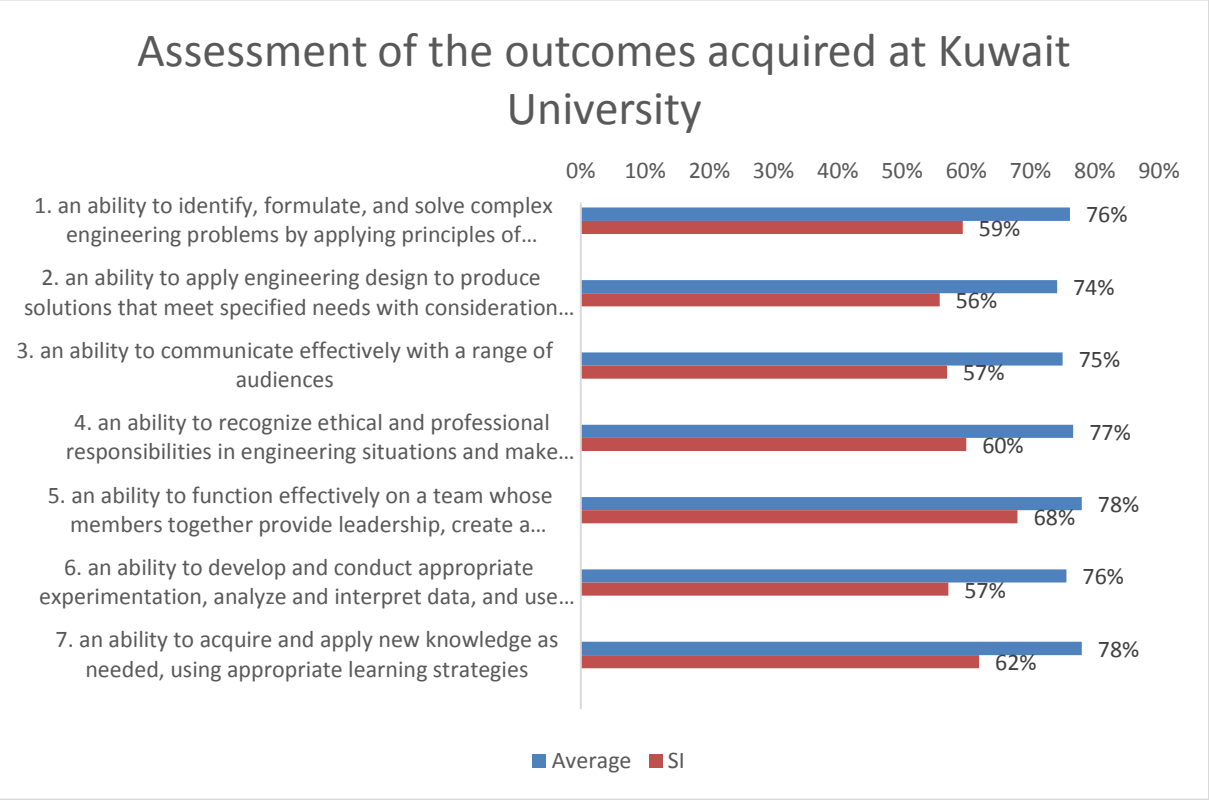

Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	37	34	26	7	1	5	3.9	**3.4**
		34%	31%	24%	6%	1%	5%	78%	**68%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	40	34	23	5	3	5	4	**3.5**
		36%	31%	21%	5%	3%	5%	80%	**70%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	28	34	29	10	3	6	3.7	**3**
		25%	31%	26%	9%	3%	5%	74%	**60%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	29	33	33	8	2	5	3.8	**3**
		26%	30%	30%	7%	2%	5%	76%	**60%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	30	37	25	9	4	5	3.8	**3.2**
		27%	34%	23%	8%	4%	5%	76%	**64%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	32	33	28	5	6	6	3.8	**3.1**
		29%	30%	25%	5%	5%	5%	76%	**62%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	24	26	36	13	11	0	3.4	**2.3**
		22%	24%	33%	12%	10%	0%	68%	**46%**
2	- Computers (Programming and usage of software packages)	20	26	31	15	13	5	3.2	**2.2**
		18%	24%	28%	14%	12%	5%	64%	**44%**
3	- Humanities and Social sciences	23	27	34	16	5	5	3.4	**2.4**
		21%	25%	31%	15%	5%	5%	68%	**48%**
4	- General Engineering	27	32	37	9	3	2	3.7	**2.7**
		25%	29%	34%	8%	3%	2%	74%	**54%**
5	- Engineering within major	35	37	25	5	6	2	3.8	**3.3**
		32%	34%	23%	5%	5%	2%	76%	**66%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		31	31	33	9	6	0	3.7	**2.8**
		28%	28%	30%	8%	5%	0%	74%	**56%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	28	25	30	20	5	2	3.5	**2.5**
		25%	23%	27%	18%	5%	2%	70%	**50%**
8	- Career planning	28	20	34	21	6	1	3.4	**2.2**
		25%	18%	31%	19%	5%	1%	68%	**44%**
D. Equity of treatment by:									
9	- Academic administrators	27	25	29	17	8	4	3.4	**2.5**
		25%	23%	26%	15%	7%	4%	68%	**50%**
10	- Faculty	23	29	36	15	5	2	3.5	**2.4**
		21%	26%	33%	14%	5%	2%	70%	**48%**
11	- Teaching assistants and engineers	31	31	32	8	5	3	3.7	**2.9**
		28%	28%	29%	7%	5%	3%	74%	**58%**
12	- Fellow students	24	32	34	12	5	3	3.5	**2.6**
		22%	29%	31%	11%	5%	3%	70%	**52%**
E. Quality of the facilities:									
13	- Classrooms	15	20	31	19	23	2	2.9	**1.6**
		14%	18%	28%	17%	21%	2%	58%	**32%**
14	- Science laboratories	18	22	28	21	20	1	3	**1.8**
		16%	20%	25%	19%	18%	1%	60%	**36%**
15	- Engineering Laboratories	20	19	30	18	20	3	3	**1.8**
		18%	17%	27%	16%	18%	3%	60%	**36%**
16	- Computing facilities	19	18	36	16	14	7	3.1	**1.8**
		17%	16%	33%	15%	13%	6%	62%	**36%**
17	- Libraries	21	28	32	16	8	5	3.4	**2.3**
		19%	25%	29%	15%	7%	5%	68%	**46%**

Table 5: Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	22	35	33	13	5	2	3.5	**2.6**	37	59	14
		20%	32%	30%	12%	5%	2%	70%	**52%**	34%	54%	13%
2	Training office	26	44	15	12	2	11	3.8	**3.5**	31	54	25
		24%	40%	14%	11%	2%	10%	76%	**70%**	28%	49%	23%
3	Libraries	26	37	29	9	4	5	3.7	**3**	44	47	19
		24%	34%	26%	8%	4%	5%	74%	**60%**	40%	43%	17%
4	Bookstores	22	38	26	12	6	6	3.6	**2.9**	36	53	21
		20%	35%	24%	11%	5%	5%	72%	**58%**	33%	48%	19%
B. Administrative Offices:												
5	Students affairs office in your department	24	38	22	14	4	8	3.6	**3**	31	51	28
		22%	35%	20%	13%	4%	7%	72%	**60%**	28%	46%	25%
6	Administrative offices in the college	22	38	21	12	5	12	3.6	**3.1**	31	51	28
		20%	35%	19%	11%	5%	11%	72%	**62%**	28%	46%	25%
C. Other Services:												
7	Health services	26	25	24	15	11	9	3.4	**2.5**	31	44	35
		24%	23%	22%	14%	10%	8%	68%	**50%**	28%	40%	32%
8	Food services	16	24	31	25	13	1	3	**1.8**	46	48	16
		15%	22%	28%	23%	12%	1%	60%	**36%**	42%	44%	15%
9	Parking	12	13	10	17	51	7	2.2	**1.2**	52	35	23
		11%	12%	9%	15%	46%	6%	44%	**24%**	47%	32%	21%
10	Recreation and athletics	13	20	12	25	22	18	2.8	**1.8**	29	36	45
		12%	18%	11%	23%	20%	16%	56%	**36%**	26%	33%	41%
11	Others	16	14	14	10	6	50	3.4	**2.5**	25	33	32
		15%	13%	13%	9%	5%	45%	68%	**50%**	23%	30%	29%

*** Open-ended questions (**unedited student comments**)**

A. Please list some very important skills that you think you had learned in the engineering program.

Group work,presentation skills,solving engineering problems, skills in chemical engineering programs

Using eng. Calculator, talking well in presentations, using eng programs

Easy to contact with all doctor ..

Being honest

Flexibility , relationship building, computer skills, teamwork

1- time management 2- teamwork

I learn how can i think

Oral presentation, making full report

Using HYSYS , excel and Visio

Solving problems, team work and leadership

TEAMWORK, LEADERSHIP

Mathmatics skills

The ability to identify and solve problems. Computer skills: very good in Microsoft office programs (word - excell - PowerPoint) Computing programs skills: (HYSIS-excel-mathlab) Presentation skills:public speaking skills Good designer.

Word , programming

Solve the Mathematical problems

team working programming skills and Microsoft office programs like excel and powerpoint.

Communication skills, to have more patience

Collaborative work _ solving the problems of the plant _ the use of computer

Self confidence / improved our mind and thinking / teamwork and cooperation / time managment

Solving problems:fast typing: writing an academic reports

Patience

team work , searching for information and get it fast with high quality, knowing the important of each equipment and materials.

I have improved my English language a lot and I learned the important basics of my major

I've learned working in teams skills, programming skills.

Teamwork

solving engineering problems

leadership, confidence in presenting, cooperate, appreciate group work, good listener to other openions and more appreciative to other ideas, improved my listening and understanding my colleges, manual book research, learned more in my library books along with research, know how to use engineering programs.

Experiments and analyzing the results. Designing refinary.

Be good in present ion

Critical thinking and better problem solving skills

Communication with others Understanding facts

Gets More information

ethics

Thinking carefully

Leadership and group work

Many skills like : how to solve engineering problems, computer technology, how to design

team work and leadership

team work and comuting skills

analyzing data , apply engineering knowledge to real life applications, good teamwork skills .

analyzing data, apply engineering knowledge, teamwork skills

Through my studying journey i learned the following: 1-Solving mathematical problems. 2-Working with groups. 3-Witting Formal emails and reports.

HYSIS,pispys(circuit)...etc

Design and group working skills

Communication Design

Presentation skills Socializing

- Learn to use many programs - Respect others and time - learn more about my major

Memorizing, studying well

Design a system, component, or process to meet desired needs

teamwork / present a presentation / discussion and analysis

- Working in a team - Report writing - Oral exams and presentation

E-learning (online courses)

Teamwork, multitasking, work under pressure

im not sure but its group work

engineering design

Mathematical skills - patience - presentation skills - report writing skills - different programs such as HYSYS

we need support from doctors & engineers . available parking , good food

Working under pressure , team work , creativity ,good writing skills and good communication skills

Life is hard altways keep pushing your best

Getting to know how to solve general engineering problems and how to properly work in a team.

leadership and team work

able to work in software

knowing how to think when facing any problem

How to work in a group How to solve Engineering problems

Problem solving and critical thinking

Presentation

Thinking in a problem

Management

-Communication , presentation , and analytical skills -Working under pressure and respecting time - Responsibility

- Working under stress - Time Management - Self learning

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Training course

How to search for information, working more on chemical equipments

Training in chemical engineering..

Present some subjects and give our opinions

communicate effectively in oral presentation , improving our english

1- how to associate engineering problems with actual local problems
2- more design classes to better understand the equipments

Computer courses

Some computer programmes

Critical thinking

There is no courses to improve the public speaking skills.

New languages

techniques of speech

Interships , training and not being within the fields

Practical side

Writing skills ,searching skills

Programming skills Communication skills

I think the laboratories are so poor and was not useful (needs improvement)

training

during my university education, i didn't get a chance to apply my knowledge practically that is applying and utilizing my knowledge in a real refinery nor going through solving refinery actual critical situation.

Not good

Some computer skills

No idea

Not going to trips in the field of our major was really depressing because we did not get the chance to see what people in our major are doing in real life

Everything is useful

ethics of engineering

new sections

Social communication

Constructing an applicable project in real life

a lot of skills

chemical engineering training

participate in seminars and internships.

participate in seminars and internships

I have suffered from the parking in the past 5 years so please improve it!

Presentation skills

Ability to use tools in engineering practice

doing practical projects

Modern education

Creative, thinking outside the box

Communicate effectively (written reports).

the practice part are so poor ,i wish we can do more engineering experiments.

Self work like exams based on researches students made

Saftey and hazardous courses

Practical work

equipment design and basic 2 , synthesis subjects and tons of info in it

safety management

I couldn't take any art or music theory

skills

The way that some doctors teach is somehow boring that there is no interaction with the doctor during class .

Experience

Laboratory equipment and apparatus wasn't always available or working.

artistic

practical explanation

Machine learning

We need more practical work than theoretical

nothing everything is available

Time management

- how to apply the taken material in real life

- Crtitical Thinking - Problem Solving Skills - Programming Skills - Data Science Applications

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Improve facilities

Improving the science part in the program

Make it more easier..

more interactive classes and more filed trips within the major courses (not as elective course)

Think you

I think our department should have more professors

Parking issues must be solved. Academic administrators should be more helpful.

By force

Change the old doctors

extra free courses that can benefit the student and can be written on the CV

More supportive with the students and at least everyone should feel that they are in a college not in a place were to hide from

Ensure the ability of Dr. to deliver information to students

the laborties in the college should be improved

Improve registration system

Grading policy should be improved to avoid the unfair grading by some professors who change the grades of some students to a grade that they really do not deserve.

The college needs more parking.

open up more opportunities for recently graduates to be able to enroll in master and phd to get more chance to join the university faculty. establish an actual visit to a different refineries in kuwait that will improve the students learning and understanding.

The doctor be content with the student

Change everything

Good communication with the students . Improving the ways of learing. Getting them a little bit involved in their field of studies.

Keep going forward

new professionals

Technology

Improving parkings and classrooms Having larger indoor areas

improve labs and study area

include oral presentations in more programs, replace laboratories equipment with new ones.

include oral presentation in more programs, replace laboratories equipments

You should care for students need for subjects and care for classes...etc

Plant design course need to be improved and required more time

Change the way of teaching by teaching with some creativity so student can understand clearly. Improving the English language for the students. Focusing more on the practical side

very good program

Optimization of the university's electronic site and providing a greater number of parking

Develop the registration system

Adjust the online program

improve the practice part in the courses.

It was such a great experience for me in Kuwait University some courses were hard and some I had difficulties understand however in general I was sure that everyone from my professors to the teaching assistance were all trying their best to make each student a successful engineering student.

New programing for Design and online courses

To concentrate more on how to practice chemical engineering

suppose to have more hand work than theoretical work plus more field trips would help to understand the content of the course it's self

integrating tasks for engineering subjects

improve the library and add more study rooms - add more vegetarian/vegan options in the cafeteria

need adviser for the students

Make students love their major let them know more about what they are getting their selfs with .let them experience the real life of a chemical engineer while still studying

Equipments are insufficient

Professors teaching engineering courses must fully understand and speak English..

more creative programs

grading system

To add more seminars that encourage students about their major and to put field trips so that the students can visualize how it is in reality not always just reading books. The classrooms should be well equipped with new technology.

We want to see the real plants do more visit

more parking

- improve the teaching methods using visual aids - using more advanced boards in classrooms

Civil Engineering Program
Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Civil Engineering**

*** Number of Students participated in the survey:**

186	Male	28	15%
	Female	154	83%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	153	82%
Intend to work in the private sector.	86	46%
Intend to go to graduate school.	64	34%
Intend to start my own business	41	22%
Intend to do other things	10	5%
Master degree and PHD		
KOC		
Nothing		
get my masters		
Nothing		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	64	77	32	7	1	5	4.1	**3.9**
		34%	41%	17%	4%	1%	3%	82%	**78%**
2	Design and conduct experiments, as well as to analyze and interpret data.	45	78	47	8	3	5	3.9	**3.4**
		24%	42%	25%	4%	2%	3%	78%	**68%**
3	Design a system, component, or process to meet desired needs.	39	65	64	12	1	5	3.7	**2.9**
		21%	35%	34%	6%	1%	3%	74%	**58%**
4	Function effectively in teams.	64	56	45	11	5	5	3.9	**3.3**
		34%	30%	24%	6%	3%	3%	78%	**66%**
5	Identify, formulate, and solve engineering problems.	56	71	44	8	2	5	3.9	**3.5**
		30%	38%	24%	4%	1%	3%	78%	**70%**
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	54	67	49	9	2	5	3.9	**3.3**
		29%	36%	26%	5%	1%	3%	78%	**66%**
7	Communicate effectively (written reports).	53	69	49	9	0	6	3.9	**3.4**
		28%	37%	26%	5%	0%	3%	78%	**68%**
8	Communicate effectively (oral presentations).	43	60	50	22	6	5	3.6	**2.8**
		23%	32%	27%	12%	3%	3%	72%	**56%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	49	59	62	8	2	6	3.8	**3**
		26%	32%	33%	4%	1%	3%	76%	**60%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	48	62	61	8	1	6	3.8	**3.1**
		26%	33%	33%	4%	1%	3%	76%	**62%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	41	60	66	11	0	8	3.7	**2.8**
		22%	32%	35%	6%	0%	4%	74%	**56%**
12	Ability to use computing technology in communications.	53	59	54	11	3	6	3.8	**3.1**
		28%	32%	29%	6%	2%	3%	76%	**62%**
13	Ability to use computing technology in engineering analysis/design.	49	56	53	17	5	6	3.7	**2.9**
		26%	30%	28%	9%	3%	3%	74%	**58%**
14	Ability to use state of the art techniques, and tools in engineering practice.	35	50	65	21	3	12	3.5	**2.4**

		19%	27%	35%	11%	2%	6%	70%	**48%**
15	Apply the knowledge of probability and statistics.	31	58	68	18	5	6	3.5	**2.5**
		17%	31%	37%	10%	3%	3%	70%	**50%**
16	Proficiency in design at the entry level and recognition of professional practice issues in recognized major areas of civil engineering.	38	57	63	16	1	11	3.7	**2.7**
		20%	31%	34%	9%	1%	6%	74%	**54%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	3.8 76%	3.2 65%
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	3.7 74%	2.9 58%
3	an ability to communicate effectively with a range of audiences	3.8 75%	3.1 62%
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	3.8 76%	3.0 61%
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	3.9 78%	3.3 66%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.8 75%	3.0 60%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	3.1 62%

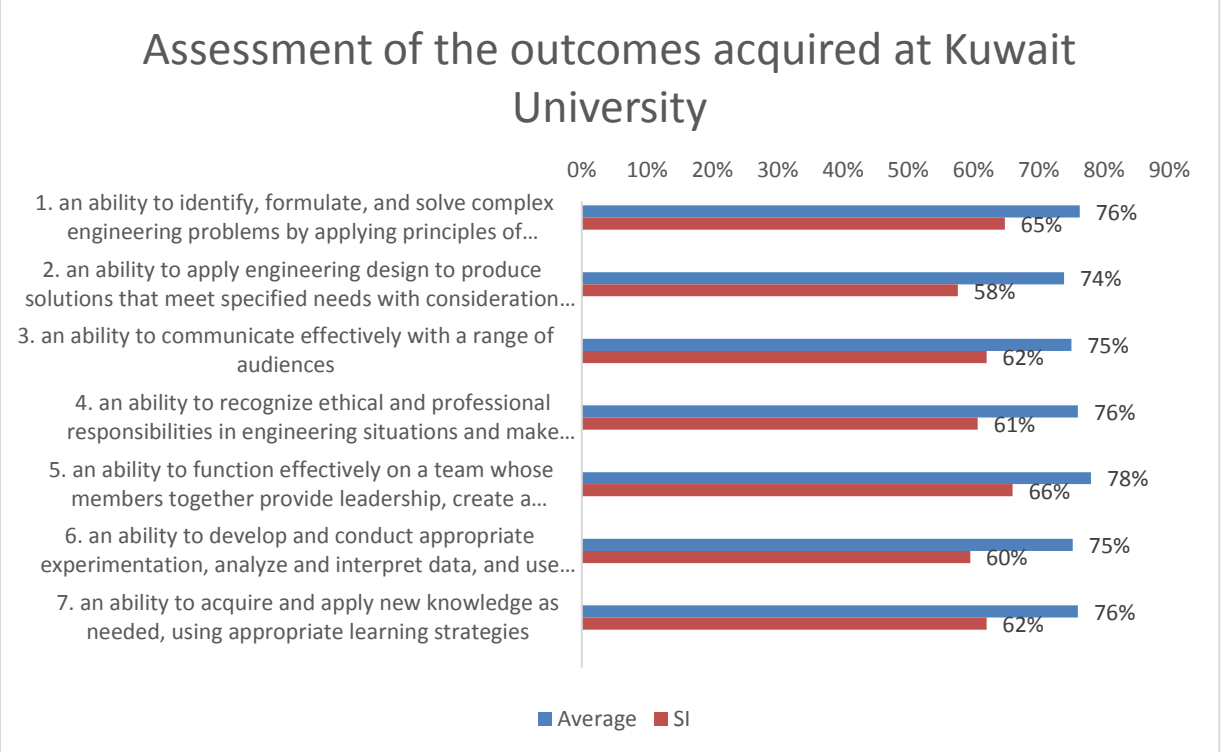

Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	70	53	45	7	2	9	4	**3.5**
		38%	28%	24%	4%	1%	5%	80%	**70%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	59	67	45	6	1	8	4	**3.5**
		32%	36%	24%	3%	1%	4%	80%	**70%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	56	66	44	10	1	9	3.9	**3.4**
		30%	35%	24%	5%	1%	5%	78%	**68%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	55	66	46	8	3	8	3.9	**3.4**
		30%	35%	25%	4%	2%	4%	78%	**68%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	53	53	57	13	2	8	3.8	**3**
		28%	28%	31%	7%	1%	4%	76%	**60%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	62	44	53	15	3	9	3.8	**3**
		33%	24%	28%	8%	2%	5%	76%	**60%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	37	34	70	20	17	8	3.3	**2**
		20%	18%	38%	11%	9%	4%	66%	**40%**
2	- Computers (Programming and usage of software packages)	26	53	57	25	15	10	3.3	**2.2**
		14%	28%	31%	13%	8%	5%	66%	**44%**
3	- Humanities and Social sciences	26	40	76	18	9	17	3.3	**2**
		14%	22%	41%	10%	5%	9%	66%	**40%**
4	- General Engineering	27	69	71	9	5	5	3.6	**2.7**
		15%	37%	38%	5%	3%	3%	72%	**54%**
5	- Engineering within major	50	62	51	11	5	7	3.8	**3.1**
		27%	33%	27%	6%	3%	4%	76%	**62%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		26	62	64	25	1	8	3.5	**2.5**
		14%	33%	34%	13%	1%	4%	70%	**50%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	35	54	64	20	5	8	3.5	**2.5**
		19%	29%	34%	11%	3%	4%	70%	**50%**
8	- Career planning	23	51	63	26	12	11	3.3	**2.1**
		12%	27%	34%	14%	6%	6%	66%	**42%**
D. Equity of treatment by:									
9	- Academic administrators	29	54	68	20	5	10	3.5	**2.4**
		16%	29%	37%	11%	3%	5%	70%	**48%**
10	- Faculty	32	62	60	19	5	8	3.5	**2.6**
		17%	33%	32%	10%	3%	4%	70%	**52%**
11	- Teaching assistants and engineers	33	67	56	21	2	7	3.6	**2.8**
		18%	36%	30%	11%	1%	4%	72%	**56%**
12	- Fellow students	31	55	66	24	2	8	3.5	**2.4**
		17%	30%	35%	13%	1%	4%	70%	**48%**
E. Quality of the facilities:									
13	- Classrooms	27	33	48	37	33	8	2.9	**1.7**
		15%	18%	26%	20%	18%	4%	58%	**34%**
14	- Science laboratories	20	32	58	48	19	9	2.9	**1.5**
		11%	17%	31%	26%	10%	5%	58%	**30%**
15	- Engineering Laboratories	19	38	59	45	19	6	3	**1.6**
		10%	20%	32%	24%	10%	3%	60%	**32%**
16	- Computing facilities	17	32	66	46	18	7	2.9	**1.4**
		9%	17%	35%	25%	10%	4%	58%	**28%**
17	- Libraries	38	43	55	29	13	8	3.4	**2.3**
		20%	23%	30%	16%	7%	4%	68%	**46%**

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	34	55	51	19	19	8	3.4	**2.5**	50	107	25
		18%	30%	27%	10%	10%	4%	68%	**50%**	27%	58%	13%
2	Training office	37	57	52	14	9	17	3.6	**2.8**	34	112	36
		20%	31%	28%	8%	5%	9%	72%	**56%**	18%	60%	19%
3	Libraries	47	66	40	14	9	10	3.7	**3.2**	58	89	35
		25%	35%	22%	8%	5%	5%	74%	**64%**	31%	48%	19%
4	Bookstores	42	63	43	20	6	12	3.7	**3**	48	98	36
		23%	34%	23%	11%	3%	6%	74%	**60%**	26%	53%	19%
B. Administrative Offices:												
5	Students affairs office in your department	45	53	47	18	4	19	3.7	**2.9**	55	95	32
		24%	28%	25%	10%	2%	10%	74%	**58%**	30%	51%	17%
6	Administrative offices in the college	32	63	52	12	11	16	3.5	**2.8**	50	100	32
		17%	34%	28%	6%	6%	9%	70%	**56%**	27%	54%	17%
C. Other Services:												
7	Health services	34	46	45	14	17	30	3.4	**2.6**	38	80	64
		18%	25%	24%	8%	9%	16%	68%	**52%**	20%	43%	34%
8	Food services	24	44	44	36	25	13	3	**2**	70	94	18
		13%	24%	24%	19%	13%	7%	60%	**40%**	38%	51%	10%
9	Parking	15	19	15	35	83	19	2.1	**1**	76	72	34
		8%	10%	8%	19%	45%	10%	42%	**20%**	41%	39%	18%
10	Recreation and athletics	20	33	20	24	38	51	2.8	**2**	32	80	70
		11%	18%	11%	13%	20%	27%	56%	**40%**	17%	43%	38%
11	Others	15	26	29	8	9	99	3.3	**2.4**	29	58	58
		8%	14%	16%	4%	5%	53%	66%	**48%**	16%	31%	31%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Leadership mathematics and engineering

Leadership mathematics

Communication skills, team work and time management.

Working in team, patince and confidence

Soft-skills: 1. Self-confidence 2. Time and stress management 3. Leadership 4. Communication skills
Academic skills: 1. Design a complete solution 2. Self-learning 3. Connecting knowledge

Well, I think I learned how to deal with different kinds of people

Mathematics, physics, chemistry

Mathematics, physics, chemistry

-Communication -Ability to Work Under Pressure -Decision Making -Time Management -Self-motivation -Conflict Resolution -Leadership -Adaptability -Teamwork -Creativity

I learned how to search for a problem and try to solve it in an engineering way

Solving engineering problems

Ability to work under pressure, time management, leadership

Be on time, better at group work, improved presentation skills

I learned how to think as an Engineer , how to use Engineering programs, how to write a professional report.

I learned how to think to solve problem with lest cost and time

Team work

Communicating skills, Leadership and working in a group, Engineering sense

writing report - collecting data

Alot of skills

1- Environmental issues. 2- Management engineering and legal aspects. 3- Traffic and transportation engineering. 4- Learned how to deal with team by as leader in the group member.

How to model

Autocad

engineering programmes and designing

Solve engineering problems.

Team work .

Leadership Team work Many programes

Importance of teamwork. Respecting the deadline. Importance of time management.

Improvement my work

how to study from a book properly, to present in front of people, to discuss ideas and theories, to applicate what we learn in laps, to relate the problems and what we learned to real life, the ethics of an engineer, to learn how to work under high pressure

Presentation skills and infographics design.

Organization Time management Responsibility Team work Working under pressure

Self confidene -new experinse -motivation

Self confedinse -motivation

How to work in a team

Team work

Staad pro engineering program, designing of the structure of building and understanding the environment of engineering

collaboration skill , time management

Presenting

self learning, self confidence and teamwork

designing

self learning, self confidence and teamwork

how to solve such a problem

Presentation skills, working as and solving problems related to engineering

Work as a team

Planning, applying what i learned, interacting with others and collecting data

Engineering skills and abilities

Work well in teams Identify and solve problems

Outocad

patient, teamwork

Hard working-stress management

More experience in writing professional reports Managing time and money

Independence and leadership

Academic training

self learning.

Writing report Teamwork Software and programs Leadership

team work - time management - critical thinking - problem solving.

Working with the group, supporting each other and patience, how to design and apply what I learned through my studies of engineering

1.Function properly in teams. 2.Communicate effectively (written and oral). 3.Engage in life-long learning.

Memorizing

Working with engineering softwares

To be patient.

arrange time

learn more about doing presentation

-working as a team -leadership skills -problem solving skills -analytical skills -cooperation with different sectors -technical writing skills -presentation skills

I learned how to solve problems within my major.

Solving difficult problems

Leadership

self-reliance , make decision .

Patient, hard work , how to work as a team

WRPLOT, STAAD, Primavera

- teamwork - leadership - responsibility - confidence to speak (presentations)

Problem solving and logical thinking Development programming

Problem solving and logical thinking Program development

Working with group and learn how to communicate with them

every thing I learned was important

working with group

Commitment

Thinking

Mathematical skills - software skills - patience

Patient

Teamwork

Time management and creative thinking

Communication

time management, multi-tasking, critical thinking and problem solving.

Teamwork

patient,hard work and resbonsability

self learning , work in groups

Team work and communication

Work with groups

Engineering problems

Effective technical skills

Engineering problems

Presentation Skills, Quality of writing reports, Time management

Improve computer skills (excel , word , programming)

Teamwork Leadership Communication Searching self-management thinking skills

team work

Communication

group working, ethics with controlling things

Analysis

-Oral communication /presentation. -Writing professional reports/papers. -Working in teams. -Time management. -Organization.....etc.

How to communicate with others Wite good reports

improve my english language , patience , confident and knowledge

learning to work in a team, learning various civil engineering programs, learning to incorporate all the we were taught during the years into a single project, learning to deal with companies for sponsorships, building relationships with various companies and engineers

Group work

Work in group

share information

Leader ship

Communication skills

teamleader- time management - hard worker

Teamwork and communication skills, research and report writing skills

Solve engineering problems

Dependence

Time management

Team work,patience,motivation

Engineering Ethics (Dr. Nawaf Almutawa) - Proper knowledge of engineering ethics and conduct. Kuwait Engineer Girls - Speaking in public, Team work, and much more. Capstone Design 490 - The proper way to execute a technical engineering and design report.

Ability to communicate Confidence

Confidence , Research and survey

compromise problems identify and define problems and find best solutions

The teamwork

presentation

Kuwait University - Every thing comes with patience, A GPA does not make a person nor does it creat a good Engineer. and much more that can not be summarized in a few sentences. Kuwait Engineer Girls - Confidence, ability to form and work in teams for short and long term projects, enhanced writing skills, and seriousness in handling tasks and given work and more. 490 Capstone Design - Ability to analyze, interpret and work with data, information and technology that is far from the speciality of civil engineering.

self motivation, team work, how to be a good leader..

cooperate and leadership

Self motivation,team work

Teamwork The ability to work under stress

Group work

Feeling comfortable in daily follow up

Communication

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

High technology technic

Using new technics

Students do not see the practical side of being an engineer a lot. There should be more trips to let the student see what they are studying to make them understand more.

Field work in the sites since is important to qualify civil engineer for the job and it must be baisc not optional course

1. Ability to write a scientific paper 2. Ability to invent new solutions 3. Field experience

Creativity

only the practical application of our study in the site is not in the lab

no answer

I didn't got the chance to train in field training

nothing on my mind RN

Their is almost no skills that i cant learn in Kuwait University, since you need just to ask how to do this item and every one are more than happy to answer you.

Practice in general ...we did not see much of working sites

Field work

Physical activities- Civil engineering programs

Practical experience

comparison study with reality

Civil programming

Civil Engineering needs more fields trips to face the real issues that we study and how to apply the methods.

Visiting sites

I did not got the chance to train in field.

Oral presentation

How to use what we were taught in real life. Softwares that are serve and used in civil engineering.

Patience

Managed my time

learn more how to use new computer programmes related to solving problems in a class

Sites visit.

Technical skills Practical experience instead of theoretical subjects

The most of study in ku depended of the theoritcal not tests or visits sites .

In ku the most study is focusing around the theoritical not visinting sites.

Revit

Social skills

real professional life

Practical work

I don't Know

practical skills

I don't Know

Communication skills

Presenting my project

Presenting my project

Presenting my work

Advanced oral presentation skills, practical engineering skills not only theoretical

Oral presentation

Staadpro

Practicing

Computer technology - design skills

More skills for research

Office training

Being creative , having confidence while standing in front many people and presenting.

Communication skills The nature of the jobs and their standards

self-esteem - apply the theoretical concepts in a practical works.

I think there is none

- New and advanced engineering programs. - Real life engineering problems in sites.

Creative

Oral presentation skills

arrarnge time

learn about how to apply the materials in the job

Site Mandatory Visits, specially for civil engineering students within their courses of study.

site visit for civil engineer students

Languages

GIS

to conduct and do more experiments i never got the chance to on a trip which i think would be helpful to see live action work

Creativity

Creativity

GIS program

Computer engineering programs

nothing to mention

particle work

Speaking English fluently

Conversations

Field work

Dealing with real field - writing skills

Doing experiments

Communicating effectively

oral communication and presentation skills.

sites working

writing reports, civil engineering software's

Oral presentations and practical education and applications (within my major)

Particle work

learn in the site

No things

learn in the site

Doing the experimental works by one student and letting him discover and analysis the data (by his own)

Creating Video animations

Application of engineering

You must have good labs that have enough equipment and machine Also before the student graduate should have practice about what they learned in college

-Creativity. -Interaction with people. -Stress management.

There is no activities

Not available

Being able to apply all concepts learned in real life situations. Learning a concept from a textbook is different to how things happen in real life especially in Civi Engineering. It would have been nice to see how every class we took how things and concepts learned would actually work and happen in real life.

Site visit

Skills of working in site job

widely computer applications

widely computer applications

More information

Teamwork skills

Presentation skills

Writing a good report and designing systems

Soft skills and presentations

Presentations

Oral talks

The fun!

Having ambition for the next step in life, having confidence in my engineering skills and gained engineering knowledge, Speaking in public, working effectively in teams.

Appropriate knowledge of other majors

practice in field

No thing

presentation

Ambition, working with passion, having a high level of integrity. Noting that I have taught my self these skills. Unfortunately and I write this with deep sincerity that KU in general lacks the ability to create Engineers in particular but patriots in general that have complete integrity, passion, ambition. Please note, That this does not apply on all cases Unfortunately I am speaking about my experience and my point of view, hoping and wishing that this would be of help and benefit. Thank You.

presentations

Experience , Do not go down to sites

Presentations

time managment

The chance to learn new software and technologies used currently in the work field

Practical work

Teaching is more practical than theoretical

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Try to improve learningby using more Intelligent methods

Improve the learning methods

Im so grateful and proud to be a kuwait university alumna , i would like to thank all those who are working hard to facilitate the educational process for students. I reccommend the following: 1. To have a center where good student with high GPA can teach others. 2. To have a special center that is accessible to everyone where they can read, learn, teach and do anything related to scientific researches.

Some understanding between doctors and students. special cases sympathy and needs. some doctors needs to get out of college for having no manners or ethics.

the practical application will be in a location to increase the information and confidence of the engineer

more field trips

Even if I wrote my suggestions you will not pay attention to it :)

Thank you KU for every single memory! it has been a great journey

Better parking spots for the students to reduce accidents or any harm. The Engineering cafeteria should be more clean.

I suggest to reduce the amounts of homeworks in the 2##, second year materials. For Example, Strength of Materials, Circuit, and statics. Because the second year materials contain a lot of labs, which is hard for the students to carry them with the huge amounts of homeworks. Also, because some students homes are far away from the university and located in a very crowded and low streets level of service. Thanks.

Provide more sections in register period .

Let students go to fields to gain experiences !

No

add more practical approaches and more useful civil engineering programs

we need fair doctors and new building

Idont know

In my point of view KU need to encourage the students by difference skills not only exams or quizes they should do more oral presentations, training in the real life as part of the course so the student enjoy studying and learning.

Take care about the group GPA

Each course should have some trips or something the students can do it by themselves!

some subjects must not be an ellictive courses such as steel

No comment..

Improve the facility such as the class room, library.

New pc in lab

Courses in the most important softwares that are used in the region.

Put for every one his own academics

provide more parking, more classes to register for

I suggests to put trips to site in every course that may have to for better understanding and learning For civil engineering department

Online academic courses Teach Students How to Learn Provide more academic tutorial

By focusing more visiting sites more assays not only focus of theoritical studies.

In my openion focusing more by visiting sites give samples for any subject to keep in mind not only theoritical .

to offer more cite visits

Everything is fine

develop a career course to teach professional life

Be more releastic

add more courses that help students to communicate with the others fluently

Using more updated softwares that can easily solve problems.

Outocad , Staadpro

More courses on design and computer technology

Improve the student leadership

Thinking outside the box so the students can be creative in solving problems. Update softwares like autocad ,primavera, STAAD.

Less students in the classroom Better classrooms (left handed sears should be available) Safety of students Better guidance and organization from civil department To provide a suitable amount of books for the students

increase the practical activities - more site visits - smart by-force system.

There is nono

- Trip fields to various sites with visual applications of engineering theories.

Improve registration system

Improve the facilities

arrange time

solve the problem parking

Please make more friendly environment for the students. Food quality, food halls, class rooms chairs and a good working elevator. Thank you.

Improving the quality of the chairs and tables in the classrooms

Oral presentations / Self-learn / Ethics and respect when treating students by some drs and engineers < compliment shall be taken into consideration with trust

Online classes

Online lectures

Increase academic programs and anncounded it early.

student must apply what they learned in real life

doctors lacking teaching skills, bad classrooms, bad education

focus on particle exam than theoretical exam

They must increase field courses

Add more Software coarse for student and instead of having capstone student should participate in real companies to be ready for the work

Increase Technology Courses

Students should be more involved in the class by participation

site visits, field work and training can be very helpful for us engineers.

No suggestion

use new technology

more professional engineers

Focus more on oral presentations and practical education and applications. Monitor the quality of education given to students by faculty members.

Focus on particle work

More practical programming

No idea

More practical programming

I don't have any suggestions

Giving the doctors all advantages and nobody of students dare to talk to them that will led students to use hypocrisy methods to get what they want.

Build car parking ASAP

please improve the parking place, the food in the cafteria

If I had to suggest something in order to improve the academic program I would say try to include students more with everything and try to listen more to their needs not that you're not doing a good job with that, but more of that would really be great.

Do some activities

every thing is fine

Listen more to students needs rather than the majority of the grade would be based on tests rather than an individuals understanding of the class. Giving students the opportunity to take more classes in topics they are interested in for example major electives.

More work shop

Work in job site

appreciate self efforts - listening to student's opinion

appreciate self efforts, listening to student's opinions

Technology

Problem solving skills

more presentation practice

Provide parking and good facilities

Some doctors need to quit teaching :)

Focusing in oral presentations skills

I think some facilities should be built, a gym is a need!

Improve the quantity of laboratories. Eliminate cheating and unfair grades. Improve the quality of TAs and much much more..

Improve the non-study related activities

need more parking

Much have been said by people who are more educated, exposed to the situation of KU and with greater influence than my self. That being said, I wish all the best for Shidadiya to succeed in creating a higher level of education for Kuwait. Thank You KU.

i think the academic programs should look more after the students skills and improve these skills

should the engineer help us to go down to the sites to take much more experience

more computer programme

upgrade classrooms and other facilities to increase student incentive to learn. provide compulsory courses that teach new innovative softwares and technologies used currently in engineering jobs.

Improve parking

There should be a control over the doctors in team of teaching and pressure on the student

Computer Engineering Program
Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Computer Engineering**

*** Number of Students participated in the survey:**

88	**Male**	**11**	**13%**
	Female	**73**	**83%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**58**	**66%**
Intend to work in the private sector.	**48**	**55%**
Intend to go to graduate school.	**28**	**32%**
Intend to start my own business	**33**	**38%**
Intend to do other things	**5**	**6%**
Freelancing		
M.A. degree		
Improve my skills		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	19	33	23	8	0	5	3.8	**3.1**
		22%	38%	26%	9%	0%	6%	76%	**62%**
2	Design and conduct experiments, as well as to analyze and interpret data.	25	33	18	5	2	5	3.9	**3.5**
		28%	38%	20%	6%	2%	6%	78%	**70%**
3	Design a system, component, or process to meet desired needs.	24	33	22	5	0	4	3.9	**3.4**
		27%	38%	25%	6%	0%	5%	78%	**68%**
4	Function effectively in teams.	33	28	17	5	1	4	4	**3.6**
		38%	32%	19%	6%	1%	5%	80%	**72%**
5	Identify, formulate, and solve engineering problems.	20	32	27	5	0	4	3.8	**3.1**
		23%	36%	31%	6%	0%	5%	76%	**62%**
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	37	27	14	4	2	4	4.1	**3.8**
		42%	31%	16%	5%	2%	5%	82%	**76%**
7	Communicate effectively (written reports).	31	28	20	5	0	4	4	**3.5**
		35%	32%	23%	6%	0%	5%	80%	**70%**
8	Communicate effectively (oral presentations).	30	29	18	4	3	4	3.9	**3.5**
		34%	33%	20%	5%	3%	5%	78%	**70%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	35	27	13	7	1	5	4.1	**3.7**
		40%	31%	15%	8%	1%	6%	82%	**74%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	29	28	18	8	1	4	3.9	**3.4**
		33%	32%	20%	9%	1%	5%	78%	**68%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	18	31	23	8	2	6	3.7	**3**
		20%	35%	26%	9%	2%	7%	74%	**60%**
12	Ability to use computing technology in communications.	36	24	21	3	0	4	4.1	**3.6**
		41%	27%	24%	3%	0%	5%	82%	**72%**
13	Ability to use computing technology in engineering analysis/design.	30	28	23	2	0	5	4	**3.5**
		34%	32%	26%	2%	0%	6%	80%	**70%**
14	Ability to use state of the art techniques, and tools in engineering practice.	28	25	20	7	1	7	3.9	**3.3**
		32%	28%	23%	8%	1%	8%	78%	**66%**
15	Apply the knowledge of probability and statistics.	16	25	23	15	5	4	3.4	**2.4**
		18%	28%	26%	17%	6%	5%	68%	**48%**
16	A knowledge of mathematics through differential and integral calculus, and basic, computer, and engineering sciences, necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components, as appropriate to computer engineering.	18	25	25	13	2	5	3.5	**2.6**
		20%	28%	28%	15%	2%	6%	70%	**52%**
17	A knowledge of discrete mathematics.	19	28	27	10	0	4	3.7	**2.8**
		22%	32%	31%	11%	0%	5%	74%	**56%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	75%	62%
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	78%	68%
3	an ability to communicate effectively with a range of audiences	79%	70%
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	79%	70%
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	80%	72%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	76%	64%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	78%	68%

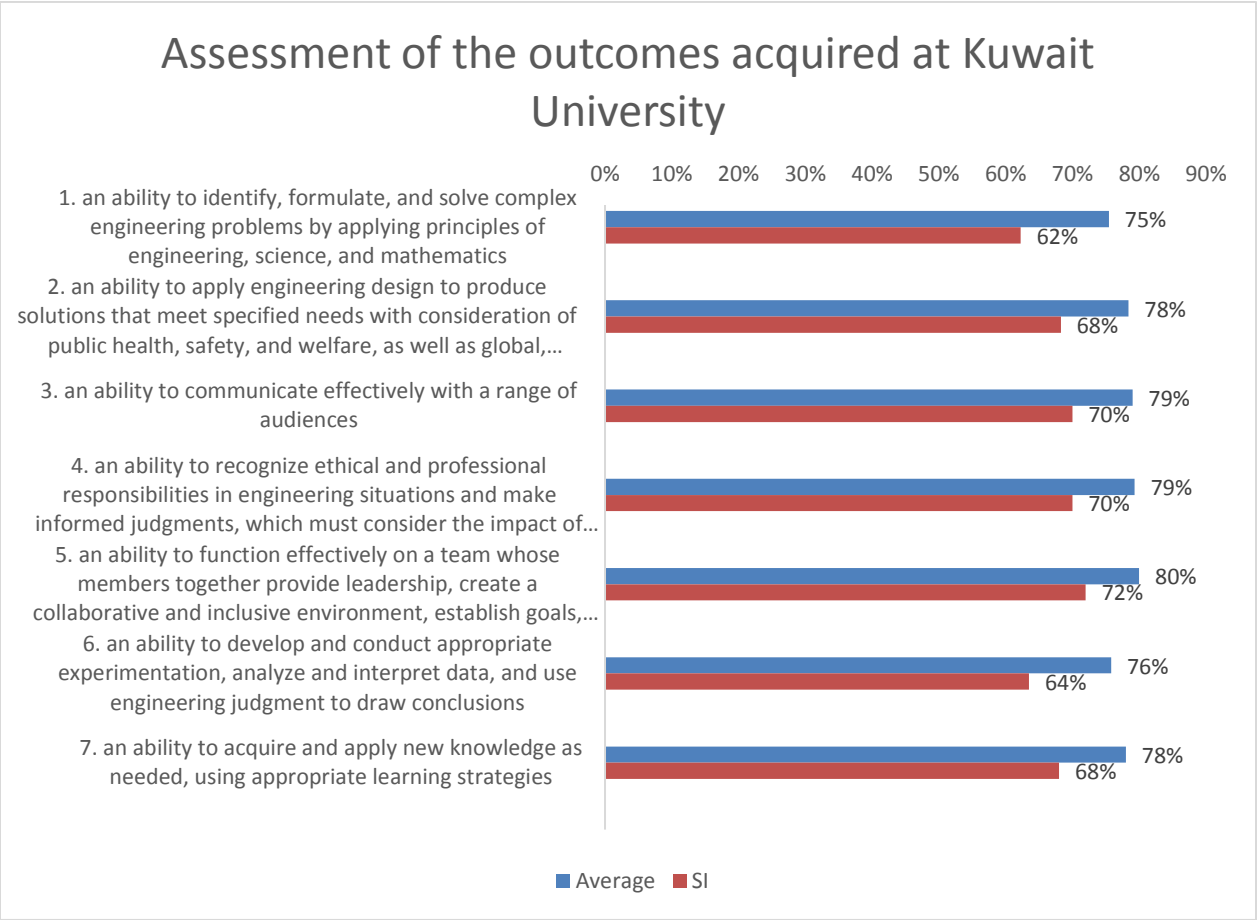
Assessment of the outcomes acquired at Kuwait University
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
75%
62%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global,…
78%
68%
3. an ability to communicate effectively with a range of audiences
79%
70%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of…
79%
70%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals,…
80%
72%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
76%
64%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
78%
68%
Average
SI

Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	19	30	16	4	0	19	3.9	**3.6**
		22%	34%	18%	5%	0%	22%	78%	**72%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	23	29	13	4	0	19	4	**3.8**
		26%	33%	15%	5%	0%	22%	80%	**76%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	20	26	19	3	0	20	3.9	**3.4**
		23%	30%	22%	3%	0%	23%	78%	**68%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	15	25	17	10	2	19	3.6	**2.9**
		17%	28%	19%	11%	2%	22%	72%	**58%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	11	24	19	7	4	23	3.5	**2.7**
		13%	27%	22%	8%	5%	26%	70%	**54%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	20	26	13	8	0	21	3.9	**3.4**
		23%	30%	15%	9%	0%	24%	78%	**68%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	13	15	27	12	16	5	3	**1.7**
		15%	17%	31%	14%	18%	6%	60%	**34%**
2	- Computers (Programming and usage of software packages)	22	24	21	14	3	4	3.6	**2.7**
		25%	27%	24%	16%	3%	5%	72%	**54%**
3	- Humanities and Social sciences	16	24	23	13	4	8	3.4	**2.5**
		18%	27%	26%	15%	5%	9%	68%	**50%**
4	- General Engineering	10	29	30	14	1	4	3.4	**2.3**
		11%	33%	34%	16%	1%	5%	68%	**46%**
5	- Engineering within major	19	31	21	10	2	5	3.7	**3**
		22%	35%	24%	11%	2%	6%	74%	**60%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		14	28	26	13	2	5	3.5	**2.5**
		16%	32%	30%	15%	2%	6%	70%	**50%**
C. Quality of advice by the staff with respect to:									
7	- Academic planning	12	22	26	16	2	10	3.3	**2.2**
		14%	25%	30%	18%	2%	11%	66%	**44%**
8	- Career planning	7	19	28	18	4	12	3.1	**1.7**
		8%	22%	32%	20%	5%	14%	62%	**34%**
D. Equity of treatment by:									
9	- Academic administrators	15	24	19	16	6	8	3.3	**2.4**
		17%	27%	22%	18%	7%	9%	66%	**48%**
10	- Faculty	15	24	27	10	7	5	3.4	**2.3**
		17%	27%	31%	11%	8%	6%	68%	**46%**
11	- Teaching assistants and engineers	18	26	18	14	8	4	3.4	**2.6**
		20%	30%	20%	16%	9%	5%	68%	**52%**
12	- Fellow students	18	23	25	12	5	5	3.4	**2.5**
		20%	26%	28%	14%	6%	6%	68%	**50%**
E. Quality of the facilities:									
13	- Classrooms	9	9	28	20	16	6	2.7	**1.1**
		10%	10%	32%	23%	18%	7%	54%	**22%**
14	- Science laboratories	4	13	27	24	14	6	2.6	**1**
		5%	15%	31%	27%	16%	7%	52%	**20%**
15	- Engineering Laboratories	7	14	27	24	11	5	2.8	**1.3**
		8%	16%	31%	27%	13%	6%	56%	**26%**
16	- Computing facilities	7	16	33	16	10	6	2.9	**1.4**
		8%	18%	38%	18%	11%	7%	58%	**28%**
17	- Libraries	14	20	27	15	6	6	3.3	**2.1**
		16%	23%	31%	17%	7%	7%	66%	**42%**

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	10	22	22	19	7	8	3.1	**2**	24	46	14
		11%	25%	25%	22%	8%	9%	62%	**40%**	27%	52%	16%
2	Training office	15	21	21	7	2	22	3.6	**2.7**	18	44	22
		17%	24%	24%	8%	2%	25%	72%	**54%**	20%	50%	25%
3	Libraries	15	27	27	7	2	10	3.6	**2.7**	20	44	20
		17%	31%	31%	8%	2%	11%	72%	**54%**	23%	50%	23%
4	Bookstores	12	25	28	8	5	10	3.4	**2.4**	23	42	19
		14%	28%	32%	9%	6%	11%	68%	**48%**	26%	48%	22%
B. Administrative Offices:												
5	Students affairs office in your department	16	28	22	8	4	10	3.6	**2.8**	27	44	13
		18%	32%	25%	9%	5%	11%	72%	**56%**	31%	50%	15%
6	Administrative offices in the college	11	29	26	5	2	15	3.6	**2.7**	20	50	14
		13%	33%	30%	6%	2%	17%	72%	**54%**	23%	57%	16%
C. Other Services:												
7	Health services	13	16	21	8	7	23	3.3	**2.2**	18	34	32
		15%	18%	24%	9%	8%	26%	66%	**44%**	20%	39%	36%
8	Food services	4	23	26	17	12	6	2.9	**1.6**	39	38	7
		5%	26%	30%	19%	14%	7%	58%	**32%**	44%	43%	8%
9	Parking	3	2	5	17	48	13	1.6	**0.3**	40	26	18
		3%	2%	6%	19%	55%	15%	32%	**6%**	45%	30%	20%
10	Recreation and athletics	4	14	11	11	15	33	2.7	**1.6**	16	29	39
		5%	16%	13%	13%	17%	38%	54%	**32%**	18%	33%	44%
11	Others	3	7	10	5	6	57	2.9	**1.6**	16	18	27
		3%	8%	11%	6%	7%	65%	58%	**32%**	18%	20%	31%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

I have learned that our university needs some changes to improve and be better

That kuwait university needs some improvement towards the future

Engineering Thinking , management skill and the courage to talk and show

patience

handling hardware in my major. designing projects easily

html, css, java, c++

presentation skills

time management, working in as group, self-learning, learning the basic of programming, ethical responsibilities, improving my presentation skills, thinking outside the box.

ebot, arduino ...

writing skills

presentation, writing reports, communication, teamwork, working under pressure, planning

Solving problems , presented skills ,coding,thinking out the box.

Critical Thinking, problem solving, writing reports, researching, programming, project management, Software development, social skills, presentation skills

Group work, how to think like an engineer.

Solving problems

Design Analysis Cooperation Some coding skills

C language

Social skills such as working in a team, presentation, documention, the ability to use simulators, reading scientific related materials and technical skills related to hardware engineering

Writing professional reports, delivering professional presentations, communicating with professionals within the same work environment, the ability to self-study any chosen topic, how to create websites and databases, how to program robotics, how to evaluate the results and meet user requirements, etc.

Working ethics, java and C++ programing , project managment , data management, presenting skills , cooperative work

The ability to learn concepts and apply them to other problems. ... Basic mathematical skills. ... A passion for problem solving. ... Good communication skills. ... Good writing skills. ... Confidence around a computer. ... Resourcefulness.

Arduino, Assemply language, c++, java

I learn how to work with in a team

Confidence

Programing skills - managmenet

Responsibility and self-reliance

- Ability to learn new programming languages. - Learned the skill of neat and thorough documentation. - Learned some presentations skill.

communication , presentation skills , programming, imagination

Coding, Computer Hardware, Networks and Network secuirty, problem solving, Leadership skills and social networking

php assembly language c++ html & css java

programming skills, communication skill, planning, solve problem, improve presentation

Solving problems like a good engineer and finding solution

I have gain some presentation skills and increase my software knowledge in programming.

Documentation.

Working in teams - engineering behavior in general

Interacting and working with different people with different ideologies

Researching techniques and how to write academic papers.

Patience and perseverance

- IOS and Android application development - Humen communication interaction - Swift, java, HTML, c++ programming languages

- IOS and Android application development - Humen communication interaction - Swift, java, HTML, c++ programming languages

Team work and self-learning

Trusting my self Solving problems

- analysis - understand the problem

Programming, public speaking and writing

Presentation skils How to create a device How to work in teams

Teamwork, programming, practical thinking, how to handle stress, how to solve problems, how to present in a professional way , time managing ..etc

Programming, teamwork, time managing

How to be efficient. How to work under pressure. How to think like engineer. How to respect others. How to search. Always have plan b, c, d and more. How to finish the work in less time and effort. How to think even if there is a horrible thing happened, it's always not the end. Keep calm. Be fair.

Patience

i have learn about the programming such as coding and security

Java and C++ language, Networks, IT security, Development IT

Java - C++ - Arduino

Communication. Hard working. Ask questions

Work with team

Programing ,organize time and teams

Searching , programming

C++,java,matlab ,arduino,ebot

- self confidence - dealing with different personalities - time management

paience

Programming and designing

- presentation skills - physics concepts - dealing with different personalities of other students or faculty members

How to think and anlysis

Teamwork, writing reports, self-study, programming and computing skills

It helps me to know how to creat an app in İos and how to use AI

Programming

I am good in network and hardware and security

I think I had learned a lot of skills in mathematics and engineering according to my corses that I toke in this program

Leadership, group work, coding.

Patience, Developing Software, Solving Problems Logically and Developing Communication Skills.

python,html,django,java,c,c++,velog,Compled code,linex

How to think and anylsis

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

I did not get to implement some skills in the real world like programming and building a whole system by my own. these things that would improve our skills in the department.

I didnt get to implement skills in the real world as programming and building a whole robot (a whole system built by me)

Management skill

Presentation skills

android studio

more programming language, more practical learning

learning different coding skills (we only have 2 essential programming courses: C++ and Java and one elective course), I wish that I had the opportunity to learn data base, networking programing and robotics. there is some courses that is not available and it needed especially now like AI, python, swift and cyber and security courses.

nothing yet
training courses

time management

Learning new coding language.

Training in companies speciallized in each Course that requires practical training to ensure acquiring the Practical skill in real life environment

The law of Kuwait.

Software program such as android studio - database - python

Database should be essential for computer engineers, new programming languages like java script, paython, ios/ android development, HTML or web development in general and ETHICAL HACKING, Artificial intelligence materials.

iOS development, Android development, network security and advance databases

Robotics , intelligent algorithm , computer organisation, VLSI

Data base, iOS and android app development

Arduino course

robots course

- Machine Learning. - Quantum Computing. - Robotics.

database, implementing apps

Quantum Computing skills

ios programming arduino

Designing

How to work on object oriented projects

Techincal skills , what we learn in general is very different from what the market requires

The software engineering course (and documentation methods in general) taught in the program same inferior to current practice and do not really generate capable software engineers.

Making application

- Internet of things - System security

- Internet of things - System security

Using or studying state of the art technologies

Training

The course should be suitable for updates in the modern computer world and new technologies

Some programming courses

How to treat with real work enviroment How to start a project

Getting in the work field (training) and seeing how work is actually done

Traing courses to see how work is actually done

No thing.

Create Mobile Application

Xcode - Python

Presentation

Time management

Stirnge

Improving skills

Python

- system hacking and how to protect your system from it. - video games coding (How to creat your own game) . - learning the new coding language like (swift) .

advanced programming languages

Nothing I learned every thing I should

- education. Real education that can be applied throughout our practical lives.

Security in netwok , how to program application from scrach , presntation skills

more skills in computing and programming, better ways for self-study

Programming

Learning more about softwere

I think this question is not in the right place

Get a job.

AI Courses, and Fields Trips.

swift

Hacker

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

I think that we need more labs to implement more and memorize less to really know what is our major is all about. these things i had to make for myself outside the university actions.

I would like to add more labs and implementation and less memorizing and theoritical information

Distance Learning Apply more practical education

improve the lab equipments

hire good engineers that understand the subjects and know how to teach good. build some parks to avoid problems. take actions when student complains because he/she needs help rather than being ignored

please add more electives to the department. there is so many courses that would really benefit the students and also fun at the same time. Security is an important subject these days, also AI. you need to change some subjects, we need to learn what is actually inside a computer, how to build a computer. also, computer engineering is a major that need some business courses due to the major itself. there was no need for the four electives that we need to take from Art university, instead, it should be replaced with business courses.

hire good engineers please ...

need more training courses

more training courses

more practical work less theoretical

Adding more choices of course to be choosers.

Practical training to the learnt concepts such as dividing each course into theoretical and practical. Providing more sections as the lack of enough section delays graduating. Providing more parkings. Training the facility members of supporting staff on how to interact with students in a professional manner and treating students with equality regardless of their gender. Reducing the unnecessary assignments that are not useful to the educational objectives of the courses.

Whoever does this program should be close to students to know how to improve it.

The registration system should have a better dynamic, the online system should be enhanced to take more load. There should be less common engineering materials. Students should be encouraged to make clubs like robotic clubs programming clubs which will help them socialize. Some of the engineering materials needs tutorials but it should be OPTIONAL.

the curriculum seems out of date. we should learn how to make application on iOS and Android as well as develop and maintain advance real-time databases. These topics should be in separate mandatory courses for every computer engineering student at Kuwait university.

Longer lectures , tutorials and revisions, self training & learning centre, local competitions ,

Update major sheet

Take the opinion of the studants

Teaching staff should focus at the beginning of each course on why this course is important and how it is applied in real life, instead of going through the boring theories directly so that students may feel more ambitious to go on through the course.

i dont have

there are no idea

improve the serves of the academic "parking" supervise the security staff

I suggest that we have bigger parking area

I suggest to give arduino instade of embedded system course

Improve courses materials, more parking

Care about how each person individually learns because it differs from one student to another and try to teach in a way that matches the way an information Is received

All comments have been stated in the survey

Provide the ability for mixed majors in engineering. Multi-department projects. Train students on newer NoSQL databases and new mobile development technologies like Flutter.

Update the materials that relate to computer engineering

Upgrading the program of teaching to include the trend technologies.

Upgrading the program of teaching to include the trend technologies.

Focus more on the economical and marketing part of the project

Encouraging students to participate in international events

- new languages - Introducing materials to teach building sites and applications for smartphones -Introducing materials to identify new technologies in the field of computers as a internet of things and machine learning .
- The inclusion of materials concerned with teaching cyber security.

Add more designing courses

Having a plans of judging

More programming languages to be learned.. and making the training course a core course

Jmore programming languages for computer engineers

Please give a new material in computer Engineering department we need to learn the new programming languages and to go on with the world evolution.

Nice sport club

Managing time

Thanks

Improve the education specially in copmuter engineering and the labs.

- The courses we take in the Kuwait University Computer Engineering program should be updated periodically depending on what the world needs and is used more widely around us. Further courses in computer engineering must be added like (security, wireless, hacking, video game programming, new languages & technologies have been widely circulated in recent years), and removed some courses from other engineering programs such as (electrical, civil, petroleum ... etc) that will not add to the computer engineer anything in his later career to make him concentrate on his courses more.

Huh. No one cares, and nothing will change.

Be more kind with students

lower the load of tasks and homework and projects, and focus on the student to learn and digest the information

You gusy have to make sure that you help the student in 495 when they implement becouse during our corses we did not studay how to use a kit as a rasbarypay or urdeono so they have to teach us

I am do application

Please follow the evaluation answers and do a simulation to get the statistic you need to improve the acadamic programs at KU

None.

Improving all things

Electrical Engineering Program
Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Electrical Engineering**

*** Number of Students participated in the survey:**

217	**Male**	**42**	**19%**
	Female	**174**	**80%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**165**	**76%**
Intend to work in the private sector.	**110**	**51%**
Intend to go to graduate school.	**58**	**27%**
Intend to start my own business	**65**	**30%**
Intend to do other things	**21**	**10%**
pursue masters degree		
to work on saving the enviorment.		
Have a rest		
Personal projects		
masters		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	77	90	37	3	1	9	4.1	**4**
		35%	41%	17%	1%	0%	4%	82%	**80%**
2	Design and conduct experiments, as well as to analyze and interpret data.	61	90	50	5	3	8	4	**3.6**
		28%	41%	23%	2%	1%	4%	80%	**72%**
3	Design a system, component, or process to meet desired needs.	63	74	56	13	2	9	3.9	**3.3**
		29%	34%	26%	6%	1%	4%	78%	**66%**
4	Function effectively in teams.	78	79	35	14	3	8	4	**3.8**
		36%	36%	16%	6%	1%	4%	80%	**76%**
5	Identify, formulate, and solve engineering problems.	81	75	40	9	3	9	4.1	**3.8**
		37%	35%	18%	4%	1%	4%	82%	**76%**
6	Understand professional and ethical responsibilities.(e.g. safety, professional ethics, code of conduct).	75	66	52	8	5	11	4	**3.4**
		35%	30%	24%	4%	2%	5%	80%	**68%**
7	Communicate effectively (written reports).	59	66	59	15	5	13	3.8	**3.1**
		27%	30%	27%	7%	2%	6%	76%	**62%**
8	Communicate effectively (oral presentations).	68	69	54	12	6	8	3.9	**3.3**
		31%	32%	25%	6%	3%	4%	78%	**66%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	74	69	50	14	3	7	3.9	**3.4**
		34%	32%	23%	6%	1%	3%	78%	**68%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	68	69	55	13	1	11	3.9	**3.3**
		31%	32%	25%	6%	0%	5%	78%	**66%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	46	76	53	28	5	9	3.6	**2.9**
		21%	35%	24%	13%	2%	4%	72%	**58%**
12	Ability to use computing technology in communications.	73	68	50	15	3	8	3.9	**3.4**
		34%	31%	23%	7%	1%	4%	78%	**68%**
13	Ability to use computing technology in engineering analysis/design.	70	63	59	13	5	7	3.9	**3.2**
		32%	29%	27%	6%	2%	3%	78%	**64%**
14	Ability to use state of the art techniques, and tools in engineering practice.	63	64	57	19	3	11	3.8	**3.1**
		29%	29%	26%	9%	1%	5%	76%	**62%**
15	Apply the knowledge of probability and statistics.	53	53	64	25	12	10	3.5	**2.6**
		24%	24%	29%	12%	6%	5%	70%	**52%**
16	Knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.	80	60	52	10	5	10	4	**3.4**
		37%	28%	24%	5%	2%	5%	80%	**68%**
17	An ability to analyze, design, and implement systems containing hardware and software components.	62	75	52	16	4	8	3.8	**3.3**
		29%	35%	24%	7%	2%	4%	76%	**66%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.0 79%	3.6 73%
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	3.9 78%	3.3 66%
3	an ability to communicate effectively with a range of audiences	3.9 77%	3.2 64%
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	3.8 77%	3.2 65%
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	4.0 80%	3.8 76%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.9 78%	3.4 68%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.3 66%

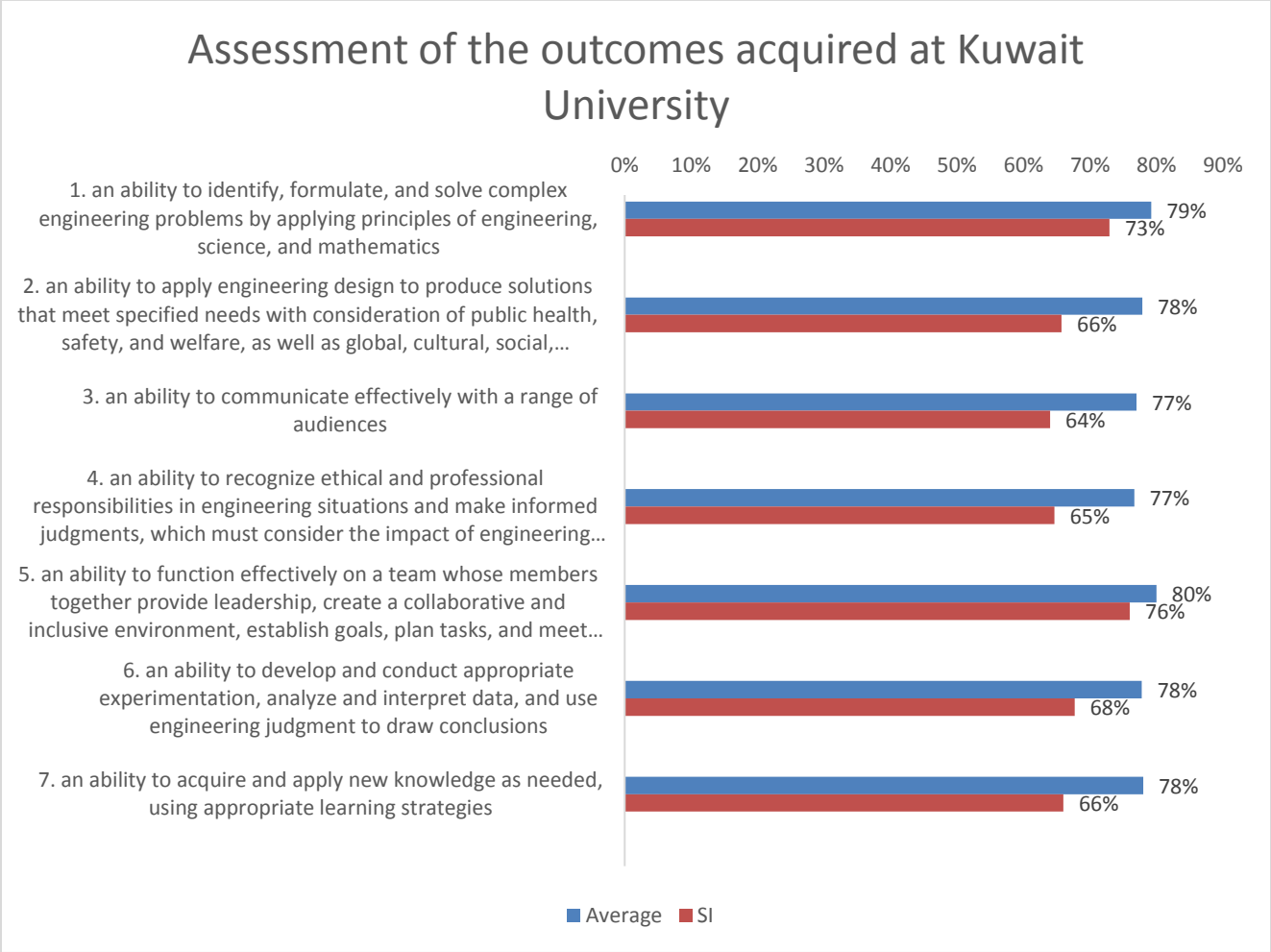

Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	85	76	43	5	0	8	4.2	**3.9**
		39%	35%	20%	2%	0%	4%	84%	**78%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	68	76	54	9	0	10	4	**3.5**
		31%	35%	25%	4%	0%	5%	80%	**70%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	71	66	54	12	4	10	3.9	**3.3**
		33%	30%	25%	6%	2%	5%	78%	**66%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	68	65	54	17	4	9	3.8	**3.2**
		31%	30%	25%	8%	2%	4%	76%	**64%**

5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	59	57	68	13	9	11	3.7	**2.8**
		27%	26%	31%	6%	4%	5%	74%	**56%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	74	52	57	15	4	15	3.9	**3.1**
		34%	24%	26%	7%	2%	7%	78%	**62%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	70	57	54	18	11	7	3.7	**3**
		32%	26%	25%	8%	5%	3%	74%	**60%**
2	- Computers (Programming and usage of software packages)	44	70	67	25	4	7	3.6	**2.7**
		20%	32%	31%	12%	2%	3%	72%	**54%**
3	- Humanities and Social sciences	50	55	76	18	8	10	3.6	**2.5**
		23%	25%	35%	8%	4%	5%	72%	**50%**
4	- General Engineering	57	69	61	17	7	6	3.7	**3**
		26%	32%	28%	8%	3%	3%	74%	**60%**
5	- Engineering within major	73	71	45	14	6	8	3.9	**3.4**
		34%	33%	21%	6%	3%	4%	78%	**68%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		58	59	60	18	9	13	3.7	**2.9**
		27%	27%	28%	8%	4%	6%	74%	**58%**
C. Quality of advice by the staff with respect to:									
7	- Academic planning	58	58	62	23	8	8	3.6	**2.8**
		27%	27%	29%	11%	4%	4%	72%	**56%**
8	- Career planning	51	56	62	24	12	12	3.5	**2.6**
		24%	26%	29%	11%	6%	6%	70%	**52%**
D. Equity of treatment by:									
9	- Academic administrators	52	56	67	22	12	8	3.5	**2.6**
		24%	26%	31%	10%	6%	4%	70%	**52%**
10	- Faculty	48	66	72	16	8	7	3.6	**2.7**
		22%	30%	33%	7%	4%	3%	72%	**54%**
11	- Teaching assistants and engineers	54	64	68	15	8	8	3.7	**2.8**
		25%	29%	31%	7%	4%	4%	74%	**56%**
12	- Fellow students	53	57	64	23	7	13	3.6	**2.7**
		24%	26%	29%	11%	3%	6%	72%	**54%**
E. Quality of the facilities:									
13	- Classrooms	45	43	62	36	23	8	3.2	**2.1**
		21%	20%	29%	17%	11%	4%	64%	**42%**
14	- Science laboratories	45	47	51	40	24	10	3.2	**2.2**
		21%	22%	24%	18%	11%	5%	64%	**44%**
15	- Engineering Laboratories	53	38	57	37	22	10	3.3	**2.2**
		24%	18%	26%	17%	10%	5%	66%	**44%**
16	- Computing facilities	41	52	50	45	18	11	3.3	**2.3**
		19%	24%	23%	21%	8%	5%	66%	**46%**
17	- Libraries	52	42	66	33	14	10	3.4	**2.3**
		24%	19%	30%	15%	6%	5%	68%	**46%**

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	51	61	35	31	25	14	3.4	**2.8**	74	108	34
		24%	28%	16%	14%	12%	6%	68%	**56%**	34%	50%	16%
2	Training office	49	86	36	14	9	23	3.8	**3.5**	55	122	39
		23%	40%	17%	6%	4%	11%	76%	**70%**	25%	56%	18%
3	Libraries	53	76	44	20	9	15	3.7	**3.2**	72	107	37
		24%	35%	20%	9%	4%	7%	74%	**64%**	33%	49%	17%
4	Bookstores	42	67	48	26	9	25	3.6	**2.8**	63	113	40
		19%	31%	22%	12%	4%	12%	72%	**56%**	29%	52%	18%
B. Administrative Offices:												
5	Students affairs office in your department	42	74	39	24	15	23	3.5	**3**	60	114	42
		19%	34%	18%	11%	7%	11%	70%	**60%**	28%	53%	19%
6	Administrative offices in the college	32	73	54	27	10	21	3.5	**2.7**	62	106	48
		15%	34%	25%	12%	5%	10%	70%	**54%**	29%	49%	22%
C. Other Services:												
7	Health services	40	67	41	31	10	28	3.5	**2.8**	66	101	49
		18%	31%	19%	14%	5%	13%	70%	**56%**	30%	47%	23%
8	Food services	36	53	48	41	28	11	3.1	**2.2**	92	92	32
		17%	24%	22%	19%	13%	5%	62%	**44%**	42%	42%	15%
9	Parking	30	30	24	35	75	23	2.5	**1.5**	70	97	49
		14%	14%	11%	16%	35%	11%	50%	**30%**	32%	45%	23%
10	Recreation and athletics	35	45	36	30	38	33	3	**2.2**	69	92	55
		16%	21%	17%	14%	18%	15%	60%	**44%**	32%	42%	25%
11	Others	41	33	22	16	18	87	3.5	**2.8**	56	81	48
		19%	15%	10%	7%	8%	40%	70%	**56%**	26%	37%	22%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Leadership,programming

Solving problems Communication

Solving problems

Communicating with groups

Hshs

-Time management. -Overcoming obstacles. -Commitment.

Oral presentations

Patience Work as a team Search for information perseverance

Patient

Share with members Get rid of shyness

Engineering sense

problem solving, organization, presenting idea's

Team work, technical writing, oral presentations, researching, time management and being organized.

Communication skills Design skills Problem solving

Team working and patience

Good

Communication

I learned how to talk with different people

Arranged time

How to contact with others

Patient, knowledge

working in groups

Working in group

Patience

Learning

communicating

Mathematics and engineering skills but we need to train in practical work

Improve skills

Practical training facilities for each lecture and not intended by the laboratory

responsibility and cooperation

Good

responsibility

The c++ language and the matlab

patient

programing , design

Appreciation of time and schedule organization, hard work and commitment.

Work hard

No thing

Oral presentation

i can control my self in engieering problem and solve it in the same time.

group work

Leadership Softwares Team work

Analysis, Solving problems and finding alternative solution.

teamwork, communication, innovation and self-discipline

searching and writing reports

Matlab , visual basic , orcad, autocad, Excell.

Be patient

Precision

Reeed

Presentation and writing reports and programming

analytical thinking coding

Knowing the problem well

Work in groups.

Writing repors

Self learning

Self learning helping each other learn programming thinking independently

I learnt self-learning, had some experiences in programming using matlab, pspice, ads, power world and more. I also got to learn how to connect circuits using electrical components.

Self learning, ADS, Power world, etap, matlab,

Working in team

team work, leadership, working with malfunctions,time management and presentation skills

working in a group

Mathematics and engineering skills but we need to train in practical work

Team work and problem solving

communicate with other

Team work, confidence in presenting, how to study smart

patience

patient, group works, solving problems

Team work Time management

I have the ability to deal with different programming software I had taken more than three subject of programming

I learned programming, planning, assembly and operation

Patience and optimism

Patience

Everything is important

Everything is important

We learned how to analyze the problem then finds a suitable solution by making deep research of the idea to determine the exact component needed to design a system.

communicating with others

patience

Writing reports , oral presentations ,leadership and working in teams , researching, and time management

Solve problems Solve problem

1. Mastery work with fast delivery 3. Patience 4. Ability to innovate and invent 5. Ability to discuss

Prpramming

solving problem ,written report ,working with group

solving problem ,written report and working with team

team work

listen to student views

Implement circuits of a design system

computer programming improved in english language improved presentation skills writing reports

Solve problems, skills to have a very good presentation, and skills of writing a good report.

Communicate effectively (oral presentations) , Planning and organization

I learned alot of thing such as how to codding the designs and how we start thinking about it

how to work under pressure. how to deal with different minds of student.

Patience

Finding solution for every issue , communicating skills improving

Communication skills - dealing with problems

To be a good presenter.

patience and self-dependent

Work under pressure

Format in time

patience and self dependent

Team work + time management

Many things

language

programming 3D drawing control electrical circuits to meet project requirements time management

Coding - design - ms programs

working in teams-design systems

teem work

Self confidence in oral presentation, teamwork,communication skills

Design and programming.

Ability to analyze and Ability to find concise solutions

learned how to handle a problem and to think of a solution to solve the problem .

Work in group

Paitence

Presentations skills

Work in group

oral presentation, searching for solution for somewhat problem, self-learning, programming, and others

I have llearned paitient and to take responsiblities seriously

The meaning of precision and the self motivation.

Leadership

I learned how to share and express my thoughts and ideas with others and how to present them. I learned how to manage my time and finish my work within a specific timeline and how to work with a team.

Working in groups, understanding main concepts of Engineering

Design a system to meet the desired needs

How to work as team

Communication skills , time management, work in group

The program improved my team work skills and how to communicate with other engineers.

Working in fields and team work

How to do good presentation and reports , working with group

How can I solve problems

Engineering design - engineering sense

Leadership Patients

Self-learning/-studying, adaptation and fast learning of new programs used in some projects, improved communication and presentation skills, technical writing (reports, emails, proposals, etc.), sharing and discussing ideas respectfully and constructively with teammates and colleagues, sharing knowledge and skills in student societies. And many more.

presentation

mathematics

English speaking and presentation

coding

communication

Computer

team work ,presentation, report writing

Team work communication .

Communication

I had the opportunity to apply what I learned on my graduation project like mathematics,physics and programming.

learned to build and mange a project

ai

Team work

Communications

Mathmatical skills and communication skills and presentation skills

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Practical skills are too low and weak at kuniv.

Testing problem at the lab

Applied methods in the real

Being creative

Programming as an electrical engineering student

Bdh

More Design courses must be included in the major sheet

We cannot take one field in the major subject ,for example if i want my major be in the power field i cannot because only one or two doctors gives this courses so my major will not be what i need

More practical skills, career planning.

Tool for the projects

How to get high GPA

Learning new languages

Practical things

No thing all skills i have learned in Kuwait University

Speaking fluently

Critical thinking

design and create

We need more practical work

No thing

Self-confidence and self-reliance

saving time

byforce , parking

Get involved more into technical practices within field, and else related.

every thing

I got everything learned

improve communicatiom skills with the audience.

Feild work New softwares

Practical training

Speaking english fluently

Search

Art skills

realization of the theories any sport skills

Do more projects

More practical application.

Working at library

Written reports

Nothing maybe more communicating with the doctor

I did not get the chance to take microwave lab to learn how to apply it in real life. I also wanted to improve my presentation skills more.

Presentation skills,

Nothing ,every thing available

basic programming on various devices, how to apply for jobs.

writing reports

no thing

We need more practical work

Basic programs live MATLAB are poorly introduced

practical application of what we have studied

To teach us how to work practical more

good memory

having fun

more practical side

Apllied engineering

I think i have got what i want in my college

Preparing for a practical life.

Courses in some programs for future use.

Courses in some useful programs in the future to keep pace with developments and technology.

Yesterday

Circut and everything

Circut and everything

lack of practical things.

making a CV in a professional way

reading electrical charts

negotiation skills and marketing

How to think or work as an engineer

All things

training and more lab that related to the work in real

give more information that related in work

time management

reading electrical maps

In my major(electrical engineering) the workshop classes is missing which is very important to prepare us to the graduate project.

Communicate effectively (written reports)

One of the important thing is how to implement the design by your self in design courses

learing practically is so poor since almost of the class depend on theoretical learning. no link between our studies with the real career life waiting us (ex: no field trips that much , no class how to work as an engineer, how to deal with practical problems not just the theoretical ones.) .

Designing

Applying what we studied theoretically in the real life.

A lot

being fast while registering the wanted subjects

Work in group of more than 3 members

being fast while registering the wanted subject

Practical application of what has been explaining during semester

Many things

practical side

there are some limitations in the methodology of some courses such as (communication , electromagnetic fields) i intend to learn unless i can learn during my studies at the university

Good

i learn all the skills that help me

Compulsory practical training in government and private agencies.

I wanted to learn how to deal with things during work (after graduating) and how i can choose the suitable job for me.

Be creative

English courses

Creative

more of self-learning, more of searching, more of Function effectively in teams, more of learning of the modern technology, and others.

no one told us what our major work areas.

Practical aspects of my major.

you

Improve laboratory

Focusing on practical working rather than theories only

Understanding

Social skills

Work outside the college (training)

How to build self confidence

I think every course in Kuwait University helped me to improve my skills.

develop oral presentation skills

no thing

How to develop myself in teamwork

Designing electric circuitry chips

Noun

Programming (python, java).

patience

presentations

programming

Practical work

programming, problem solving (Brainstorming)

I do not have

Group work

No opinion

communication

Real life practice

Working on actual feiled that envolve electrical engineering

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

Add more practical courses

Good luck

Decrease the number of students in each class

Parking please

provide more space for the practical work.

More parking lots are required so that the students can consitrate and not be late for their classes

Increased use of technology

No things

Give the students a confidence to extract their talents

Need Some respect

Teach us how to apply all what we have learned in our careers, not just in books but in real life.

Good

Make the "By force" more easier please

By force problems & parking problems

TAs how is responsible of 497 groups must be more than 3 or 4 especially in electrical department

Increasing the number of newly graduated doctors

Open more sections

Work on improving laboratories so students can run and design their project better

We need excellent university doctors

make the student more practically

We need parking

Make more time for office hours

Personal Development

more workshops, please

Good

more workshops

Connect the theoretical side with the practical

Appreciation of very good professors, and encouragement of the appointment of new ones of high educational standards, and dedication at work.

alot of things

a lot of things

Every thing good

thank you for all academic program at kuwait university.

More oral presentation More project

More labs and practical side

Providing the library with variety of books "new additions books" Spending more time in researching rather than solving repeated 10 problems in a single hw Treat students as future engineers not as some high school students Providing the classrooms with cameras for a real evaluation

Learn more how to implement the study in real life.

The classrooms and laboratories should prepared in more effective ways

No parking

I think there should be more labs with more advanced equipments to teach the students.

Classrooms, laboratory

Focus on teaching from the book

better class rooms and clearer boards, better evaluation of the teachers ability to get the information across to students, a friendlier and enjoyable environment to get students excited and out of the regular stress

teaching all of the major courses in practical way

no thing

Number of classes less than number of student , parking

please BUILD new parking spaces

encourage and honor the demand for their scientific achievements

To improve the devices in the laboratories

more teachers

no idea

having more practical courses

More expo

I wish teachers a variety of ways to explain the information to the student

Yesterday

I think increasing the practical part because it will stick in student mind more than theoretical parts.

online sites

online sites

Design course should improve

improving the labs and the devices Add new disciplines in engineering

Laboratory

Laboratory

improve the way that study the materials

improve how the material are teaching

public attachments need more technology improvement

Improve the labs please

Focus on the practical side more than the theoretical side.

Add more courses for desinging and presentation 221 is not enough

academic programs should be improved.

I would suggest that doctors should have a specific notes and books for themself and they must write exams from these notebooks , we get lost because they teach something and the exam is something else

No opinion

I suggest to change the scale of grades, 95 to get an A is very high! Also, I suggest to have tutorials for each subject like in mathematics major in science. Improve the registration system.

A lot

Awareness of how to deal with others and flixibility

Encourage students to work in group

awareness of how to deal with others

Improve the university system and staff

No thing

the easiest and most convenient solution to improve the program , be the right man in the right place

Good

programs need more time for better performance

study the lessons on time

More team work

No comments.

Introducing new academic programs

work more on academic programs that can help the student to have more knowledge about what he/she is about to face after graduation

Modify the system

More English courses is needed

relating the academic knowledge with their applications in real life.

Put the right man in the right place.

Improve laboratory

None.

Teaching group working and more practice

Provide more tools to understand the courses

The way of learning and teaching should improve

Prolong period of workshops , need more place to work (labs) , provide sites or places to buy the equipment for our project because we face some difficulties in finding some equipment and tools

Focus on oral presentations

Oral presentation.

Increase the number of courses

More field training

Create a good environmental study space

Please listen to the students, keep up-to-date with programs from prestigious institutions and compare the necessities of each course and major. Engineers should be up-to-date with their skills and knowledge as technologies improve, keep that it mind, and improve some if not all your courses to be up to standards with respected and prestigious institutions.

Make everything the same

more present ion

field trips

I do not have

make the training field be a main subject.

Project in every coarse

No opinion

more of these programs

thank u

teach us how to use ardoino

Thank you for evrey thing

Too many papers less lab works

More high tech classes

Industrial and Management Systems Engineering Program Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Industrial and Management Systems Engineering**

*** Number of Students participated in the survey:**

47	Male	0	0%
	Female	46	98%

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	31	66%
Intend to work in the private sector.	24	51%
Intend to go to graduate school.	6	13%
Intend to start my own business	13	28%
Intend to do other things	4	9%
oil sector		
Volunteering / part job		
Masters degree		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

* **Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table 1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	12	16	16	2	0	1	3.8	**3**
		26%	34%	34%	4%	0%	2%	76%	**60%**
2	Design and conduct experiments, as well as to analyze and interpret data.	13	19	11	3	0	1	3.9	**3.5**
		28%	40%	23%	6%	0%	2%	78%	**70%**
3	Design a system, component, or process to meet desired needs.	16	12	15	2	1	1	3.9	**3**
		34%	26%	32%	4%	2%	2%	78%	**60%**
4	Function effectively in teams.	24	14	6	2	0	1	4.3	**4.1**
		51%	30%	13%	4%	0%	2%	86%	**82%**
5	Identify, formulate, and solve engineering problems.	17	17	11	1	0	1	4.1	**3.7**
		36%	36%	23%	2%	0%	2%	82%	**74%**
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	25	9	9	2	1	1	4.2	**3.7**
		53%	19%	19%	4%	2%	2%	84%	**74%**
7	Communicate effectively (written reports).	22	13	7	4	0	1	4.2	**3.8**
		47%	28%	15%	9%	0%	2%	84%	**76%**
8	Communicate effectively (oral presentations).	12	21	10	3	0	1	3.9	**3.6**
		26%	45%	21%	6%	0%	2%	78%	**72%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	16	16	11	2	1	1	4	**3.5**
		34%	34%	23%	4%	2%	2%	80%	**70%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	22	11	9	3	1	1	4.1	**3.6**
		47%	23%	19%	6%	2%	2%	82%	**72%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	11	15	13	7	0	1	3.7	**2.8**
		23%	32%	28%	15%	0%	2%	74%	**56%**
12	Ability to use computing technology in communications.	11	15	18	2	0	1	3.8	**2.8**
		23%	32%	38%	4%	0%	2%	76%	**56%**
13	Ability to use computing technology in engineering analysis/design.	9	22	13	2	0	1	3.8	**3.4**
		19%	47%	28%	4%	0%	2%	76%	**68%**
14	Ability to use state of the art techniques, and tools in engineering practice.	13	16	13	3	1	1	3.8	**3.2**
		28%	34%	28%	6%	2%	2%	76%	**64%**
15	Apply the knowledge of probability and statistics.	20	13	10	3	0	1	4.1	**3.6**
		43%	28%	21%	6%	0%	2%	82%	**72%**
16	A competency to apply Industrial and Management Systems Engineering techniques and tools in divers types of organizations with focus on quality engineering and management, productivity and logistics, ergonomics and safety, and engineering economical decisions.	25	13	6	2	0	1	4.3	**4.1**
		53%	28%	13%	4%	0%	2%	86%	**82%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.0 80%	3.4 69%
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	3.9 78%	3.0 61%
3	an ability to communicate effectively with a range of audiences	4.1 81%	3.7 74%
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	4.0 79%	3.3 67%
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	4.3 86%	4.1 82%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.0 80%	3.6 72%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.1 82%	3.6 72%

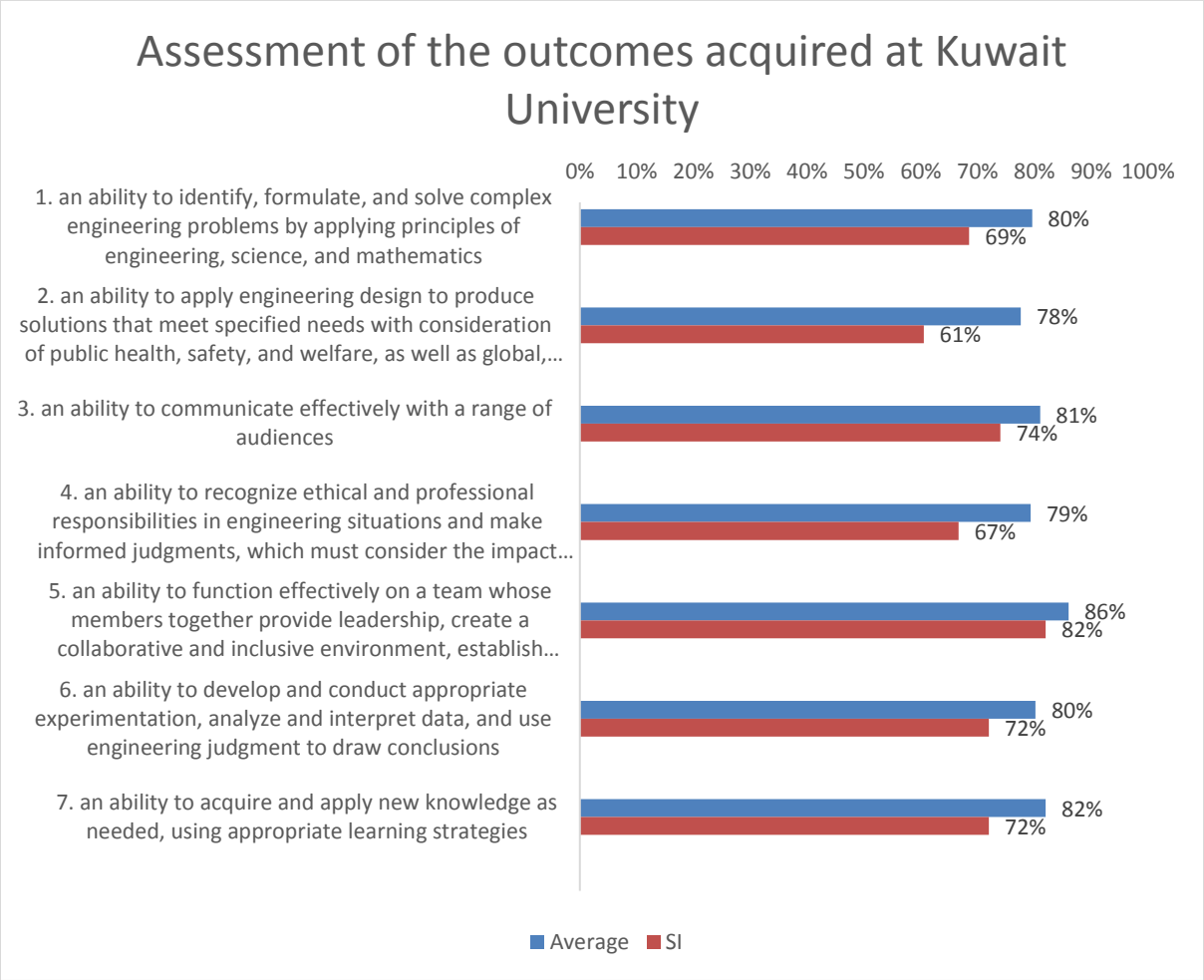
Assessment of the outcomes acquired at Kuwait University
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
80%
69%
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global,…
78%
61%
3. an ability to communicate effectively with a range of audiences
81%
74%
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact…
79%
67%
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish…
86%
82%
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
80%
72%
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
82%
72%
Average
SI

Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	26	12	6	2	0	1	4.3	**4.1**
		55%	26%	13%	4%	0%	2%	86%	**82%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	20	14	9	3	0	1	4.1	**3.7**
		43%	30%	19%	6%	0%	2%	82%	**74%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	18	15	6	7	0	1	4	**3.6**
		38%	32%	13%	15%	0%	2%	80%	**72%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	16	16	9	4	1	1	3.9	**3.5**
		34%	34%	19%	9%	2%	2%	78%	**70%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	18	13	9	5	1	1	3.9	**3.4**
		38%	28%	19%	11%	2%	2%	78%	**68%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	18	17	8	3	0	1	4.1	**3.8**
		38%	36%	17%	6%	0%	2%	82%	**76%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	15	6	12	12	1	1	3.5	**2.3**
		32%	13%	26%	26%	2%	2%	70%	**46%**
2	- Computers (Programming and usage of software packages)	10	12	15	5	3	2	3.5	**2.4**
		21%	26%	32%	11%	6%	4%	70%	**48%**
3	- Humanities and Social sciences	16	10	19	1	0	1	3.9	**2.8**
		34%	21%	40%	2%	0%	2%	78%	**56%**
4	- General Engineering	13	20	9	3	0	2	4	**3.7**
		28%	43%	19%	6%	0%	4%	80%	**74%**
5	- Engineering within major	25	10	8	3	0	1	4.2	**3.8**
		53%	21%	17%	6%	0%	2%	84%	**76%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		15	14	11	3	2	2	3.8	**3.2**
		32%	30%	23%	6%	4%	4%	76%	**64%**
C. Quality of advice by the staff with respect to:									
7	- Academic planning	16	9	10	5	1	6	3.8	**3**
		34%	19%	21%	11%	2%	13%	76%	**60%**
8	- Career planning	13	10	11	5	4	4	3.5	**2.7**
		28%	21%	23%	11%	9%	9%	70%	**54%**
D. Equity of treatment by:									
9	- Academic administrators	15	15	11	3	0	3	4	**3.4**
		32%	32%	23%	6%	0%	6%	80%	**68%**
10	- Faculty	17	7	16	6	0	1	3.8	**2.6**
		36%	15%	34%	13%	0%	2%	76%	**52%**
11	- Teaching assistants and engineers	14	9	12	7	4	1	3.5	**2.5**
		30%	19%	26%	15%	9%	2%	70%	**50%**
12	- Fellow students	12	13	14	7	0	1	3.7	**2.7**
		26%	28%	30%	15%	0%	2%	74%	**54%**
E. Quality of the facilities:									
13	- Classrooms	11	2	14	11	8	1	2.9	**1.4**
		23%	4%	30%	23%	17%	2%	58%	**28%**
14	- Science laboratories	8	8	16	10	4	1	3.1	**1.7**
		17%	17%	34%	21%	9%	2%	62%	**34%**
15	- Engineering Laboratories	8	9	14	10	4	2	3.2	**1.9**
		17%	19%	30%	21%	9%	4%	64%	**38%**
16	- Computing facilities	8	7	18	10	2	2	3.2	**1.7**
		17%	15%	38%	21%	4%	4%	64%	**34%**
17	- Libraries	10	11	12	9	3	2	3.4	**2.3**
		21%	23%	26%	19%	6%	4%	68%	**46%**

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	9	9	14	8	5	2	3.2	**2**	21	20	5
		19%	19%	30%	17%	11%	4%	64%	**40%**	45%	43%	11%
2	Training office	12	12	11	6	2	4	3.6	**2.8**	16	23	7
		26%	26%	23%	13%	4%	9%	72%	**56%**	34%	49%	15%
3	Libraries	14	16	9	1	2	5	3.9	**3.6**	21	20	5
		30%	34%	19%	2%	4%	11%	78%	**72%**	45%	43%	11%
4	Bookstores	10	11	13	2	2	9	3.7	**2.8**	16	20	10
		21%	23%	28%	4%	4%	19%	74%	**56%**	34%	43%	21%
B. Administrative Offices:												
5	Students affairs office in your department	13	15	10	6	1	2	3.7	**3.1**	23	17	6
		28%	32%	21%	13%	2%	4%	74%	**62%**	49%	36%	13%
6	Administrative offices in the college	14	15	11	5	1	1	3.8	**3.2**	17	23	6
		30%	32%	23%	11%	2%	2%	76%	**64%**	36%	49%	13%
C. Other Services:												
7	Health services	10	9	11	5	5	7	3.4	**2.4**	12	18	16
		21%	19%	23%	11%	11%	15%	68%	**48%**	26%	38%	34%
8	Food services	10	10	12	8	6	1	3.2	**2.2**	22	20	4
		21%	21%	26%	17%	13%	2%	64%	**44%**	47%	43%	9%
9	Parking	5	4	5	6	24	3	2.1	**1**	22	19	5
		11%	9%	11%	13%	51%	6%	42%	**20%**	47%	40%	11%
10	Recreation and athletics	6	5	10	6	7	13	2.9	**1.6**	13	13	20
		13%	11%	21%	13%	15%	28%	58%	**32%**	28%	28%	43%
11	Others	6	6	8	2	6	19	3.1	**2.1**	13	13	11
		13%	13%	17%	4%	13%	40%	62%	**42%**	28%	28%	23%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

How to think to solve engineer problems Communication skills

team spirit, commitment of change and technical thinking

Improved my skills

1- operation research skills 2- application of costs analysis 3- projects management and engineering 4- safety principles 5- leadership skills

easy exam

Problem solving skills as well as improving and enhancing the quality of systems, also communications skills and teamwork.

Analytical skills Good communications and teamwork

improved the quality minimize the cost control inventory group wok

Written report and presentation skills

Leadership

Leadrship-communication-research

Written report and presentation skills

Analyze and more controlling

team work - working under pressure - patience

good communication , self-reliance

responsibility

Responsibility, teamwork

Time management

how to think logically how to communicate better through facts

(Only from IMSE courses) i was able to learn how to apply my knowledge on real life situations The IMSE department was the best departments, with great faculty and the program was great.

What program?

Working with groups

it very organised

Identifiying problems The ability to schedule time and priorities Simulating systems by using arena The importance of safety The ability to solve any problems my simplifing the situation The ability to breakdown any problem and search for the root cause of it Skills to write a report Skills to manage a team Skills to work with different students

team work , writing reports ,

Group skills, leadership

I learned how to work with a team, how to be patient, how to deal with different types of people, how to withstand pressure, how to respect others and get respected

all engineering staff

Communication skills

Calculations

data analysis .statistics.engineering and project management . economy analysis.safety and human factor

Statistics,economical thinking, quality and Saftey controlling

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

How to work better in real life

leadership, creativity and advancement

Have no time to do other activities in the university

1-A lake of trips as an application of the studied methods 2- using more professional programs in labs since the department always faces limited license

I believe that all the important skills needed are taught in Kuwait university

Learning in training course

computer skills

No skills

advanced software courses like minitab and GIS

apply the study to the real work

Self assessment

The class at the college of science were taught very poorly, while their exams were too hard.

communication & community involvement

Field work

if i had a chance i would take supply chain

Computer and aoftware skills

Practice in real life problems

We dont have enough labs, The field work must be compulsory to gain experience before getting a job

there is no skills that wasnt learnt

programming skills

I don't know

provide more appourtinities for working part time jobs to get experience

Human Resources

I don not know

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

More factually members in industrial engineer department

ease in registering processes, availability of options in courses provided for the students, willing to develop and participate in a students success career wise, explain the path of a graduate and enhance the campus building wise

Try to help students to improve their hobbies

Industrial and management system department faces a lake of professors and shortage in courses availability and as a general point the university has to apply more training course insted of depends on the tradition exams and quizzes

easy exam

Making the importance of the application of the knowledge we learn in classes more than just examinations.

i would like to see improvement in technology system

Aware people about what industrial engineering and what IE actually do and where they fit .

Chosing the topic of the senior project before starting the course.

There should be training courses related to the student's specialization

Aware people about what industrial engineering and what IE actually do and where they fit .

Keeping all programs online

Everything is good

There should be more workshops and courses regarding the softwares to prepare the engineer for real life career

link between study and application

more electives

renew some of the facilities and laboratories

No suggestion

better sections availability

The college of science needs to be improved drastically, college of engineering should host their own science classes that are required on engineering students so that they could overlook the courses and make sure they are taught well and are fair.

Students and administration interface

More sections

More internahips during the courses are much needed As well as observing and solving real life problems by students in every course rather than solving on paper and only searching online

That they should relate every thing with the real life situations

There is alot of pressure on the student, i suggest to reduce the pressure by reducing the number of homeworks and quizes

I don't know

develop the study program of the industrial engineering

I don not know

Mechanical Engineering Program
Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Mechanical Engineering**

*** Number of Students participated in the survey:**

81	**Male**	**19**	**23%**
	Female	**58**	**72%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**52**	**64%**
Intend to work in the private sector.	**54**	**67%**
Intend to go to graduate school.	**21**	**26%**
Intend to start my own business	**26**	**32%**
Intend to do other things	**4**	**5%**
continue studying		
Masters		

*** Table 1** shows students' feedback for the first group of question in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

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Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	34	22	20	1	0	4	4.2	**3.6**
		42%	27%	25%	1%	0%	5%	84%	**72%**
2	Design and conduct experiments, as well as to analyze and interpret data.	21	33	19	4	0	4	3.9	**3.5**
		26%	41%	23%	5%	0%	5%	78%	**70%**
3	Design a system, component, or process to meet desired needs.	25	24	25	2	1	4	3.9	**3.2**
		31%	30%	31%	2%	1%	5%	78%	**64%**
4	Function effectively in teams.	30	23	19	4	1	4	4	**3.4**
		37%	28%	23%	5%	1%	5%	80%	**68%**
5	Identify, formulate, and solve engineering problems.	24	32	18	3	0	4	4	**3.6**
		30%	40%	22%	4%	0%	5%	80%	**72%**
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	30	24	17	4	2	4	4	**3.5**
		37%	30%	21%	5%	2%	5%	80%	**70%**
7	Communicate effectively (written reports).	32	25	17	1	2	4	4.1	**3.7**
		40%	31%	21%	1%	2%	5%	82%	**74%**
8	Communicate effectively (oral presentations).	24	21	25	4	3	4	3.8	**2.9**
		30%	26%	31%	5%	4%	5%	76%	**58%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	28	24	21	3	1	4	4	**3.4**
		35%	30%	26%	4%	1%	5%	80%	**68%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	27	24	22	2	2	4	3.9	**3.3**
		33%	30%	27%	2%	2%	5%	78%	**66%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	24	23	20	8	2	4	3.8	**3.1**
		30%	28%	25%	10%	2%	5%	76%	**62%**
12	Ability to use computing technology in communications.	31	22	17	5	2	4	4	**3.4**
		38%	27%	21%	6%	2%	5%	80%	**68%**
13	Ability to use computing technology in engineering analysis/design.	26	25	20	6	0	4	3.9	**3.3**
		32%	31%	25%	7%	0%	5%	78%	**66%**
14	Ability to use state of the art techniques, and tools in engineering practice.	23	26	20	5	2	5	3.8	**3.2**
		28%	32%	25%	6%	2%	6%	76%	**64%**
15	Apply the knowledge of probability and statistics.	20	24	24	5	3	5	3.7	**2.9**
		25%	30%	30%	6%	4%	6%	74%	**58%**
16	An ability to assume responsibility at an entry level in the areas of Mechanical Engineering that are important to Kuwait and the region, such as the design, analysis and maintenance of machinery, refrigeration, air-conditioning and desalination systems.	24	21	24	3	1	8	3.9	**3.1**
		30%	26%	30%	4%	1%	10%	78%	**62%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.0 79%	3.4 68%
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	3.9 78%	3.2 64%
3	an ability to communicate effectively with a range of audiences	4.0 79%	3.3 66%
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	3.9 79%	3.3 67%
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	4.0 80%	3.4 68%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.9 78%	3.3 66%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.9 78%	3.3 66%

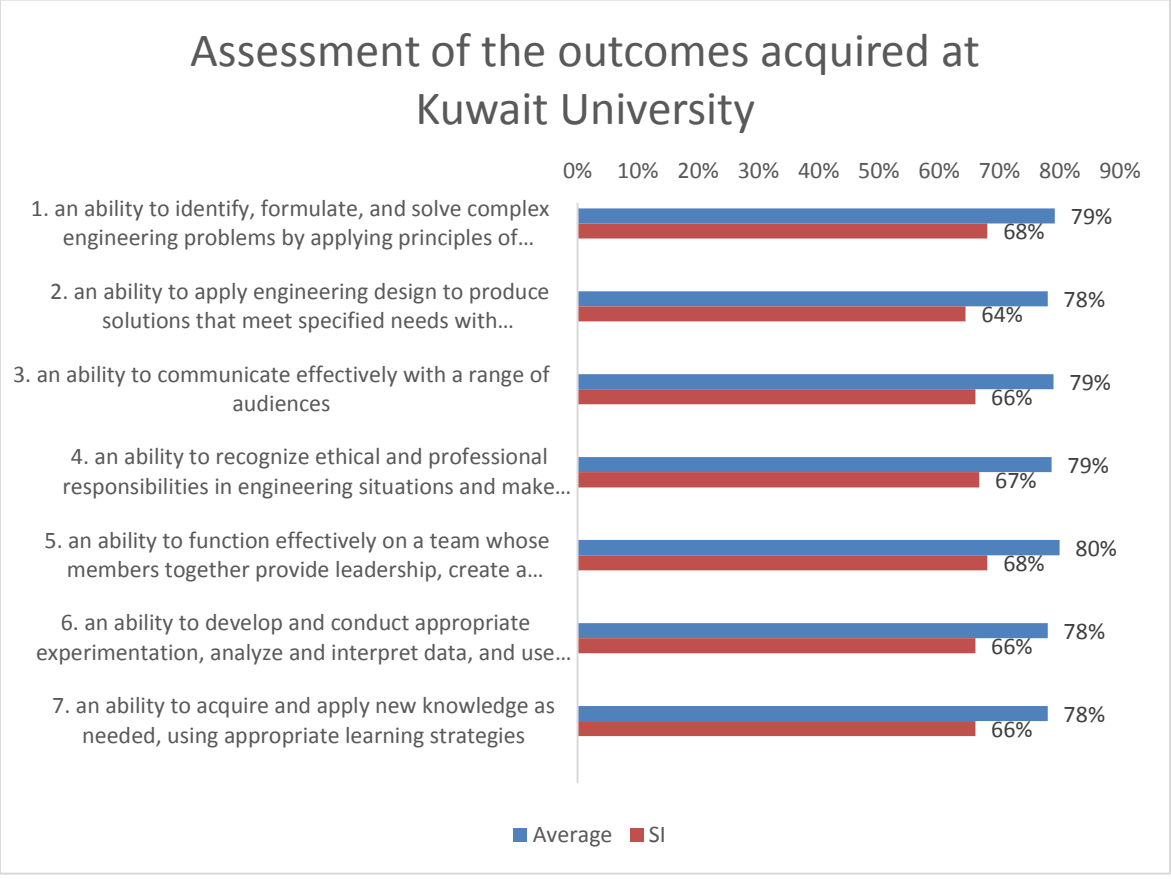


Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	33	22	20	1	0	5	4.1	**3.6**
		41%	27%	25%	1%	0%	6%	82%	**72%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	26	29	20	1	0	5	4.1	**3.6**
		32%	36%	25%	1%	0%	6%	82%	**72%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	31	17	25	2	0	6	4	**3.2**
		38%	21%	31%	2%	0%	7%	80%	**64%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	26	22	20	6	2	5	3.8	**3.2**
		32%	27%	25%	7%	2%	6%	76%	**64%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	21	20	29	4	2	5	3.7	**2.7**
		26%	25%	36%	5%	2%	6%	74%	**54%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	27	20	21	3	2	8	3.9	**3.2**
		33%	25%	26%	4%	2%	10%	78%	**64%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	19	19	26	8	4	5	3.5	**2.5**
		23%	23%	32%	10%	5%	6%	70%	**50%**
2	- Computers (Programming and usage of software packages)	16	19	26	7	7	6	3.4	**2.3**
		20%	23%	32%	9%	9%	7%	68%	**46%**
3	- Humanities and Social sciences	21	21	23	3	5	8	3.7	**2.9**
		26%	26%	28%	4%	6%	10%	74%	**58%**
4	- General Engineering	23	20	29	3	1	5	3.8	**2.8**
		28%	25%	36%	4%	1%	6%	76%	**56%**
5	- Engineering within major	30	20	22	4	0	5	4	**3.3**
		37%	25%	27%	5%	0%	6%	80%	**66%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		19	15	27	10	0	10	3.6	**2.4**
		23%	19%	33%	12%	0%	12%	72%	**48%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	21	18	26	5	4	7	3.6	**2.6**
		26%	22%	32%	6%	5%	9%	72%	**52%**
8	- Career planning	17	17	27	9	4	7	3.5	**2.3**
		21%	21%	33%	11%	5%	9%	70%	**46%**
D. Equity of treatment by:									
9	- Academic administrators	18	17	26	9	3	8	3.5	**2.4**
		22%	21%	32%	11%	4%	10%	70%	**48%**
10	- Faculty	17	18	28	8	4	6	3.5	**2.3**
		21%	22%	35%	10%	5%	7%	70%	**46%**
11	- Teaching assistants and engineers	22	25	25	4	0	5	3.9	**3.1**
		27%	31%	31%	5%	0%	6%	78%	**62%**
12	- Fellow students	19	15	23	12	5	7	3.4	**2.3**
		23%	19%	28%	15%	6%	9%	68%	**46%**
E. Quality of the facilities:									
13	- Classrooms	11	17	20	15	12	6	3	**1.9**
		14%	21%	25%	19%	15%	7%	60%	**38%**
14	- Science laboratories	10	11	20	17	16	7	2.8	**1.4**
		12%	14%	25%	21%	20%	9%	56%	**28%**
15	- Engineering Laboratories	12	12	21	10	19	7	2.8	**1.6**
		15%	15%	26%	12%	23%	9%	56%	**32%**
16	- Computing facilities	11	12	24	12	15	7	2.9	**1.6**
		14%	15%	30%	15%	19%	9%	58%	**32%**
17	- Libraries	13	17	20	14	7	10	3.2	**2.1**
		16%	21%	25%	17%	9%	12%	64%	**42%**

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	12	31	15	9	5	9	3.5	**3**	29	40	8
		15%	38%	19%	11%	6%	11%	70%	**60%**	36%	49%	10%
2	Training office	16	24	16	9	1	15	3.7	**3**	21	38	18
		20%	30%	20%	11%	1%	19%	74%	**60%**	26%	47%	22%
3	Libraries	13	29	17	9	3	10	3.6	**3**	27	38	12
		16%	36%	21%	11%	4%	12%	72%	**60%**	33%	47%	15%
4	Bookstores	10	29	19	10	3	10	3.5	**2.7**	26	41	10
		12%	36%	23%	12%	4%	12%	70%	**54%**	32%	51%	12%
B. Administrative Offices:												
5	Students affairs office in your department	13	38	14	6	0	10	3.8	**3.6**	21	46	10
		16%	47%	17%	7%	0%	12%	76%	**72%**	26%	57%	12%
6	Administrative offices in the college	10	34	17	6	1	13	3.7	**3.2**	23	41	13
		12%	42%	21%	7%	1%	16%	74%	**64%**	28%	51%	16%
C. Other Services:												
7	Health services	10	26	16	3	4	22	3.6	**3.1**	15	39	23
		12%	32%	20%	4%	5%	27%	72%	**62%**	19%	48%	28%
8	Food services	12	15	17	19	9	9	3	**1.9**	31	38	8
		15%	19%	21%	23%	11%	11%	60%	**38%**	38%	47%	10%
9	Parking	5	7	8	13	37	11	2	**0.9**	33	32	12
		6%	9%	10%	16%	46%	14%	40%	**18%**	41%	40%	15%
10	Recreation and athletics	7	13	10	12	16	23	2.7	**1.7**	16	33	28
		9%	16%	12%	15%	20%	28%	54%	**34%**	20%	41%	35%
11	Others	9	6	4	7	3	52	3.4	**2.6**	14	25	16
		11%	7%	5%	9%	4%	64%	68%	**52%**	17%	31%	20%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

I became sociable. I appreciated science more. I can endure responsibilities now.

Good work with the teams.

Group work and report writing

Team work is vital. Confidence is key.

using Auto cad and MATLAB

how to work hard

Team work , functioning under stress , analytical thinking

Witting, reading, self learning and knowledge

Leadership and teamwork

thinking

Researching

Responsibility, self dependent, team work.

I learned how to deal with problems and try to solve it.

I learned to look at a problem with a unique perspective that helps solve it in a manner unique to engineering students.

self-reliance

How to search , work in a group and achieving goals.

Teamwork and analytical thinking

patient and work with groups

Team work , respect my group when have problems & how to solve it together

Oral presentation

work in team, how to use and apply the knowledge in real, practical life.

critical thinking, problem solving, report writing, team leadership, CAD modeling, coding

Team work ,engineering sence

design

AutoCAD writing reports

Solving problems

Antisocial that's pretty much it

Analytical thinking and working as a team

take responsibilities managing my time patient dealt with different doctors personalities.

Reading books communicating with doctors, and team members Leading the team

Applying the principles of mathematics and science in useful and productive way and having a new prospective in society

Time management , Self learning ,Writing reports , and design analysis .

Effective team work, thinking skills, understanding the learning process, and understanding the engineering major.

Design a system and think out of the box Work in a team with different opinions and still can work effectively Working very hard and get what I want

Report writing , presenting

1) Applying proper Engineering thinking. 2) Utilizing Engineering software for Design and optimization purposes. 3) Writing formal and informal reports properly. 4) Objective presentation with high confidence. 5) Working under continous pressure.

I had learn how to solve any engineering problems by understanding the problem first then solve it. Also, I had learn how to design an efficient product.

Time managment Confidence Ability to work under pressure

Ethics Self-education

power point and Excel

Matlab - Autocad - Comsol

I am capable of using my engineering sense and knowledge in solving/ designing systems.

I think I have learned programming (EES & AutoCAD & ANSYS), as well as formulating and solving engineering problems using mathematical tools

Collaboration, Communication, problem-solving,

Coding

Honesty team work patience

Efficient in team work Writing effective reports Using programmes for engineering analyses Self learning Deep knowledge of science and engineering

Matlap coding

time management

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

I didn't get the chance to be professional in presentations and that is a problem !!!

A class in the field of biomechanics

Financial my project

Presentation skills should be a priority.

subject that learned matlab

knowing some practical application more than studying theoretical application

Art and sport activities, student exchange, helping in research

Presentation

career planning

sports

Prepare student for career.

Presentation skills.

More computer program tools and skills

learning presentation

How to write a CV and looking for job opportunities.

available

hopeless

How to calculate the cost!

Computer aided engineering

nothing.

research, presentations

programming skills

Learning to talk in English well

program

Using of engineering programs

Proper labs to do updated experiments

No thing

some of advance programs our department not offering us to take filed trainer in company's

Programming

the ability to experience the engineering load via internship

Oral presentation skills and Programming .

Soildwork - Simulations programmes - Animation

Taking foreign language courses as electives.

How to present a presentation professionally How to live our lives and be social with the community
More Programming Courses.

Joining more than one majer in one project.

Scientific practice

I would like to learn a lot about the program matlab

I have poor knowledge in important computer software programs such as: MATLAB and Comsol, other easier finite element methods programs such as Solidworks and Ansys were not tought.

Using programming with engineering activities, Applying Manufacturing process using my own hands

creativity, adaptability

Oral presentation skills

good manners brain storming

Field training

Team skills

self study

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

I think students need special courses to improve their skills in both languages (English&Arabic). I think professors and doctors need to be fair with students and focus on their work and don't compare them to each other. If they get a low grade that doesn't mean that their IQ level is low, everyone has a story and circumstances!!!!! Professors should be focusing on educating and be more fluid with talking to students and don't challenge them!!!!

More real life applications of the studied aspects

More time for senior project

Computer aided engineering should be more looked into.

improve the labs improve the classes

Too late to suggest

Changing the laboratory and the equipment in the lab and changing the computers

more parking to save time

Prepare student for career.

Doctors or engineers should give the students classes to help them in many usedul programmes such as MATLAb, also presentation skills must be teached.

Put more weight on projects and increase the amounts of projects or papers compared to tests and exams

I hope the doctors will be more flexible

don't have anything

must be more efficient

it should be taken in one year, one semester is not enough.

there should be more presentations, the way the exams are made is not really fair for smart students or if the student went in depth, its vague and very systimatic. i also think that all the classes of the same subject must be unified.

professors should stop writing down on the black board and forcing the students to take down notes. Students should rather spend their time in class concentrating on what is being explained to grab the most out of it. and notes should be provided or be fully covered by a textbook. Anything explained in class must have a reference.

Try to hire more doctors to improve the education for students

the exams

Increase field trips

I think the academic program is fine the university facilities need to be improved on the other hand

From my point of view, there should be a practical application of most materials in the department to help us understand the material better

improve the laboratory

improving the overall facilities of the university

more training and professional seminars to improve engineers skills and abilities .

Please make sure that the doctors in any department are prepared to teach students by let them take a professional courses about teaching

the registration system is very bad in Kuwait university and needs to be improved

I suggest to do modifications in some engineering courses.

Facilitate the registration process

increase the number of parking

I think five department-electives are unnecessary. Also, common engineering courses such as C++ and Circuit were useless.

More guidance towards the students program, good registeration, listen to student feedbacks a lot seriously.

It must be fewer credits to graduate and butter library

Allow students to express themselves, its better Minimize the percentage of the final exam grades, its a mistake to depend on it for the final grade

More Oral presentations Learn engineering economics, advertising, and marketing

Adding more presentation

the instructors have to be more aware of students problems

Petroleum Engineering Program
Exit Survey Results

For the Academic year 2018-2019

October 2019

Survey Statistics:

*** Major: Petroleum Engineering**

*** Number of Students participated in the survey:**

51	**Male**	**10**	**20%**
	Female	**41**	**80%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**37**	**73%**
Intend to work in the private sector.	**29**	**57%**
Intend to go to graduate school.	**11**	**22%**
Intend to start my own business	**6**	**12%**
Intend to do other things	**0**	**0%**

*** Table 1** shows students' feedback for the first group of questions in the exit survey which is about the students' assessment for the outcome attributes acquired at Kuwait University. The table also shows the average score and the satisfaction index out of 5 and as percentage for each item. The results are presented in **Table 2** and the associate figure according to the new student outcomes as outlined previously in the college section.

***Table 3** shows students' feedback for the second group of questions about how important is the educational objectives to their careers.

*** Table 4** shows students' feedback for the third group of question about their level of satisfaction for the learning Environment at Kuwait University.

*** Table 5** shows students' feedback for the fourth group about the students' assessment of the Support Services at Kuwait University. The table also shows the amount of interaction they had with each item.

Table1 Assessment of the outcome attributes acquired at Kuwait University

#	Outcome attributes	5	4	3	2	1	0	Average	SI
1	Apply knowledge of mathematics, physics and engineering.	19	22	8	2	0	0	4.1	**4**
		37%	43%	16%	4%	0%	0%	82%	**80%**
2	Design and conduct experiments, as well as to analyze and interpret data.	17	21	11	2	0	0	4	**3.7**
		33%	41%	22%	4%	0%	0%	80%	**74%**
3	Design a system, component, or process to meet desired needs.	16	17	9	7	2	0	3.7	**3.2**
		31%	33%	18%	14%	4%	0%	74%	**64%**
4	Function effectively in teams.	25	15	9	2	0	0	4.2	**3.9**
		49%	29%	18%	4%	0%	0%	84%	**78%**
5	Identify, formulate, and solve engineering problems.	18	20	11	2	0	0	4.1	**3.7**
		35%	39%	22%	4%	0%	0%	82%	**74%**
6	Understand professional and ethical responsibilities (e.g. safety, professional ethics, code of conduct).	27	13	8	3	0	0	4.3	**3.9**
		53%	25%	16%	6%	0%	0%	86%	**78%**
7	Communicate effectively (written reports).	23	15	10	3	0	0	4.1	**3.7**
		45%	29%	20%	6%	0%	0%	82%	**74%**
8	Communicate effectively (oral presentations).	23	15	12	1	0	0	4.2	**3.7**
		45%	29%	24%	2%	0%	0%	84%	**74%**
9	Understand and appreciate the impact of engineering in the societal and global contexts.	18	18	10	5	0	0	4	**3.5**
		35%	35%	20%	10%	0%	0%	80%	**70%**
10	Be aware of the need for, and improve my ability to engage in life-long learning (seeking further education, self learning, membership in professional societies).	23	16	9	3	0	0	4.2	**3.8**
		45%	31%	18%	6%	0%	0%	84%	**76%**
11	Be aware of contemporary issues (e.g. economics of engineering, environmental issues, etc.)	18	18	11	3	1	0	4	**3.5**
		35%	35%	22%	6%	2%	0%	80%	**70%**
12	Ability to use computing technology in communications.	17	18	11	5	0	0	3.9	**3.4**
		33%	35%	22%	10%	0%	0%	78%	**68%**
13	Ability to use computing technology in engineering analysis/design.	16	19	12	4	0	0	3.9	**3.4**
		31%	37%	24%	8%	0%	0%	78%	**68%**
14	Ability to use state of the art techniques, and tools in engineering practice.	16	13	18	4	0	0	3.8	**2.8**
		31%	25%	35%	8%	0%	0%	76%	**56%**
15	Apply the knowledge of probability and statistics.	12	19	15	5	0	0	3.7	**3**
		24%	37%	29%	10%	0%	0%	74%	**60%**

Table 2 Assessment of the Student Outcomes (1-7) acquired at Kuwait University

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.0 79%	3.5 70%
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	3.7 75%	3.2 64%
3	an ability to communicate effectively with a range of audiences	4.2 83%	3.7 74%
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	4.1 81%	3.6 71%
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	4.2 84%	3.9 78%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.0 79%	3.6 71%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.2 84%	3.8 76%

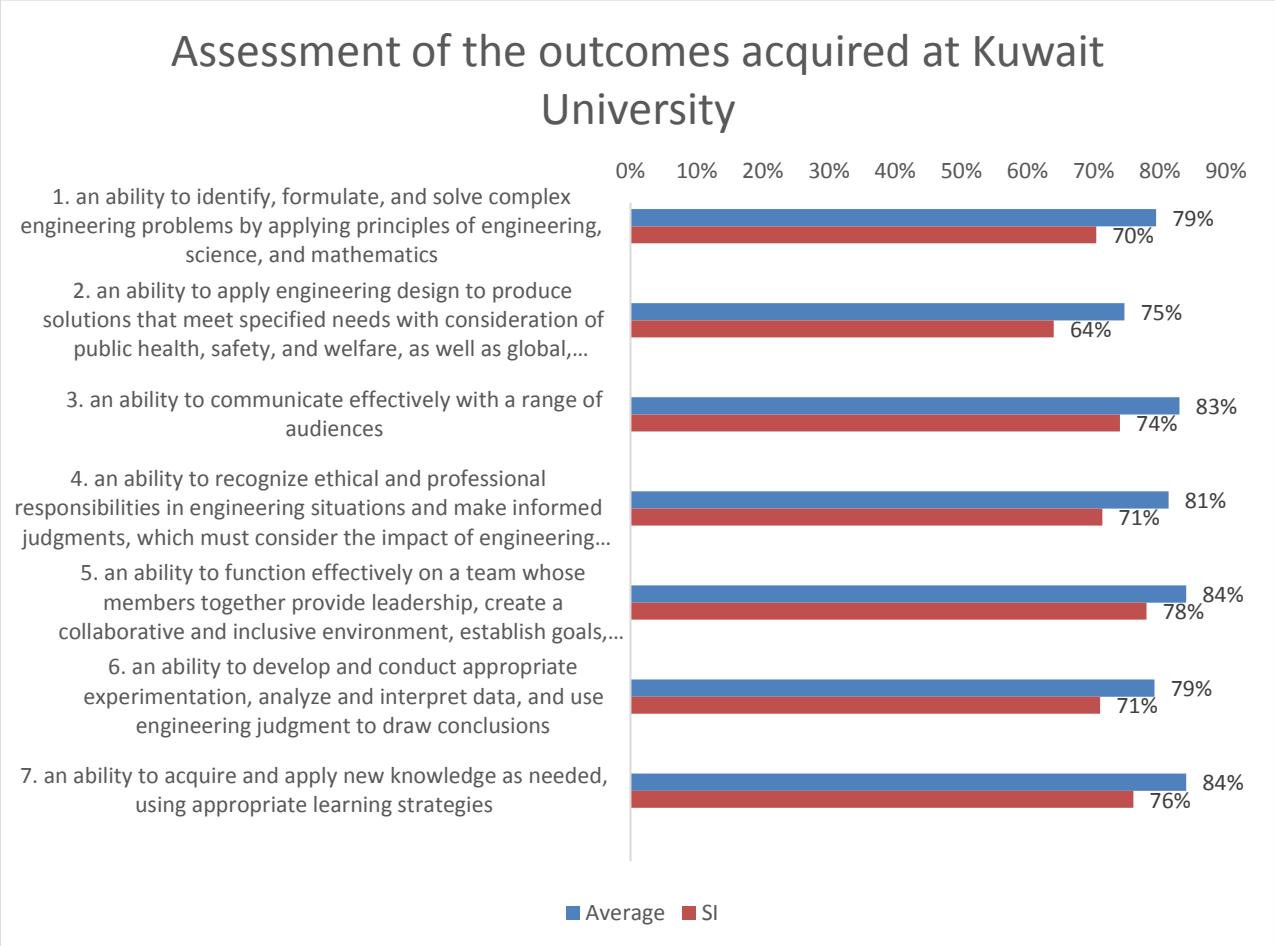


Table 3 Assessment of relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	0	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	22	19	8	1	1	0	4.2	**4**
		43%	37%	16%	2%	2%	0%	84%	**80%**
2	Contribution to well-being of society and the environment (e.g., safeguard the interest of society, improve economy, develop professional standards and best practices, safeguard and improve the environment).	18	18	12	3	0	0	4	**3.5**
		35%	35%	24%	6%	0%	0%	80%	**70%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	22	16	12	1	0	0	4.2	**3.7**
		43%	31%	24%	2%	0%	0%	84%	**74%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	15	16	16	4	0	0	3.8	**3**
		29%	31%	31%	8%	0%	0%	76%	**60%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	15	21	13	1	1	0	3.9	**3.5**
		29%	41%	25%	2%	2%	0%	78%	**70%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	19	17	11	3	1	0	4	**3.5**
		37%	33%	22%	6%	2%	0%	80%	**70%**

Table 4 Level of satisfaction for the learning Environment at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI
A. Quality of instruction and support for learning provided by the faculty members in:									
1	- Sciences (Mathematics, Physics, Chemistry)	18	12	15	5	1	0	3.8	**2.9**
		35%	24%	29%	10%	2%	0%	76%	**58%**
2	- Computers (Programming and usage of software packages)	13	12	16	8	1	1	3.6	**2.5**
		25%	24%	31%	16%	2%	2%	72%	**50%**
3	- Humanities and Social sciences	9	18	15	3	2	4	3.6	**2.9**
		18%	35%	29%	6%	4%	8%	72%	**58%**
4	- General Engineering	14	20	13	2	2	0	3.8	**3.3**
		27%	39%	25%	4%	4%	0%	76%	**66%**
5	- Engineering within major	16	19	13	2	1	0	3.9	**3.4**
		31%	37%	25%	4%	2%	0%	78%	**68%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		14	14	10	10	3	0	3.5	**2.7**
		27%	27%	20%	20%	6%	0%	70%	**54%**
C. Quality of advice by the staff with respect to:									
7	- Academic planning	18	14	12	4	2	1	3.8	**3.2**
		35%	27%	24%	8%	4%	2%	76%	**64%**
8	- Career planning	12	12	15	9	3	0	3.4	**2.4**
		24%	24%	29%	18%	6%	0%	68%	**48%**
D. Equity of treatment by:									
9	- Academic administrators	16	15	9	9	2	0	3.7	**3**
		31%	29%	18%	18%	4%	0%	74%	**60%**
10	- Faculty	11	15	15	8	2	0	3.5	**2.5**
		22%	29%	29%	16%	4%	0%	70%	**50%**
11	- Teaching assistants and engineers	14	17	13	5	2	0	3.7	**3**
		27%	33%	25%	10%	4%	0%	74%	**60%**
12	- Fellow students	13	14	15	7	2	0	3.6	**2.6**
		25%	27%	29%	14%	4%	0%	72%	**52%**
E. Quality of the facilities:									
13	- Classrooms	8	15	14	6	8	0	3.2	**2.3**
		16%	29%	27%	12%	16%	0%	64%	**46%**
14	- Science laboratories	9	11	19	6	5	1	3.3	**2**
		18%	22%	37%	12%	10%	2%	66%	**40%**
15	- Engineering Laboratories	11	8	21	4	6	1	3.3	**1.9**
		22%	16%	41%	8%	12%	2%	66%	**38%**
16	- Computing facilities	11	13	17	3	6	1	3.4	**2.4**
		22%	25%	33%	6%	12%	2%	68%	**48%**
17	- Libraries	12	16	19	2	2	0	3.7	**2.7**
		24%	31%	37%	4%	4%	0%	74%	**54%**

Table 5 Assessment of the Support Services at Kuwait University

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	14	16	13	3	4	1	3.7	**3**	19	26	6
		27%	31%	25%	6%	8%	2%	74%	**60%**	37%	51%	12%
2	Training office	13	15	16	3	1	3	3.8	**2.9**	15	27	9
		25%	29%	31%	6%	2%	6%	76%	**58%**	29%	53%	18%
3	Libraries	12	23	11	2	1	2	3.9	**3.6**	16	29	6
		24%	45%	22%	4%	2%	4%	78%	**72%**	31%	57%	12%
4	Bookstores	9	20	14	0	2	6	3.8	**3.2**	15	26	10
		18%	39%	27%	0%	4%	12%	76%	**64%**	29%	51%	20%
B. Administrative Offices:												
5	Students affairs office in your department	12	20	15	3	0	1	3.8	**3.2**	14	32	5
		24%	39%	29%	6%	0%	2%	76%	**64%**	27%	63%	10%
6	Administrative offices in the college	12	17	14	2	0	6	3.9	**3.2**	16	26	9
		24%	33%	27%	4%	0%	12%	78%	**64%**	31%	51%	18%
C. Other Services:												
7	Health services	11	15	14	1	3	7	3.7	**3**	10	26	15
		22%	29%	27%	2%	6%	14%	74%	**60%**	20%	51%	29%
8	Food services	10	20	13	3	4	1	3.6	**3**	22	25	4
		20%	39%	25%	6%	8%	2%	72%	**60%**	43%	49%	8%
9	Parking	7	11	6	6	20	1	2.6	**1.8**	25	19	7
		14%	22%	12%	12%	39%	2%	52%	**36%**	49%	37%	14%
10	Recreation and athletics	7	11	12	7	5	9	3.2	**2.1**	11	27	13
		14%	22%	24%	14%	10%	18%	64%	**42%**	22%	53%	25%
11	Others	3	11	5	2	1	29	3.6	**3.2**	10	16	11
		6%	22%	10%	4%	2%	57%	72%	**64%**	20%	31%	22%

* Open-ended questions (unedited student comments)

A. Please list some very important skills that you think you had learned in the engineering program.

Ability to work under pressure

Good

Communication

Study hard. Working as a team. Helping other students.

Discipline

The group work , communication with others , and the oral presentation.

communication

patience-time management

working under pressure

Thinking deeply

Communication with others and take the constractive criticism in improving my self.

Leadership

Presentations

Improve memory and language skills

Leader ship

effective communication time management team work presentation skills

Writing professional report

report writing , presenting

working on microsoft excel

Presentation skills

how to work as groups and how to communicate with others

team work presentation skills being on time

Team work

Communication skills

I became more social

Patient, tolerance , leadership

Communication

Determination- time management- group work

How to work in group

Team work. basic programming general engineering Designing a project writing reports

simulation CMG

Team Work , Organization of time and hard work , Communication skills.

Hard work , team work , Organization of time

Excellent presentation skills

Projects

Presentation , cooperation

Knoweledge of mathmatics, engineering, and probability.

Team work, engineering mindset and ethics

Planning

presenting

Knowledge and basics

Data analysis, oral presentation, report writing, engineering analysis, experimental design, economic analysis, programming, professional communication

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking engineering courses at Kuwait University.

Computer programming

Good

Publik speeking

We have to learn how to combine all the subjects that we took through the programm.

communication

fields visits

practical application for some subjects and programs that needs imagination let the students to explain and discuss topics in English

Social media

Lab work.

communication skills

Field experience

Not have

Programming

aerodynamics

doing the expiremnets by myself

Some economical aspects

design engineer's assesment instruction

More field training

Practical work; designing a product/system/network from scratch. Thinking out of the box,.

sports activities

Practical experiments

More coding features

Learning about petroleum engineering by visiting oil fields.

enhance communication skills

Teamwork outside school campus

Programming

Presentation skills.

Programming courses were very poor

Team working ,presentation

Little practical experience

environmental and social analysis, advanced mathematics application in engineering problems

C. Please write down any comments or suggestions that you think will improve the engineering programs at Kuwait University (use additional sheets if necessary):

More parking

Good

Hygiene

Online courses is a good choice.

I suggest for the senior project to have a condition that not any one take it only who will graduate in the same course with credits less than 9.

cleanliness

change previous exams

Supervise the students through their journey in Kuwait University and support them to be a successful humans in this country

My suggestion is to put a mini car like golf car to transport students between buildings.

Thanks

Not have

i suggest to include E-learning in Kuwait university

More labs and facilities

the academic registration in Kuwait university is very bad and needs to be improved

improve the level of education

Every thing is considered good

the programs should not only be theoretical it should have some workshops in order to learn more

social contact training more sessions

Include practical work, training, more projects, mandatory field trips.

new buildings , smart class rooms

Get to know more about the field work

Knowing more about the actual work in real life

practical learning

enhance communication skills

Professors/Teachers are not gods, they should be dealt with when they are wrong and the student is right, which sadly does not happen.

More programming classes

No thing

Better food court

Department that follow the students every course and the reason of decline in the GPA and encourage them

Laboratory and experiments,apply the studied materials to real life cases

Improve practical experience

longer industrial training periods, extensive computer packages training, less humanities courses

APPENDIX C:
Sample Presentation to Departments

Accreditation and Assessment

Andreas P. Christoforou
Office of Academic Assessment (OAA)
College of Engineering and Petroleum (CEP)
Kuwait University (KU)

Accreditation Structure-Leadership

ABET-EAC criteria

1. Students
2. Program Educational Objectives
3. Student Outcomes
4. Continuous Improvement
5. Curriculum
6. Faculty
7. Facilities
8. Institutional Support

+ Program Criteria (additional curriculum and faculty requirements)

Main activities-2016/17

- **Coordination** – three visits to individual departments, UPC, AC meetings, monitoring assessment activities, etc.
- **Addressing previous ABET visit issues** – programs addressed/addressing them.
- **Addressing areas for improvement** – Design, Common courses, Labs, English.
- **Alumni survey** – 1800 responded during registration drive, only 332 completed the survey.
- **Virtual assessment 'room'** – file sharing system

Alumni survey participation

Response Statistics: May 15, 2017

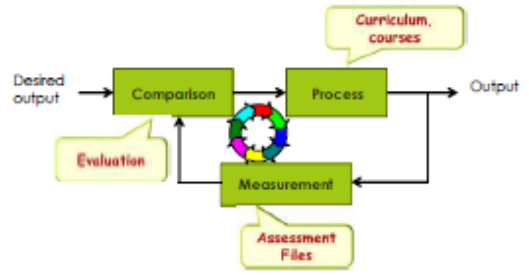
DEPARTMENTS	Total No. of Graduates - last 6 yrs	Survey Response	% Response
CHEMICAL ENGINEERING	583	39	6.9
CIVIL ENGINEERING	1080	106	9.7
COMPUTER ENGINEERING	442	35	7.9
ELECTRICAL ENGINEERING	631	41	6.5
IME ENGINEERING	380	30	7.9
MECHANICAL ENGINEERING	407	37	9.1
PETROLEUM ENGINEERING	503	22	4.4
TOTAL	4016	332	8.3

Course assessment participation

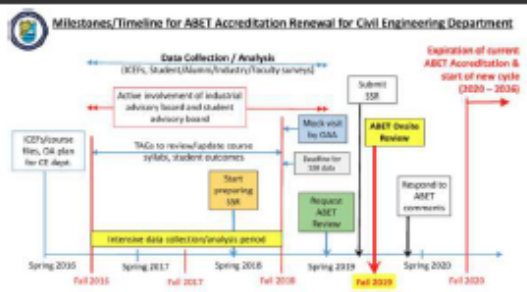
Response Statistics – Fall Semester 2016/17: May 15, 2017

DEPARTMENT	Total Faculty	Total Course Sections	Total Response (courses)	Unique Responder	% Response Courses	% Response Faculty
CHEMICAL	19	61	30	12	50.0	63.2
CIVIL	43	91	37	20	40.7	47.8
ELECTRICAL	22	66	30	13	36.5	40.8
IME	12	20	20	12	100.0	100.0
MECHANICAL	35	75	34	14	33.0	40.0
PETROLEUM	17	30	19	5	63.3	29.4
TOTAL	167	380	195	76	46.1	47.8

Closing the loop



ABET evaluation visit-timeline and preparation



Preparations for ABET

- Fall 2017 – Begin writing Self Study Reports (SSR)
- Spring 2017 – SSR drafts are ready for internal review
- Fall 2018 – Internal review and mock evaluation visit
- January 2019 – Request ABET evaluation visit
- June 2019 – Finalize SSR and send them to ABET
- July to October 2019 – Pre-visit activities and preparations
- November 2019 – ABET evaluation visit

Concluding remarks

- Accreditation is very important to all of us.
- ABET accreditation demonstrates our commitment to the quality of our engineering programs – both now and in the future.
- Keys: Commitment, support, implementation, follow-up.

For more information….

- Visit the OAA web site:
  - http://www.eng.kuniv.edu/oaa/
- Visit the ABET web site:
  - http://www.abet.org/accreditation/
- Or write/call us:
  - oaa@eng.ku.edu.kw, ext. 83331