College of Engineering & Petroleum
Office of Academic Assessment

Office of Academic Assessment

Annual Report

Academic Year 2022-2023

October 2023

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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 the OAA in the academic year 2022/23. The office's main activities are summarized, and recommendations and plans for the next academic year are given.

Online Instructor Course Assessment

The office provided the Instructor Course Evaluation Form (ICEF) to the faculty through an online system. This user-friendly online tool helps the faculty members to evaluate student performance for related student outcomes as determined by the department assessment coordinators. The form asks the faculty to assess student performance related to an outcome on a Likert scale, to provide a description of activities used to develop related student skills and to provide an account of the evidence used to assess student performance. Faculty is also given the opportunity to record their comments related to student performance, course management and other suggestions to improve the course. After submitting the form, an instruction page informs the faculty on how to prepare the course assessment file to be submitted to the departmental assessment coordinator.

The assessments provided in this report were conducted for the Fall, Spring, and Summer semesters of 2021/22 academic year. A comprehensive report including all the details and the results has been prepared and issued. A summary is given in **Appendix A of this report**.

Exit Survey

Students are required upon graduation to submit the exit survey form. The survey was filled online by students graduating at the end of the Fall, Spring and Summer semesters of the 2021/22 academic year. A comprehensive report including all the survey results and analysis thereof has been prepared and issued. This Exit Survey Report is given in **Appendix B of this report**.

Alumni Survey

Due to the unavailability of servers to house the survey, the 2022-2023 Alumni Survey was implemented and launched using Google Forms. We have received a total of 305 responses from alumni of the various departments of the College of Engineering and Petroleum. The survey data is currently being processed and will be presented in an Alumni Survey Report scheduled to be completed by our office in the academic year 2023 – 2024.

Employer Survey

Due to the unavailability of servers to house the survey, the 2022-2023 Alumni Survey was implemented and launched using Google Forms. The OAA sent official letters through the College Dean to private and government entities that employee College of Engineering graduates for their participation in the survey. An Employer Survey Report detailing and analyzing the survey results is scheduled to be completed by our office in the academic year 2023 – 2024.

OAA Guidance to Departments on ABET Procedures

The Office of Academic Assessment has included in its annual operational plan, a systematic procedure of providing assessment and accreditation related guidance to the departments. One guidance item is scheduled for each semester in the OAA operational plan. Accordingly, the OAA conducted lab safety visits which addressed the scheduled criterion 3 (Labs), a process that spanned most of the academic year. Refer to the **item below entitled "OAA Lab Safety Visits"** for further detail and refer to **Appendix D** for associated lab safety visit reports.

Scheduled for the spring semester, criterion 2 (SOs, PEOs and participation of constituents) was addressed throughout the CAC meetings held for the 2022-2023 AY. Among the relevant matters addressed in this regard, the OAA coordinated the setting of assessment timelines for each academic department and worked toward unifying assessment processes. Departments were also reminded of the necessity of productive and practical cooperation with advisory boards as constituents.

OAA also took the initiative of revising and updating existing **rubrics and checklists** for various student outcomes as well as preparing new rubrics for those student outcomes for which no College or department level rubrics were available. The rubrics for seven outcomes were divided among seven departments as well as OAA. The departments were paired with each other for brainstorming, feedback and coordination during this process. The process is in its final stages and is expected to be completed during the early half of the Fall 2023 semester.

CAC Meetings

The Office of Academic Assessment (OAA) organized and called for two meetings of the College Assessment Committee (CAC) during the academic year 2022-23. All CAC meetings were held in the Multimedia lab on the 5th floor of the South Engineering Building in the Shadadiya campus. Participants included the VDAA, departmental assessment coordinators, as well as the OAA represented through its director and employees. The meeting minutes are **included in Appendix C**, while a brief account of the meetings is supplied below:

1- **CAC meeting #1:**
The first CAC meeting for the academic year 2022-2023 was held on October 26, 2022. All departments were commended for submitting their annual assessment reports for the AY 2021-22. Issues related to improving assessment activities were discussed, namely, the necessity for structured student outcome assessment processes using Performance Indicators (PIs) and rubrics/checklists, all in line with ABET documents serving as a general template. Issues relating to capstone projects were also discussed, with focus on capstone design conforming with ABET requirements, and the creation of a list documenting all capstone projects completed during a given academic year. Time periods for the student outcome assessment and evaluation process for each respective department were finalized. The status of virtual assessment rooms (VARs) was reviewed, a majority of the departments reported that their VARs were ready. The ICEF and Exit survey data collected during AY 2021-22 was presented to the committee members and its suitability for the departments' continuous improvement processes was discussed. Committee members were

informed that the OAA plans to launch the Alumni and Employer survey in the running AY. Committee members were apprised of ABET's changes to EAC criteria which introduce language related to Diversity, Equity, and Inclusion (DEI) and the fact that these changes will be in effect in the 2023-2024 ABET review cycle and this matter was discussed. Lastly, the committee members were reminded of the necessity of forming their departments' Industrial Advisory Boards (IAB) and student advisory councils (SAC) and the importance of productive interaction with these advisory entities was emphasized and discussed.

2- CAC meeting #2:

The second CAC meeting was held on March 13, 2023. Firstly, the agenda items from the previous CAC meeting were reviewed. Following discussion, the ABET-compliant template for Annual Assessment Reports was finalized, and the time periods for each departments' student outcome assessment evaluation processes was set. Assessment data and data handling requirements were also discussed, with emphasis on providing evidence of PEO review, compiling lists detailing all capstone design projects in an AY, and producing a list of required courses showing coverage of ABET program criteria. The procedure and stepwise workflow of the Annual Assessment Report review process was then detailed to committee members and discussed. Following a discussion regarding the review and update of assessment tools, the committee agreed upon action items initiating the drafting, review, and adoption of new assessment tools as deemed necessary. Lastly, committee members were made aware of initial Alumni survey responses, the status of the employer survey, and were presented with ICEF and Exit survey data for Fall 2022-2023.

OAA Lab Safety Visits

The Office of Academic Assessment initiated and conducted lab safety visits throughout the College of Engineering and Petroleum and the College of Sciences in the AY 2022-2023. Borne out of a recognition of the tacit imperative of ensuring a safe environment for students, faculty, and laboratory staff, and the considerable importance that ABET accords to laboratory safety as an accreditation criterion, the OAA undertook these lab visits to preventatively safeguard laboratory safety, this especially in light of Kuwait University's relatively recent move to Sabah Al-Ahmad University City. All laboratory visits were conducted with the cooperation of the department heads and relevant staff from each respective department, and a lab safety report for each visit was prepared by the OAA and raised to the corresponding dean following review by the relevant academic department. The OAA visited a representative sample of labs from each of the CEP/COS academic departments listed below:

1- **Electrical Engineering** – lab visit conducted on 10 November 2022. Refer to **Appendix D** for lab safety report.
2- **Mechanical Engineering** – lab visit conducted on 13 November 2022. Refer to **Appendix D** for lab safety report.
3- **Civil Engineering** – lab visit conducted on 22 November 2022. Refer to **Appendix D** Refer to lab safety report.
4- **IMSE Engineering** – lab visit conducted on 01 December 2022. See **Appendix D** for lab safety report.
5- **Computer Engineering -** lab visit conducted on 04 December 2022. Refer to **Appendix D** for lab safety report.
6- **Chemical Engineering** – lab visit conducted on 13 December 2022. Refer to **Appendix D** for lab safety report.
7- **Biological Sciences** – lab visit conducted on 04 April 2023. Refer to **Appendix D** for lab safety report.

8- **Microbiology** – lab visit conducted on 04 April 2023. Refer to **Appendix D** for lab safety report.
9- **Physics** – lab visit conducted on 04 April 2023. Refer to **Appendix D** for lab safety report.
10- **Chemistry** – lab visit conducted on 30 April 2023. Refer to **Appendix D** for lab safety report.
11- **Geology** – lab visit conducted on 30 April 2023. Refer to **Appendix D** for lab safety report.

OAA Training Sessions

The Office of Academic Assessment (OAA) organized and held two training sessions in the AY 2022-2023. These training sessions targeted faculty, teaching assistants, and laboratory engineers and aimed to raise awareness of academic assessment processes and improve competency at assessment procedures. A summary of the two training sessions is listed below:

1- Training Session 1 entitled "**Display Materials for ABET visit", held on November 7, 2022**. The training session addressed display materials required by ABET as evidence showing compliance with ABET accreditation criteria. Both display materials of an academic (syllabi, sample student work, administrative documents related to assessment and program changes), and non-academic (materials related to constituents) nature were exhibited and explained. The move towards virtual documentation of display materials and of the assessment process itself was also discussed, and a thorough illustration of Virtual Assessment Rooms and their necessity was conducted.

2- Training Session 2 entitled **"Preparation of Assessment Data", held on April 17, 2023**. The training session covered procedures concerning the collection and preparation of academic assessment data and provided an overview of ABET assessment criteria, with emphasis on criterion 4 (continuous improvement). The training session also covered the concepts of formative assessment (assessing for learning needs) and summative assessment (measurable assessment of the learning), and discussed current practices and materials used for both at the college.

3- With the support of the VDAA and the Dean of the College of Engineering and Petroleum, the OAA helped facilitate faculty participation in a 3-day online **workshop on assessment of student learning** given by ABET expert, Gloria Rogers. Eight faculty members from various departments participated and benefited from the workshop that was held from 8 to 10 March 2023.

Participation in College UPC meetings

The Office of Academic Assessment (OAA) was represented in the College Undergraduate Program Committee (UPC) meetings during AY 2022-23 by its director. Two meetings were attended during AY 2022-23. Accreditation and assessment related issues were raised and discussed as part of these meetings, namely ABET criteria changes (Diversity, Equity, and Inclusion criteria) and ABET's proposed Civil Engineering program criteria changes.

Annual Assessment Activities Reports of Departments

All departments submitted the annual assessment activities reports for AY 2020-21. These reports were reviewed by OAA and feedback was provided to the assessment coordinators during CAC

meetings. Based on the review of the submitted reports, it was determined that the assessment process was well established in the Computer, Mechanical Engineering and Electrical Engineering departments with active participation of faculty as well as Teaching Area Groups (TAGs). However, a lack of faculty and TAG participation was noted for the Chemical, Civil, Industrial and Petroleum Engineering departments and there is a need for improvement to the assessment process. OAA provided general guidance to the department assessment coordinators for improving the student outcome assessment procedures and writeup of annual assessment report.

Recoding of Surveys

The recoding of the Alumni and Employer survey was completed. However, due to difficulties encountered relating to obtaining servers and the urgency of launching the surveys in the current academic year, the OAA implemented the surveys using Google Forms. **Refer to Appendix E for a sample of the survey forms used.**

OAA Internal Meetings

The OAA conducted a total of two internal meetings during the 2022 - 2023 academic year. All internal meetings were held in the VDAA meeting room on the 5th floor. The OAA's internal meetings were held periodically to discuss the office's goals for the year, and to keep abreast of the tasks undertaken by office employees to realize these goals.

Evaluation of the OAA Operation Plan for AY 2022 – 2023

Academic Year 2022-2023 - Fall 2022 (Y3)

- Submit OAA Annual Report for 2021/2022. -**Submitted on 21/09/2023**
- Prepare 2021/2022 student exit survey report. – **Submitted on 13/11/2023**
- Prepare 2021/2022 ICEF assessment report.
- Prepare and circulate alumni survey report. - **ongoing**
- Plan and conduct Employer Survey. **ongoing**
- Workshop/Seminar/Training for TA's - preparing course folders and outcome assessment evidence according to ABET requirement. - **Done**
- ABET maintenance fee reminder.
- Ask Programs for establishing Industry Advisory Boards/ Student Advisory Boards and documenting their activities. – **All departments have formed the boards**
- Follow-up with Departments regarding Criterion 3: Labs. – **Lab visits and be done and reports have been forwarded**
- Organize an employer gathering (coordinate with ETAC). – **Need to discuss with Prof. Sorour**
- Coordinate assessment activities among engineering programs. (**Emphasis: Professional Skills and lab safety**). - **Done**
- Virtual assessment room update –check readiness, assess needs, provide guidance & coordinate with IT as needed. – **All departments are ready, OAA to visit the departments soon and check the readiness.**
- Administer end of Semester Student Exit Survey. **Done**
- Launch Alumni Survey-**Survey launched and in process.**
- Follow-up with programs regarding revisions to program assessment plan, after College UPC approves proposed curricular changes. – **Discuss at CAC meeting #1**
- Virtual assessment room update –check readiness, assess needs, provide guidance & coordinate with IT as needed. – **Discussed at CAC meeting**
- Coordinate with Vice Dean for Student Affairs for student academic and career advising procedures in the College.
- Gather information on student academic and career advising procedures in each Department. – **Write letters to departments**
- Comparative Study on exit Surveys for the past three Academic years. – **Discussed at CAC meeting #1**
- Another Comparative Study on ICEF Surveys for the past 3 years - **Discussed at CAC meeting #1**

Academic Year 2022/2023 - Spring 2023 (Y3)

- Remind programs for preparation of annual outcome assessment activities report. **Discuss at CAC meeting #1**
- Prepare Employer survey report. - **Ongoing**
- Formulate/Implement corrective actions, if any. – **Moved to Fall 2023**
- Coordinate assessment activities among engineering programs. (**Emphasis: Criterion 2: PEOs, SOs and participation of constituents**). - **Done**
- Coordinate with Vice Dean for Student Affairs for student academic and career advising procedures in the College.
- Coordinate assessment activities among engineering programs. (**Emphasis: Professional Skills and lab safety**). - **Done**
- Workshop/Seminar/Training for TA's - preparing course folders and outcome assessment evidence according to ABET requirement. – **Monday, 13th March 2023**

- Prepare report on student advising procedures in the College and the Departments. Identify potential weakness and suggest improvements in list of ABET procedures - **After meeting with VDSA**
- Administer end of Semester Student Exit Survey. - **Done**
- Visit programs for ABET compliance. Check readiness of virtual assessment rooms.
- Prepare OAA annual report for AY 2022-23. - **Ongoing**
- Lab visits for science **- Done**
- Feedback report to programs on ABET criteria compliance and readiness for next visit review
- Annual report based on SSR summary of UPC activities IAB, SAC activities to be included in the annual report - - **Discussed at CAC meeting #2**

Recommendations

This section presents some recommendations for actions to be taken during the coming academic years to streamline and enhance the effectiveness of the academic assessment process in various departments of the College.

1- Department assessment coordinators are advised to apply performance indicators to reliably quantify assessment data. Standardized assessment rubrics and checklists are recommended as well to improve data quality, replicability, and ease of use.
2- A process safeguarding laboratory safety which results in practical measures taken is required at the college. The OAA's laboratory visits showed that a significant number of safety violations and infractions exist within college laboratories. This must be redressed to create a safe environment for all lab users and contribute to an overall culture of lab safety at the college.
3- Departmental virtual assessment rooms must be properly operational within previously stated timelines for their operation.
4- All departments shall form IAB and SAC and keep records of their meetings.
5- All capstone projects shall conform to ABET guidelines that were circulated to the departments as a checklist. Documentation of all capstone projects is to be available in the department virtual assessment room.
6- Inclusion of ABET program criteria items in required courses of the curriculum and record keeping of program criteria curricular item coverage through student work is to be ensured by all departments.
7- The Engineering Training and Alumni Center (ETAC) should improve its information acquirement and databasing capacity regarding both alumni and Employers of college graduates. ETAC's current capabilities did not help facilitate the launch of the Alumni and Employer surveys.
8- Information on the college website should be updated regularly to remain accurate and current.

Summary of Salient OAA Communications during AY 2022-23

S:no	Activity	Prepared by	Submitted to	date
1	ABET APPM requirement related to public release of information	Dr.Tariq	Dr. Raed	11/9/2022
2	Changes to ABET EAC criteria related to diversity, equity, and inclusion	Dr. Tariq	Dr. Raed	11/9/2022
3	OAA access to university server	Eng. Freya	Dr. Raed and Prof. Ayed	19/9/2022
4	OAA Annual Report 2021-2022	OAA	VDAA and Dean	21/9/22
5	ABET requirement for public disclosure of info on website	Dr. Tariq	Dr.Raed	25/9/22
6	ICEF and Exit Summary 2021-2022	OAA	Dr. Raed	26/9/22
7	Lab facilities and lab reports	Dr. Tariq	Dr. Mabkhout	4/10/22
8	Update on ABET program criteria changes for CE	Dr. Tariq	Dr. Mohamed Alkhaldi	10/10/22
9	Training for all Faculty members and TA's – Display Material	Dr. Tariq	All departments	10/10/22
10	Submission of ICEF report for the last AY 21-22	OAA	Prof. Ayed Salman	26/10/22
11	Visit to PE labs	OAA	PE department Chair	30/10/22
12	Visit to Electrical Lab	OAA	EE department chair	30/10/22
13	Visit to Civil labs	OAA	CE department chair	31/10/22
14	Nominations for ABET symposium and workshop 2023	OAA	All departments chair	6/11/22
15	Visit to IMSE labs	Dr. Tariq	IMSE department chair	15/11/22
16	Visit to CpE lab	Dr. Tariq	CpE department chair	15/11/22
17	Visit to ChE lab	Dr. Tariq	ChE department chair	15/11/22
18	Visit to EE lab	Dr. Tariq	EE department chair	24/11/22
19	Visit to ME lab	Dr. Tariq	ME department chair	1/12/22
20	Visit to CE lab	Dr. Tariq	CE department chair	11/12/22
21	Visit to CpE Lab	Dr. Tariq	CpE department chair	26/12/22
22	Visit to IMSE lab	Dr. Tariq	IMSE department chair	26/12/22
23	Visit to Chemical Labs	Dr. Tariq	Chemical Department Chair	2/1/23

24	Occasional safety in COE teaching labs	Dr. Tariq	Prof. Ayed	9/1/23
25	Employers contacts (Employer Survey)	Dr. Tariq	Prof. Sorour	3/2/23
26	EE Lab safety checklist	Dr. Tariq	Prof. Baidas	5/2/23
27	ICEF Report for the AY 21-22	OAA	To all department chairs	7/2723
28	Launch of Alumni Survey AY 2016-2017 to 2021-2022	OAA	Prof. Sorour and all department chairs	7/2/23
29	Electrical engineering lab report	Dr. Tariq	Electrical Engineering department chair	7/2/23
30	Launch of Alumni Survey (ETAC), PR and Afaq	Dr. Tariq	Dr. Duaij, PR head and Editor-in Chief (Afaq)	7/2/23
31	Update on ABET program criteria for CE	Dr. Tariq	Dr. Mohammad Alkhaldi (CE department chair)	9/2/23
32	Submission of lab reports	Dr. Tariq	To all department chairs	9/2/23
33	Submission of ICEF and Exit Summary 22-23	OAA	To all department chairs	9/2/23
34	Upcoming ABET workshop	Dr. Tariq	To all department chairs	15/2/23
35	Role of department for Alumni Survey (EE)	Dr. Tariq	EE department chair	16/2/23
36	ABET EAC Criteria– Diversity, equity, and inclusion (DEI)	Dr. Tariq	Prof. Sorour	20/2/23
37	Call in for CAC meeting#2 for AY 2022-2023	OAA	To all department chairs	21/2/23
38	Updating the Bulletin	OAA	Unite Head - OAA	9/3/23
39	Samples of lab reports	OAA	Chemical Engineering department head	12/3/23
40	Review/creation of rubrics and checklist	Dr. Tariq	To all department chairs	19/3/23
41	Summary of Alumni Survey	OAA	To all department chairs	19/3/23
42	Visit to the labs used by COEP students (College of Science)	OAA	Dean, College of Science	21/3/23
43	Training for Faculty members and TA's and Staff – Preparation of Assessment Data	OAA	To all department heads	10/4/23
44	IAS/SAB – MOM during AY 22-23	OAA	To all department heads	12/4/23
45	Lab report	OAA	Civil department head	18/4/23
46	Lab report	OAA	Mechanical Department Head	30/4/23

47	Request for documentation for capstone projects	OAA	To all department chairs	30/4/23
48	Comments on Virtual Assessment Room	Eng. Freya	To all department chairs and CAC members	1/5/23
49	Summary of Alumni survey result 2022-2023	OAA	To all department chairs	7/5/23
50	OAA visit to physics lab report	Dr. Tariq	Dean, College of Science	7/5/23
51	Submission of exit survey	OAA	To all department chairs	8/5/23
52	OAA visit to Biological Sciences labs	Dr. Taiq	Dean, College of Science	10/5/23
53	OAA visit to Physics and Microbiology lab	Dr. Tariq	Dean, College of Science	15/5/23
54	Follow-up on items from the CAC meeting#2 held on 31/3/23	OAA	To all department chairs	17/5/23
55	Trainings and workshops organized by OAA	OAA	Vice Dean -Prof. Sorour	21/5/23
56	OAA visit to chemistry and microbiology lab -Reports	Dr. Tariq	Heads of Chemistry and Microbiology department	22/5/23
57	Summary of ABET Assessment tasks – AY 2022-2023	OAA	To all department chairs	24/5/23
58	1ST Batch of Employer Survey letter	OAA	To all private companies and banks	24/5/23
59	2nd batch of Employer Survey letter	OAA	To all ministry	31/5/23
60	3rd batch of Employer Survey letter	OAA	To All KU departments	18/6/23

APPENDIX A:
Online Course Assessment
For Academic year 2021-2022

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 follow-up in order to improve them. This report presents the results of the online course assessment at the College of Engineering and Petroleum 2021-2022. The first part of the report presents the response statistics for all programs, and the second part presents measured student performance, quantified according to Student Outcomes (SO), on both the departmental and college-wide levels.

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), the total course assessment responses totaled at 148 responses, and the total for the Spring Semester (Table 2) came in at 158 responses. Whereas for the summer semester (Table 3) the total responses totaled at 34 responses.

Results and Discussion

The Student Outcomes (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

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 seen with some exceptions of 0% and 100% ratings, most program averages are between 60%-80% and are close to college averages. The most likely reasons for these sharp disparities are: the lack of data with respect to the respective outcomes and programs, and/or the relatively small pool of data available on these respective 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 (some courses are not represented in a balanced way, as a result) some 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. Instructor comments are also included. 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 2021-2022

Departments	Total Response
CHEMICAL	22
CIVIL	34
COMPUTER	38
ELECTRICAL	19
IMSE	6
MECHANICAL	17
PETROLEUM	12
TOTAL	148

Table 2: Response statistics – Spring Semester

Course Assessment Response Statistics –Spring Semester 2021-2022

Departments	Total Response
CHEMICAL	16
CIVIL	11
COMPUTER	49
ELECTRICAL	17
IMSE	11
MECHANICAL	23
PETROLEUM	31
TOTAL	158

Table 3: Response statistics – Summer Semester

Course Assessment Response Statistics – Summer Semester 2021-2022

Departments	Total Response
CHEMICAL	3
CIVIL	1
COMPUTER	0
ELECTRICAL	9
IMSE	1
MECHANICAL	5
PETROLEUM	15
TOTAL	34

COLLEGE: 21/22 Fall
R E S P O N S E

Department	Total Responses	Unique Responder
CHEMICAL	22	13
CIVIL	34	21
COMPUTER	38	22
ELECTRICAL	19	14
IMS	6	3
MECHANICAL	17	12
PETROLEUM	12	8
TOTAL	148	93

Table 4: Student performance – College (Fall 2021-2022) 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.	24	65	33	11	0	20	3.8	**3.7**
		16%	43%	22%	7%	0%	13%	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.	17	44	19	6	1	66	3.8	**3.9**
		11%	29%	13%	4%	1%	44%	76%	**78%**
3	Communicate effectively with a range of audiences.	17	38	25	6	1	66	3.7	**3.8**
		11%	25%	17%	4%	1%	44%	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.	13	34	23	4	0	79	3.8	**3.8**
		9%	23%	15%	3%	0%	53%	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.	20	21	15	3	1	93	3.9	**4.1**
		13%	14%	10%	2%	1%	62%	78%	**82%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	9	20	21	2	0	101	3.7	**3.8**
		6%	13%	14%	1%	0%	67%	74%	**76%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	25	34	26	8	1	59	3.8	**3.9**
		17%	23%	17%	5%	1%	39%	76%	**78%**

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

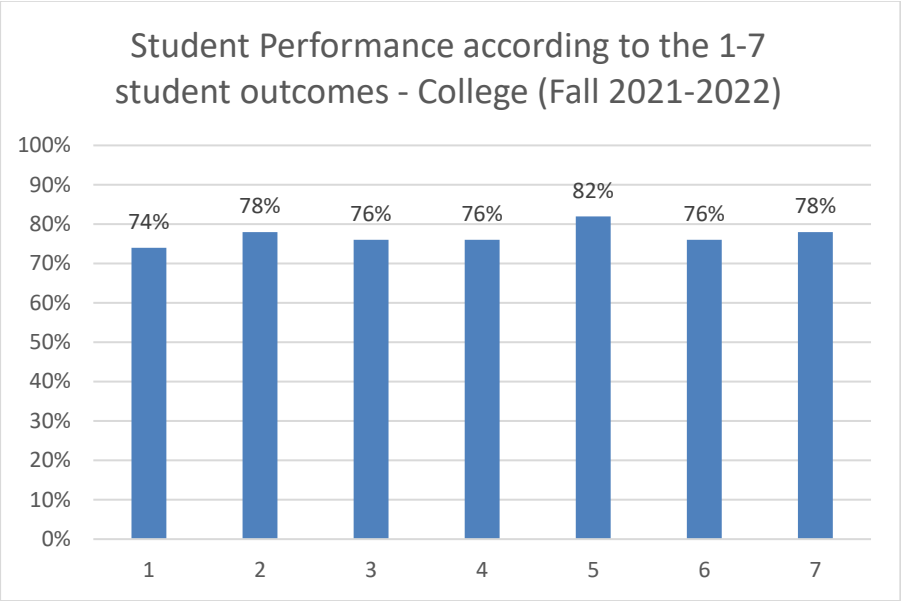


Figure 1: Student performance according to the 1-7 student outcomes – College (Fall 2021-2022)

Table 5: Student performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2021-2022) according to the new 1-7 student outcomes (2020-2021 cycle ABET updates)

O	Outcome	chemical	civil	computer	electrical	ims	mechanical	petroleum	core	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	74%	80%	82%	70%	80%	64%	76%	70%	**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.	80%	78%	84%	80%	80%	68%	80%	50%	**78%**
3	Communicate effectively with a range of audiences.	74%	72%	82%	82%	80%	66%	74%	70%	**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.	70%	80%	78%	76%	0%	76%	74%	78%	**76%**
5	Function effectively on a team whose members together provide leadership, create a	78%	80%	86%	92%	60%	86%	80%	80%	**82%**

	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.	64%	78%	76%	92%	80%	56%	78%	60%	**76%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	82%	86%	88%	74%	0%	74%	72%	64%	**78%**

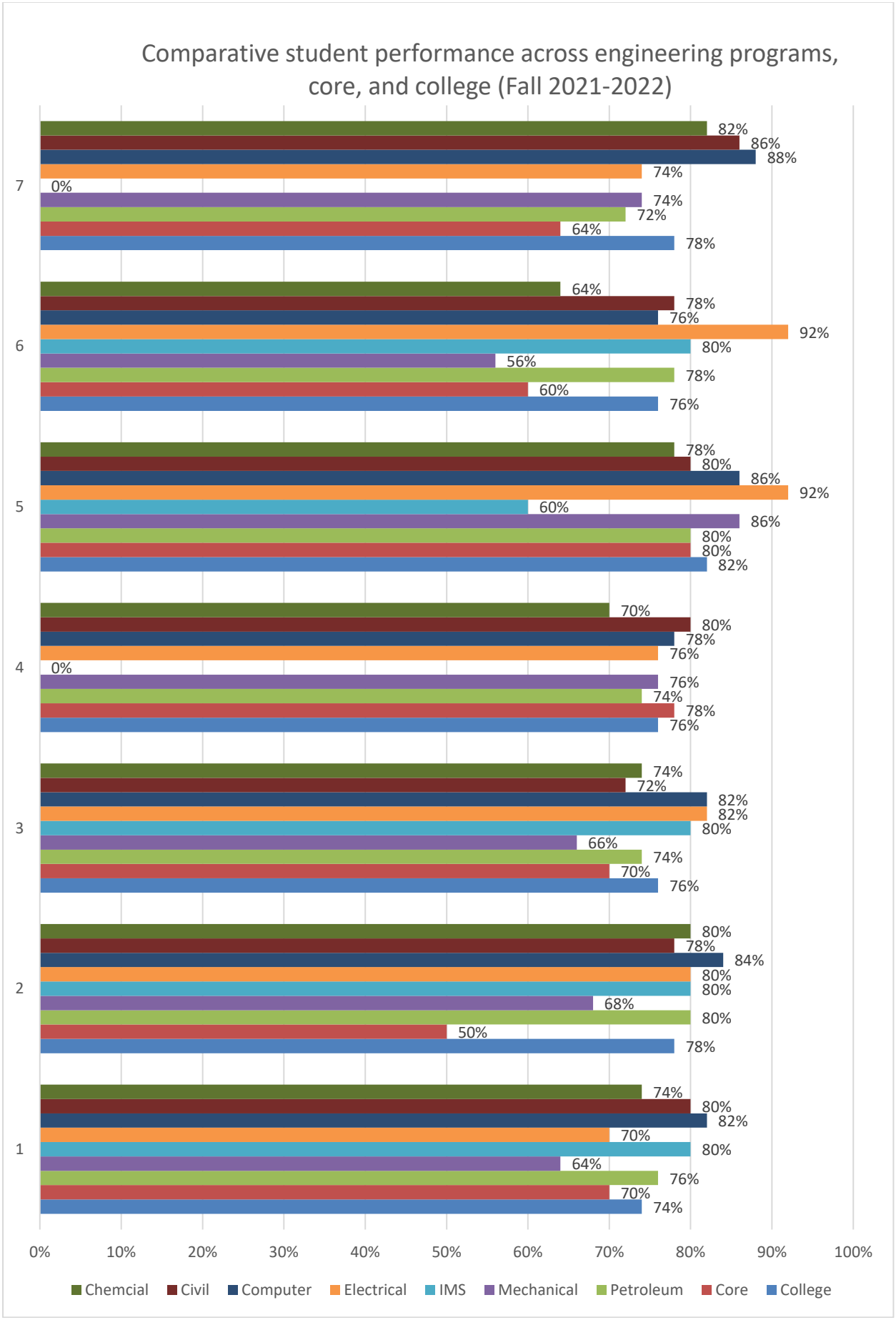


Figure 2: Student performance (weighted averages) – comparison between programs, engineering core, and college (Fall 2021-2022) (According to the new 1-7 student outcomes)

COLLEGE: 21/22 Spring

RESPONSE

Department	Total Responses	Unique Responder
CHEMICAL	16	8
CIVIL	11	7
COMPUTER	49	26
ELECTRICAL	17	12
IMS	11	6
MECHANICAL	23	12
PETROLEUM	31	15
TOTAL	158	86

Table 6: Student performance – College (Spring 2019-2020) according to the new 1-7 student outcomes (2020-2021 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.	20	54	39	16	3	31	3.5	**3.5**
		13%	34%	24%	10%	2%	20%	70%	**70%**
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.	12	47	22	4	2	76	3.7	**3.8**
		8%	29%	14%	3%	1%	48%	74%	**76%**
3	Communicate effectively with a range of audiences.	15	31	29	4	1	83	3.7	**3.8**
		9%	19%	18%	3%	1%	52%	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.	15	28	32	5	3	80	3.6	**3.7**
		9%	18%	20%	3%	2%	50%	72%	**74%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	21	26	20	2	2	92	3.9	**4**
		13%	16%	13%	1%	1%	58%	78%	**80%**
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	6	31	22	4	3	97	3.5	**3.6**
		4%	19%	14%	3%	2%	61%	70%	**72%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	17	28	28	1	3	86	3.7	**3.9**
		11%	18%	18%	1%	2%	54%	74%	**78%**

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

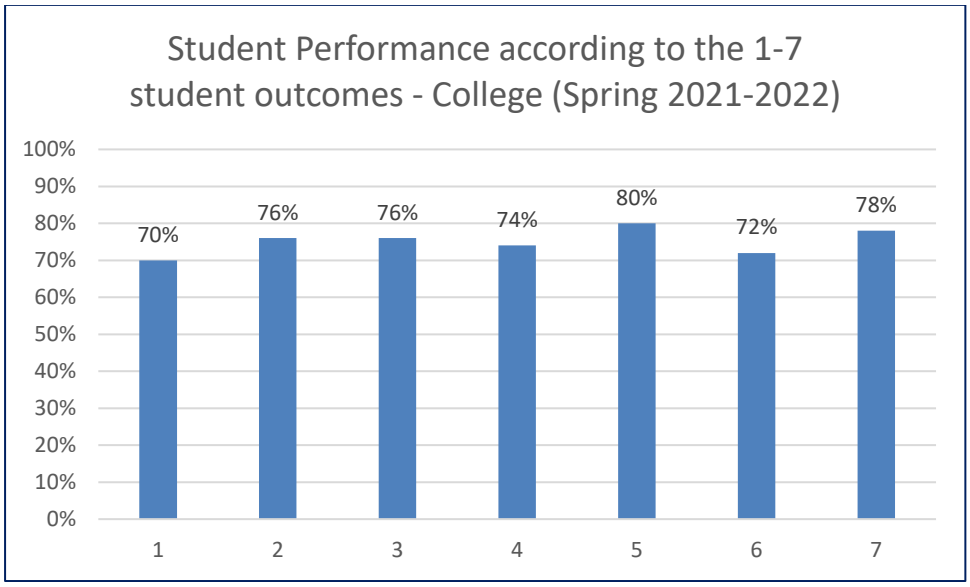


Figure 3: Student performance according to the 1-7 student outcomes – College (Spring 2021-2022)

Table 7: Student performance (weighted averages) – comparison between programs, engineering core, and college (Spring 2021-2022) according to the new 1-7 student outcomes (2020-2021 cycle ABET updates)

O	Outcome	chemical	civil	computer	electrical	ims	mechanical	petroleum	core	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	70%	78%	80%	70%	76%	60%	66%	68%	**70%**
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.	68%	76%	84%	74%	74%	64%	76%	0%	**76%**
3	Communicate effectively with a range of audiences.	70%	76%	82%	80%	86%	58%	74%	60%	**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.	72%	74%	82%	76%	84%	74%	68%	60%	**74%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals,	100%	90%	88%	72%	72%	66%	74%	80%	**80%**

	plan tasks, and meet objectives.									
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	64%	40%	74%	82%	72%	66%	74%	70%	**72%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	90%	76%	96%	72%	80%	68%	70%	64%	**78%**

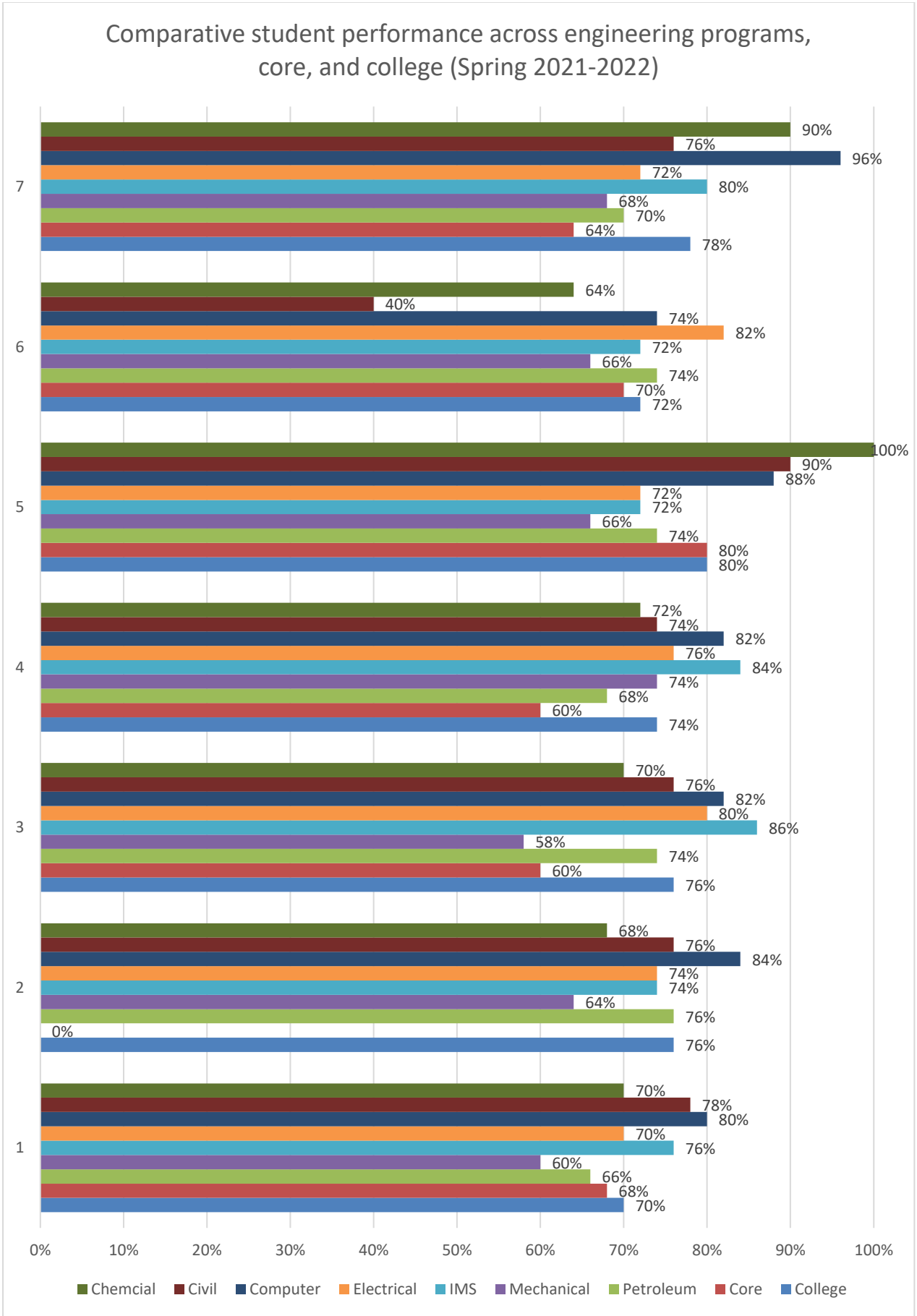


Figure 4: Student performance (weighted averages) – comparison between programs, engineering core, and college (Spring 2020-2021) (According to the new 1-7 student outcomes)

COLLEGE: 21/22 Summer

R E S P O N S E

Department	Total Responses	Unique Responder
CHEMICAL	3	3
CIVIL	1	1
COMPUTER	0	0
ELECTRICAL	9	8
IMS	1	1
MECHANICAL	5	5
PETROLEUM	15	11
TOTAL	34	29

Table 8: Student performance – College (Summer 2021-2022) according to the new 1-7 student outcomes (2020-2021 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.	7	10	11	1	0	6	3.8	3.7
		21%	29%	32%	3%	0%	18%	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.	4	6	4	1	1	19	3.7	3.7
		12%	18%	12%	3%	3%	56%	74%	74%
3	Communicate effectively with a range of audiences.	2	8	3	1	1	20	3.6	3.6
		6%	24%	9%	3%	3%	59%	72%	72%
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	4	8	0	1	17	3.7	3.6
		15%	12%	24%	0%	3%	50%	74%	72%
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	2	2	7	0	1	23	3.3	3.3
		6%	6%	21%	0%	3%	68%	66%	66%
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	3	2	4	1	1	24	3.5	3.8
		9%	6%	12%	3%	3%	71%	70%	76%
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	4	9	8	0	1	13	3.7	3.8
		12%	26%	24%	0%	3%	38%	74%	76%

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

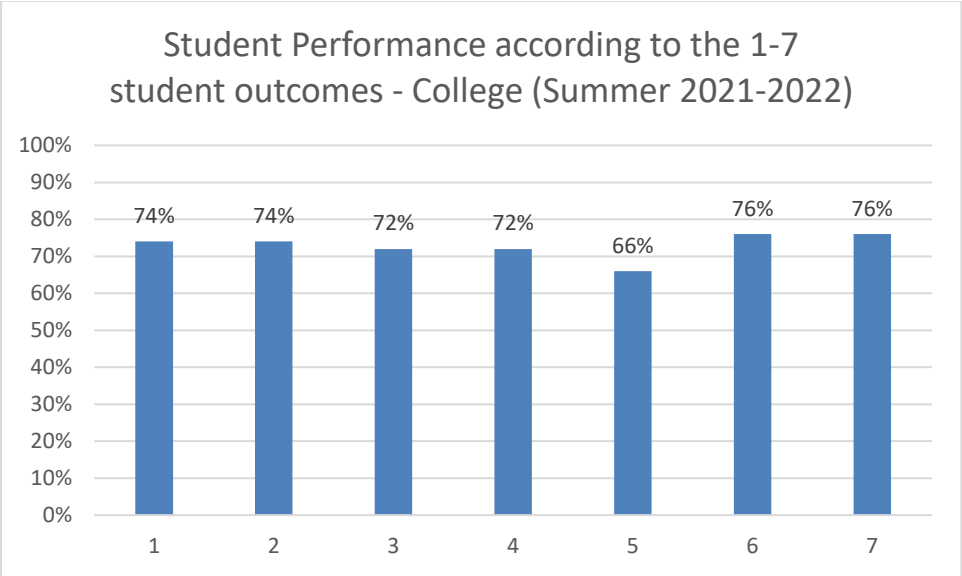


Figure 5: Student performance according to the 1-7 student outcomes – College (Summer 2021-2022)

Table 9: Student performance (weighted averages) – comparison between programs, core, and college (Summer 2020-2021) according to the new 1-7 student outcomes (2020-2021 cycle ABET updates)

O	Outcome	chemical	civil	computer	electrical	ims	mechanical	petroleum	core	Weighted Average
1	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	84%	60%	0%	72%	0%	60%	76%	90%	**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.	70%	80%	0%	0%	80%	50%	78%	0%	**74%**
3	Communicate effectively with a range of audiences.	0%	0%	0%	80%	0%	60%	74%	0%	**72%**
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.	0%	80%	0%	0%	80%	60%	72%	0%	**72%**
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals,	0%	0%	0%	60%	0%	60%	68%	60%	**66%**

	plan tasks, and meet objectives.									
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	66%	40%	0%	0%	0%	60%	82%	0%	**76%**
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.	0%	60%	0%	80%	0%	60%	74%	80%	**76%**

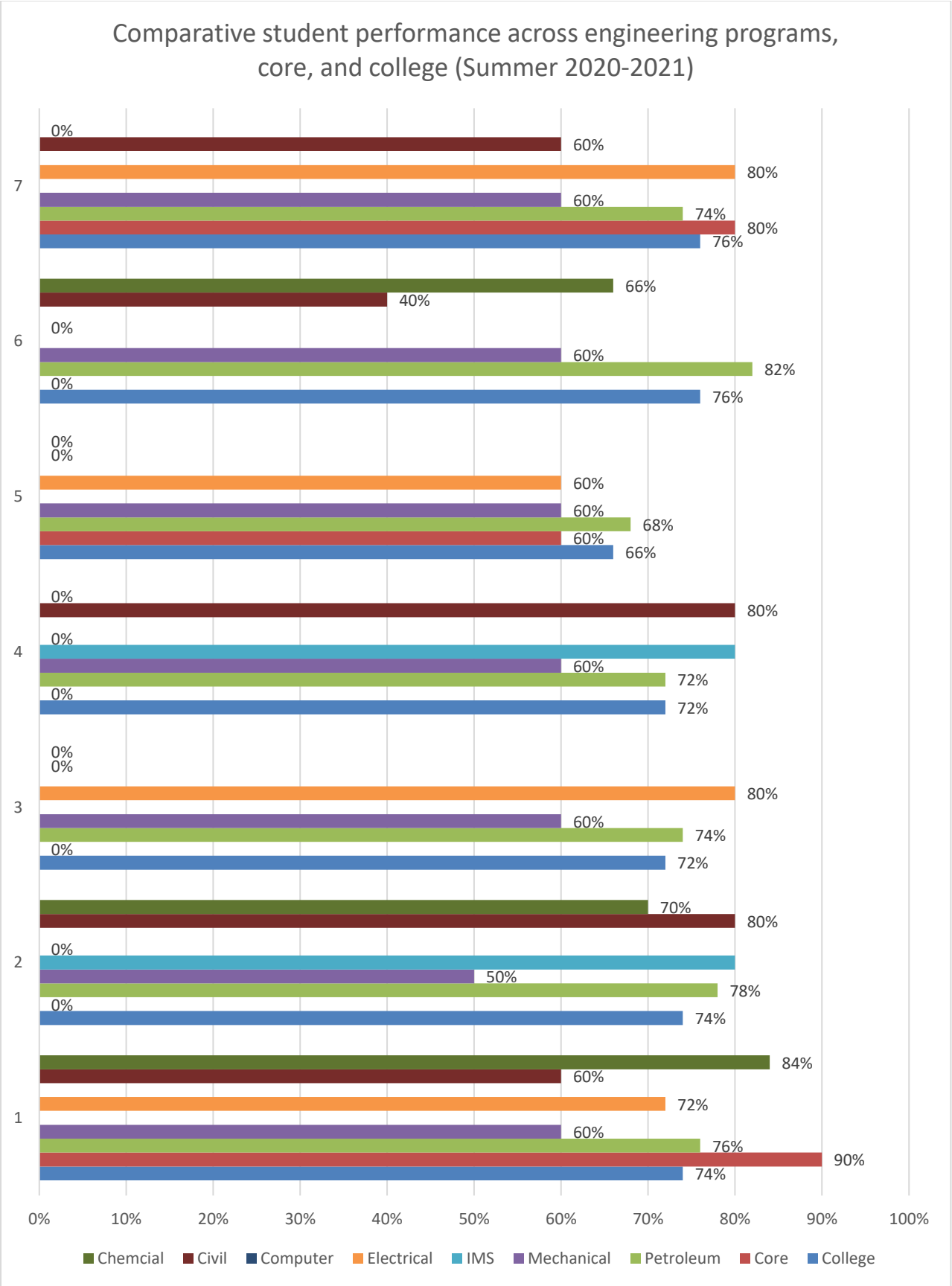


Figure 6: Student performance (weighted averages) – comparison between programs, engineering core, and college (Summer 2020-2021) (According to the new 1-7 student outcomes)

Program results of the online course assessment

for the academic year 2021-2022

Chemical Engineering Program

Fall semester 21/22

Instructors: **13**
Courses: **22**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-211	Chemical Engineering Principles I	H	L		L			
0640-241	Fluid Mechanics	M	M				M	
0640-241	Fluid Mechanics	M	M				M	
0640-291	Fundamentals of Chemical Engineering Design		H	M	H	L		M
0640-304	Introduction to Environmental Engineering	M	M		M	L		M
0640-324	Kinetics and Reactor Design (A)	H	H					
0640-327	Corrosion Engineering	H		M	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	
0640-351	Process Dynamics and Control	H	M				L	
0640-391	Chemical Process Synthesis	M	H	M	L	H		H
0640-427	Kinetics and Reactor Design (B)							
0640-443	Mass Transfer Operations Laboratory							
0640-463	Wastewater Treatment	M	M	L	M			M
0640-463	Wastewater Treatment	M	M	L	M			M
0640-473	Polymer Engineering							
0640-475	Gas Sweetening							
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
0640-211	Chemical Engineering Principles I	3	3		4			
0640-241	Fluid Mechanics	3	4				4	
0640-241	Fluid Mechanics	2	2				3	
0640-291	Fundamentals of Chemical Engineering Design	3	4	3	3	4		4
0640-304	Introduction to Environmental Engineering	4	4		3	2		2
0640-324	Kinetics and Reactor Design (A)	4	4					
0640-327	Corrosion Engineering	3		3	3		3	3
0640-345	Mass Transfer	4	5	4		3	3	
0640-345	Mass Transfer	4	5	4		3	3	
0640-351	Process Dynamics and Control	4	4				3	
0640-351	Process Dynamics and Control	4	4				3	
0640-391	Chemical Process Synthesis	5	4	4	4	5		5
0640-427	Kinetics and Reactor Design (B)	4	4	3	3	3	3	3
0640-443	Mass Transfer Operations Laboratory	5	4	4		5	5	5
0640-463	Wastewater Treatment	5	5	4	4			5
0640-463	Wastewater Treatment	5	5	4	4			5
0640-473	Polymer Engineering	4	3	4		3	3	4
0640-475	Gas Sweetening	4	5	4	4	4	5	3
0640-491	Plant Design	3	3	4	4	4		4
0640-493	Equipment Design		4	4				4

	Weighted Average	3.7	4	3.7	3.5	3.9	3.2	4.1

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-211	Chemical Engineering Principles I	This semester the students overall demonstrated satisfactory performance. Some students were very good and about 5-6 students demonstrated very good to excellent performance, however, some students did not capture the main concepts and were not able to apply them to solve chemical engineering problems. These students obviously did not spend time and energy practicing and studying the material.
0640-291	Fundamentals of Chemical Engineering Design	need to revise the whole course to be harmonize and delete topic repetition with ChE 393
0640-327	Corrosion Engineering	In general the students performed very good in this class.
0640-427	Kinetics and Reactor Design (B)	Recommend for all faculty members teaching Kinetics A and B to use Excel for purpose of fitting and calculations involving ODE's. Euler method is relatively easy to implement on Excel and students should be easily able to implement the numerical approach on their own.
0640-443	Mass Transfer Operations Laboratory	Students performance was very good in general.
0640-463	Wastewater Treatment	Students did well in this course.

Spring Semester 21/22

Instructors: **9**
Courses: **17**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-211	Chemical Engineering Principles I	H	L		L			
0640-211	Chemical Engineering Principles I	H	L		L			
0640-211	Chemical Engineering Principles I	H	L		L			
0640-241	Fluid Mechanics	M	M				M	
0640-241	Fluid Mechanics	M	M				M	
0640-291	Fundamentals of Chemical Engineering Design		H	M	H	L		M
0640-304	Introduction to Environmental Engineering	M	M		M	L		M
0640-324	Kinetics and Reactor Design (A)	H	H					
0640-343	Heat Transfer	H	M	L			L	
0640-343	Heat Transfer	H	M	L			L	
0640-351	Process Dynamics and Control	H	M				L	
0640-395	Engineering Training							
0640-440	Mass Transfer Operations	H	H				L	
0640-440	Mass Transfer Operations	H	H				L	

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0640-211	Chemical Engineering Principles I	4						
0640-211	Chemical Engineering Principles I	1	1		1			
0640-211	Chemical Engineering Principles I	2	2		2			
0640-241	Fluid Mechanics	2	1				2	
0640-241	Fluid Mechanics	3	4				4	
0640-291	Fundamentals of Chemical Engineering Design	4	4	4	4	5		4
0640-304	Introduction to Environmental Engineering	4	4		5	5		5
0640-324	Kinetics and Reactor Design (A)	4	4					
0640-343	Heat Transfer	4	3	3			4	
0640-343	Heat Transfer	4	3	3			3	
0640-351	Process Dynamics and Control	5	4				3	
0640-395	Engineering Training	5	5	3	4	5	4	5
0640-440	Mass Transfer Operations	5	4				4	
0640-440	Mass Transfer Operations	3	4				3	
	Weighted Average	**3.5**	**3.4**	**3.5**	**3.6**	**5**	**3.2**	**4.5**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0640-324	Kinetics and Reactor Design (A)	This section was a good one. During the first half of the semester, I felt students were still confused about some topics in the material, but most students did very well on the final exam, which showed that they've grasped and understood the material in a good way. Next time I teach this course, my goal is on the first lecture I will briefly explain each chapter and how are the chapters linked so the students will have an overview or a plan of what to expect.

Summer Semester 21/22

Instructors: **3**
Courses: **3**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0640-241	Fluid Mechanics	M	M				M	
0640-351	Process Dynamics and Control	H	M				L	

P E R F O R M A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0640-241	Fluid Mechanics	3	3				3	
0640-351	Process Dynamics and Control	5	4				4	
	Weighted Average	**4.2**	**3.5**	**0**	**0**	**0**	**3.3**	**0**

Remarks and Suggestions

No data available.

Civil Engineering Program

Fall Semester 21/22

Instructors: **21**
Courses: **34**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-201	Introduction to Design	M	H	H	M	M		M
0620-236	Construction Surveying	M	L			M	H	L
0620-252	Engineering Materials	L	M	L	L		H	
0620-271	Structural Analysis I	H		H	L			
0620-310	Fluid Mechanics	H	L					
0620-310	Fluid Mechanics	H	L					
0620-310	Fluid Mechanics	H	L					
0620-311	Water Resources	H	M	L	L	M	H	
0620-311	Water Resources	H	M	L	L	M	H	
0620-311	Water Resources	H	M	L	L	M	H	
0620-366	Transportation Engineering	H	M	L	L	L	M	L
0620-366	Transportation Engineering	H	M	L	L	L	M	L
0620-371	Structural Analysis II	H		M				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
0620-414	Hydraulic Engineering	H	H	M		M		H
0620-435	Construction Engineering and Management	M	M	H		M		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
0620-473	Reinforced Concrete II	M	H	H				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
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	5	5	4	5	5		5
0620-236	Construction Surveying	4				5	4	
0620-252	Engineering Materials	3	4	3	4		4	
0620-271	Structural Analysis I	4		4	4			
0620-310	Fluid Mechanics	5	4					
0620-310	Fluid Mechanics	4	4					
0620-310	Fluid Mechanics	4	4					
0620-311	Water Resources	3	4		3	4	4	
0620-311	Water Resources	3	4		3	4	4	

0620-311	Water Resources	5	4	5	3	4	4	
0620-366	Transportation Engineering	4	3	5	5	3	5	5
0620-366	Transportation Engineering	3	3	2	3	2	3	2
0620-371	Structural Analysis II	4		3				3
0620-371	Structural Analysis II	4		5				5
0620-373	Reinforced Concrete I	4	4	4	4			3
0620-373	Reinforced Concrete I	4	3	3	4			4
0620-414	Hydraulic Engineering	5	4	4		4		5
0620-435	Construction Engineering and Management	4	3	3		4		4
0620-435	Construction Engineering and Management	5	4	4		4		5
0620-437	Concrete Construction and Technology	4	5	4	4	4		5
0620-451	Foundation Engineering	4	4	3	4	3	3	4
0620-451	Foundation Engineering	4	4	3	4	3	3	4
0620-473	Reinforced Concrete II	3	3	3				2
0620-490	Capstone Design Course		3	2	3	3		4
0620-490	Capstone Design Course	4	4	3	4	5		4
0620-490	Capstone Design Course	5	5	5	5	5		5
0620-490	Capstone Design Course	4	4	4	4	5		4
0620-490	Capstone Design Course		4	3				
	Weighted Average	**4**	**3.9**	**3.6**	**4**	**4**	**3.9**	**4.3**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-236	Construction Surveying	Modering Surveying software in GIS and GPS should be incorporated into this course to adopt the new technology in the field.
0620-271	Structural Analysis I	Overall the class performance was satisfactory. A mini project was assigned using basic structural analysis software. The students were introduced to the importance of these tools in analyzing structures with a high degree of freedom.
0620-310	Fluid Mechanics	This Course is needed for Civil engineering, Biomechanics, Meteorology and Ocean engineering, Chemical engineering and Mechanical engineering.
0620-311	Water Resources	This course is very useful, important and practical to Kuwait.
0620-366	Transportation Engineering	students performance was overall satisfactory in this course, the only possible way to improve the outcome is to make sure students are well-prepared in the probability and statistics course which is a pre-requisite, a high percentage of students lack fundamentals of statistics which makes it important to teach them statistics at least for a week before discussing stats related problems in this course.
0620-371	Structural Analysis II	Students are very slow in solving regular analysis problems. They have time management problem
0620-371	Structural Analysis II	Computer applications should be part of this course, since solving indeterminate structures are complex and the possibilities of making mistakes are high. For that purpose, computer labs can used frequently. The students have learned how to solve the indeterminate structure using different methods and compare the results. The outcomes were successfully achieved.

0620-373	Reinforced Concrete I	In this course, the students are taught the basics of concrete design principles. The course is oriented toward the ACI design code as per the assigned textbook. Based on recent updates on the latest version of the ACI 318, It is suggested to update the textbook version to follow the 2019 version of the code. The students needed more time than usual to comprehend the basics that depend on strength of material principles (elastic strain compatibility and stress distribution). This can be attributed to the fact that most of the students took ENG 204 online during the COVID19 pandemic. Overall, the class is satisfactory.
0620-435	Construction Engineering and Management	Improvements on lab works needed.
0620-473	Reinforced Concrete II	Class size is small. It helped student learn better. Initially, motivation is very poor. With time some motivation developed. Overall, earlier preparation for this course is not satisfactory. Basic concepts needed for this course not commendable.
0620-490	Capstone Design Course	The class was not well prepared for the Capstone.
0620-490	Capstone Design Course	1. The results should be communicated with the concerned ministries to ensure the benefit of the results to the country. 2. The presentation should be performed for public audience to increase the benefit

Spring Semester 21/22

Instructors: **7**
Courses: **11**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0620-271	Structural Analysis I	H		H	L			
0620-371	Structural Analysis II	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
0620-476	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
0620-271	Structural Analysis I	5		3	4			
0620-371	Structural Analysis II	4		5				5
0620-373	Reinforced Concrete I	3	3	3	4			4
0620-430	Legal, Professional, and Social Aspects of Engineering			3	3	4		3
0620-451	Foundation Engineering	3	4		4		2	3
0620-473	Reinforced Concrete II	4						
0620-476	Computer Applications in Structural Engineering	4	4	5	5	5		4
0620-490	Capstone Design Course	4	4	4	3	5		4
0620-490	Capstone Design Course	4	4	4	3	4		4
0620-490	Capstone Design Course	4	4	4	5	5		4
	Weighted Average	**3.9**	**3.8**	**3.8**	**3.7**	**4.5**	**2**	**3.8**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0620-271	Structural Analysis I	The number of absent or late students is increasing compared to previous semesters before Covid. The students may have got used to staying home during the online teaching.
0620-371	Structural Analysis II	Using an analysis software is very useful in this course to visualize the results and check the steps. In addition, drawing shear and moment diagrams as well as the deflected shape is very beneficial to understand the concepts.
0620-373	Reinforced Concrete I	The black (white) board space not enough for 50 mins class. I have requested additional writing space at the beginning of the semester. But it did

		not happen until now. Please let the authority take care of it.
0620-430	Legal, Professional, and Social Aspects of Engineering	Students are with weak skills in searching the university library.
0620-473	Reinforced Concrete II	Same, black board space is not enough for 50 mins class. It is suitable for 30 mins class, I requested the authority to add another two boards. But no action as of today.
0620-476	Computer Applications in Structural Engineering	The course is useful in the practical side. To efficiently teach this course, site visits are beneficial to visualize the design outcomes and get in touch with expertise in the field.
0620-490	Capstone Design Course	Student preparation for a structural capstone was not satisfactory as more than 70% of the students did not complete the Reinforced Concrete Design 2 course, which is a soft pre-req for structural capstone. Students also lack capabilities to use structural analysis and design software, STAAD. Student preparation related to societal impact of engineering solutions and UN SDGs was found to be extremely lacking. This aspect should be emphasized in the cornerstone design course. Students were hardworking and put in the extra effort to fulfill all challenges of the course.

Summer Semester 21/22

Instructors: **1**
Courses: **1**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0620-451	Foundation Engineering	H	H	L	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
0620-451	Foundation Engineering	3	4		4		2	3
	Weighted Average	**3**	**4**	**0**	**4**	**0**	**2**	**3**

Remarks and Suggestions

No data available.

Computer Engineering Program

Fall Semester 21/22

Instructors: **22**
Courses: **38**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0612-200		H						L
0612-201	Object-Oriented Paradigm	H					H	
0612-201	Object-Oriented Paradigm	H					H	
0612-201	Object-Oriented Paradigm						H	
0612-203	Discrete Mathematics for Computer Engineering.	H	H	H	H	H	H	H
0612-207	Data Structures	H					H	
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-325	Human Computer Interaction		H	H	H			
0612-325	Human Computer Interaction		H	H	H			
0612-356	Computer Networks I	H					H	
0612-356	Computer Networks I	H					H	
0612-356	Computer Networks I	H					H	
0612-356	Computer Networks I	H					H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-445	Operating System Principles	H	H				H	
0612-445	Operating System Principles	H	H				H	
0612-453	Cryptography and Network Security	H	H	H	H			H
0612-458	Network Programming	H	H				H	
0612-465	Design Automation of Digital Systems	H	H					
0612-474	ASIC Design	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
0612-495	Capstone Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-200		5						5
0612-201	Object-Oriented Paradigm	3						
0612-201	Object-Oriented Paradigm	4						
0612-201	Object-Oriented Paradigm						4	
0612-203	Discrete Mathematics for Computer Engineering.	4	4	4	3	2	3	3
0612-207	Data Structures	4					3	
0612-264	Digital Logic Laboratory			4				
0612-264	Digital Logic Laboratory			4				
0612-325	Human Computer Interaction			3				
0612-325	Human Computer Interaction		4	3	3			
0612-356	Computer Networks I	4					4	
0612-356	Computer Networks I	3					3	
0612-356	Computer Networks I	4						
0612-356	Computer Networks I							
0612-364	Microprocessors Laboratory			4				
0612-364	Microprocessors Laboratory			4				
0612-364	Microprocessors Laboratory			4				
0612-364	Microprocessors Laboratory			4				
0612-364	Microprocessors Laboratory			4				
0612-364	Microprocessors Laboratory			4				
0612-395	Computer Systems Engineering	4	4	3	4	4		3
0612-395	Computer Systems Engineering	4	4	5	4	5		5
0612-395	Computer Systems Engineering	5	5	5	5	5		5
0612-395	Computer Systems Engineering	4	5	5	4	5		5
0612-395	Computer Systems Engineering	4	4	3	4	4		4
0612-395	Computer Systems Engineering	5	5	4	4	4		4
0612-445	Operating System Principles	4	3				3	
0612-445	Operating System Principles	4						
0612-453	Cryptography and Network Security	5	4	4	5			5
0612-458	Network Programming	4	4				4	
0612-465	Design Automation of Digital Systems	4	3					
0612-474	ASIC Design	4	5			3	4	
0612-495	Capstone Design	4	4	5	4	5	4	5
0612-495	Capstone Design	4	4	5	4	5	4	5
0612-495	Capstone Design	3	4	4	2	4	4	3
0612-495	Capstone Design	4	4	5	4	5	4	5
0612-495	Capstone Design	5	5	5	5	5	5	5
	Weighted Average	**4.1**	**4.2**	**4.1**	**3.9**	**4.3**	**3.8**	**4.4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0612-201	Object-Oriented Paradigm	The outcome is outcome 1 not 6
0612-201	Object-Oriented Paradigm	Intense programming practice is needed to achieve this outcome. The practice can be done in class and outside class as homework. The problem can be broken into multiple phases and be solved in multiple lectures.

0612-201	Object-Oriented Paradigm	The outcome is outcome 1 not 6 based on the table distributed by the coordinator of the abet committee
0612-364	Microprocessors Laboratory	Even though students tends to show good skills in writing reports, I think there should be more emphasis on writing skills of the students in the department
0612-364	Microprocessors Laboratory	I believe the sample report if used need to be fine tuned. Also, I believe there should be a standard form for demo evaluations that must be included with the assessment instead of the oral presentation items in the form suggested by the assessment committee
0612-395	Computer Systems Engineering	Students show a lake in the experience in writing technical reports. Student seems not to have enough practice in developing class diagrams, use cases, ER diagrams etc. More emphasis is needed in earlier courses in this regard. Moreover, students lack skill in doing proper presentations. Public speaking activities must be emphasized and encouraged
0612-395	Computer Systems Engineering	- Students applied basic science and engineering concepts in evaluating the alternative designs and rank them based on matrix ranking. This goes to all design stages. In addition, many calculations are needed based on the project nature. - The whole course is based on teamwork. Teams consist from 3-4 students and the work is divided among them. The students test, evaluate and combine all parts to build the complete corresponding design. - Different phases of report submissions were carried out during this course where feedback is given to each team. Students must consider the feedback, modify and update the documentation on the next submission. In addition, 4-5 oral presentations held in class and the students were evaluated and given feedback. - Students need applied the latest technology used in terms of Hardware/Software to select the suitable components. This is approved by comparing different technologies.
0612-395	Computer Systems Engineering	In addition of using the standard design modeling, students should apply up-to-date technologies to solve current problems.
0612-445	Operating System Principles	only outcome1 required
0612-453	Cryptography and Network Security	Around 5% of students were severely lacking in reading and understanding simple formal English language skills, which caused them to either misunderstand a problem statement or even led some of them to be unable to answer the question at all. This was detrimental to the way the course is taught as I did not want to always resort to translating certain commonly used English words, especially since there were students in the class who were not native speakers.
0612-458	Network Programming	None

Spring Semester 21/22

Instructors: **26**
Courses: **49**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-201	Object-Oriented Paradigm	H					H	
0612-203	Discrete Mathematics for Computer Engineering.	H	H	H	H	H	H	H
0612-207	Data Structures	H					H	
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		
0612-221	Software Engineering I	H	H	H	H	H		
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-264	Digital Logic Laboratory		H	H		H	H	
0612-264	Digital Logic Laboratory		H	H		H	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					
0612-300	Design and Analysis of Algorithms	H	H					
0612-325	Human Computer Interaction		H	H	H			
0612-325	Human Computer Interaction		H	H	H			
0612-341	Database Systems-I	H	H		H			
0612-356	Computer Networks I	H					H	
0612-356	Computer Networks I	H					H	
0612-356	Computer Networks I	H					H	
0612-363	Introduction to Embedded Systems		H					
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-364	Microprocessors Laboratory		H	H			H	
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-395	Computer Systems Engineering	H	H	H	H	H		H
0612-434	Robotics	H	H		H		H	H
0612-445	Operating System Principles	H	H				H	
0612-456	Computer Networks II		H				H	H
0612-458	Network Programming	H	H				H	
0612-465	Design Automation of Digital Systems	H	H					
0612-468	Computer Architecture		H					
0612-469	Computer Architecture Laboratory		H	H			H	
0612-469	Computer Architecture Laboratory		H	H			H	
0612-477	Hardware Description Languages-Based Design	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

0612-495	Capstone Design	H	H	H	H	H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0612-201	Object-Oriented Paradigm	5						
0612-203	Discrete Mathematics for Computer Engineering.	4						
0612-207	Data Structures	4						
0612-207	Data Structures	3						
0612-221	Software Engineering I	4		4		4		
0612-221	Software Engineering I	5		5		5		
0612-221	Software Engineering I	3	3	3	3	3		
0612-264	Digital Logic Laboratory		3	3		3	4	
0612-264	Digital Logic Laboratory		4	4		4	4	
0612-264	Digital Logic Laboratory		4	4		4	4	
0612-264	Digital Logic Laboratory		4	4		4	4	
0612-264	Digital Logic Laboratory		4	4		4	4	
0612-264	Digital Logic Laboratory		4	4		4	4	
0612-300	Design and Analysis of Algorithms	5	5					
0612-300	Design and Analysis of Algorithms	3						
0612-300	Design and Analysis of Algorithms	4	5					
0612-325	Human Computer Interaction			3				
0612-325	Human Computer Interaction		4	5	5			
0612-341	Database Systems-I	3	3		3			
0612-356	Computer Networks I	3						
0612-356	Computer Networks I	3					3	
0612-356	Computer Networks I	4					3	
0612-363	Introduction to Embedded Systems		4					
0612-364	Microprocessors Laboratory		4	4			3	
0612-364	Microprocessors Laboratory		4	4			4	
0612-364	Microprocessors Laboratory		4	4			3	
0612-364	Microprocessors Laboratory		4	3			3	
0612-395	Computer Systems Engineering	5	5	5	5	5		5
0612-395	Computer Systems Engineering	4	4	4	4	5		4
0612-395	Computer Systems Engineering	4	4	4	4	5		5
0612-395	Computer Systems Engineering	4	5	5	4	5		5
0612-434	Robotics	5	5		4		4	5
0612-445	Operating System Principles	3						
0612-456	Computer Networks II							
0612-458	Network Programming	4	4				4	
0612-465	Design Automation of Digital Systems	4	4					
0612-468	Computer Architecture		5					
0612-469	Computer Architecture Laboratory			4				
0612-469	Computer Architecture Laboratory		4	4			4	
0612-477	Hardware Description Languages-Based Design	3	4				3	
0612-495	Capstone Design	5	5	5	5	5	5	5
0612-495	Capstone Design	4	4	5	4	5	4	5
0612-495	Capstone Design	5	5	5	4	4	4	4
0612-495	Capstone Design	5	4	4	5	5	4	5
0612-495	Capstone Design	4	4	4	4	5	3	5
0612-495	Capstone Design	4	4	5	4	5	4	5
	Weighted Average	**4**	**4.2**	**4.1**	**4.1**	**4.4**	**3.7**	**4.8**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0612-207	Data Structures	A course project is a must for this course where a student apply the learned data structures and algorithms and selects the one with the least running time and space complexity with an analysis and discussion of scalability.
0612-300	Design and Analysis of Algorithms	Must emphasize on problem solving skills. Instructors should "disguise" problems so that they are not a straightforward application of class concepts.
0612-300	Design and Analysis of Algorithms	No Comments
0612-341	Database Systems-I	Please integrate with the other KU systems like SIS
0612-356	Computer Networks I	Three evidences were submitted (best, average, worst) for the project. However, there is one student who didn't submit the homework but wasn't considered as the worst since only solved HomeWorks were included. Note that: zero points was allocated to part d of q3 of the homework. Therefore, the average and the best samples have same grades due to not removing any points from the average sample for not solving part d. One more thing is that the samples were classified as best, average and worst according to q3 grade not the total homework grade. Last is that due to few number of students in class, there were limited varieties for choosing the samples.
0612-395	Computer Systems Engineering	None
0612-445	Operating System Principles	Only outcome1 is required
0612-469	Computer Architecture Laboratory	There was no need for an oral presentation in the evidence.
0612-495	Capstone Design	Students applied basic science and engineering concepts in evaluating the alternative designs and rank them based on matrix ranking. This goes to all design stages. In addition, many calculations are needed based on the project nature. The whole course is based on teamwork. Teams consist from 4 students and the work is divided among them. The students test, evaluate and combine all parts to build the complete corresponding design. Different phases of report submissions were carried out during this course where feedback is given to each team. Students must consider the feedback, modify and update the documentation on the next submission. In addition, 4-5 oral presentations held in class and the students were evaluated and given feedback. Students need applied the latest technology used in terms of Hardware/Software to select the suitable components. This is approved by comparing different technologies. Students built the prototype of the design, tested it, analyzed the results and documented the whole process with additional manuals.
0612-495	Capstone Design	The problem domains and solutions' novelty and creativity were satisfying, However, students may need to interact more with projects' stakeholders to produce better quality final products.

0612-495	Capstone Design	In general, most students needed to learn new skills that were critical for implementing their projects and succeeded at doing so. However, one setback was with regards to the availability of standard equipment, components, single board computers (SBCs) and material necessary for building their prototype (e.g. 3D printing, microcontrollers, sensors, etc.) that they sometimes had to order when I think it would be best to have those ready to be handed out for capstone students. Also, while students did have an assigned lab to work in, due to the lack of controlled access to this lab, some students noticed that their projects were tampered with.
0612-495	Capstone Design	I think student writing ability needs to be improved

Summer Semester 21/22

No data Available.

Electrical Engineering Program

Fall Semester 21/22

Instructors: **15**
Courses: **21**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-212	Engineering Math	H						H
0610-213	Linear Circuits Analysis	M						H
0610-233	Electronics I	M						M
0610-297	Corner-Stone Design	H	H	H	H	H	H	H
0610-312	Signals and Systems	H						H
0610-320	Electromagnetic Field Theory	H						H
0610-333	Electronics II	H						H
0610-333	Electronics II	H						H
0610-350	Electrical Power Systems I	H						H
0610-381	Communication Theory	H						H
0610-381	Communication Theory	H						H
0610-385	Introduction to DSP	H		M		M	M	H
0610-416	Instrumentation and Measurements	M						M
0610-432	Analog Integrated Circuits	H						M
0610-433	Electronics III	H		M				H
0610-443	Energy Conversion II	H		M				H
0610-456	Power Apparatus and Systems	H						H
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
0610-212	Engineering Math	3						3
0610-213	Linear Circuits Analysis	4						4
0610-233	Electronics I	2						2
0610-297	Corner-Stone Design	4	4	5	4	5	5	5
0610-312	Signals and Systems	2						2
0610-320	Electromagnetic Field Theory	3						3
0610-333	Electronics II	3						3
0610-333	Electronics II	4						4
0610-350	Electrical Power Systems I	4						4
0610-381	Communication Theory	3						4
0610-381	Communication Theory	3						4
0610-385	Introduction to DSP	5		5		5	5	5
0610-416	Instrumentation and Measurements	4						4
0610-432	Analog Integrated Circuits	4						4
0610-433	Electronics III	3		2				4
0610-443	Energy Conversion II	3		4				4
0610-456	Power Apparatus and Systems	4						4
0610-477	Optimization Techniques	4			3		3	3
0610-497	Engineering Design	4	4	4	4	4	5	4
	Weighted Average	**3.5**	**4**	**4.1**	**3.8**	**4.6**	**4.6**	**3.7**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-320	Electromagnetic Field Theory	Week scientific backgrounds.
0610-381	Communication Theory	Strengthen the students in probability and statistics
0610-381	Communication Theory	Add a probability course to the EE program
0610-385	Introduction to DSP	It would be a good idea to contact Professors teaching Communication Theory and Signals and Systems to make sure there isn't significant overlap
0610-433	Electronics III	Average class
0610-443	Energy Conversion II	Students with grades B- and above achieved most of the outcomes. Each exam had at least one complex engineering problem which is based on what was taught in class and exercised in the homework. Many students faced difficulty solving these problems because they are used to memorizing the concepts and equations rather than applying the principles of engineering, science and math.

Spring Semester 21/22

Instructors: **12**
Courses: **17**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-212	Engineering Math	H						H
0610-297	Corner-Stone Design	H	H	H	H	H	H	H
0610-312	Signals and Systems	H						H
0610-320	Electromagnetic Field Theory	H						H
0610-333	Electronics II	H						H
0610-381	Communication Theory	H						H
0610-381	Communication Theory	H						H
0610-385	Introduction to DSP	H						H
0610-410	Active Filter Design	H	M					M
0610-440	Sustainable Energy Technologies	H		M				H
0610-472	Control Theory II	H	M		M	M		M
0610-473	Digital Control	H	M		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-								
0610-212	Engineering Math	4						4
0610-297	Corner-Stone Design	4	4	4	4	4	4	4
0610-312	Signals and Systems	3						3
0610-320	Electromagnetic Field Theory	3						3
0610-333	Electronics II	4						4
0610-381	Communication Theory	4						4
0610-381	Communication Theory	3						4
0610-385	Introduction to DSP	3		1		1	1	3
0610-410	Active Filter Design	4	4					4
0610-440	Sustainable Energy Technologies	4		4				4
0610-472	Control Theory II	3	3		3	4		3
0610-473	Digital Control	3	3				3	3
0610-497	Engineering Design	4	4	4	4	3	5	4
	Weighted Average	**3.5**	**3.7**	**4**	**3.8**	**3.6**	**4.1**	**3.6**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-381	Communication Theory	Students lack mathematical and analytical skills,

Summer Semester 21/22

Instructors: **8**
Courses: **9**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-213	Linear Circuits Analysis	M						H
0610-333	Electronics II	H						H
0610-381	Communication Theory	H						H
0610-384	Communication Laboratory			M				
0610-385	Introduction to DSP	H						H
0610-420	Antenna and Propagation	H		M		M		H
0610-482	Digital Communication	H						H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0610-213	Linear Circuits Analysis	4						4
0610-333	Electronics II	4						4
0610-381	Communication Theory	4						4
0610-384	Communication Laboratory			4				
0610-385	Introduction to DSP	3						4
0610-420	Antenna and Propagation	4		4		3		5
0610-482	Digital Communication	3						3
	Weighted Average	**3.6**	**0**	**4**	**0**	**3**	**0**	**4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0610-482	Digital Communication	More mathematical and programming skills are essential for improving the students performance.

Industrial & Management Systems Engineering Program

Fall Semester 21/22

Instructors: **3**
Courses: **6**

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0660-352	Production Cost Analysis							
0660-458	Design of Experiments	H	H	H		H	H	
0660-461	Operations Research II	H						

P E R F O R M A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0660-352	Production Cost Analysis							
0660-458	Design of Experiments	4	4	4		3	4	
0660-461	Operations Research II	4						
	Weighted Average	**4**	**4**	**4**	**0**	**3**	**4**	**0**

Remarks and Suggestions

No data available.

Spring Semester 21/22

Instructors: **6**
Courses: **11**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-209								
0660-325	Safety and Health for Engineers			H	H	H	H	H
0660-325	Safety and Health for Engineers			H	H	H	H	H
0660-352	Production Cost Analysis	H			H			
0660-361	Operations Research I	H	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							
0660-471	Engineering Management			H	H	H		
0660-474	Accounting and Finance for Engineering	H		H	H	H		
0660-481	Systems Simulation	H	H	H		H	H	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-209		4			3			
0660-325	Safety and Health for Engineers				5	3	3	5
0660-325	Safety and Health for Engineers				5	3	3	5
0660-352	Production Cost Analysis	3			3			
0660-361	Operations Research I	4	4					
0660-457	Quality Control	4			3		4	3
0660-458	Design of Experiments	4	4				4	
0660-461	Operations Research II							
0660-471	Engineering Management			4	4	4		
0660-474	Accounting and Finance for Engineering	4		5	5	4		
0660-481	Systems Simulation	4	3	4		4	4	3
	Weighted Average	**3.8**	**3.7**	**4.3**	**4.2**	**3.6**	**3.6**	**4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0660-457	Quality Control	Please see the new ICE form, which is filled by the instructor, for detailed input and comments related to this course's SOs assessment.

Summer Semester 21/22

Instructors: **1**
Courses: **1**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-352	Production Cost Analysis							
0660-479	Law for Engineers		H		H			

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0660-352	Production Cost Analysis							
0660-479	Law for Engineers		4		4			
	Weighted Average	**0**	**4**	**0**	**4**	**0**	**0**	**0**

Remarks and Suggestions

No data available.

Mechanical Engineering Program

Fall Semester 21/22

Instructors: **12**
Courses: **17**

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
0630-311	Theory of Machines	H	M	L				M
0630-318	System Dynamics	H	M	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
0630-351	Mechanical Design I	H	M		L			L
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-415	Mechanical Vibrations	H	M	M	L			L
0630-446	Introduction to Composite	H	M	L	L			L
0630-455	Computer-Aided Design	H	M	M	M	L		M
0630-459	Engineering Design	H	H	H	H	H	M	H

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	3			4		4	4
0630-241	Materials Science and Metallurgy	3			3		2	3
0630-241	Materials Science and Metallurgy	2			2		2	3
0630-259	Introduction to Design	4	5	4	5	5		4
0630-311	Theory of Machines	3	3	3				3
0630-318	System Dynamics	2	2	2				
0630-318	System Dynamics	2	2	2				
0630-322	Engineering Thermodynamics II	5	4		4	4		3
0630-322	Engineering Thermodynamics II	2	2		3			2
0630-351	Mechanical Design I	2	3		3			3
0630-353	Manufacturing Processes	4	3	3	4			
0630-415	Mechanical Vibrations	5	5	5	5			4
0630-446	Introduction to Composite	4	4	4	4			4
0630-455	Computer-Aided Design	4	4	4	4	3		4
0630-459	Engineering Design	3	3	3	4	4	3	5
	Weighted Average	**3.2**	**3.4**	**3.3**	**3.8**	**4.3**	**2.8**	**3.7**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	I have taught a girl's sections. At the beginning of the course, they showed little interest/motivation, but with encouragement and multiple review sessions before Midterms and Finals, the majority showed a satisfactory outcome. However, four students ended up getting either F or FA
0630-259	Introduction to Design	It was my first time teaching the course. The girls in my section showed excellent capabilities in completing the required tasks within the given time frame and coming up with great designs. In the design competition, two of the groups in my section have won first place. I suggest minimizing the amount of time spent on Microsoft Office applications (Word, Excel, PowerPoint, etc...) and more time spent on AutoCAD and MATLAB. Although some students had problems working in groups, the majority functioned well in a group with satisfactory results
0630-322	Engineering Thermodynamics II	Excellent group of students.
0630-322	Engineering Thermodynamics II	This was the first semester of normal teaching after COVID 19 pandemic. Most students have problems in their background in Engineering Thermodynamics, especially when they took it online. Even though about five lectures were spent in reviewing Engineering Thermodynamics, the students still 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 into 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 well in this course. In general, in terms of grades, this was one of the weakest sections I ever taught. I believe online teaching during the COVID 19 pandemic was the main reason.
0630-351	Mechanical Design I	Students performed poorly on mechanical design as they could not apply critical thinking toward decisions regarding engineering applications. The course materials was dealt with pure formula plugging and ignored the engineering sense to reach better decisions
0630-353	Manufacturing Processes	The performance of this class was divided into three thirds: High achievers who are diligent and study on a daily basis, middle level who try their best but are unable to achieve high marks in exams or quizzes, and the last third has students who attend and seem to pay attention but I do not believe that they invest enough time after class to study the material.
0630-415	Mechanical Vibrations	An exceptional section with a group of the elite ME students. Smart and dedicated students.

0630-446	Introduction to Composite	With the exception of few students the overall performance was very good in achieving the outcomes of the course.
0630-455	Computer-Aided Design	Overall, most students achieved the course outcomes. We need faster and more reliable computers in the lab.
0630-459	Engineering Design	The students were able to follow the design process taught and achieved reasonably good results. Every team was able to produce a working prototype. The main constraint was the time and difficulties acquiring necessary components in the local market as international orders were not possible due to Covid restrictions.

Spring Semester 21/22

Instructors: **12**
Courses: **23**

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
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-318	System Dynamics	H	M	M				
0630-322	Engineering Thermodynamics II	H	M		M	L		L
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	
0630-417	Control of Mechanical Systems	H	H	M		L		L
0630-421	Heat Transfer	H	M	M				
0630-445	Mechanical Properties of Materials	H	M	L		M		L
0630-451	Mechanical Design II	H	H	M	M	L		M
0630-451	Mechanical Design II	H	H	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
0630-459	Engineering Design	H	H	H	H	H	M	H
0630-474	Dynamics of Machines and Mechanical Vibrations Lab.	H	M	H	L	M	H	

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	3			3		2	3
0630-241	Materials Science and Metallurgy							
0630-241	Materials Science and Metallurgy							
0630-241	Materials Science and Metallurgy	3			3		3	3
0630-318	System Dynamics	2	2	2				
0630-322	Engineering Thermodynamics II	4	3		4	5		5
0630-353	Manufacturing Processes	3	3	2	3	3		
0630-353	Manufacturing Processes	3	3	2	3	3		
0630-373	Mechanical Engineering Fundamentals Laboratory	3		3		4	3	
0630-417	Control of Mechanical Systems	2	3	3		3		4
0630-421	Heat Transfer	3	4	3				
0630-445	Mechanical Properties of Materials	3	4	4		4		3
0630-451	Mechanical Design II	2	3	3	3	3		3
0630-451	Mechanical Design II	2	3	3	3	3		3
0630-456	Computer Aided Manufacturing	4	3	3	3	3		4
0630-459	Engineering Design	4	4	4	5	3	4	3
0630-459	Engineering Design	3	3	3	4	3	3	4
0630-474	Dynamics of Machines and Mechanical Vibrations Lab.	4	3	3	5	4	4	
	Weighted Average	**3**	**3.2**	**2.9**	**3.7**	**3.3**	**3.3**	**3.4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	In this semester a new approach was used to encourage the students to read the textbook and get familiar with the topics in the book. It worked for some students but there still a number of students who are incompetent with their reading and they continue to struggle with the extensive amount of reading required for this course
0630-241	Materials Science and Metallurgy	The amount of material to be covered is actually larger than that required by the syllabus, given only about three months of time. This course for the prescribed syllabus needs at least four months of instructions.
0630-241	Materials Science and Metallurgy	The amount of material to be covered is actually larger than that required by the syllabus, given only about three months of time. This course for the prescribed syllabus needs at least four months of instructions.
0630-241	Materials Science and Metallurgy	The performance of the students was satisfactory. As it is explained in the outcome comments, students did well in the essays, but average in the exams and quizzes. Geometry and calculations problems mainly.
0630-322	Engineering Thermodynamics II	Most students performed very well during the course.
0630-417	Control of Mechanical Systems	The semester was interrupted with long holidays. This had some adverse effects. The class infrastructure was not perfect for the use of all available instructional tools. The computers in the labs need a thorough upgrade.
0630-421	Heat Transfer	The performance of the students in general was not satisfactory. The course was short (12 weeks only), which put pressure on the instructor and students as well. This might be one of the reasons that the students didn't do well in the course. I think changing the textbook should be investigated. The new edition of the textbook included a lot of unneeded material that confuses the students.
0630-445	Mechanical Properties of Materials	The student outcomes in this form do not match the current course mandate. Overall the students did very well. Especially in the small project. The poster presentations were very good. There were several students however that have problems with reading and comprehending problem statements, doing correct calculations and units.
0630-456	Computer Aided Manufacturing	It was a large class with a wide range of abilities - as can be observed from the grade distribution. Most students were seniors and graduating this semester. Their grades represented the amount of time and effort that was placed in this course. A tour to a local automated warehousing facility (Yahaal) helped illustrate concepts studied in real-world application. Most assignments required group work. Informal presentations were conducted in class to present outcomes of some assignments to classmates.
0630-459	Engineering Design	One of the groups had a major issue in the analytical proof of concept. They could not prove

		the improvements and how efficient is their product through the analysis.
0630-459	Engineering Design	The long holidays had some adverse effects. The problems with global supply chain issues hindered some teams to acquire key components in time. Despite the difficulties, however, the teams were able to produce working prototypes. The time was not sufficient to give the right attention to thorough analysis. It is expected that a two-semester sequence would help alleviate this problem.

Summer Semester 21/22

Instructors: **5**
Courses: **5**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	H			L		L	L
0630-318	System Dynamics	H	M	M				
0630-353	Manufacturing Processes	H	M	M	L	M		
0630-488	Thermal Systems Design							

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0630-241	Materials Science and Metallurgy	3			3		3	3
0630-318	System Dynamics	2	2	2				
0630-353	Manufacturing Processes	4	3	4	3	3		
0630-488	Thermal Systems Design	4	4	4	4			4
	Weighted Average	**3**	**2.5**	**3**	**3**	**3**	**3**	**3**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0630-241	Materials Science and Metallurgy	Still seeing weak commitment to reading the topics of the course as they are an essential building block toward better understanding of the course
0630-488	Thermal Systems Design	The course was beneficial for senior students since it include applications from different topics in thermal sciences. Also, it integrate these topics with modeling, simulation, and optimization methods. The course needs a lot of work in the homework and assignments, and this was the setback in the student performance. However, most of the students did well in the exams. I really support teaching this course in the future.

Petroleum Engineering Program

Fall Semester 21/22

Instructors: **8**
Courses: **12**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-241	Fluid Mechanics	H	L	L	M	L	L	M
0650-323	Phase Behavior of Reservoir Fluids	H		L	M	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	
0650-351	Petroleum Geology	M	L	L	M	L	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
0650-425	Natural Gas Reservoir Engineering	H		H	M			M
0650-427	Secondary Recovery	H	M	M	M	H	M	H
0650-432	Well Testing	H		L	M		H	M
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
0650-241	Fluid Mechanics	4	1	1	2	1	4	1
0650-323	Phase Behavior of Reservoir Fluids	3		3	3	3		3
0650-341	Oil Well Drilling and Completion	4	4		4	4		4
0650-342	Mud and Cement Laboratory	4		4	5	5	4	
0650-351	Petroleum Geology	3	3	2	3	3	3	3
0650-354	Well Logging	4	4	4	3	3	4	4
0650-355	Well Logging Laboratory	4		3	3	4	4	4
0650-425	Natural Gas Reservoir Engineering	4		3	4			3
0650-427	Secondary Recovery	3	3	3	3	3	3	3
0650-432	Well Testing	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**	**3.7**	**3.7**	**4**	**3.9**	**3.6**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-241	Fluid Mechanics	Most of the student in the semester took this course did not fully develop the necessary knowledge needed to further move through the course and fully utilize knowledge gained in the fluid mechanics course.
0650-341	Oil Well Drilling and Completion	The following topics have been covered and discussed in this course: 1. Introduction to Drilling Engineering 2. Rig power system, hoisting system and circulating system 3. Rotary system, well control system, and monitoring system 4. Drilling cost analysis 5. Principal functions and

		composition of drilling fluids 6. Well cementing application 7. Hydrostatic pressure calculations and application 8. Kick Identification under conditions of risk and uncertainty 9. Estimating friction losses for different flow regimes 10. Jet bit nozzle size selection 11. Pump pressure schedule for well control operations 12. Well completion basic principles and methods
0650-351	Petroleum Geology	I believe only one student achieved all the outcomes. Many of the students lack basic math and geometry knowledge. Some of the course outcomes should be re-evaluated.
0650-354	Well Logging	Syllabus is outdated

Spring Semester 21/22

Instructors: **15**
Courses: **32**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-101	Petroleum Basics							
0650-101	Petroleum Basics							
0650-150	Introduction to Petroleum Engineering	L			L			
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
0650-251	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
0650-323	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	
0650-333	PVT Laboratory	L		H	M	M	H	
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	
0650-351	Petroleum Geology	M	L	L	M	L	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
0650-425	Natural Gas Reservoir Engineering	H		H	M			M
0650-427	Secondary Recovery	H	M	M	M	H	M	H
0650-432	Well Testing	H		L	M		H	M
0650-432	Well Testing	H		L	M		H	M
0650-435	Production Equipment Design	H	H	H	M	H		M
0650-467	Advanced Well Control Operations	H	H	L	M	M		L
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
0650-101	Petroleum Basics	2	2	5	3	3	1	1
0650-101	Petroleum Basics							
0650-150	Introduction to Petroleum Engineering	1			4			
0650-221	Reservoir Rock Properties	4			4			3
0650-241	Fluid Mechanics	2						3
0650-251	Introduction to Design	3	3	3	3	3	3	3
0650-251	Introduction to Design	3	2	3	1	2	2	1
0650-322	Reservoir Rock Laboratory	3		4	4	5	4	
0650-323	Phase Behavior of Reservoir Fluids	1		2	1	2		1
0650-323	Phase Behavior of Reservoir Fluids							

0650-324	Reservoir Engineering	3			3			3
0650-333	PVT Laboratory	4			4	4	4	
0650-333	PVT Laboratory	3		3	3	3		3
0650-341	Oil Well Drilling and Completion	4	5		3	1		3
0650-342	Mud and Cement Laboratory	4		4	3	4	5	
0650-342	Mud and Cement Laboratory	4		4	3	4	5	
0650-351	Petroleum Geology	3	3	3	4	3	3	3
0650-354	Well Logging	3	3	3	3	3	3	3
0650-355	Well Logging Laboratory	4	4	3	3	3	4	4
0650-355	Well Logging Laboratory	4	4	3	3	3	4	4
0650-411	Petroleum Production Engineering	4	4	5	3	5		3
0650-411	Petroleum Production Engineering	3	4	4	4	4		4
0650-425	Natural Gas Reservoir Engineering	4			3			4
0650-427	Secondary Recovery	3	4	3	3	4	3	4
0650-432	Well Testing	2		3	4		1	3
0650-432	Well Testing	3					4	
0650-435	Production Equipment Design	2	3	4	4	4		4
0650-467	Advanced Well Control Operations	5	4		4			4
0650-496	Well Design	5	5	5	5	5	5	5
0650-496	Well Design	5	5	5	5	5	5	5
	Weighted Average	**3.3**	**3.8**	**3.7**	**3.4**	**3.7**	**3.7**	**3.5**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-101	Petroleum Basics	Nil
0650-101	Petroleum Basics	This course is an introductory course for basic Petroleum knowledge. This course is offered for the College of Business and Administration students. The various Petroleum subjects are presented to the students in a simple manner.
0650-150	Introduction to Petroleum Engineering	I had good time teaching this course it was only introduction and really beneficial for the students to get familiar with the Petroleum Engineering. Most Students were really punctual and dedicated.
0650-221	Reservoir Rock Properties	Nil
0650-241	Fluid Mechanics	The students showed a lack in physics and mathematics. In some cases, they were unable to solve simple problems or understand the simple physics of fluid flow problems.
0650-251	Introduction to Design	Students who passed the course with A and A- achieved all the outcomes, while B- and C+ achieved most of the outcomes with satisfactory levels.
0650-251	Introduction to Design	- Students math foundation is weak. - This course should be a 300 course. The prerequisits should be Numerical Method Course and Reservoir Engineering course.
0650-323	Phase Behavior of Reservoir Fluids	This group of students has the poorest performance. Four students out of the fifteen registered are repeating this course for the second times. They have difficulty passing the course for the second time. They were given a quick quiz every class to make sure they are taking the materials seriously. The Ave of thirty given quiz has shown that the class is poorly prepared. The

		class average in the first midterm is (44/100), the second midterm (60/100), and the final 45/100).
0650-323	Phase Behavior of Reservoir Fluids	See the comments written for sec 01A. little bit difference in overall performance. The midterms were the same. The final exam was different. I have written official letter requesting approval of unified final exam. Unfortunately, he administration has not answered my official letter
0650-341	Oil Well Drilling and Completion	1. The topic of pressure schedule during well control is not covered due to the short course period and sudden off days. Part of the topics is covered in the volume calculation and pump strokes determination. 2. Student need to have a basic background in spreadsheet programming, analysis, and interpretation.
0650-354	Well Logging	Just two students got an A. Many students are careless i.e. lack of attendance on time, not taking class notes during lectures, and not bringing notes/pens/calculators to class. Around 60% of the students fully achieved the course outcomes.
0650-355	Well Logging Laboratory	students are using the state-of-the-art software (Techlog) currently used in national oil companies such as the KOC. This lab with the current use of Techlog linked the theoretical part -learned in the class- with the practical part (the use of software in the industry). I suggest providing the students with interactive Petrophysics software because it is more user-friendly.
0650-355	Well Logging Laboratory	students are using the state-of-the-art software (Techlog) currently used in national oil companies such as the KOC. This lab with the current use of Techlog linked the theoretical part -learned in the class- with the practical part (the use of software in the industry). I suggest providing the students with interactive Petrophysics software because it is more user-friendly.
0650-411	Petroleum Production Engineering	The petroleum production engineering course is very important course that help the students understand the complete aspects of producing crude oil & natural gas from reservoir to tubing string through chokes & flow-line to separator. As the course will link the reservoir to drilling to production, it's pre-requisite are appropriate which are PE324 Reservoir Engineering and PE341 Drilling Engineering. Students outcome during this semester were good, only issue were : many students know how to use parameters in solving problems from previous courses but lack the physical meaning of these parameters (example meaning of water-cut). More focusing on physical meaning of parameters and/or processes is recommended.
0650-411	Petroleum Production Engineering	Student who passed the course with A grade achieved all the outcomes. Students who scored B- and below achieved some of the outcomes with satisfactory levels.
0650-432	Well Testing	This course highly requires one of the commercial well testing software such as PanSystem, Kappa, ect.. that are frequently used in the oil industry for well test interpretation. None of these software were available in the department for this semester. However, recently, the department acquired license for Kappa. Students should be able to use this software for data generation and analysis. Also, a new textbook that covers

		pressure derivative concepts should be used for the course. The currently used textbook is outdated.
0650-435	Production Equipment Design	Overall, the students demonstrated strength in design and overall understanding of the course material. However, the students lack the skills of problem solving using physical and mathematical formulation and solution.

Summer Semester 21/22

Instructors: **11**
Courses: **15**

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-101	Petroleum Basics							
0650-241	Fluid Mechanics	H	L	L	M	L	L	M
0650-251	Introduction to Design	H	H	H	H	H	H	L
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	
0650-354	Well Logging	M	L	L	L	L	H	H
0650-355	Well Logging Laboratory	M	L	L	L	L	H	H
0650-425	Natural Gas Reservoir Engineering	H		H	M			M
0650-427	Secondary Recovery	H	M	M	M	H	M	H
0650-432	Well Testing	H		L	M		H	M
0650-437	Numerical Methods in Petroleum Engineering	H	M	M	H	M		H
0650-442	Industrial Safety for Oil Field Operations		M	M	M	L		
0650-450	Industrial Training	H	H	H	H	H	H	H
0650-464	Horizontal Well Technology	H	H	L	L	M		M

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0650-101	Petroleum Basics							
0650-241	Fluid Mechanics	3	1	1	1	1	1	1
0650-251	Introduction to Design	3	3	3	3	3	3	3
0650-324	Reservoir Engineering	3			3			3
0650-341	Oil Well Drilling and Completion	5	5		3	3		3
0650-342	Mud and Cement Laboratory	4		4	3	4	5	
0650-354	Well Logging	4	4	3	5	3	5	5
0650-355	Well Logging Laboratory	5	5	5	5	5	5	5
0650-425	Natural Gas Reservoir Engineering	4		4	5			4
0650-427	Secondary Recovery	3	4	3	3	4	3	3
0650-432	Well Testing	3					4	
0650-437	Numerical Methods in Petroleum Engineering	5	5		5			5
0650-442	Industrial Safety for Oil Field Operations		5	5	5	5		
0650-450	Industrial Training	3	3	4	3	3		3
0650-464	Horizontal Well Technology	5		4				4
	Weighted Average	**3.8**	**3.9**	**3.7**	**3.6**	**3.4**	**4.1**	**3.7**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0650-101	Petroleum Basics	This is a basic Petroleum level class offered to the college of business and administration in a very basic and introductory manner.

0650-241	Fluid Mechanics	H-M-L for this course must be reevaluated.
0650-251	Introduction to Design	More than half of the students passed the course with B- and above and they achieved most of the outcomes, while the rest achieved some of the outcomes with satisfactory levels.
0650-341	Oil Well Drilling and Completion	Student performance is good (3 A's out of 8). The topic of pressure schedule during well control is covered in the summer semester and it include all knowledge gained through out the course (volume calculations, pump stroked determination, pressure determination). Students have the chance to design the optimum pump operating parameters and nozzle sizes for optimum bit performance through class problems and quizzes. The class problems was designed so that a group (2-3 students), this have indeed strengthen student interaction with the each other and with the instructor in terms of having on-hand experience of such design.
0650-432	Well Testing	Student Outcomes of this course should be revisited especially: - The outcome: Communicate effectively with a range of audiences. - Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
0650-450	Industrial Training	Relevant outcome need to be examined .
0650-464	Horizontal Well Technology	In this course additional chapter about Well Testing Flow Regimes in Horizontal Wells was presented. A research paper about: "PERMEABILITY DETERMINATION OF HORIZONTAL WELLS" has been discussed in the class (Final Exam included a question from this paper). Also, Students prepared a summary report for an SPE Paper. Students used SPE Library to search and present a summary report for a case study of Horizontal Wells (each team includes two students).

Core Engineering Courses

Fall Semester 21/22

R E L E V A N C E

Course Number	Course Name	1	2	3	4	5	6	7
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			
0600-209	Engineering Economy							
0600-209	Engineering Economy							
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
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L
0600-310	ENGINEERING ETHICS							

P E R F O R M A N C E

Course Number	Course Name	1	2	3	4	5	6	7
0600-202	Statics	3		4				
0600-202	Statics	4		3				
0600-203	Dynamics							
0600-204	Strength of Materials	2	2					2
0600-204	Strength of Materials	3	3					3
0600-204	Strength of Materials	2	2					2
0600-204	Strength of Materials	3	3					3
0600-205	Electrical Engineering Fundamentals	4						4
0600-208	Engineering Thermodynamics	2			2			
0600-209	Engineering Economy							
0600-209	Engineering Economy							
0600-209	Engineering Economy	5			5			
0600-209	Engineering Economy	5			5			
0600-209	Engineering Economy	3			3			
0600-209	Engineering Economy	4			4			
0600-304	Engineering Probability and Statistics	3			3		3	3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		4

0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		3
0600-310	ENGINEERING ETHICS			5				
	Weighted Average	**3.5**	**2.5**	**3.5**	**3.9**	**4**	**3**	**3.2**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-202	Statics	NA
0600-202	Statics	NA
0600-203	Dynamics	The problem with the Dynamics course is that it was developed for longer time frame (4-5 months), however, the time for this semester was less than 3.5 months, which makes the teacher and the students in incredible shortage of time.
0600-204	Strength of Materials	Percentage of students passing the course is satisfactory, which is mainly due to the good coordination of this common course. Students have realized that the only way to pass this course is to study. Now, it is hoped that the overall standard of the course will improve over a couple of semester.
0600-208	Engineering Thermodynamics	I am evaluating the ENG208-55 section for Fall 2021-2022. This semester is the first term after we have moved from online to in-campus teaching (due to Covid-19). This is absolutely the worst class I have taught so far. Students are absent in many classes even after receiving warning letters. They are not taking the course seriously and they are not interested in participating in class discussions. The quizzes' and exams' averages are very low although they are straightforward material. Also, there were two bonus EES-Quizzes, and only 20% of the students attended. All of the students are not performing well, and they just want to pass without any effort.
0600-304	Engineering Probability and Statistics	Week calculus and mathematics background
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	Performance of students was progressive, during the first and second midterms the performance was good, but the final exam showed a better performance. Students seems to better understand numerical methods and its application in MATLAB and problem solving towards the end of the course. Overall, this was a good semester and I had some bright minded students in my section this semester.

Spring Semester 21/22

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-202	Statics	M		M				
0600-203	Dynamics	H						
0600-203	Dynamics	H						
0600-208	Engineering Thermodynamics	H			L			
0600-208	Engineering Thermodynamics	H			L			
0600-209	Engineering Economy							
0600-209	Engineering Economy							
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy	H			M			
0600-209	Engineering Economy							
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	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							

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-202	Statics	4		3				
0600-203	Dynamics	2						
0600-203	Dynamics							
0600-208	Engineering Thermodynamics	4			4			
0600-208	Engineering Thermodynamics	2			2			
0600-209	Engineering Economy							
0600-209	Engineering Economy							
0600-209	Engineering Economy	2			2			
0600-209	Engineering Economy	5			5			
0600-209	Engineering Economy	4			3			
0600-304	Engineering Probability and Statistics	5			3		4	3
0600-304	Engineering Probability and Statistics	3			2		4	4
0600-304	Engineering Probability and Statistics	2			2		3	3
0600-304	Engineering Probability and Statistics	3			3		3	3
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				4		4
0600-308	Numerical Methods in Engineering	2						
0600-308	Numerical Methods in Engineering	2						2

0600-310	ENGINEERING ETHICS			3				
	Weighted Average	**3.4**	**0**	**3**	**3**	**4**	**3.5**	**3.2**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-202	Statics	Unification of exams across all sections ensure thorough coverage of all course topics, most of which are essential for understanding the concepts of later courses (Strength of Materials, Structural Analysis, Dynamics, Fluid Mechanics). It is suggested to assign homeworks in Moodle and free up the TAs for conducting tutorial and problem solving sessions. Overall the class performance was good.
0600-203	Dynamics	The dynamics should be unified in all of its aspects; lecture notes, quizzes, HWs, and exams. The unified class will make the student serious in dealing with the material not just relying in "reading" example problems and HWs.
0600-203	Dynamics	The difficulty with this course is that it was designed for longer period of time (4-5-5 months), however the time allocated this year was less than 3.5 months, which makes teacher and students in an incredible bind for time.
0600-208	Engineering Thermodynamics	The students performance was acceptable.
0600-208	Engineering Thermodynamics	I am evaluating both sections of ENG208-04 and 54 for Spring 2022. This semester is the second term after we have moved from online to in-campus teaching (due to Covid-19). Students are absent in many classes even after receiving warning letters. They are not taking the course seriously and they are not interested in participating in class discussions. There are 11 quizzes, and half of the class stopped taking the quizzes after the mid of the term. The exams' average is very low although they are straightforward exams. Also, there was two EES-Quizzes Bonus, and only 20% of the students attended. A number of cheating chases during the exams were reported. In general, the majority of the students are not performing well.
0600-209	Engineering Economy	Creating extensive bank of questions to cover most of the situations in the course materials would equip the students with a better understanding to the terminology and various terms used in the engineering economy course
0600-304	Engineering Probability and Statistics	Students are very 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. Relevance of students outcomes should be revised especially student outcome 1 related to complex problems. Students are made aware of the effect of ethical probabilistic decision making on engineering problems, environment and society at large.
0600-304	Engineering Probability and Statistics	Students were not serious about the course. Complained of the unified exams. Very week mathematical background.
0600-304	Engineering Probability and Statistics	Some weaknesses in the mathematical backgrounds.
0600-308	Numerical Methods in Engineering	The average of the whole class in this question is 28.6 %. Students’ performance was unsatisfactory.

		So, a value of 2 is given for the assessment of this outcome.

Summer Semester 21/22

RELEVANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-205	Electrical Engineering Fundamentals	H						H
0600-208	Engineering Thermodynamics	H			L			
0600-209	Engineering Economy							
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	H				M		L

PERFORMANCE

Course Number	Course Name	1	2	3	4	5	6	7
0600-205	Electrical Engineering Fundamentals	4						4
0600-208	Engineering Thermodynamics							
0600-209	Engineering Economy	5			4			
0600-307	APPLIED NUMERICAL METHODS AND PROGRAMMING	5				3		4
	Weighted Average	**4.5**	**0**	**0**	**0**	**3**	**0**	**4**

Remarks and Suggestions

Course Number	Course Name	Remarks and Suggestions
0600-205	Electrical Engineering Fundamentals	No remarks
0600-208	Engineering Thermodynamics	I am evaluating the ENG208-53 section for Summer 2021-2022. I had a group of great five students who always engaged through the class discussion and asked interesting questions. This elevates the competition to a very healthy level and encouraged the other students to be part of the discussion. As for the exam it was out of 110 points (10 points counted as a bonus), I always see grades above 95 for this group. The class average was between 68% and 75% which is considerably much higher than what I had in Fall and Spring 2021-2022. The students who had FA or F, were either quitters from the second week of the semester or performed poorly (below 40 points) in exams; although they were encouraged to do their best, they did not take the course seriously. Overall, I enjoyed teaching this course with this group of students and the student feedback was great.
0600-209	Engineering Economy	I noticed that, the performance of the students in the summer semester is better than the regular semester.

Appendix A
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 Relevant	Moderately Relevant	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:

_____
_____
_____

Appendix B

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 the Academic year 2021-2022

Introduction:

This report presents the College of Engineering and Petroleum Exit Survey Results for the academic year 2021-2022. The exit survey form, given in Appendix A, 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 given in Appendices B-H, 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 13 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 **400** students participated in the exit survey during the academic year 2021-2022. Table 1 shows the number of students who participated in the survey according to department, along with cumulative college-wide figures.

Table 1 Exit survey participation statistics for the academic year 2021-2022

Departments	Total Responses	Total Students Graduated	Percentage
CHEMICAL	22	92	24%
CIVIL	101	125	81%
COMPUTER	84	77	110%**
ELECTRICAL	122	121	101%**
IMSE	36	34	110%**
MECHANICAL	8	97	08%
PETROLEUM	27	51	53%
TOTAL	400	597	67%
** The statistical disparities result from some survey respondents not being able to graduate.			

Survey Results:

Table 2 shows students' intentions for their future plans. Most of the students (82%) expect to work for the government, 55% for the private sector, 36% of the students are planning or at least thinking of joining a graduate program, and 35% 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.	**327**	**82%**
Intend to work in the private sector.	**218**	**55%**
Intend to go to graduate school.	**145**	**36%**
Intend to start my own business	**139**	**35%**
Intend to do other things	**28**	**7%**

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

The following skills, abilities or attributes were assessed for contribution towards student outcomes 1-7.

S. No.	*Skills, abilities, and attributes*	Targeted Student outcome(s)	% contribution to outcome assessment score
1	Apply knowledge of mathematics, sciences and engineering to solve complex engineering problems.	1	70
2	Ability to use modern tools and technologies in engineering analysis/design	1	20
3	Apply the knowledge of probability and statistics in engineering analysis/design.	1	10
4	Design a system, component, or process to meet specified needs with consideration of public health, safety and welfare.	2	50
5	Identify, formulate, and solve engineering problems taking into account socio-economic, global, cultural and environmental factors	2	50
6	Effectively write a variety of items like short essays, memos, letters, reports etc.	3	40

7	Participate in class discussions with instructors & students and deliver oral presentations.	3	40
8	Ability to use technology for communication purposes (e.g. Word, Excel, PowerPoint, social media, etc.).	3	20
9	Understand professional and ethical responsibilities, (e.g. safety, professional ethics and code of conduct) in making informed judgement as applicable to engineering situations.	4	70
10	Understand and appreciate the impact of engineering solutions in the societal and global contexts.	4	30
11	Function effectively in a team in different roles (i.e. leadership, note taking, planning, and execution) for establishing goals, planning tasks and meeting objectives.	5	100
12	Develop and conduct experiments, as well as analyze and interpret data and draw conclusions	6	100
13	Ability to acquire and apply new knowledge through appropriate learning strategies	7	100

Following the mapping procedure outlined in Table 3, outcome assessment results are shown in Table 4 according to the ABET student outcomes (1-7); acquired at Kuwait University for graduates of all Engineering programs.

Table 4 Assessment of the Student Outcomes (1-7) acquired at Kuwait University – ALL 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	4.11 84%	3.86 82%
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	3.98 80%	3.68 74%
3	an ability to communicate effectively with a range of audiences	4.31 85%	4.09 80%
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	4.30 86%	4.07 82%
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	4.35 87%	4.22 84%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.12 82%	3.68 74%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.15 83%	3.83 77%

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.

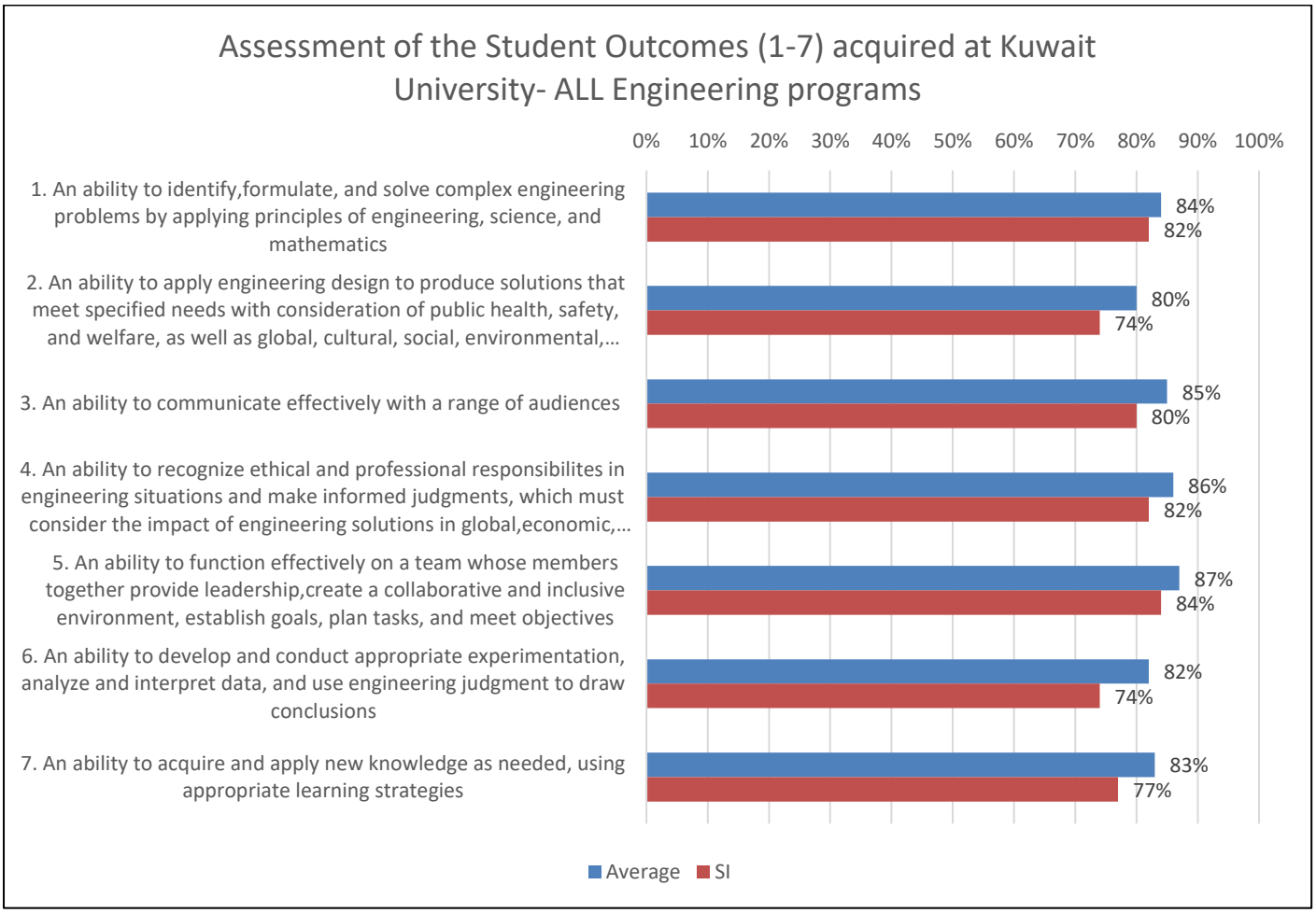


Figure 1 Assessment of the student outcomes acquired at Kuwait University

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

#	Outcome	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	188	104	88	11	4	4.2	3.40
		48%	26%	22%	3%	1%	83%	69%
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).	187	106	83	17	1	4.1	3.41
		47%	27%	21%	4%	0%	83%	69%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	172	113	81	18	4	4.1	3.40
		44%	29%	21%	5%	1%	82%	68%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	147	98	102	36	7	3.0	2.90
		38%	25%	26%	9%	2%	78%	58%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	140	102	115	23	13	3.8	2.80
		36%	26%	29%	6%	3%	77%	56%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	160	127	82	24	2	4.1	3.30
		41%	32%	21%	6%	1%	81%	66%

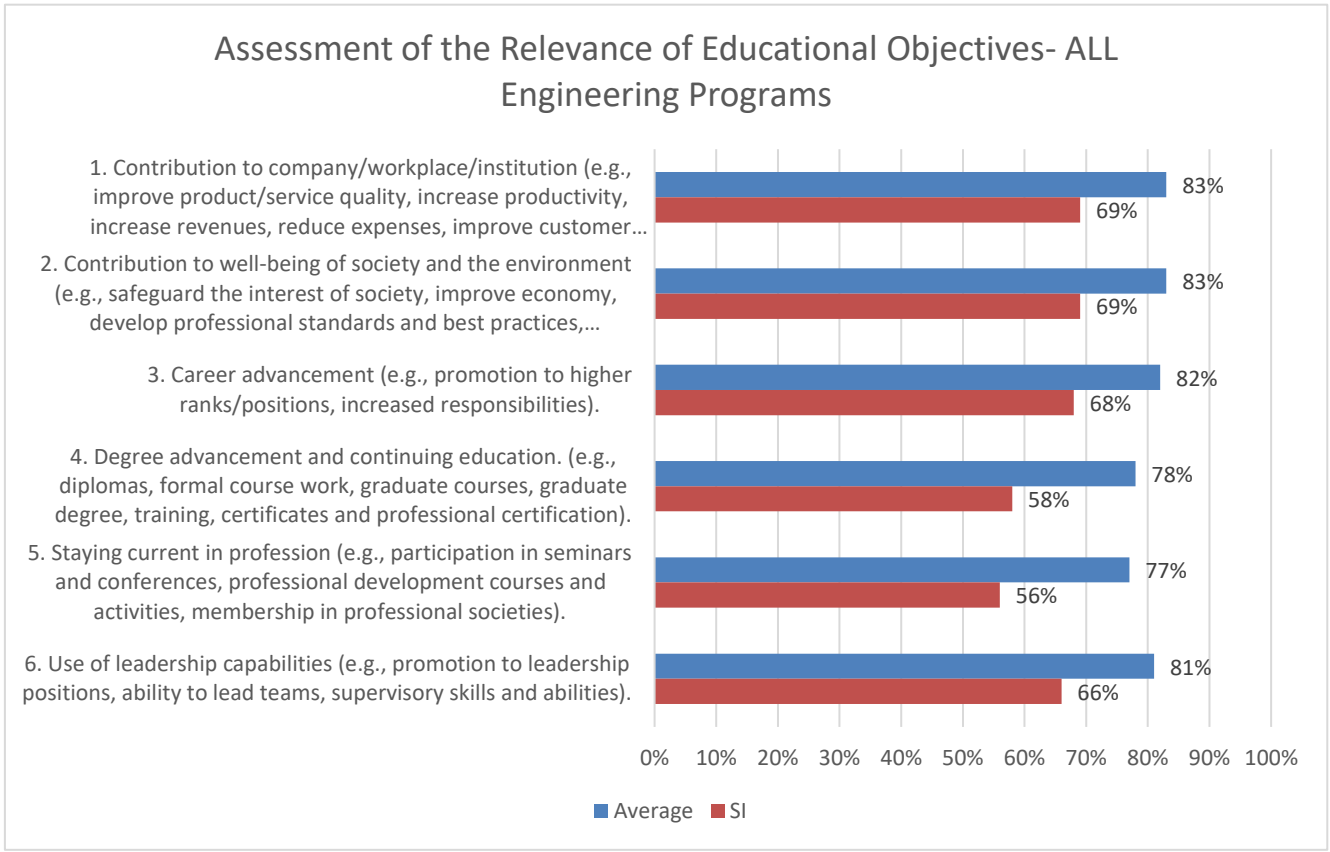


Figure 2 Assessment of the relevance of Educational Objectives at Kuwait University

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 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)	115	90	101	50	42	2	3.5	**2.6**
		29%	23%	25%	13%	11%	1%	70%	**52%**
2	- Computers (Programming and usage of software packages)	103	88	115	56	34	4	3.4	**2.4**
		26%	22%	29%	14%	9%	1%	68%	**48%**
3	- Humanities and Social sciences	127	92	110	31	19	21	3.7	**2.9**
		32%	23%	28%	8%	5%	5%	74%	**58%**
4	- General Engineering	128	114	95	42	19	2	3.7	**3**
		32%	29%	24%	11%	5%	1%	74%	**60%**
5	- Engineering within major	172	99	91	21	15	2	4	**3.4**
		43%	25%	23%	5%	4%	1%	80%	**68%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		149	100	92	39	9	11	3.9	**3.2**
		37%	25%	23%	10%	2%	3%	78%	**64%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	137	99	93	35	19	17	3.8	**3.1**
		34%	25%	23%	9%	5%	4%	76%	**62%**
8	- Career planning	123	77	94	50	28	28	3.6	**2.7**
		31%	19%	24%	13%	7%	7%	72%	**54%**
D. Equity of treatment by:									
9	- Academic administrators	121	94	101	45	22	17	3.6	**2.8**
		30%	24%	25%	11%	6%	4%	72%	**56%**
10	- Faculty	119	97	106	52	20	6	3.6	**2.7**
		30%	24%	27%	13%	5%	2%	72%	**54%**
11	- Teaching assistants and engineers	145	98	91	47	13	6	3.8	**3.1**
		36%	25%	23%	12%	3%	2%	76%	**62%**
12	- Fellow students	141	104	103	40	8	4	3.8	**3.1**
		35%	26%	26%	10%	2%	1%	76%	**62%**
E. Quality of the facilities:									
13	- Classrooms	180	93	87	26	13	1	4	**3.4**
		45%	23%	22%	7%	3%	0%	80%	**68%**
14	- Science laboratories	145	90	88	38	23	16	3.8	**3.1**
		36%	23%	22%	10%	6%	4%	76%	**62%**
15	- Engineering Laboratories	160	83	91	35	19	12	3.9	**3.1**
		40%	21%	23%	9%	5%	3%	78%	**62%**

16	- Computing facilities	156	87	99	25	17	16	3.9	**3.2**
		39%	22%	25%	6%	4%	4%	78%	**64%**
17	- Libraries	159	81	85	33	14	28	3.9	**3.2**
		40%	20%	21%	8%	4%	7%	78%	**64%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	125	85	93	54	39	4	3.5	**2.7**
		31%	21%	23%	14%	10%	1%	70%	**54%**
19	- Ease of communication with instructors during online learning	151	77	80	53	34	5	3.7	**2.9**
		38%	19%	20%	13%	9%	1%	74%	**58%**
20	- Quality of learning in online laboratory classes	109	64	88	63	60	16	3.3	**2.3**
		27%	16%	22%	16%	15%	4%	66%	**46%**
21	- Online capstone design experience and collaboration with team members	122	69	75	43	25	66	3.7	**2.9**
		31%	17%	19%	11%	6%	17%	74%	**58%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	98	69	85	68	66	14	3.2	**2.2**
		25%	17%	21%	17%	17%	4%	64%	**44%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	111	72	104	64	42	7	3.4	**2.3**
		28%	18%	26%	16%	11%	2%	68%	**46%**

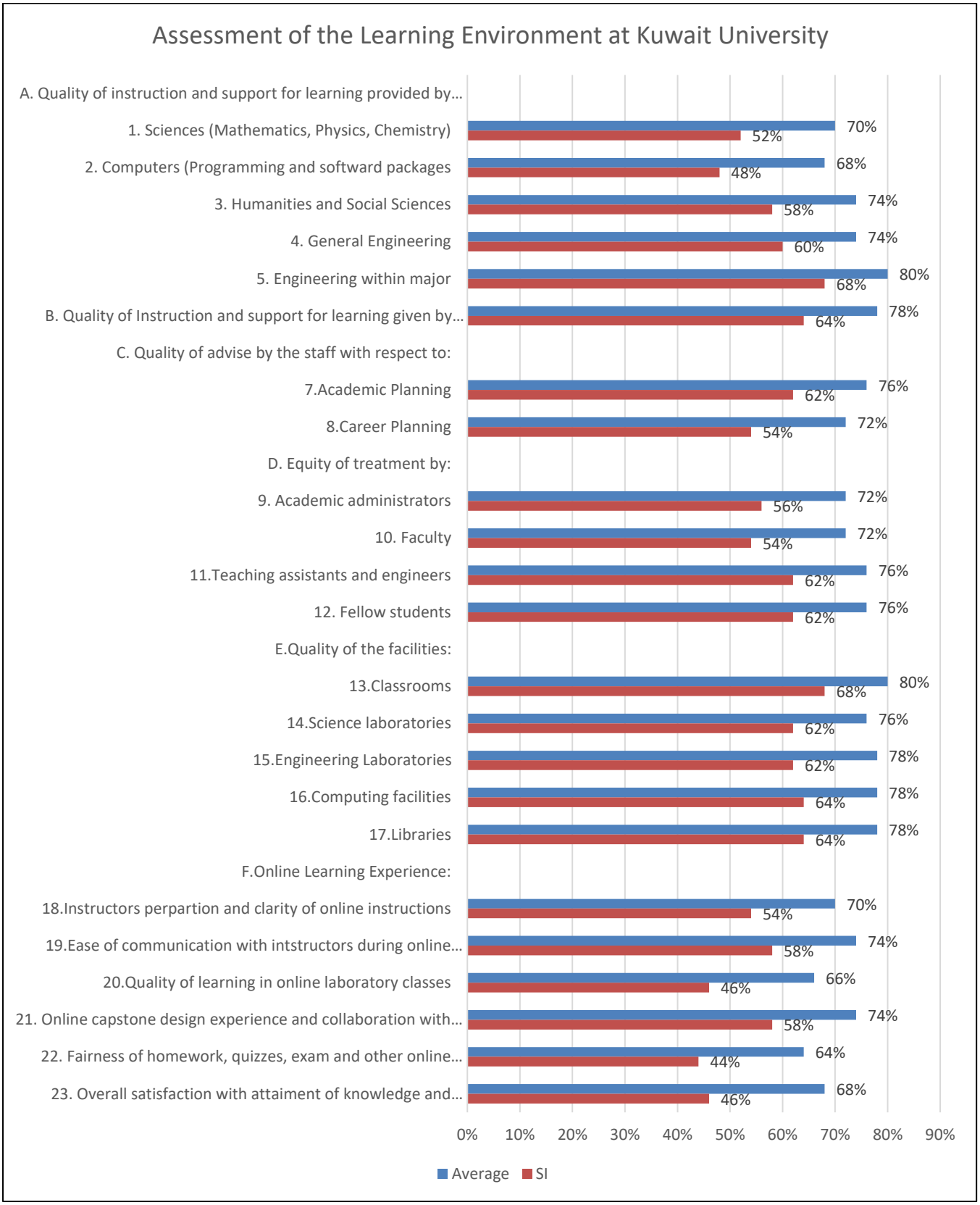


Figure 3 Assessment of the learning Environment at Kuwait University

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.

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	114	125	64	39	33	25	3.7	**3.2**	32	62	49
		29%	31%	16%	10%	8%	6%	74%	**64%**	8%	16%	12%
2	Training office	108	110	58	23	19	82	3.8	**3.4**	25	35	79
		27%	28%	15%	6%	5%	21%	76%	**68%**	6%	9%	20%
3	Libraries	125	148	50	17	10	50	4	**3.9**	32	57	50
		31%	37%	13%	4%	3%	13%	80%	**78%**	8%	14%	13%
4	Bookstores	105	136	68	31	20	40	3.8	**3.3**	30	63	46
		26%	34%	17%	8%	5%	10%	76%	**66%**	8%	16%	12%
B. Administrative Offices:												
5	Students affairs office in your department	132	122	62	25	10	49	4	**3.6**	28	53	57
		33%	31%	16%	6%	3%	12%	80%	**72%**	7%	13%	14%
6	Administrative offices in the college	115	140	67	21	17	40	3.9	**3.5**	24	58	56
		29%	35%	17%	5%	4%	10%	78%	**70%**	6%	15%	14%
C. Other Services:												
7	Health services	101	107	62	25	20	85	3.8	**3.3**	27	30	82
		25%	27%	16%	6%	5%	21%	76%	**66%**	7%	8%	21%
8	Food services	103	98	84	53	45	17	3.4	**2.6**	77	30	27
		26%	25%	21%	13%	11%	4%	68%	**52%**	19%	8%	7%
9	Parking	100	115	81	36	45	23	3.5	**2.9**	92	23	23
		25%	29%	20%	9%	11%	6%	70%	**58%**	23%	6%	6%
10	Recreation and athletics	79	74	53	42	58	94	3.2	**2.5**	15	24	100
		20%	19%	13%	11%	15%	24%	64%	**50%**	4%	6%	25%
11	Others	66	51	29	14	15	225	3.8	**3.3**	14	16	60
		17%	13%	7%	4%	4%	56%	76%	**66%**	4%	4%	15%

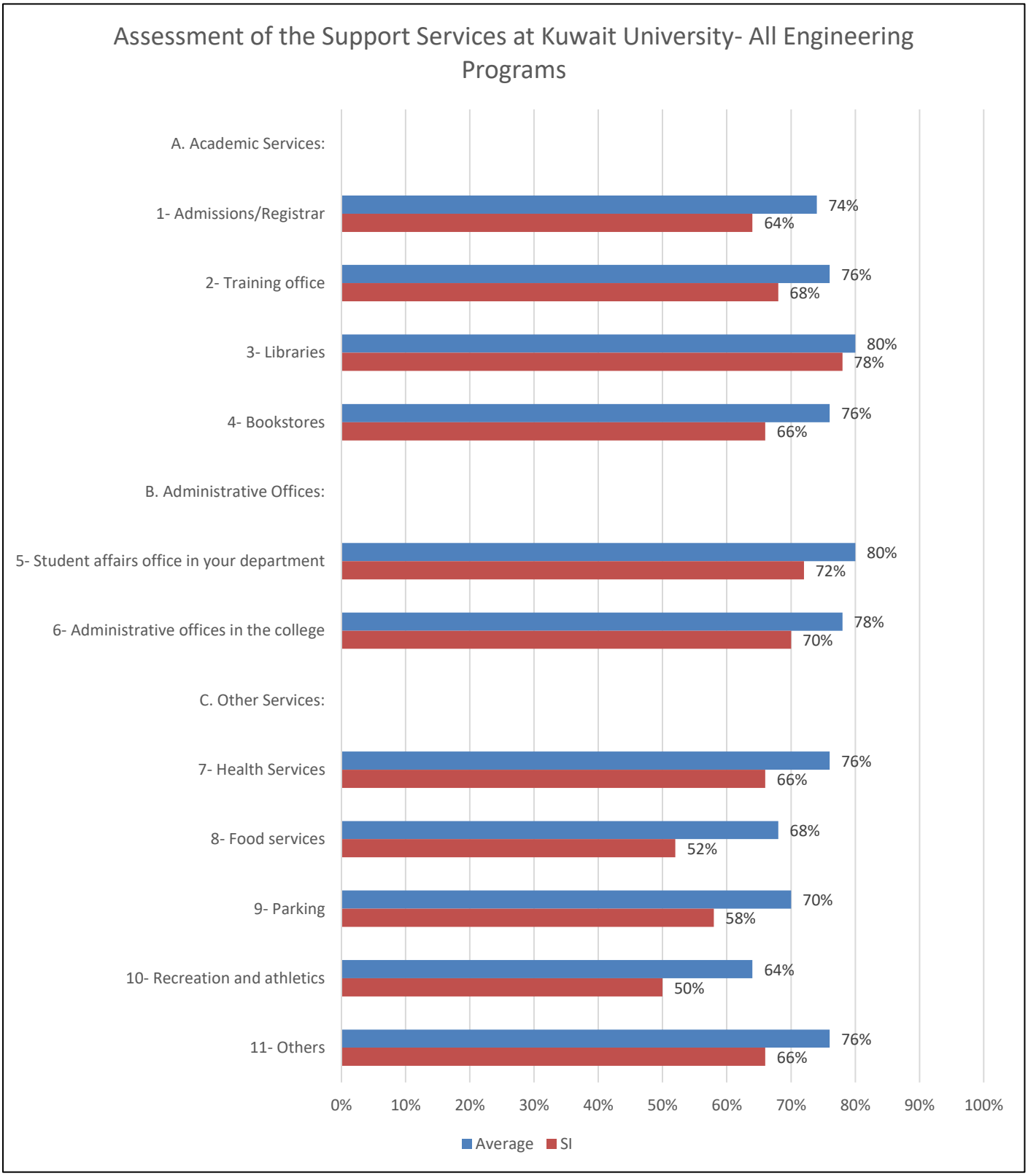


Figure 4 Assessment of the Support Services at Kuwait University

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.

Table 8 Differences among Engineering Departments – Student outcomes

#	Outcome		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Average Rating	79%	85%	80%	83%	88%	85%	84%	84%
		Satisfaction Index	62%	81%	69%	75%	86%	98%	83%	82%
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	Average Rating	79%	79%	75%	76%	84%	84%	80%	80%
		Satisfaction Index	71%	67%	60%	62%	81%	94%	77%	74%
3	an ability to communicate effectively with a range of audiences	Average Rating	80%	84%	85%	83%	88%	88%	85%	85%
		Satisfaction Index	70%	76%	78%	72%	82%	95%	79%	80%
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	Average Rating	79%	87%	85%	82%	86%	91%	83%	86%
		Satisfaction Index	68%	83%	80%	73%	81%	100%	73%	82%
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	Average Rating	86%	86%	84%	84%	88%	92%	88%	87%
		Satisfaction Index	76%	80%	78%	76%	88%	100%	84%	84%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Average Rating	72%	82%	80%	80%	88%	82%	82%	82%
		Satisfaction Index	52%	72%	72%	64%	80%	76%	78%	74%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Average Rating	76%	80%	80%	80%	86%	86%	86%	83%
		Satisfaction Index	58%	70%	70%	66%	78%	88%	88%	77%

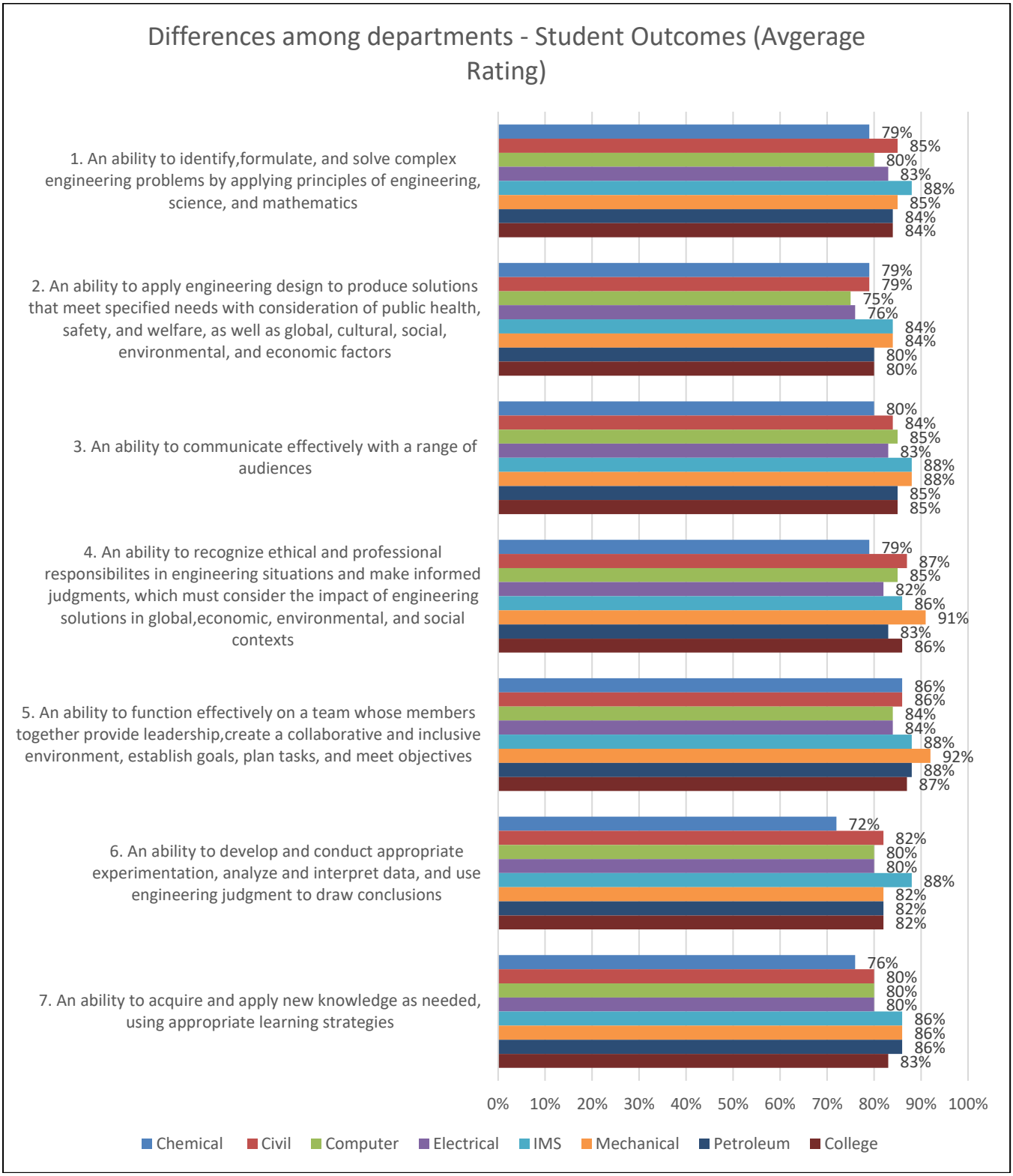


Figure 5 Differences among engineering departments – Student outcomes

Table 9 Differences among departments – Relevance of Educational Objectives

#	Objective elements	Chemical		Civil		Computer		Electrical		ISME		Mechanical		Petroleum		College	
		Avg.	SI	Avg.	SI	Avg	SI	Avg	SI	Avg	SI	Avg	SI	Avg	SI	Avg	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	3.9	3.0	4.3	3.7	4.2	3.6	4.2	3.3	3.9	3.1	4.1	3.4	4.1	3.3	4.2	3.40
		78%	61%	85%	74%	85%	73%	83%	66%	79%	61%	83%	68%	83%	67%	83%	69%
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).	4.0	3.5	4.1	3.5	4.3	3.6	3.5	3.3	4.0	3.1	4.3	3.6	4.3	3.4	4.2	3.40
		81%	70%	83%	69%	85%	71%	84%	69%	80%	62%	85%	73%	85%	67%	83%	69%
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	4.0	3.3	4.1	3.3	4.1	3.3	4.1	3.4	4.1	3.6	4.6	4.3	4.1	3.1	4.1	3.40
		79%	66%	82%	67%	83%	66%	82%	69%	83%	71%	93%	85%	82%	62%	82%	68%
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	3.8	3.0	3.7	2.6	3.8	2.7	4.0	3.0	3.8	2.6	4.6	4.3	4.2	3.7	3.0	2.90
		76%	61%	74%	53%	76%	54%	81%	65%	75%	51%	93%	85%	84%	74%	78%	58%
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	3.8	2.7	3.7	2.6	4.0	2.9	3.9	2.8	3.8	2.9	3.9	3.1	4.1	3.3	3.8	2.80
		75%	53%	74%	52%	79%	58%	77%	56%	77%	58%	78%	63%	81%	65%	77%	56%
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	4.1	3.5	4.0	3.3	4.1	3.3	4.1	3.3	4.0	3.3	4.4	4.0	4.1	3.3	4.1	3.30
		82%	0%	80%	66%	82%	66%	82%	65%	79%	65%	88%	80%	81%	65%	81%	66%

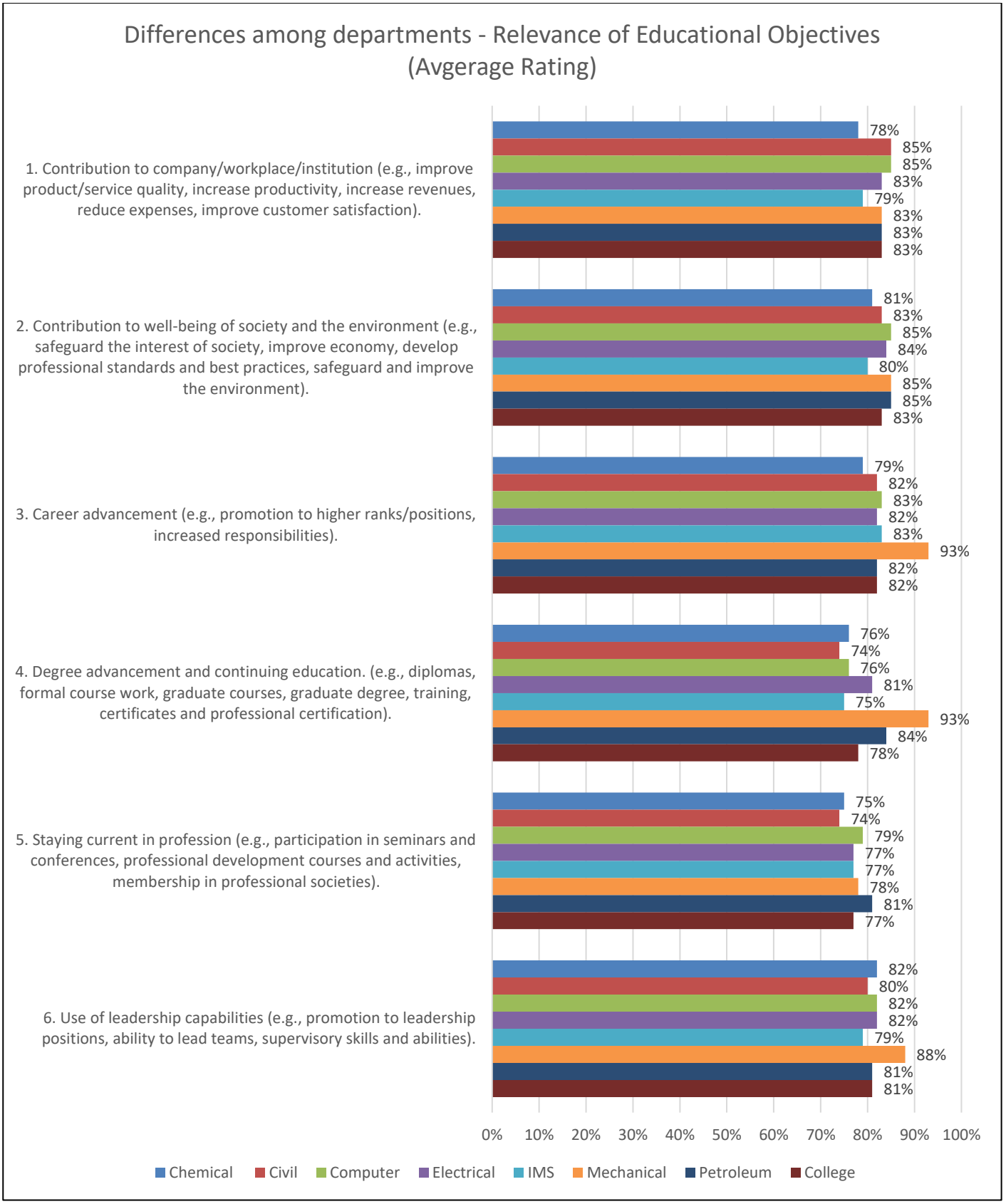

Differences among departments - Relevance of Educational Objectives (Avgerage Rating)
1. Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction).
78%
85%
85%
83%
79%
83%
83%
83%
2. 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).
81%
83%
85%
84%
80%
85%
85%
83%
3. Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities).
79%
82%
83%
82%
83%
93%
82%
82%
4. Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification).
76%
74%
76%
81%
75%
93%
84%
78%
5. Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies).
75%
74%
79%
77%
77%
78%
81%
77%
6. Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities).
82%
80%
82%
82%
79%
88%
81%
81%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Chemical
Civil
Computer
Electrical
IMS
Mechanical
Petroleum
College

Figure 6 Differences among departments – Relevance of Educational Objectives

Table 10 Differences among departments – Learning environment

#	Outcomes		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	74%	72%	64%	70%	66%	78%	72%	70%
		Satisfaction Index	60%	54%	40%	54%	48%	76%	60%	52%
2	- Computers (Programming and usage of software packages)	Average Rating	70%	66%	72%	66%	72%	82%	68%	68%
		Satisfaction Index	40%	44%	56%	42%	56%	88%	56%	48%
3	- Humanities and Social sciences	Average Rating	72%	74%	76%	74%	76%	86%	72%	74%
		Satisfaction Index	60%	56%	60%	58%	54%	88%	50%	58%
4	- General Engineering	Average Rating	78%	72%	72%	76%	80%	80%	78%	74%
		Satisfaction Index	68%	58%	52%	62%	70%	88%	74%	60%
5	- Engineering within major	Average Rating	80%	82%	74%	78%	94%	82%	76%	80%
		Satisfaction Index	68%	72%	56%	64%	94%	88%	66%	68%
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		Average Rating	74%	80%	74%	76%	86%	82%	72%	78%
		Satisfaction Index	72%	68%	58%	62%	76%	88%	52%	64%
C. Quality of advise by the staff with respect to:										
7	- Academic planning	Average Rating	82%	74%	74%	76%	78%	82%	76%	76%
		Satisfaction Index	72%	60%	62%	58%	64%	88%	60%	62%
8	- Career planning	Average Rating	80%	70%	66%	74%	76%	76%	72%	72%
		Satisfaction Index	72%	52%	42%	54%	66%	76%	52%	54%
D. Equity of treatment by:										
9	- Academic administrators	Average Rating	78%	72%	72%	72%	78%	82%	72%	72%
		Satisfaction Index	66%	56%	50%	52%	66%	88%	60%	56%
10	- Faculty	Average Rating	78%	72%	68%	74%	78%	82%	68%	72%
		Satisfaction Index	68%	52%	42%	56%	64%	88%	60%	54%
11	- Teaching assistants and engineers	Average Rating	82%	78%	70%	76%	82%	82%	72%	76%
		Satisfaction Index	78%	66%	52%	60%	70%	88%	56%	62%

12	- Fellow students	Average Rating	76%	80%	72%	76%	82%	86%	76%	76%
		Satisfaction Index	64%	68%	54%	60%	70%	88%	56%	62%
E. Quality of the facilities:										
13	- Classrooms	Average Rating	80%	82%	76%	78%	84%	86%	82%	80%
		Satisfaction Index	68%	74%	64%	64%	72%	88%	74%	68%
14	- Science laboratories	Average Rating	80%	74%	76%	74%	80%	82%	78%	76%
		Satisfaction Index	72%	58%	56%	60%	64%	88%	70%	62%
15	- Engineering Laboratories	Average Rating	80%	76%	76%	74%	82%	82%	82%	78%
		Satisfaction Index	68%	60%	58%	60%	72%	88%	78%	62%
16	- Computing facilities	Average Rating	78%	76%	80%	74%	84%	86%	82%	78%
		Satisfaction Index	64%	62%	64%	56%	70%	100%	74%	64%
17	- Libraries	Average Rating	78%	80%	74%	78%	80%	88%	84%	78%
		Satisfaction Index	66%	68%	56%	64%	64%	100%	74%	64%
F. Online Learning Experience:										
18	- Instructors prepartion and clarity of online instructions	Average Rating	68%	72%	66%	72%	74%	78%	66%	70%
		Satisfaction Index	60%	56%	46%	56%	56%	76%	40%	54%
19	- Ease of communication with instructors during online learning	Average Rating	70%	76%	68%	74%	78%	80%	68%	74%
		Satisfaction Index	64%	62%	48%	58%	70%	76%	50%	58%
20	- Quality of learning in online laboratory classes	Average Rating	60%	66%	62%	66%	74%	80%	60%	66%
		Satisfaction Index	34%	46%	40%	46%	62%	76%	34%	46%
21	- Online capstone design experience and collaboration with team members	Average Rating	68%	78%	76%	70%	74%	80%	70%	74%
		Satisfaction Index	46%	66%	64%	50%	56%	86%	50%	58%
22	- Fairness of homework, quizzes, exam and other online assessment activities	Average Rating	56%	70%	56%	64%	62%	78%	64%	64%
		Satisfaction Index	40%	52%	28%	44%	42%	76%	48%	44%
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	Average Rating	62%	68%	62%	70%	72%	78%	68%	68%
		Satisfaction Index	40%	48%	34%	50%	50%	76%	54%	46%

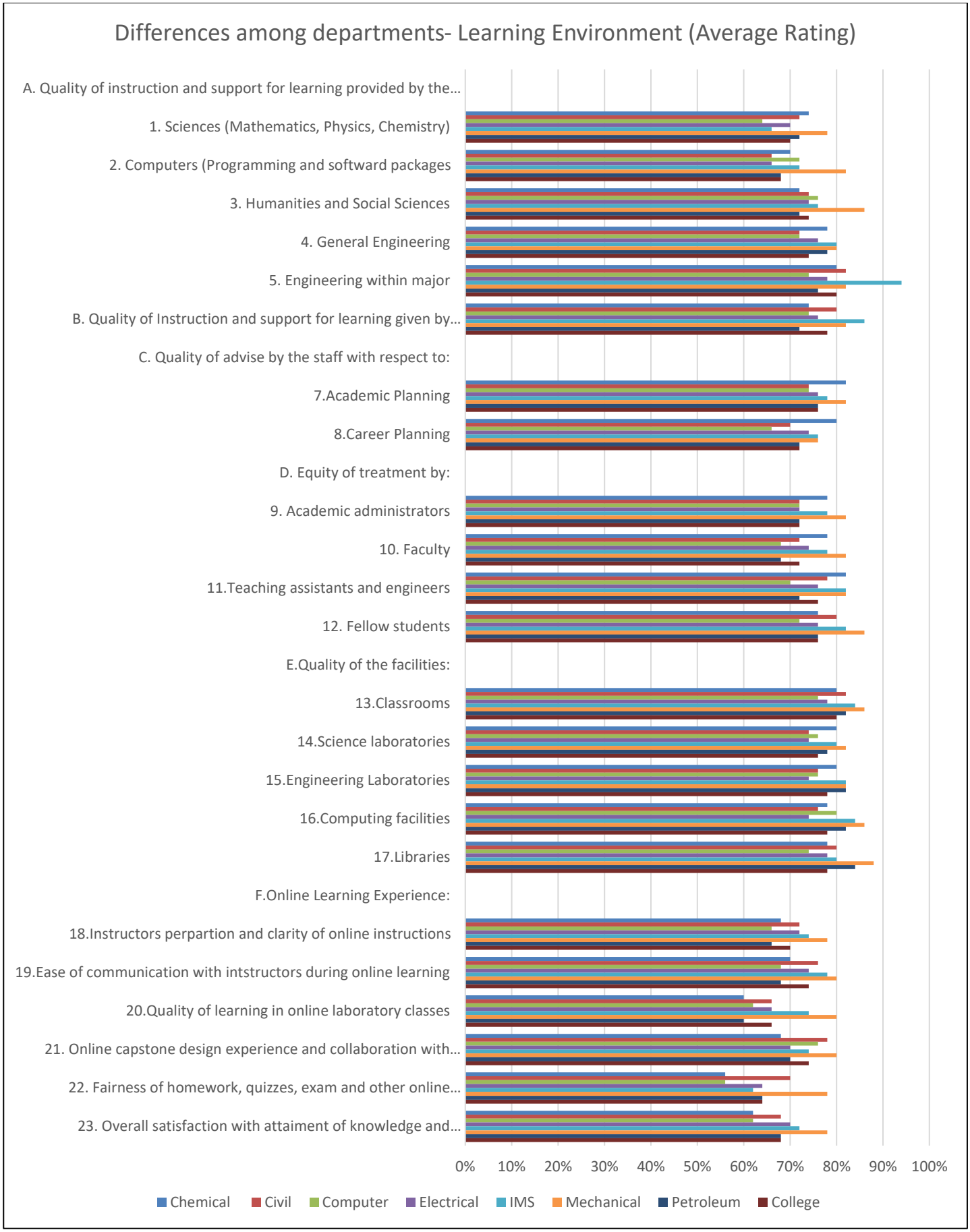

Differences among departments- Learning Environment (Average Rating)
A. Quality of instruction and support for learning provided by the...
1. Sciences (Mathematics, Physics, Chemistry)
2. Computers (Programming and softward packages
3. Humanities and Social Sciences
4. General Engineering
5. Engineering within major
B. Quality of Instruction and support for learning given by...
C. Quality of advise by the staff with respect to:
7.Academic Planning
8.Career Planning
D. Equity of treatment by:
9. Academic administrators
10. Faculty
11.Teaching assistants and engineers
12. Fellow students
E.Quality of the facilities:
13.Classrooms
14.Science laboratories
15.Engineering Laboratories
16.Computing facilities
17.Libraries
F.Online Learning Experience:
18.Instructors perpartion and clarity of online instructions
19.Ease of communication with intstructors during online learning
20.Quality of learning in online laboratory classes
21. Online capstone design experience and collaboration with...
22. Fairness of homework, quizzes, exam and other online...
23. Overall satisfaction with attaiment of knowledge and...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Chemical
Civil
Computer
Electrical
IMS
Mechanical
Petroleum
College

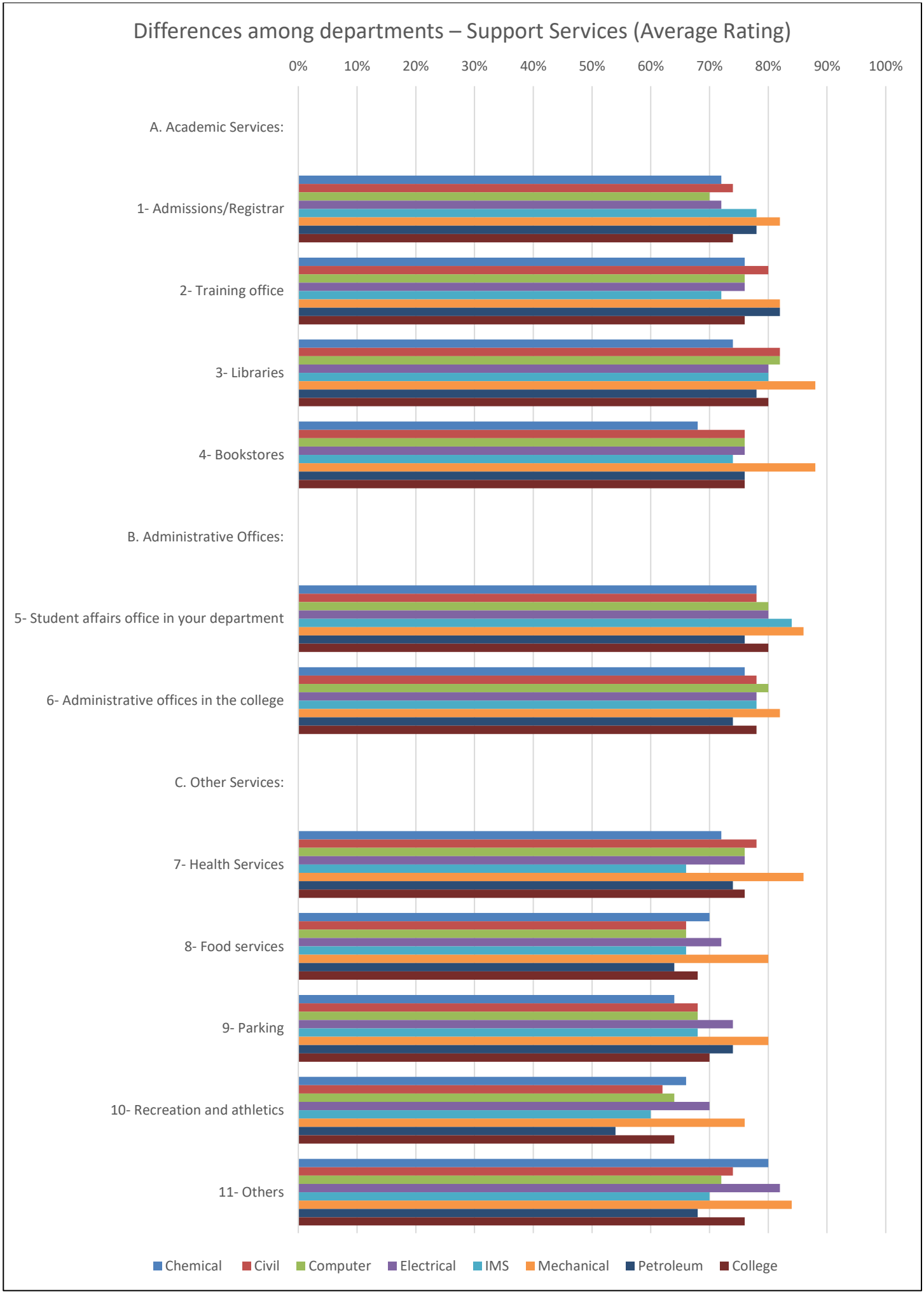
Figure 7 Differences among departments – Learning environment

Table 11 Differences among departments – Support Services

#	Outcomes		chemical	civil	computer	electrical	ims	mechanical	petroleum	College
A. Academic Services:										
1	Admissions/Registrar	Average Rating	72%	74%	70%	72%	78%	82%	78%	74%
		Satisfaction Index	56%	64%	62%	62%	70%	88%	66%	64%
2	Training office	Average Rating	76%	80%	76%	76%	72%	82%	82%	76%
		Satisfaction Index	68%	68%	64%	74%	58%	76%	76%	68%
3	Libraries	Average Rating	74%	82%	82%	80%	80%	88%	78%	80%
		Satisfaction Index	70%	74%	78%	84%	66%	100%	76%	78%
4	Bookstores	Average Rating	68%	76%	76%	76%	74%	88%	76%	76%
		Satisfaction Index	58%	66%	66%	70%	54%	100%	74%	66%
B. Administrative Offices:										
5	Students' affairs office in your department	Average Rating	78%	78%	80%	80%	84%	86%	76%	80%
		Satisfaction Index	62%	64%	76%	74%	80%	88%	70%	72%
6	Administrative offices in the college	Average Rating	76%	78%	80%	78%	78%	82%	74%	78%
		Satisfaction Index	64%	66%	78%	74%	62%	88%	62%	70%
C. Other Services:										
7	Health services	Average Rating	72%	78%	76%	76%	66%	86%	74%	76%
		Satisfaction Index	66%	66%	72%	68%	42%	88%	60%	66%
8	Food services	Average Rating	70%	66%	66%	72%	66%	80%	64%	68%
		Satisfaction Index	60%	44%	56%	58%	40%	76%	48%	52%
9	Parking	Average Rating	64%	68%	68%	74%	68%	80%	74%	70%
		Satisfaction Index	58%	52%	54%	62%	54%	76%	64%	58%
10	Recreation and athletics	Average Rating	66%	62%	64%	70%	60%	76%	54%	64%
		Satisfaction Index	46%	46%	50%	58%	44%	62%	30%	50%

11	Others	Average Rating	80%	74%	72%	82%	70%	84%	68%	76%
		Satisfaction Index	66%	64%	62%	74%	58%	80%	62%	66%

***The next page displays: Figure 8** Differences among departments – Support Services


Differences among departments – Support Services (Average Rating)
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
A. Academic Services:
1- Admissions/Registrar
2- Training office
3- Libraries
4- Bookstores
B. Administrative Offices:
5- Student affairs office in your department
6- Administrative offices in the college
C. Other Services:
7- Health Services
8- Food services
9- Parking
10- Recreation and athletics
11- Others
Chemical
Civil
Computer
Electrical
IMS
Mechanical
Petroleum
College

Appendix A
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**:**

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

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, sciences and engineering to solve complex engineering problems.	☐	☐	☐	☐	☐	☐
2. Ability to use modern tools and technologies in engineering analysis/design	☐	☐	☐	☐	☐	☐
3. Apply the knowledge of probability and statistics in engineering analysis/design.	☐	☐	☐	☐	☐	☐
4. Design a system, component, or process to meet specified needs with consideration of public health, safety and welfare.	☐	☐	☐	☐	☐	☐
5. Identify, formulate, and solve engineering problems taking into account socio-economic, global, cultural and environmental factors	☐	☐	☐	☐	☐	☐
6. Effectively write a variety of items like short essays, memos, letters, reports etc.	☐	☐	☐	☐	☐	☐
7. Participate in class discussions with instructors & students and deliver oral presentations.	☐	☐	☐	☐	☐	☐
8. Ability to use technology for communication purposes (e.g. Word, Excel, Powerpoint, social media, etc.).	☐	☐	☐	☐	☐	☐
9. Understand professional and ethical responsibilities, (e.g. safety, professional ethics and code of conduct) in making informed judgement as applicable to engineering situations.	☐	☐	☐	☐	☐	☐
10. Understand and appreciate the impact of engineering solutions in the societal and global contexts.	☐	☐	☐	☐	☐	☐
11. Function effectively in a team in different roles (i.e. leadership, note taking, planning, and execution) for establishing goals, planning tasks and meeting objectives.	☐	☐	☐	☐	☐	☐
12. Develop and conduct experiments, as well as analyze and interpret data and draw conclusions	☐	☐	☐	☐	☐	☐
13. Ability to acquire and apply new knowledge through appropriate learning strategies	☐	☐	☐	☐	☐	☐

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	☐	☐	☐	☐	☐	☐

	Level of satisfaction					
	Extremely satisfied	*Very satisfied*	*Satisfied*	*Somewhat satisfied*	*Not satisfied*	*Cannot evaluate*
F. Online Learning Experience						
- Instructor's preparation and clarity of online instructions	☐	☐	☐	☐	☐	☐
- Ease of communication with instructors during online learning	☐	☐	☐	☐	☐	☐
- Quality of learning in online laboratory classes	☐	☐	☐	☐	☐	☐
- Online capstone design experience and collaboration with team members	☐	☐	☐	☐	☐	☐
- Fairness of homework, quizzes, exams and other online assessment activities	☐	☐	☐	☐	☐	☐
- Overall satisfaction with attainment of knowledge and engineering skills through online learning	☐	☐	☐	☐	☐	☐

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).

_____

Appendix B

Chemical Engineering Program
Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

*** Major: Chemical Engineering**

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

CHEMICAL	**22**	**Male**	**8**	**36%**
		Female	**14**	**64%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**16**	**73%**
Intend to work in the private sector.	**14**	**64%**
Intend to go to graduate school.	**11**	**50%**
Intend to start my own business	**7**	**32%**
Intend to do other things	**1**	**5%**

*** 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 related to Chemical Engineering Program Criteria

#	Outcome Attribute	5	4	3	2	1	Average	SI
1	Competence in tackling Chemical/process engineering problems that are important to local and regional industries.	7	5	6	3	0	3.8	**2.9**
		32%	23%	27%	14%	0%	76%	**58%**

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

#	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 79%	**2.9** **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	4.0 79%	**3.6** **71%**
3	an ability to communicate effectively with a range of audiences	4.1 80%	**3.6** **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	4.0 79%	**3.3** **68%**
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%	**3.8** **76%**
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	3.6 72%	**2.6** **52%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	3.8 76%	**2.9** **58%**

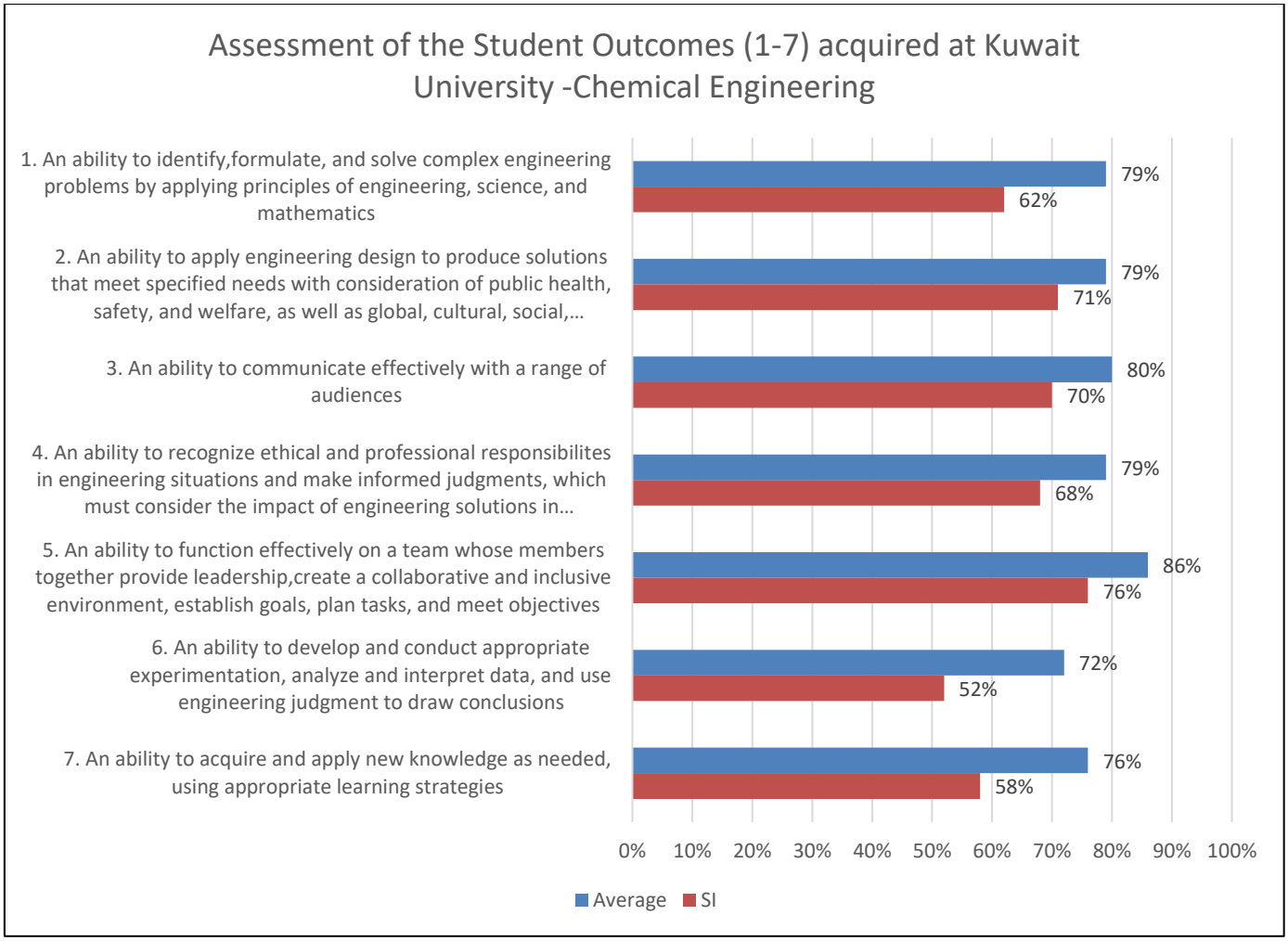


Figure 1 Assessment of Student Outcomes (1-7) acquired at Kuwait University- Chemical Engineering

Table 3 Assessment of the relevance of Program Educational Objectives – Chemical Engineering

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	7	8	6	0	1	3.9	**3.0**
		32%	36%	27%	0%	5%	78%	**61%**
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).	9	8	3	1	1	4.0	**3.5**
		41%	36%	14%	5%	5%	81%	**70%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	9	7	3	2	1	4.0	**3.3**
		41%	32%	14%	9%	5%	79%	**66%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	7	8	5	0	2	3.8	**3.0**
		32%	36%	23%	0%	9%	76%	**61%**
5		8	4	7	0	2	3.8	**2.7**

	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	36%	18%	32%	0%	9%	75%	**53%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	10	6	3	1	1	4.1	**3.5**
		27%	14%	5%	5%	5%	82%	**0%**

Table 4 Level of satisfaction for the learning Environment- Chemical Engineering

#	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)	5	8	7	2	0	0	3.7	**3**
		23%	36%	32%	9%	0%	0%	74%	**60%**
2	- Computers (Programming and usage of software packages)	5	4	10	3	0	0	3.5	**2**
		23%	18%	45%	14%	0%	0%	70%	**40%**
3	- Humanities and Social sciences	6	7	5	2	2	0	3.6	**3**
		27%	32%	23%	9%	9%	0%	72%	**60%**
4	- General Engineering	5	10	6	1	0	0	3.9	**3.4**
		23%	45%	27%	5%	0%	0%	78%	**68%**
5	- Engineering within major	7	8	7	0	0	0	4	**3.4**
		32%	36%	32%	0%	0%	0%	80%	**68%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		5	11	2	3	1	0	3.7	**3.6**
		23%	50%	9%	14%	5%	0%	74%	**72%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	10	5	4	2	0	1	4.1	**3.6**
		45%	23%	18%	9%	0%	5%	82%	**72%**
8	- Career planning	10	5	3	2	1	1	4	**3.6**
		45%	23%	14%	9%	5%	5%	80%	**72%**
D. Equity of treatment by:									
9	- Academic administrators	9	5	4	2	1	1	3.9	**3.3**
		41%	23%	18%	9%	5%	5%	78%	**66%**
10	- Faculty	6	9	5	2	0	0	3.9	**3.4**
		27%	41%	23%	9%	0%	0%	78%	**68%**
11	- Teaching assistants and engineers	11	6	2	3	0	0	4.1	**3.9**
		50%	27%	9%	14%	0%	0%	82%	**78%**
12	- Fellow students	6	8	6	2	0	0	3.8	**3.2**
		27%	36%	27%	9%	0%	0%	76%	**64%**
E. Quality of the facilities:									
13	- Classrooms	8	7	7	0	0	0	4	**3.4**
		36%	32%	32%	0%	0%	0%	80%	**68%**
14	- Science laboratories	7	9	5	1	0	0	4	**3.6**
		32%	41%	23%	5%	0%	0%	80%	**72%**
15	- Engineering Laboratories	7	8	6	1	0	0	4	**3.4**
		32%	36%	27%	5%	0%	0%	80%	**68%**
16	- Computing facilities	6	8	8	0	0	0	3.9	**3.2**
		27%	36%	36%	0%	0%	0%	78%	**64%**
17	- Libraries	6	7	6	0	1	2	3.9	**3.3**
		27%	32%	27%	0%	5%	9%	78%	**66%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	6	7	2	3	4	0	3.4	**3**
		27%	32%	9%	14%	18%	0%	68%	**60%**
19	- Ease of communication with instructors during online learning	9	5	2	1	5	0	3.5	**3.2**
		41%	23%	9%	5%	23%	0%	70%	**64%**
20	- Quality of learning in online laboratory classes	4	3	7	2	5	1	3	**1.7**
		18%	14%	32%	9%	23%	5%	60%	**34%**

21	- Online capstone design experience and collaboration with team members	6	4	8	0	4	0	3.4	**2.3**
		27%	18%	36%	0%	18%	0%	68%	**46%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	3	6	4	1	8	0	2.8	**2**
		14%	27%	18%	5%	36%	0%	56%	**40%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	4	5	7	2	4	0	3.1	**2**
		18%	23%	32%	9%	18%	0%	62%	**40%**

Table 5 Assessment of the Support Services at Kuwait University- Chemical Engineering

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	4	6	5	2	1	4	3.6	**2.8**	2	5	4
		18%	27%	23%	9%	5%	18%	72%	**56%**	9%	23%	18%
2	Training office	5	6	2	2	1	6	3.8	**3.4**	2	2	7
		23%	27%	9%	9%	5%	27%	76%	**68%**	9%	9%	32%
3	Libraries	3	9	3	1	1	5	3.7	**3.5**	2	5	4
		14%	41%	14%	5%	5%	23%	74%	**70%**	9%	23%	18%
4	Bookstores	3	8	4	2	2	3	3.4	**2.9**	2	6	3
		14%	36%	18%	9%	9%	14%	68%	**58%**	9%	27%	14%
B. Administrative Offices:												
5	Students' affairs office in your department	8	3	5	2	0	4	3.9	**3.1**	3	5	3
		36%	14%	23%	9%	0%	18%	78%	**62%**	14%	23%	14%
6	Administrative offices in the college	6	6	5	1	1	3	3.8	**3.2**	1	6	4
		27%	27%	23%	5%	5%	14%	76%	**64%**	5%	27%	18%
C. Other Services:												
7	Health services	4	6	2	1	2	7	3.6	**3.3**	0	5	6
		18%	27%	9%	5%	9%	32%	72%	**66%**	0%	23%	27%
8	Food services	4	9	4	4	1	0	3.5	**3**	5	5	1
		18%	41%	18%	18%	5%	0%	70%	**60%**	23%	23%	5%
9	Parking	3	9	2	4	3	1	3.2	**2.9**	7	3	1
		14%	41%	9%	18%	14%	5%	64%	**58%**	32%	14%	5%
10	Recreation and athletics	4	3	4	2	2	7	3.3	**2.3**	0	1	10
		18%	14%	18%	9%	9%	32%	66%	**46%**	0%	5%	45%
11	Others	3	1	1	1	0	16	4	**3.3**	1	1	2
		14%	5%	5%	5%	0%	73%	80%	**66%**	5%	5%	9%

* Open-ended questions (unedited student comments)

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

.

Some important skills i've gained throughout the years in chemical engineering are, gaining general knowledge in scientific and mathematical aspects, developing the skills to self learn and improve performance when dealing with challenging problems, learning to work with others as well as critical thinking skills, learning different subjects that aren't related to my major but rather important in life as an engineer like ethics and economics, and finally being able to solve chemical engineering problems and to think like one.

study

Aspen Plus (process simulation) Autocad Sketching Control loop (Feedback and FeedForward Control System) Matlab Simulink

Writing engineering reports, work under pressure, multi tasking, time orientation

Writing, speaking, analytics, teamwork

Work under pressure

Thinking very well

At the beganing I didnot have the skills to manage a group or even work in group, now I have the good knowledge how to run a work group

Analyzing Control my time

solving complicated equations and developing my way of thinking in solving life-problems.

patienceØŒ deal with hard postion

Understand professional responsibilities

Problem solving - teamwork - communication - patience

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 have experienced and gained a lot of skills during my learning process. On the other hand, if i have to think of the skills that i didn't have the chance to learn would be having to learn more by applying rather than the theoretical aspects of engineering.

study

No Thing

Social communication, leadership and group spirit, team work, handicraft jobs

Work as team to solve problem

Field training (by faculty members)

Practice our hoppiest in college

For me I feel that I'am improved academicly, mindly, and sciencsetifcally

Improve my language not just english

WRITING A SCIENTIFIC RESEARCH

Computer program , work in the filed

Team work , writing about topics

None in mind

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

.

In my opinion, focusing more in delivering the scientific idea and making sure that the students learn the basics of such materials is way more important than grading them, thus developing a more interesting ways to deliver the materials, as well as, finding more creative and modern ways to evaluate the students is essential part in improving the academic programs.

put many class

Improve grading scale and reduce the final exam percentage

Let students choose a handicraft subject, communication hub for students from both genders that include music room, accessible theater, football, basketball and tennis playground, volunteering jobs

Thank you for all doctors and engineers

Field training should be mandatory to all students

less exams more experiments

Well we need the fairness to be care about and how to deal with lazy student then the DR's put a unexpected exam to teach them alesson. !

I dont have any comments Thank you

Justice and Equality

Thankyou ku

Field visits

Appendix C

Civil Engineering Program
Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

*** Major: Civil Engineering**

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

CIVIL	**101**	**Male**	**18**	**18%**
		Female	**82**	**81%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**80**	**79%**
Intend to work in the private sector.	**54**	**53%**
Intend to go to graduate school.	**44**	**44%**
Intend to start my own business	**38**	**38%**
Intend to do other things	**10**	**10%**
Graduate school in other colleges.		
Discover myself in something else other than Engineering		
Choose a different career than civil engineering		
..		

***** **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 related to the Civil Engineering Program Criteria

#	Outcome Attributes	5	4	3	2	1	Average	SI
1	Proficiency in design at the entry level and recognition of professional practice issues in recognized major areas of civil engineering.	41	28	22	8	0	4.0	**3.5**
		41%	28%	22%	8%	0%	80%	**70%**

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

#	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 85%	**3.6** **81%**
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	4.0 79%	**3.4** **67%**
3	an ability to communicate effectively with a range of audiences	4.8 84%	**3.9** **76%**
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	4.4 87%	**4.2** **83%**
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%	**4.0** **80%**
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.1 82%	**3.6** **72%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.0 80%	**3.5** **70%**

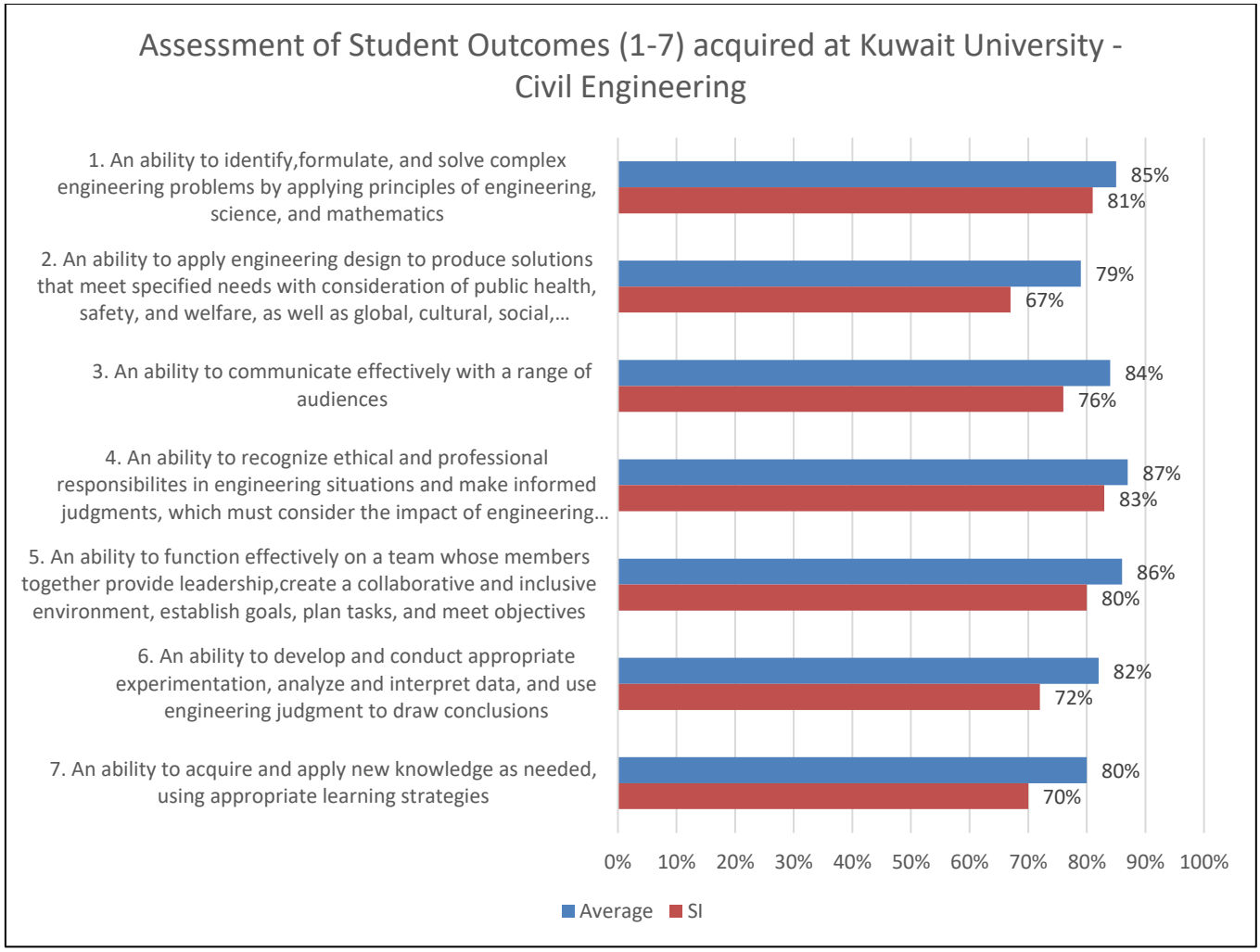


Figure 1 Assessment of Student Outcomes (1-7) acquired at Kuwait University – Civil Engineering

Table 3 Assessment of the relevance of Program Educational Objectives - Civil Engineering

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	48	33	19	1	0	4.3	**3.7**
		48%	33%	19%	1%	0%	85%	**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).	42	34	20	4	0	4.1	**3.5**
		42%	34%	20%	4%	0%	83%	**69%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	42	30	22	4	1	4.1	**3.3**
		42%	30%	22%	4%	1%	82%	**67%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	28	31	28	9	4	3.7	**2.6**
		28%	31%	28%	9%	4%	74%	**53%**
5		29	30	29	9	4	3.7	**2.6**

	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	29%	30%	29%	9%	4%	74%	**52%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	39	36	17	10	0	4.0	**3.3**
		38%	36%	17%	10%	0%	80%	**66%**

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

#	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)	35	19	25	12	9	1	3.6	**2.7**
		35%	19%	25%	12%	9%	1%	72%	**54%**
2	- Computers (Programming and usage of software packages)	26	17	26	21	9	2	3.3	**2.2**
		26%	17%	26%	21%	9%	2%	66%	**44%**
3	- Humanities and Social sciences	34	19	26	9	6	7	3.7	**2.8**
		34%	19%	26%	9%	6%	7%	74%	**56%**
4	- General Engineering	34	23	21	13	9	1	3.6	**2.9**
		34%	23%	21%	13%	9%	1%	72%	**58%**
5	- Engineering within major	50	21	20	4	5	1	4.1	**3.6**
		50%	21%	20%	4%	5%	1%	82%	**72%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		42	22	19	10	2	6	4	**3.4**
		42%	22%	19%	10%	2%	6%	80%	**68%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	33	24	19	11	8	6	3.7	**3**
		33%	24%	19%	11%	8%	6%	74%	**60%**
8	- Career planning	28	19	22	13	7	12	3.5	**2.6**
		28%	19%	22%	13%	7%	12%	70%	**52%**
D. Equity of treatment by:									
9	- Academic administrators	28	25	27	9	7	5	3.6	**2.8**
		28%	25%	27%	9%	7%	5%	72%	**56%**
10	- Faculty	27	25	29	14	4	2	3.6	**2.6**
		27%	25%	29%	14%	4%	2%	72%	**52%**
11	- Teaching assistants and engineers	38	27	24	10	1	1	3.9	**3.3**
		38%	27%	24%	10%	1%	1%	78%	**66%**
12	- Fellow students	41	26	25	7	0	2	4	**3.4**
		41%	26%	25%	7%	0%	2%	80%	**68%**
E. Quality of the facilities:									
13	- Classrooms	51	22	17	4	6	1	4.1	**3.7**
		50%	22%	17%	4%	6%	1%	82%	**74%**
14	- Science laboratories	38	18	18	11	10	6	3.7	**2.9**
		38%	18%	18%	11%	10%	6%	74%	**58%**
15	- Engineering Laboratories	44	13	19	9	9	7	3.8	**3**
		44%	13%	19%	9%	9%	7%	76%	**60%**
16	- Computing facilities	41	19	23	6	7	5	3.8	**3.1**
		41%	19%	23%	6%	7%	5%	76%	**62%**
17	- Libraries	48	15	17	7	7	7	4	**3.4**
		48%	15%	17%	7%	7%	7%	80%	**68%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	39	16	19	14	10	3	3.6	**2.8**
		39%	16%	19%	14%	10%	3%	72%	**56%**
19	- Ease of communication with instructors during online learning	44	17	17	12	8	3	3.8	**3.1**
		44%	17%	17%	12%	8%	3%	76%	**62%**
20	- Quality of learning in online laboratory classes	28	14	25	11	15	8	3.3	**2.3**

		28%	14%	25%	11%	15%	8%	66%	**46%**
21	- Online capstone design experience and collaboration with team members	32	15	15	6	3	30	3.9	**3.3**
		32%	15%	15%	6%	3%	30%	78%	**66%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	33	16	26	9	12	5	3.5	**2.6**
		33%	16%	26%	9%	12%	5%	70%	**52%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	34	14	24	14	12	3	3.4	**2.4**
		34%	14%	24%	14%	12%	3%	68%	**48%**

Table 5 Assessment of the Support Services at Kuwait University - Civil Engineering

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	30	28	18	7	9	9	3.7	**3.2**	7	17	15
		30%	28%	18%	7%	9%	9%	74%	**64%**	7%	17%	15%
2	Training office	27	20	16	4	2	32	4	**3.4**	1	8	29
		27%	20%	16%	4%	2%	32%	80%	**68%**	1%	8%	29%
3	Libraries	37	25	16	5	0	18	4.1	**3.7**	6	15	16
		37%	25%	16%	5%	0%	18%	82%	**74%**	6%	15%	16%
4	Bookstores	31	27	19	9	3	12	3.8	**3.3**	6	18	12
		31%	27%	19%	9%	3%	12%	76%	**66%**	6%	18%	12%
B. Administrative Offices:												
5	Students' affairs office in your department	28	25	22	5	2	19	3.9	**3.2**	3	13	22
		28%	25%	22%	5%	2%	19%	78%	**64%**	3%	13%	22%
6	Administrative offices in the college	32	28	21	4	5	11	3.9	**3.3**	1	21	16
		32%	28%	21%	4%	5%	11%	78%	**66%**	1%	21%	16%
C. Other Services:												
7	Health services	27	23	16	8	1	26	3.9	**3.3**	3	4	30
		27%	23%	16%	8%	1%	26%	78%	**66%**	3%	4%	30%
8	Food services	24	17	28	11	12	9	3.3	**2.2**	19	10	9
		24%	17%	28%	11%	12%	9%	66%	**44%**	19%	10%	9%
9	Parking	22	26	23	9	13	8	3.4	**2.6**	24	6	8
		22%	26%	23%	9%	13%	8%	68%	**52%**	24%	6%	8%
10	Recreation and athletics	21	13	11	15	15	26	3.1	**2.3**	2	8	28
		21%	13%	11%	15%	15%	26%	62%	**46%**	2%	8%	28%
11	Others	18	11	8	3	6	55	3.7	**3.2**	3	5	16
		18%	11%	8%	3%	6%	54%	74%	**64%**	3%	5%	16%

* Open-ended questions (unedited student comments)

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

communication - capstone design - Matlab - Autocad
Management skills
Mathematics
I have gained a knowledge of mathematics, sciences and engineering, and I also gained skills in teamwork, research, organization, time management, and communication in general.
Working under pressure, time managements and how list my priorities.
How to use excel
He learned AutoCAD, which is very important, and I learned programs useful in the specialization of water sources, and I learned programs useful in programming
I have more information and skills about Engineering
Express my opinion
how to think and solve the problems
mathematical skills , writing skills
Assessing problems within the field of the major and how to solve them
Learning how to communicate with others and how to be a good civil engineer.
I learn how to solve any complex problems and analyze the data by using specific software
I learned a lot of skills but I think the most important skill is writing a report
how to be responsible. how to effectively work in a team. how to discuss my point of view. how to search for articles. how to solve engineering problems.
3D Drawing , Calculation of time and cost of projects, improve road way system
Ability to use technology Creative approach to problems solving
**Ø§Ù„ØµØ¨Ø±/Ù,Ùˆ© Ø§Ù„Øª ØÙ„ / Ø§Ù„Ù…Ø³Ø¤Ùˆ„ŠÙ‡ / Ø§Ù„Øª Ø¹Ø§Ù†Ù†† **
Leadership - research skills - writing skills - design skills
Everything is important to
I have learned the ethics in engineering and many general knowledge. I also gained leadership and communication skills.
I can solve problems

technical writing, ability to collect data and analyze it, communication skills, leadership, self studying, computef programming

How to communicate with others How to think deep and out side the box in some problems How to do presentations How to deal with a group members

Communication,self motivation,time management

How to be patient and also work hard

Using Excel and Autocad.

I had a lot of important things

Working under pressure, programing, how to present, and writing report.

Critical thinking , communication skills, design, writing skills

critical thinking, public speaking, problem-solving, and team work.

Identify forces in nature and how they effect subjects. Designing buildings,foundations, roads and costal structures to satisfy limitations.

Communication skills, respect, patience

Cooperation Self-assurance

- Leadership - Responsibility - Self Learning

Leadership, multi tasking, time management, creative thinking

-Group work (leading,brainstorming,distribution of tasks,etc) -Time management -Compromising (choosing whatâ€™s more important even when all options are)

solving engineering problems, using some applications

Engineering skills

Thinking outside the box- collaboration with team members - confidence -using office program and other online tools effectively

communication skills, teamwork, leadership, computer programs, time management

Itâ€™s a good.

Confidence

Patience and being forced to respect people not worthy of respect just because they are in a position of power

Be patented- work hard- presentation skills-speaking skills

Calculate numerical and solve a problem in a most efficient way

Coding, math, some civil engineering concepts

Computer and programmes skills Communication and report

Patience

Solving engineering cases and problems Using technology in engineering problems Working under pressure Multitasking

Work with group .

Problem solving, communication, working in a team, how to deal with different people.

Study hard

I

Advanced writing skills Self study skill

Time management Working under pressure

Critical thinking, designing different types of structures, time management.

Team work

- Ability to solve engineering problems - Ability to use technology for communication purposes and for engineering analysis/design - Improved teamwork skills

- Ability to solve engineering problems - Ability to use technology for communication purposes and for engineering analysis/design - Improved teamwork skills

Some important skills I learned in the course of Civil Engineering is the ability to work in a team and having a problem solution mindset.

I learned how to evaluate my university in a specific and detailed way.

During this program, i was able to drastically improve my leadership skills. I was also able to improve the way I study and prepare for exams. Lastly, i learned how to better regulate my emotions in stressful times.

Self learning

Leadership Organization Work under pressure Self education

Listen

Leadership skills

Solving problems in clever engineering ways

team work

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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.

coastal lab work

Ù...I cant think of anything atm

No

I wish the university allowed us to see and do more real-life projects. For example, in Concrete, it would have been helpful to visit a building under-construction, or even see photos of the construction process as we were studying the different members, and then actually designing it based on real-life problems. I also wish that for Management, they would have gone more into depth into the actual process/steps of construction, since it was never clearly explained, and we just had to guess it by ourselves for the Lab project. All projects given by the university have a potential to be very helpful to students...however, their vagueness ruins that potential, since students are forced to guess everything by themselves without getting the professor's opinion on the matter until after the project is graded, if that. Instead of assigning big projects that aren't discussed in class and given a due date for the end of the course (which has happened to be me in several classes), it would be much more beneficial and helpful to the students for the professors to do the project with them in class, as a whole group together, so they can learn it firsthand, and we can all solve/design it together in class and get our professors advice on it. Unfortunately, however, most projects I did in university had vague objectives that all students in class had no idea how to do. Finally, I also wish professors or engineers talked about or prepared us to what it is we're going to be seeing or doing after university in our field, and giving us advice on good career paths based on their experience.

Field skills; how to deal with things in the real word. Solving problems or designing using new technologies or programs.

Ethical courses

No things

Going to trip to get useful information

career field learning

field skills

Communication skills

N/A

Not Being a part of students association such as ASCE to improve my knowledge about working with students and faculty members.

I hope there is a data analysis coarse for the engineers

learning computer application programs

I didn't get the chance to apply for all the labs because of online education

Steel subject is a must in our major. I didnâ€™t take it

Computer application

A subject that teaches how to design practically more than theoretically - advanced autocad - field work

Chance of get dean list

Software computer programs for civil engineering.

Presenting, writing

N/A

That I didnt get the chance to do all of the labs by my self we used to see the instructor so the experiment only in some lab

Work in the field

visit building Site.

Nothing I learned every important things

Site visits , linking what they gave us with the real world, lack of skills in applying any lab experiments

Career preparation skill

the skill of being a leader/leadership

I personally didnt get the chance to go to building sites. Especially since the Alshadadya campus is still getting built, we as civil engineers should be taken to field trips.

Getting exposed to technology and engineering programs more. Outdoor trainings. Field trips.

- Technology

Site visits

-learning by teaching -Software usage

writing essays, giving speeches, programing, prototype building,

Training

Work at university (available but did not have the chance due to work load) -also no much choices other than working in the library

practically implementing the courses learned and visiting sites (site visits were minimal)

Trips

I was not given a break to do extracurricular activities and and unlike other universities the faculty members are not considerate of that and believe that students should always prioritise studying no matter what neglecting how important some activities are in shaping a student.

Creative and imagination skills

Engineering program and field work

More major classes

Presentation skills and practical skills

Presentation Discussion Communication skills

Work in field

Nothing in mind

Presentation

I

Practical work Theoretically knowledge is way more different than real life applications

Practical site visit Using engineering softwares

Project management and its programs were very limited (ex: BIM). Structural programs like steel design and Revit. Transportation courses are also limited.

Programming

Some of the useful skills that I did not get the chance to learn as a civil engineer engineer is the programs required in other universities such as revit and advance AutoCad.

There was no opportunity to test a lot of information about the topic we studied to actually apply it, like going to visit a real site to see what we study in real life before taking on a job.

I was not able to register into computer technology, which i think should be a mandatory class. I also lack knowledge in the application of my major in real life. We had very little practical work, the program focused on theoretical work more. I am not prepared enough to be able to choose a career path that i am passionate in.

Field experience

Discuss

An insight to the standard practices in kuwait. How to apply the theoretical knowledge in real life. Public speaking. The use of more computer applications in all branches of civil engineering.

Engineering trainings

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

Would be lovely to have a TED talk here in our university

I wish the university allowed us to see and do more real-life projects. For example, in Concrete, it would have been helpful to visit a building under-construction, or even see photos of the construction process as we were studying the different members, and then actually designing it based on real-life problems. I also wish that for Management, they would have gone more into depth into the actual process/steps of construction, since it was never clearly explained, and we just had to guess it by ourselves for the Lab project. All projects given by the university have a potential to be very helpful to students...however, their vagueness ruins that potential, since students are forced to guess everything

by themselves without getting the professor's opinion on the matter until after the project is graded, if that. Instead of assigning big projects that aren't discussed in class and given a due date for the end of the course (which has happened to be me in several classes), it would be much more beneficial and helpful to the students for the professors to do the project with them in class, as a whole group together, so they can learn it firsthand, and we can all solve/design it together in class and get our professors advice on it. Unfortunately, however, most projects I did in university had vague objectives that all students in class had no idea how to do. Finally, I also wish professors or engineers talked about or prepared us to what it is we're going to be seeing or doing after university in our field, and giving us advice on good career paths based on their experience.

Devolp labs so students can understand the process and experiment very well

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I think the university should pay attention to the students and the welfare of the students, as well as pay attention to cafeteria food, increase the free time between lectures, find a solution for car parks to be a little far from the university, and establish a pedestrian bridge

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Use perfect and smart system

Focus on developing the practical side for the job

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focus on field skills

All the instructors have to learn and get some teaching skills, for example the college of education can give courses for the professors in other colleges so they learn how teach students and how to balance the difficulty of the exam questions, we have many intelligent professors with knowledge but they donâ€™t know how to pass this knowledge to their student in good way. Also manging the students schedules there shouldnâ€™t be class after 2 pm!, or even labs . As student having classes in different times with huge gab of time make me tired and waste my time ,specially the labs. Giving the students . Managing the courses so we can give the students time to prepare them self before midterms and final exam. In order to have good environment for the students ,there should be good relationships between the professors and students. Many professors tend to give lectures without trying to communicate with their students.No communication will effect the education negatively.

N/A

The cooperation between the students and the faculty members it is the most important factor in the academic programs. Thank you

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assigning computer applications as a mandatory subject

Focus on the practical side more than the side of solving math problems

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I think some science courses that were mandotory are unnecessary to engineering, more focus should've been on engineering classes. Also courses like electrical cuirut and thermodynamics are unnecessary to civil engineers. Additional design courses should replace them. I also think the course "construction engineering and managment" should be 2 different courses. One discussing the construction and cost aspect and the other discussing mamagment.

Give the student the chance to share and social communication

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Implement more practical subjects than theoretical.

I donâ€™t have any

Making the final exam to be 30% of the final grade instead of 40%.

Everything is good

Start appropriating those who has high gpa not only who take above 15 credits

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Take evaluation process seriously and do deeper investigations with certain professors at this college

---

Remove unified systems from course and let each professor teach the course their way within limitations. Also, every now and then the major sheet should be revised, it is good to have general knowledge in general engineering courses but that clutters the major sheet compared to other colleges. We need more elective courses to balance the major sheet.

Please let the first year without GPA that will definitely help students choose their major carefully without that affecting their GPA

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everything Is good

The way of learning in Kuwait University is very outdated. Midterms and final exams should not be close to 100% of the total grade in the course, as it does not reflect the understanding of the course. There should be more group projects.

I believe that planning site visits for students with their professors is very important as it will help students connect the academic knowledge with the work field.

I would like to recommend implementing more software programs that would be of much benefit for post graduation phase/era.

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some doctors need to enhance the way they treat their students and their teaching techniques. providing some recreation facilities along with places to rest. there most be a "happy" center where students can have fun along with studying. the university needs more shades between the collages.

Many

Training program for seniors before graduating , also changing the the grade syllabus to be fair and not focusing only on exams but also include other things such as hw ,projects,presentation and other .

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should focus more on the things we need career-wise and not only on theoretical knowledge. do not rely completely on exams for grading because the grades are affected greatly by them

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You should be easy

Trips

The world is changing so fast try adapting faster and stop using the same old mentality while looking into things. Pump fresh blood into the system and let them have their chance. seniority shouldnâ€™t be in consideration for any position or decision taking.

More creative elective courses as some in universities around us

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The doctors should be available and ready to discuss any matter with students to listen to their problems

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Lots of presentations and assignments to improve students' grades and teach them instead of just relying on exams

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Easier exams, less material

100% financial support for capstone courses + removing kuwait history from the major sheet

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Improving communication skills and presentations

the work in field improve the skills for the students

Better academic services, more intraction with the students.

Increase chairs in class

I

Improve the registration system

Making internships mandatory or at least list major firms that the student can get experience in. Hold engineering competitions and seminars in which students can interact with other engineers from around the world. Assign a faculty member for each group of students to help with scheduling from first to last year.

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Using modern technology to enhance our skills to keep up with the modern era.

I recommend that almost all general engineering courses be removed, and instead add more classes centered around practical applications and understandings or how the real world deals with the major.

Improve the grade scales

Listen more to the students Improve the quality of faculty members

Supervise faculty. Unify courses. Student affairs should take student complaints seriously. Reduce the weight of exams on grades. Promote active learning instead of passive. Invest in proper laboratory equipment. Remove irrelevant courses such as thermodynamics, dynamics, physics 2, and circuit and replace them with more relevant courses to my major (civil) which will provide better in depth understanding of the major instead of just surface level understanding of each branch. Add more environmental engineering subjects. Structural engineering has the most courses out of all branches, i suggest to add more course for other branches to balance it out.

Appendix D

Computer Engineering Program
Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

*** Major: Computer Engineering**

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

COMPUTER	**84**	**Male**	**15**	**18%**
		Female	**69**	**82%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**71**	**85%**
Intend to work in the private sector.	**49**	**58%**
Intend to go to graduate school.	**19**	**23%**
Intend to start my own business	**24**	**29%**
Intend to do other things	**2**	**2%**
gnu.org		
Maybe Master		

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Table 1 Assessment of the outcome attributes acquired at Kuwait University related to the Computer Engineering Program Criteria

#	Outcome Attributes	5	4	3	2	1	Average	SI
1	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.	35	24	17	6	2	4	3.5
		42%	29%	20%	7%	2%	80%	70%
2	A knowledge of discrete mathematics.	34	23	16	8	3	3.9	3.4
		36%	32%	26%	4%	2%	80%	68%

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

#	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	3.3
		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, cultural, social, environmental, and economic factors	3.8	3.0
		75%	60%
3	an ability to communicate effectively with a range of audiences	4.3	4.0
		85%	78%
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	4.3	4.0
		85%	80%
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	3.9
		84%	78%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.0	3.6
		80%	72%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.0	3.5
		80%	70%

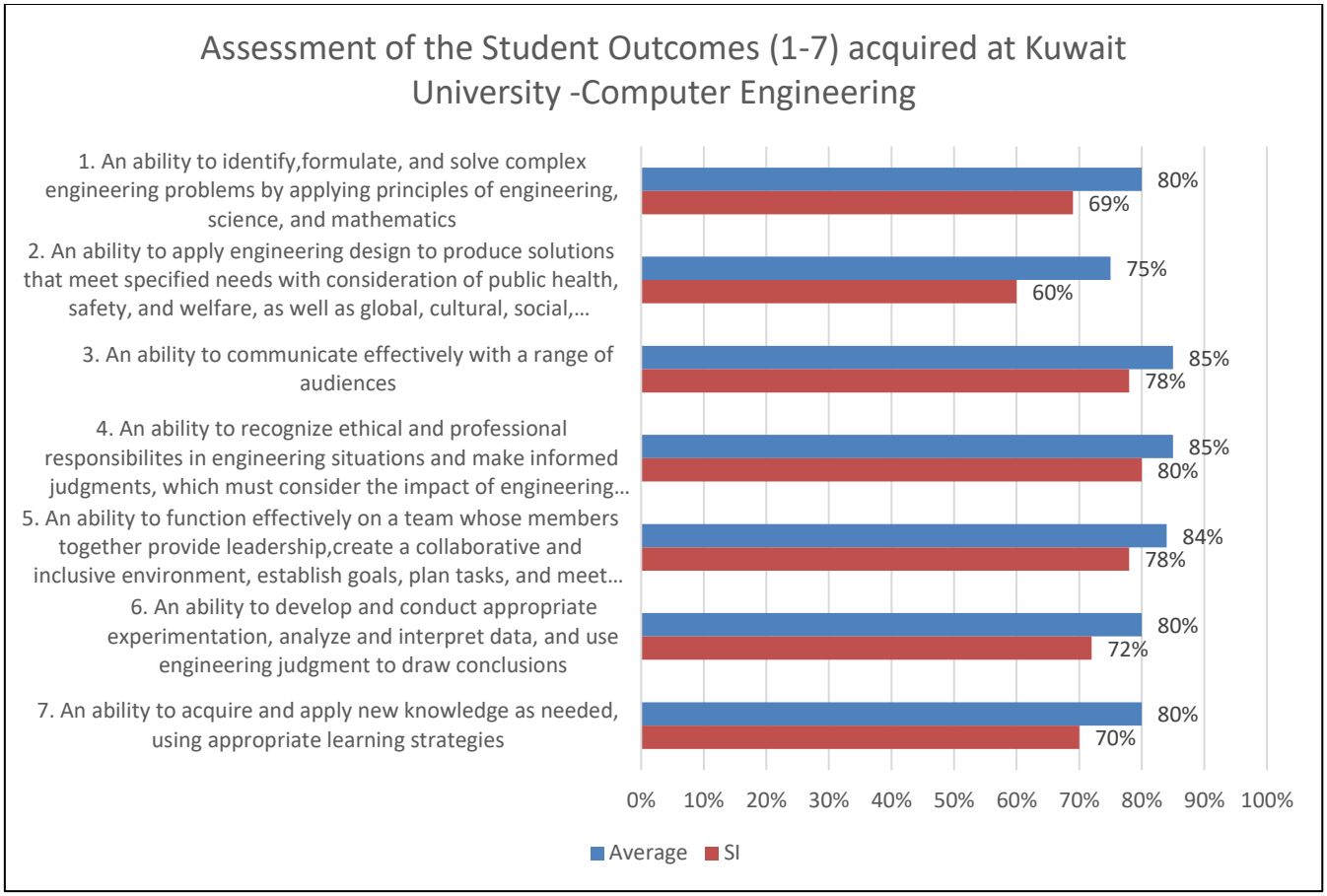

Figure 1 Assessment of Student Outcomes (1-7) acquired at Kuwait University - Computer Engineering

Table 3 Assessment of the relevance of Program Educational Objectives

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	42	22	14	4	0	4.2	**3.6**
		51%	27%	17%	5%	0%	85%	**73%**
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).	45	16	16	4	0	4.3	**3.6**
		56%	20%	20%	5%	0%	85%	**71%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	34	23	20	2	0	4.1	**3.3**
		43%	29%	25%	3%	0%	83%	**66%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	28	18	22	11	0	3.8	**2.7**
		35%	23%	28%	14%	0%	76%	**54%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	34	16	27	2	2	4.0	**2.9**
		42%	20%	33%	2%	2%	79%	**58%**

6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	36	23	18	5	0	4.1	**3.3**
		44%	28%	22%	6%	0%	82%	**66%**

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

#	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	15	26	11	13	1	3.2	**2**
		21%	18%	31%	13%	15%	1%	64%	**40%**
2	- Computers (Programming and usage of software packages)	23	24	25	6	6	0	3.6	**2.8**
		27%	29%	30%	7%	7%	0%	72%	**56%**
3	- Humanities and Social sciences	26	22	22	6	4	4	3.8	**3**
		31%	26%	26%	7%	5%	5%	76%	**60%**
4	- General Engineering	22	22	25	11	4	0	3.6	**2.6**
		26%	26%	30%	13%	5%	0%	72%	**52%**
5	- Engineering within major	27	20	26	6	4	1	3.7	**2.8**
		32%	24%	31%	7%	5%	1%	74%	**56%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		26	22	23	9	2	2	3.7	**2.9**
		31%	26%	27%	11%	2%	2%	74%	**58%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	22	27	20	4	6	5	3.7	**3.1**
		26%	32%	24%	5%	7%	6%	74%	**62%**
8	- Career planning	18	15	25	12	7	7	3.3	**2.1**
		21%	18%	30%	14%	8%	8%	66%	**42%**
D. Equity of treatment by:									
9	- Academic administrators	19	20	28	7	3	7	3.6	**2.5**
		23%	24%	33%	8%	4%	8%	72%	**50%**
10	- Faculty	17	18	32	12	3	2	3.4	**2.1**
		20%	21%	38%	14%	4%	2%	68%	**42%**
11	- Teaching assistants and engineers	22	21	21	12	6	2	3.5	**2.6**
		26%	25%	25%	14%	7%	2%	70%	**52%**
12	- Fellow students	22	23	21	14	3	1	3.6	**2.7**
		26%	27%	25%	17%	4%	1%	72%	**54%**
E. Quality of the facilities:									
13	- Classrooms	31	23	18	9	3	0	3.8	**3.2**
		37%	27%	21%	11%	4%	0%	76%	**64%**
14	- Science laboratories	31	15	26	9	2	1	3.8	**2.8**
		37%	18%	31%	11%	2%	1%	76%	**56%**
15	- Engineering Laboratories	32	16	26	7	2	1	3.8	**2.9**
		38%	19%	31%	8%	2%	1%	76%	**58%**
16	- Computing facilities	37	17	23	6	1	0	4	**3.2**
		44%	20%	27%	7%	1%	0%	80%	**64%**
17	- Libraries	29	17	19	14	2	3	3.7	**2.8**
		35%	20%	23%	17%	2%	4%	74%	**56%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	16	22	23	15	8	0	3.3	**2.3**
		19%	26%	27%	18%	10%	0%	66%	**46%**
19	- Ease of communication with instructors during online learning	24	16	23	15	6	0	3.4	**2.4**
		29%	19%	27%	18%	7%	0%	68%	**48%**
20	- Quality of learning in online laboratory classes	23	10	15	21	14	1	3.1	**2**

		27%	12%	18%	25%	17%	1%	62%	**40%**
21	- Online capstone design experience and collaboration with team members	28	18	10	12	4	12	3.8	**3.2**
		33%	21%	12%	14%	5%	14%	76%	**64%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	14	10	20	22	18	0	2.8	**1.4**
		17%	12%	24%	26%	21%	0%	56%	**28%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	18	11	24	19	11	1	3.1	**1.7**
		21%	13%	29%	23%	13%	1%	62%	**34%**

Table 5 Assessment of the Support Services at Kuwait University - Computer Engineering

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	17	30	12	9	8	8	3.5	**3.1**	9	13	11
		20%	36%	14%	11%	10%	10%	70%	**62%**	11%	15%	13%
2	Training office	23	22	16	6	4	13	3.8	**3.2**	8	13	12
		27%	26%	19%	7%	5%	15%	76%	**64%**	10%	15%	14%
3	Libraries	28	31	11	2	3	9	4.1	**3.9**	10	11	12
		33%	37%	13%	2%	4%	11%	82%	**78%**	12%	13%	14%
4	Bookstores	23	28	14	8	4	7	3.8	**3.3**	9	15	10
		27%	33%	17%	10%	5%	8%	76%	**66%**	11%	18%	12%
B. Administrative Offices:												
5	Students' affairs office in your department	29	27	11	5	2	10	4	**3.8**	8	13	9
		35%	32%	13%	6%	2%	12%	80%	**76%**	10%	15%	11%
6	Administrative offices in the college	22	34	10	4	2	12	4	**3.9**	8	9	13
		26%	40%	12%	5%	2%	14%	80%	**78%**	10%	11%	15%
C. Other Services:												
7	Health services	24	23	10	3	6	18	3.8	**3.6**	9	6	17
		29%	27%	12%	4%	7%	21%	76%	**72%**	11%	7%	20%
8	Food services	20	26	12	10	14	2	3.3	**2.8**	19	5	6
		24%	31%	14%	12%	17%	2%	66%	**56%**	23%	6%	7%
9	Parking	17	26	20	7	11	3	3.4	**2.7**	21	3	7
		20%	31%	24%	8%	13%	4%	68%	**54%**	25%	4%	8%
10	Recreation and athletics	13	19	12	6	14	20	3.2	**2.5**	6	6	20
		15%	23%	14%	7%	17%	24%	64%	**50%**	7%	7%	24%
11	Others	12	11	6	4	4	47	3.6	**3.1**	3	3	15
		14%	13%	7%	5%	5%	56%	72%	**62%**	4%	4%	18%

* Open-ended questions (unedited student comments)

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

I learned some skills on java , data structure and data base and how can made a table and combined the information
-i learn java language
Reading skills, report writing skills, time management and Working under pressure skills
programming and designing
Displaying honesty, integrity, and perseverance.
work under pressure
Web programming skills - group leader skills - hardware skills - learned some software programs
patience, the ability to deal with the worst conditions, computer coding and programming.
I learned to take responsibility and solve problems on my own. I learned programming
team work, identifying problems, problem solving, and technical writing.
I learned patience. I learned how to solve the problem with more logical solutions. I learned how to cooperate with different characters. I learned how to be a leader. I learned to work under pressure.
Python, HTML, Css programming languages knowledge. Networking and routers configure. IoT and ML a little knowledge
.
problem solving, management, team work
Work under pressure, time management
Problem solving
Communication - Patience - work under pressure
I learned a new and important knowledge in society
Learned how to be responsible and learn time management.
Good in presentations
Programming skills , presentations skills
Programming
Most important things i learnt at home more than in uni other than what professor tassos taught. But i guess what i learnt more in uni is communication skills.

work with group self learning

Excel , PowerPoint, Eclipse , Quarts , C++ , Visual Studio

Exal/word/Adobe/powepint

problem-solving skills/ technical writing/ working under pressure/ time management/ programming skills.

- The importance of discipline

Group work

did not learn any good skills

I learn how to work with other students, how to plan for future, programming skills, writing skills ,present good presentation without being shy .

a

everything was perfect i gain a lot of information's and skills

I learned to solve problems, cooperate and not postpone work

Self-reliance

other programming languge

The ability to learn any new programming language , team work

Somenew program languages and new concepts

Programming and hardware design

work under pressure team work self learning

Creativity Persuasion Collaboration Adaptability Time Management Software Development Digital Design Operating Systems Teamwork/Communication

I have learned how to manage my time, leadership, teamwork and confidence

Team leader, work in the team , work under pressure, and a lot of good skills

Computer Programming, leadership, doing presentation .

computer programming, leadership, communicating, doing presentations with confidence.

Cooperatiion, overthinking

the ability to solve problems and think outside the box to solve all my problems

Writing technical reports. Solving mathematical problems.

Java ,c++, network programing, Computer logic, data structure, microprocessors, ect..

Design systems, design web page , languages (java)

Presentation skills Research skills Design skills Programming skills

Patience

well knoledge,self mangment,thinking skill

working under pressure

Networking knowledge. Writing, understanding, and reviewing codes. Effective collaboration with teams.

coding

I learned that the program is very well prepared and Speaks in detail

Patience and responsibility Try and not give up Develop presentation skills

Communication

1. Public Speaking 2-Writing Skills 3-Time Management

1. I learned how to effectively work as a team in group projects, both as a leader and as a regular group member. 2. How important mathematics is and its various applications in engineering. 3. How to learn/teach by yourself and learn more about a topic through online resources.

leadership / teamwork / writing formal reports / presentation

-front end /back end design -team work

Searching , writing , programming

Programming Leadership Networking Operating system Training internship

Skill in correct thinking and learning to program

Report writing, programming (java, web dev, imbedded systems dev), swimming, team work, speaking with people, working under pressure and with minimal sleep, how to work for 22 hours and sleep 2 hours.

leadership skills, communication, designing, software tools, and hardware tools.

Iâ€™ve learned so many things in my department courses, i wish i could complete my journey in master degree

learn very well in my computer engineering department, by knowing how to think logically and solve problems in a smart way. also know how to programming very well.

programing

Programming and software designing

Leadership skills Communication skills Hardware tools Softeware tools Searching Real intership

Mathematics, Ethics, Communication, Writing and Presenting, Programming, Logic, Computer Hardware and Software.

Programming solving problems writing reports self learning working with groups presentations

learn how to study and work under pressure , self study and group working

The ability to form ideas,Conclusion and linking of results,Management and Organization and Understand the engineering design process and apply the principles of mathematics and physics to engineering projects using computer programs.

Presenting the presentation in a good way and performing writing the code in a correct way as a computer engineer

Programming, critical thinking, work under stress and 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.

The future language such us flutter and ios and Android

The skill language I think we must learn it. Flutter , iOS

Time management classes

everything i learn it

Nothing.

how to be good programmer because of old programming languages we have took

How to work in government departments and train for the jobs they will asked for.

Time splitting skill. Another artistic skill that helps in my specialization, such as drawing and other arts. Cyber â€‹â€‹security.

Swift programming language

.

If more time was given, would have made more progress in many courses and went into depth

Programming

life skills like applying to jobs - expectations vs reality of engineering life and engineering after college.

Skill of doing a presentation (talking and list whatâ€™s important according to subject and audience).

Ethical hacking

Programming + PMP

Robotics.

python

Python , matlab

Pathon/mathlab

debating skills/ public speaking/ new (modern) programming languages

I wouldn't know what I have been missing on unless I tried another engineering program, so I can't tell you. But I'm sure I missed on a lot of things.

No thing

I gained nothing

There is another programming language i had no chance to learn them .

a

nothing everything was perfect

No thing

Design diagrams and understand what required from me

cyber security courses

machine learning Python Web Development flutter

I didn't have a chance to take field training and get some experience and skills

I think every subject in the Kuwaiti university give me good skills

Paython language

new computer languages such as python. useful tools as HTML,SQL,etc.

Think out of the box

a good foundation , if a student does not learn how to code in high school he will have a hard time in university

Learning about new technology like cloud services and solutions.

Data base, cyber security

Some languages

Nothinh

no

cybersecurity

None.

no thing

Not applying what we learn

1. Working with the hardware toolkits in the digital logic and microprocessors lab since it was taught online. 2. Most of the courses are very theoretical so I didn't get many opportunities to apply what I learned. 3. There were several electives I wanted to take and was interested in but they were never offered.

pratical work related to the major

How to design an application

Time management and self-study

New programing methods & implementing real programs

The skill of patience, good thinking, developing the English language, and learning the programming language

how to sleep efficiently, how to have the best sleep, time management.

I wish that weâ€™ve more of cryptography courses or a full cybersecurity courses.

knowing how to work in the hardware field

communication

Communication and leadership

Not all program language

The discovery of new science and computer concepts, and interact with more, real life, technology creations.

learning some important topics in computer engineering (some new program languages) cyber security

more programing language some new technology that used in world today

Public speaking and public speaking skills

Database course is very important

Presentation skills.

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

The distribution of marks in each course, should be less grade on the finale exam and more on hwâ€™s and quizzes.

Nothing it's good.

keep up to date with technology since computer engineering is renewable field

The assistance engineer should help the students about everything they need about the course The collage should provides every hardware pieces thats student need for the course

to use and learn more hardware and device in labs.

rather than having one class for boys, and one for girls, i suggest classes should stop being segregated, such that students can have more choices to better their schedules.

Major Sheet has been changed with what requires the era, adding required and useful programming languages â€‹â€‹to specialize in providing all the hardware parts and parts to help students in their graduation projects

All programming exams should be practical

.

â€”

This website is bad

Be kind and friendly to the students

Need to apply more training courses

Good department

The usage of more free software, and teaching how to contribute to it as that helps learning developing programs. (as in how the fsf.org defines it, some people call it open source, but i dislike that term).

-students should work on "real projects" before senior design course so they can be prepared for it. -having too many assignments/quizzes distracts students from understanding the material well since they have limited time to get them done. -registration process is very inconvenient (25 seats/course is not enough) -grading scale is bad.

I'm not writing anything unless I'm 100% sure that my feedback will actually change things here. If the university is really interested in what we have to say then it should conduct an interview with each graduate and listen, that's how I'd say it actually cares about our feedback. I hardly know anyone who's satisfied with his experience here, we're just happy that we got through it.

Everything was good

very bad curriculum and unfair

Need more food store and more book store in every college.

a

nothing, i think everything is perfect

Providing graduates with the knowledge, experience and skills necessary to enter the labor market in all fields

to improve better communication between doctors and students and to be kindly with them

More labs should included in the program

New modern skills tgat global requured

everything needs to be reconsideration

This is the hardest time of all time for me. I never knew it would come so suddenly because it looks like yesterday when I began this adventurous journey. Saying goodbye now is the hardest thing to do. Farewell, you have been an amazing college that I have the honor to graduate from.

field training must be a compulsory not optional subject, all students must take it

Change some doctors who are teaching the c++ and java , and give it to a good doctors

put young Doctors to teach the basics of computer programming, change the computer subjects to get along with nowadays languages. get the student prepare very well for the capstone design.

the faculty should be patient with the student in the low level programming class so he can achieve his full potential

Web development, flatter, ios programing, arduino

Good luck

thank you for every thing i really enjoy it.

let us choose what we are interested in in the elective part for example don't force us on hardware if we don't hardware

None.

teaching swift language

no thing

Putting a week off for students before exams

Try to offer more CpE electives each semester, especially ones like computer graphics, computer vision or image processing since these were electives I couldn't but wanted to take. In addition, try to show the actual applications of many theoretical concepts that we learn such as databases or algorithms. Moreover, I think that you should encourage students to learn more about a topic on their own and work on their own projects because that's how you gain skills and understand what you are learning better.

Provide design classes where the student learn how to design functional app

University website improvement

Student exchange between the international university and training in private and government agencies

You should add mandatory health classes for the students and the instructors, where they learn how to manage time to improve health and for the instructors to learn that they should not overstress students by giving them 2 homework's and a project at the same time, while expecting the student to finish them all within 1 week, since the student aren't just taking their subject

having more experiments and practical work.

thank u

focus more on practical courses

More lap and more of learning difference on programming language

More labs More deep in programming and design an applications

Increase interaction with modern hardware and software components, and encourage self-learning and learning from mistakes.

No idea

no idea , thank you

Improved each topics level to less lower of each courses to make it more easy

Thank you, no comments!

Appendix E

Electrical Engineering Program Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

*** Major: Electrical Engineering**

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

ELECTRICAL	**122**	**Male**	**21**	**17%**
		Female	**121**	**83%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**103**	**84%**
Intend to work in the private sector.	**59**	**48%**
Intend to go to graduate school.	**46**	**38%**
Intend to start my own business	**43**	**35%**
Intend to do other things	**9**	**7%**
Applying for a Masters Degree in KU		

***** **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 related to the Electrical Engineering Program Criteria

#	Outcome Attributes	5	4	3	2	1	Average	SI
1	Knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.	46	33	29	8	2	4	3.3
		38%	27%	24%	7%	2%	80%	66%
2	An ability to analyze, design, and implement systems containing hardware and software components.	54	31	23	9	0	4.1	3.6
		44%	25%	19%	7%	0%	82%	72%

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

#	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	3.4
		83%	75%
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	3.1
		76%	62%
3	an ability to communicate effectively with a range of audiences	4.2	3.7
		83%	72%
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	3.7
		81%	73%
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	3.8
		84%	76%
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.0	3.2
		80%	64%
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.0	3.3
		80%	66%

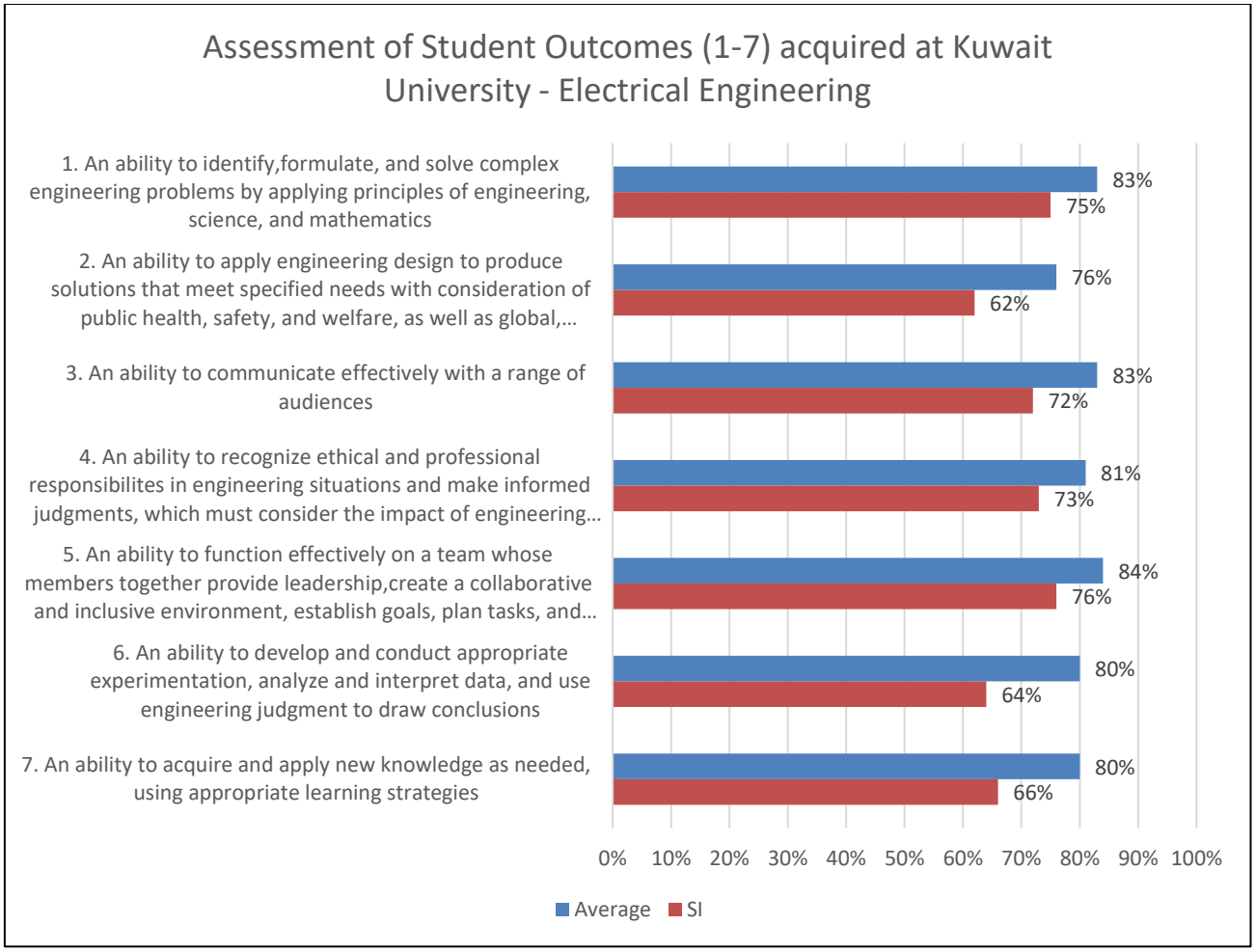

Figure 1 Assessment of Student Outcomes (1-7) acquired at Kuwait University- Electrical Engineering

Table 3 Assessment of the relevance of Program Educational Objectives - Electrical Engineering

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	63	20	31	4	2	4.2	**3.3**
		53%	17%	26%	3%	2%	83%	**66%**
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).	58	32	26	50	4.2	3.5	**3.3**
		48%	26%	21%	4%	0%	84%	**69%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	52	37	22	6	2	4.1	**3.4**
		44%	31%	18%	5%	2%	82%	**69%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	54	22	32	9	1	4.0	**3.0**
		46%	19%	27%	8%	1%	8061%	**65%**
5		44	29	34	9	3	3.9	**2.8**

	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	37%	24%	29%	8%	3%	77%	**56%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	51	34	29	5	1	4.1	**3.3**
		43%	28%	24%	4%	1%	82%	**65%**

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

#	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)	38	28	28	17	11	0	3.5	**2.7**
		31%	23%	23%	14%	9%	0%	70%	**54%**
2	- Computers (Programming and usage of software packages)	31	19	40	16	14	2	3.3	**2.1**
		25%	16%	33%	13%	11%	2%	66%	**42%**
3	- Humanities and Social sciences	39	27	34	8	6	8	3.7	**2.9**
		32%	22%	28%	7%	5%	7%	74%	**58%**
4	- General Engineering	41	33	31	13	3	1	3.8	**3.1**
		34%	27%	25%	11%	2%	1%	76%	**62%**
5	- Engineering within major	48	31	31	8	4	0	3.9	**3.2**
		39%	25%	25%	7%	3%	0%	78%	**64%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		44	29	31	12	3	3	3.8	**3.1**
		36%	24%	25%	10%	2%	2%	76%	**62%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	42	27	34	11	3	5	3.8	**2.9**
		34%	22%	28%	9%	2%	4%	76%	**58%**
8	- Career planning	42	20	31	15	7	7	3.7	**2.7**
		34%	16%	25%	12%	6%	6%	74%	**54%**
D. Equity of treatment by:									
9	- Academic administrators	36	27	30	22	4	3	3.6	**2.6**
		30%	22%	25%	18%	3%	2%	72%	**52%**
10	- Faculty	42	26	29	17	6	2	3.7	**2.8**
		34%	21%	24%	14%	5%	2%	74%	**56%**
11	- Teaching assistants and engineers	44	27	29	15	4	3	3.8	**3**
		36%	22%	24%	12%	3%	2%	76%	**60%**
12	- Fellow students	43	29	32	13	4	1	3.8	**3**
		35%	24%	26%	11%	3%	1%	76%	**60%**
E. Quality of the facilities:									
13	- Classrooms	51	27	33	8	3	0	3.9	**3.2**
		42%	22%	27%	7%	2%	0%	78%	**64%**
14	- Science laboratories	40	32	25	14	8	3	3.7	**3**
		33%	26%	20%	11%	7%	2%	74%	**60%**
15	- Engineering Laboratories	43	29	33	10	7	0	3.7	**3**
		35%	24%	27%	8%	6%	0%	74%	**60%**
16	- Computing facilities	39	26	34	9	8	6	3.7	**2.8**
		32%	21%	28%	7%	7%	5%	74%	**56%**
17	- Libraries	46	25	28	10	3	10	3.9	**3.2**

		38%	20%	23%	8%	2%	8%	78%	**64%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	40	27	30	14	10	1	3.6	**2.8**
		33%	22%	25%	11%	8%	1%	72%	**56%**
19	- Ease of communication with instructors during online learning	47	22	25	18	9	1	3.7	**2.9**
		39%	18%	20%	15%	7%	1%	74%	**58%**
20	- Quality of learning in online laboratory classes	31	24	27	20	18	2	3.3	**2.3**
		25%	20%	22%	16%	15%	2%	66%	**46%**
21	- Online capstone design experience and collaboration with team members	33	20	29	15	10	15	3.5	**2.5**
		27%	16%	24%	12%	8%	12%	70%	**50%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	30	22	23	24	17	6	3.2	**2.2**
		25%	18%	19%	20%	14%	5%	64%	**44%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	32	27	33	19	9	2	3.5	**2.5**
		26%	22%	27%	16%	7%	2%	70%	**50%**

Table 5 Assessment of the Support Services at Kuwait University - Electrical Engineering

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	37	37	19	12	13	4	3.6	**3.1**	7	12	13
		30%	30%	16%	10%	11%	3%	72%	**62%**	6%	10%	11%
2	Training office	31	42	9	8	9	23	3.8	**3.7**	7	7	16
		25%	34%	7%	7%	7%	19%	76%	**74%**	6%	6%	13%
3	Libraries	36	57	9	4	6	10	4	**4.2**	7	12	11
		30%	47%	7%	3%	5%	8%	80%	**84%**	6%	10%	9%
4	Bookstores	32	46	18	4	11	11	3.8	**3.5**	7	11	12
		26%	38%	15%	3%	9%	9%	76%	**70%**	6%	9%	10%
B. Administrative Offices:												
5	Students' affairs office in your department	42	39	14	9	5	13	4	**3.7**	5	10	16
		34%	32%	11%	7%	4%	11%	80%	**74%**	4%	8%	13%
6	Administrative offices in the college	34	48	14	8	6	12	3.9	**3.7**	7	8	16
		28%	39%	11%	7%	5%	10%	78%	**74%**	6%	7%	13%
C. Other Services:												
7	Health services	32	38	17	8	8	19	3.8	**3.4**	10	6	15
		26%	31%	14%	7%	7%	16%	76%	**68%**	8%	5%	12%
8	Food services	36	33	23	16	11	3	3.6	**2.9**	17	5	7
		30%	27%	19%	13%	9%	2%	72%	**58%**	14%	4%	6%
9	Parking	39	35	22	14	9	3	3.7	**3.1**	21	6	3
		32%	29%	18%	11%	7%	2%	74%	**62%**	17%	5%	2%
10	Recreation and athletics	30	28	15	12	14	23	3.5	**2.9**	3	6	22
		25%	23%	12%	10%	11%	19%	70%	**58%**	2%	5%	18%
11	Others	26	18	9	4	2	63	4.1	**3.7**	5	4	14
		21%	15%	7%	3%	2%	52%	82%	**74%**	4%	3%	11%

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

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

.
Writing reports - working in team - solving engineering and scientific problems.
Self confidence/ writing / solving problems /
nothing :)
General engineering & leadership skills
Solving theoritical problem
Confidence/ Responsibility / study hard
math/electrical engineering/ English/ teamwork
Presenting
Design skills Programming Engineering economy
image processing codding 3d design
codding connecting devises
Being able to design a system/ programming skills/presentation skills
Confidence, helpful, cooperation
Confidence, How to be presenter
Learn how to use matlab
NA
-self learning -time management -social interaction with different backgrounds -critical thinking
Communicate with different people
1-Thinking outside the box (good thinking abilities to solve problems). 2-Good grades comes not from studying all day and exhausting urself but by studying smart.
TIME MANAGEMENT, Writing codes, understanding the subject is better than getting full mark.
Design a software and hardware of an application
Self-reliance / personal refinement / fluent speech / methods of discussion and dialogue

Team work skills, being fair to my team members as a leader

How to planing

Speak and work in a group

I learned new techniquies to deal with problems

Learned how to choose appropriate design with low cost introduced to different coding language Learned how to appropriately manage time

---

solving problems

---

accuracy in everything

I have learned how yo work under pressure, some critical thinking skills, teamwork skills

---

***When to help others. *Time management and prioritization. *leadership. *Dedication. *A sense of reality (life is not always fair).**

---

be patient as much as i can.

Circuit design. Apply linear systems theory and analysis. Develop electrical schematics. Data collection and analysis. Build and operate computer systems. Prepare operational plans.

Being patient

Solve problems quickly

Good working

---

every thing

Learn to evaluate in a good way

Learn how to evaluate, accuracy in answers, and credibility

.

Assembly Language programming

Work hard, work with a team

Alot of things

---

all the program

Critical thinking. Working under stress.

Analysis

---

writing reports and essays.

I learned the meaning of self learning.

Work hard, work as group , ability to solve and understand engineering problems

---

Becoming Hard working person / working under stress conditions since the college is not easy and does not cooperate with being less stressful on students / Team work / being able to present myself properly since we did a lot of presentations

---

â€”

Write, analyzing , programming , solve problems , designing , organizing ideas

---

Apply the knowledge of probability and statistics

- Programming - Leadership -Designing -Time management

I learned how to lead a group, and work with groups. I learned how to manage my time. I learned to better solve engineering problems.

- How to organize time and distribute tasks. - Solve math problems as quickly as possible. - how to use Microsoft software (word, excel, powerpoint ..), and how to use matlab.

1- Design a system 2- Ability to use technology for communication purposes 3- Function effectively in a team in different roles

---

Critical thinking , team work & communication skills

---

good

â€”-

Leadership, Responsibility

Time management -patience - work under pressure-

Matlab,assmble

Problem solving, time management and teamwork

I learned a lot of things but the most important thing that I learned how to work as a group , how to think in my future , how to plan my life , also how the whole life depend on my major ;)

—

I learned how to write reports.

Patience â□¤ï¸□

I learned teamwork I learned to talk in presentation I learned how to communication with others

---

learning presentaion and write report in your self

The Knowledge of mathematic To solve engineering problems

Time management Communication computer programming problem solving teamwork, etc

---

Think about the problem and find easy way to solve it

Work with groups, programming

patient

Leadership

I can lead a group I can discuss whatever with anyone without being afraid

how to solve problems, Talking Infront people, to design and analyse.

how to solve problems, talking infront people, to design and analyse.

how to solve problems,talking infront people, to design and analyse.

Easy to solev complex problem

Working in group

Problem solving mathematical skills patience

Solving an engineering problem by matlab , etap , LTs'spice, orcad and arduino

Budgeting and money management , Time management, Critical thinking and problem solving, Research

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.

no thing

Programming skills- presentation skills

Inventing / making big projects / learning to design excellently

Mathematics

field training and dealing with a real instrument and device only solving the problem without relating it to our real life

I think having more workshops and presentations/ projects will be more useful for students to get the idea or team working instead of theoretical exams only.

Working on a team with different majors like (civil / mechanical) Because I think 497 need to be a (mechanical-electrical team) or (Computer - electrical team) and like that

Advanced programming languages

presentation skills

more Practical applications and see it in reality presentation

I wasnâ€™t able to apply what i learned

Talent develpment, less presentation

collaborative work , Talent Development

I think we need to learn more about programming language like java and c++

NA

-real life use of the content that was learnt -focusing on the learning experience rather than grades -explaining how the subjects will be applied in work fields

---

The real picture of the work environment

1-Could not improve my presentation skills due to the lack of courses that apply it (English speaking in general). 2- Could not practice my hobbies due to the lack of Clubs.

3d drawing professionally, learning English at a very high level.

Need field works

---

it isn't

Speaking and work on agroup

---

working in a team

Have no chance to interact with instruments used in machine course

---

improving in sports

---

theoretical part more than practical

Work with a professor on advanced research to see how it is conducted.

Nothing ..everything was excellent and well learned

See the work environment before graduation

---

manual skills we only study theoretical

---

every thing

Nothing ,Every thing perfect all important skills i get it

.

Presentation skills

Not being able to give a presentation very well

---

multiple skills benefited

We should have been given more(or equal) practical lessons rather than theoretical. We should have been given more creative/design classes in the engineering field.

Did not learn the professional way to write reports, write research papers, and deal with instructors and advisors.

Being socially available/ i did not go to any trip outside the university for further learning in practical application in electrical engineering / our studies focus alot more on theories and neglect the practical side. / the capstone system in our major is bad itâ€™s only 3 credits and there is so much efforts behind it, capstone doctors are not cooperative at all since the capstone idea is hard on us and the university did not prepare us for that. Most of them want big projects that require a lot of practice and learning that we struggle to fit in one course!

More chemistry

Apply the knowledge of probability and statistics

Conducting researches Career planning

No, I learned everything that I want.

---

field learning

Working part time and attending seminars

---

good

Trips to places that work in my major

I donâ€™t know

I have no idea

I think that there is no field trips ! I maybe heard about it once or twice from dr sultan alenezi and thatâ€™s all. So in my opinion it is a must that we go on trips and see how our big machines work out in real life and enjoying the moment , learn experience and have a background about it all .

---

presentations

–

I was hoping to be more courageous I was hoping to be more realistic I was hoping to learn more about time management

---

Everything about computer engineering

More of coding More of hardware skills

Understand more about the major

Still not perfect at programming

---

how to apply what I learned in real life.

---

how to apply what I learned in real life.

---

how to apply what I learned in real life.

---

field Training

Going out in field

working with programs and coding

communication skills Presentation skills English speaking and writing skills Deep knowledge about all electrical engineering courses

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

no thing

I suggest to add more courses to teach arduino software because one course is not enough to build up the knowledge needed for the capstone design. Also, I highly recommend considering making the senior project done by students from several majors.

List is long enough. Thank you.

Bye

No online courses because it was very poor

Solve and take into considaration the above problam

i think the dgree of major elactives preferable to start from 300

using new software's in the lab sessions in all electrical and computer engineering department.

Improve food services

The focus should be on presentation skills this is what the market needs

Activities between the students and teachers

Activities between students and teachers

Interest more in practical side

NA

-dont focus on grades only, this makes students only fear failing courses rather than focusing on learning -if the average on exams are low then the exam is bad not the students, stop making them feel like they are the ones not working hard. -learn from private universities on the grading system, don't focus on exams only, spread the grades

Intensification of practical work

real-world education and less theoretical education.

It isn't

Nothing at all Thanks you

Make takling to professer easier

More hardware circuits showing

none you guys are great

when the information simple it set in brain

It is true that stress and pressure might create diamonds but the crippling pressure that some professors impose are only creating an unjust environment where some students are getting external help and are becoming more dependent on others whereas the independent students work hard but can not compete with students with tutors and external help. This unjust environment only burns out and discourages the honest students that will actually benefit society in the future. There were many amazing professors but I would like to give a special thanks to professor Baidas for being a STEM figure we can always look up to.

give the student chance to study for final exams by giving a break before finals

Hire a Qualified Lecturer Measure the Student Outcomes and Improve Provide Opportunities to Learn Improve Teaching Methods Continuous Quality Improvement

Take course manual skills in company

Thankyou

every thing

.

.

Focus on embracing students creative side rather than oppressing their ideas and limiting them to one solution or one approach to match the faculty memberâ€™s teaching style.

Applying scientific disciplines in practical daily life and conducting theoretical studies, in reality, to understand the scientific material well

All instructors should follow the same grading scale in all courses. The department should ask students and know from them which instructor do they prefer to take specific courses with. Instructors should encourage students to work hard and let them feel that they are really learning from the course the have taken by giving them exams which are in medium level, and not to challenge them by creating very difficult exams.

Being less stressful on students, doing athletic activities and a variety of activities that makes students enjoy their time being in university.

â€”

More classes , university system for add courses

Apply the knowledge of probability and statistics

I think students should be encouraged and enabled to conduct and work on researches and the facility can implement that in many ways. Also the faculty should bring back the field work course again as it is a great experience for students to have that could possibly help them define their careers.

The academic program is excellent and I have nothing to add

Work to increase the study population and pay more attention to the study laboratories due to the lack of tools and equipment available now

---

â€”â€”â€”

---

good

â€”â€”

Observe the quality of the teaching and replace bad teachers with new good ones, observe the grades by the heads of the departments

---

I have no idea

FIELDS TRIPS. believe me also a small part time working in cafeterias or in doctors offices A little small jobs in our majors , like a course that prepared us for the job after graduate Finally YOU SHOULD HAVE A PSYCHOLOGISTS FOR THE STUDENTS WITH LOW GPA HAVING ISSUES IN NO MATTER WHAT . I hope from my bottom of my heart that you read our messages and take it seriously. Thatâ€™s it thank you KU

---

circuit power micro thermo autocad

—

The registration system is bad !

Kuwait university should improve the Admissions/Registrar system because it is very slow and always crack

---

Kuwait University does not need additional instructions because it is one of the best universities

---

There should be supervision and insert inspection on the doctors and engineers

---

Everything was good

Nothing.

More lab more electric subjects

More programming

---

how to apply what I learned in real life.

---

how to apply what I learned in real life.

---

how to apply what I learned in real life.

No thing

I donâ€™t but you have better

The university should monitor the tachers and engineers

Appendix F

Industrial and Management Systems Engineering Program Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

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

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

IMS	**36**	**Male**	**6**	**17%**
		Female	**30**	**83%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**27**	**75%**
Intend to work in the private sector.	**23**	**64%**
Intend to go to graduate school.	**16**	**44%**
Intend to start my own business	**16**	**44%**
Intend to do other things	**3**	**8%**

***** **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 related to the IMSE Program Criteria

#	Outcome Attributes	5	4	3	2	1	Average	SI
1	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.	22	6	5	3	0	4.3	**3.9**
		61%	17%	14%	8%	0%	86%	**78%**

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

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.5	**4.3**
		88%	**86%**
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	4.2	**4.1**
		84%	**81%**
3	an ability to communicate effectively with a range of audiences	4.4	**4.2**
		88%	**82%**
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	4.4	**4.2**
		86%	**81%**
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	4.4	**4.4**
		88%	**88%**
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.4	**4.0**
		88%	**80%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.3	**3.9**
		86%	**78%**

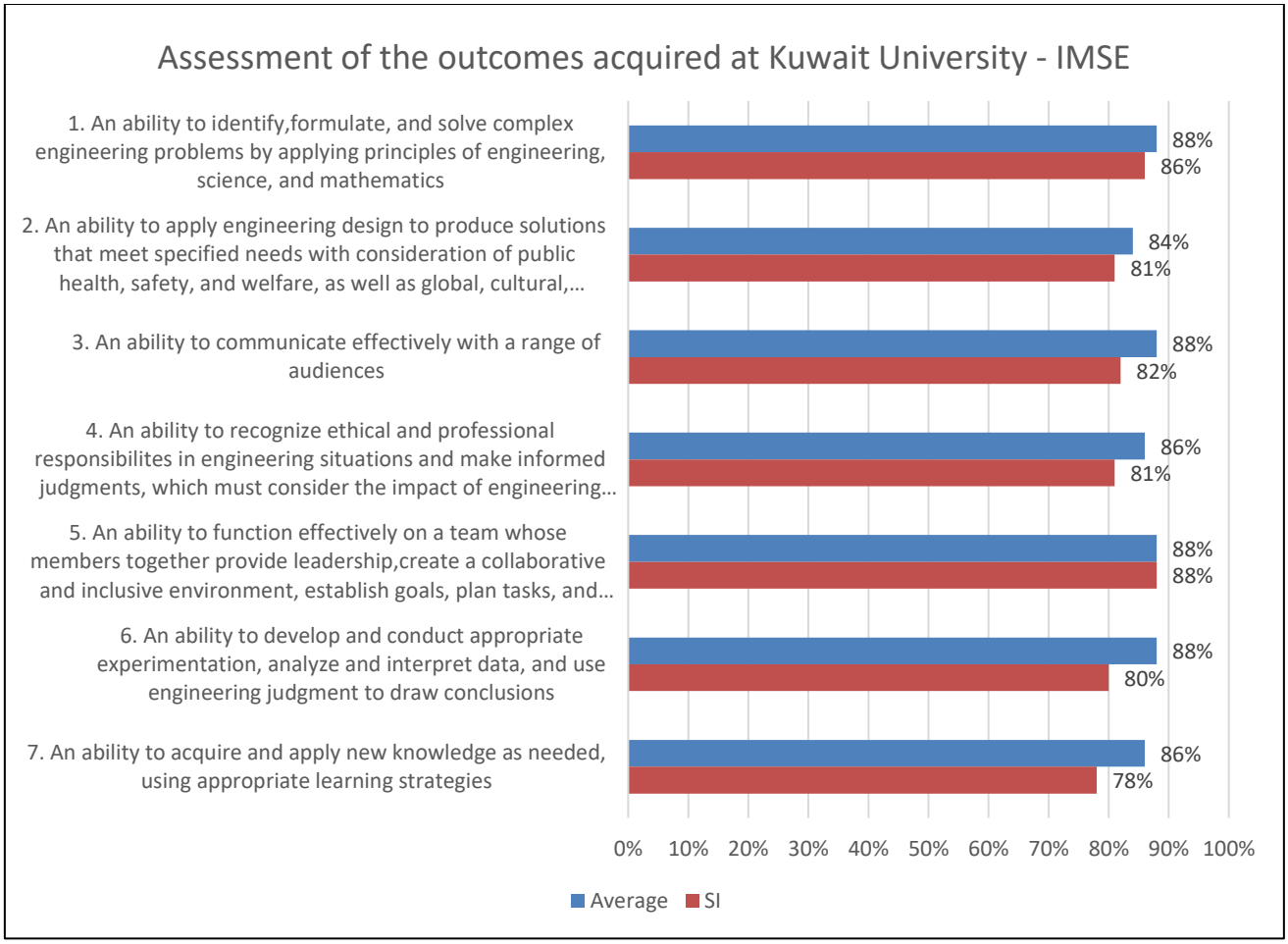

Figure 1 Assessment of Student Outcomes (1-7) acquired at Kuwait University- IMSE

Table 3 Assessment of the relevance of Program Educational Objectives - IMSE

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	11	13	9	2	0	3.9	**3.1**
		31%	37%	26%	6%	0%	79%	**61%**
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).	13	11	9	2	0	4.0	**3.1**
		37%	31%	26%	6%	0%	80%	**62%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	16	12	5	3	0	4.1	**3.6**
		46%	34%	14%	9%	0%	83%	**71%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	12	8	11	5	0	3.8	**2.6**
		34%	23%	31%	14%	0%	75%	**51%**
5		12	11	10	1	2	3.8	**2.9**

	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	33%	31%	28%	3%	6%	77%	**58%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	9	18	8	1	0	4.0	**3.3**
		26%	51%	23%	3%	0%	79%	**65%**

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

#	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)	10	7	8	5	6	0	3.3	**2.4**
		28%	19%	22%	14%	17%	0%	66%	**48%**
2	- Computers (Programming and usage of software packages)	13	7	6	7	3	0	3.6	**2.8**
		36%	19%	17%	19%	8%	0%	72%	**56%**
3	- Humanities and Social sciences	15	4	11	4	1	1	3.8	**2.7**
		42%	11%	31%	11%	3%	3%	76%	**54%**
4	- General Engineering	18	7	7	2	2	0	4	**3.5**
		50%	19%	19%	6%	6%	0%	80%	**70%**
5	- Engineering within major	28	6	1	1	0	0	4.7	**4.7**
		78%	17%	3%	3%	0%	0%	94%	**94%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		21	6	8	1	0	0	4.3	**3.8**
		58%	17%	22%	3%	0%	0%	86%	**76%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	16	7	9	3	1	0	3.9	**3.2**
		44%	19%	25%	8%	3%	0%	78%	**64%**
8	- Career planning	15	8	5	3	4	1	3.8	**3.3**
		42%	22%	14%	8%	11%	3%	76%	**66%**
D. Equity of treatment by:									
9	- Academic administrators	17	6	7	2	3	1	3.9	**3.3**
		47%	17%	19%	6%	8%	3%	78%	**66%**
10	- Faculty	18	5	6	4	3	0	3.9	**3.2**
		50%	14%	17%	11%	8%	0%	78%	**64%**
11	- Teaching assistants and engineers	19	6	8	2	1	0	4.1	**3.5**
		53%	17%	22%	6%	3%	0%	82%	**70%**
12	- Fellow students	17	8	8	3	0	0	4.1	**3.5**
		47%	22%	22%	8%	0%	0%	82%	**70%**
E. Quality of the facilities:									
13	- Classrooms	22	4	6	4	0	0	4.2	**3.6**
		61%	11%	17%	11%	0%	0%	84%	**72%**
14	- Science laboratories	17	3	7	3	1	5	4	**3.2**
		47%	8%	19%	8%	3%	14%	80%	**64%**
15	- Engineering Laboratories	18	5	3	6	0	4	4.1	**3.6**
		50%	14%	8%	17%	0%	11%	82%	**72%**
16	- Computing facilities	19	3	6	3	0	5	4.2	**3.5**
		53%	8%	17%	8%	0%	14%	84%	**70%**

17	- Libraries	15	5	8	2	1	5	4	**3.2**
		42%	14%	22%	6%	3%	14%	80%	**64%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	17	3	7	5	4	0	3.7	**2.8**
		47%	8%	19%	14%	11%	0%	74%	**56%**
19	- Ease of communication with instructors during online learning	18	7	5	3	3	0	3.9	**3.5**
		50%	19%	14%	8%	8%	0%	78%	**70%**
20	- Quality of learning in online laboratory classes	16	6	6	3	5	0	3.7	**3.1**
		44%	17%	17%	8%	14%	0%	74%	**62%**
21	- Online capstone design experience and collaboration with team members	13	3	6	4	3	7	3.7	**2.8**
		36%	8%	17%	11%	8%	19%	74%	**56%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	11	4	6	7	7	1	3.1	**2.1**
		31%	11%	17%	19%	19%	3%	62%	**42%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	14	4	10	5	3	0	3.6	**2.5**
		39%	11%	28%	14%	8%	0%	72%	**50%**

Table 5 Assessment of the Support Services at Kuwait University - IMSE

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	14	11	4	6	1	0	3.9	**3.5**	4	9	4
		39%	31%	11%	17%	3%	0%	78%	**70%**	11%	25%	11%
2	Training office	11	7	7	3	3	5	3.6	**2.9**	5	3	8
		31%	19%	19%	8%	8%	14%	72%	**58%**	14%	8%	22%
3	Libraries	12	7	8	2	0	7	4	**3.3**	3	7	7
		33%	19%	22%	6%	0%	19%	80%	**66%**	8%	19%	19%
4	Bookstores	8	10	11	4	0	3	3.7	**2.7**	4	8	5
		22%	28%	31%	11%	0%	8%	74%	**54%**	11%	22%	14%
B. Administrative Offices:												
5	Students' affairs office in your department	17	12	4	2	1	0	4.2	**4**	8	7	2
		47%	33%	11%	6%	3%	0%	84%	**80%**	22%	19%	6%
6	Administrative offices in the college	14	7	9	2	2	2	3.9	**3.1**	7	5	5
		39%	19%	25%	6%	6%	6%	78%	**62%**	19%	14%	14%
C. Other Services:												
7	Health services	6	5	10	2	3	10	3.3	**2.1**	4	4	9
		17%	14%	28%	6%	8%	28%	66%	**42%**	11%	11%	25%
8	Food services	9	5	12	6	3	1	3.3	**2**	13	1	2
		25%	14%	33%	17%	8%	3%	66%	**40%**	36%	3%	6%
9	Parking	9	9	8	0	7	3	3.4	**2.7**	15	1	2
		25%	25%	22%	0%	19%	8%	68%	**54%**	42%	3%	6%
10	Recreation and athletics	7	4	4	2	8	11	3	**2.2**	4	1	12
		19%	11%	11%	6%	22%	31%	60%	**44%**	11%	3%	33%
11	Others	5	3	3	0	3	22	3.5	**2.9**	2	0	9
		14%	8%	8%	0%	8%	61%	70%	**58%**	6%	0%	25%

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

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

Critical Thinking teamwork and Delegation
Critical Thinking teamwork and Delegation
i have learned how to use different technology such as excel, minitab, arena and matlab
Patience, team work, teacher-students communication
anything related to industrial
1-technical writing 2-prescription
stat analysis, decision making, sustem improvement
CRAFT Software Excel Arc-Map Multitasking Working under pressure
1) increase the productivity with min amount of cost. 2) improve the inventory mangment. 3) improving quality.
Know how to use softwares like Arena simulation models, mini tab for statistics, matlab for numerical and coding system and excel sheets/ improve cost , quality , inventory, facility, queuing theory and management systems.
All skills I learned is important
I learnt how to improve productivity, efficiency in any workplace, taking into account cost, in order to minimize cost using various different engineering tools such as six sigma, dmaic , simulation. Also learnt various different management skills in a workplace, improve inventory policies, facility layout and design
Working hard under pressure, not dropping any quiz or homework, and staying strong even when things are not going well.
communication skills being more active excellent in using computers and electronic devices
Technical knowledge Communication Leadership Creativity Attention to Detail Resilience Problem Solving Being Organised
Time management(under pressure) - Communication (with team work , doctors and engineers and others) - flexibility and ability to use modern technologies- Ability to apply knowledge of different subjects or topics to solve different complex engineering problems
Managing systems, time and budget
.
.

Communication skills, teamwork skills, Probability and Statistics analysis, data analysis, software analysis (arena,excel,minitab,matlab), Production planning skills, Organizing facilities, cost analysis

---

communication skills engineering thinking teamwork

Engineering and mathematical tools, statistical analysis, and how to work in groups

---

analyzing, software using, cooperation, leadership, communication

---

I have learned how to get things done even if I'm in a very hectic situation and I've got to lead my group members and having different group every course got me be more social

---

Effective Communication , Organization and Management , Negotiation , Critical Thinking , Team work , Research and Analysis , Confidence .

---

problem solving, logical thinking, communication skills.

---

how to use the human factors and ergonomics principles to fix many different problems.

Team work, planning and organizing, and communication skills.

The importance of group work.

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.

1- self learning 2- advanced presentation and writting skills 3- public speaking

---

craft

Not available

I wish I could join the training course in industrial engineering

---

Know how to use more programs in softwares

Don't have any skills was missing while I learned in ku

I would have liked to learn more about supply chain management as part of the main courses and about quality and improvement in healthcare as an industrial engineer.

Because of the strict and bad rules in the IE department, I did not have the opportunity to take the training courses offered by the department

---

some software needs a private license from the university but the college did not have one (ex. Arc GIS, lendo). some software we used is old and there have an updated version

---

Stress Management Meditation

Internship (must be mandatory)

Writing essays, presenting class presentation

.

.

Traning programs

writing skills, communication skills, ability to freely express my opinion, participation in lectures, and critical thinking

writing memos, essays (should be learnt more in english courses)

How to interact with different people type and personality, and how to differentiate between work time and fun rime

training courses such as visiting the field.

Learning to use useful programs with getting certificate that may help us in career

Practical application of the studies instead of focusing only on papers and exams.

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

Pls try to improve students English skills

Please fulfill the wishes of the students who are expected to graduate, so that the subjects they want are registered for them

I think I don’t have any more

I would recommend that More time is spent on looking at real life situation and examples as pry of what we study, in order to be more confident on how to incorporate our skills in more real life situations

Students who are talented should be spotlighted, also to minimize the huge work should submit at the end of the course in engineering collage, also to have at least a one week before final exam to prepare will, to cut off Saturday's exams

Know the resources available, better feedback on student papers and exams. Offer help in all aspects.

Focusing on the development of students' various hobbies by doing many activities that allow students to participate and spread the spirit of competition among them in addition to their academic education.

.

Introduce the role of Industrial and management systems engineering Major to the community by showing its importance and significance in providing efficient, productive, and innovative systemz

Kuwait University does not allow students to freely express their concerns and participate in class as much as they should. I feel as if I do not have a voice. I'm always silenced by either the doctors or administration. In Kuwait University, the student always comes last. I did not learn how to critically think and I never felt appreciated, except in rare occasions, for the things I had to offer. Such as opinion, passion, and knowledge I previously acquired. I really hope the system in Kuwait University improves and allows the students to feel valued and important.

intense the content of english courses, software using and programming

For industrial engineer department i really don’t have any comment, i would like to thank each doctor, institute, and administrative stuff from the bottom of my heart for being kind with everything you do to students one of the vest department in our college

more practical methods of learning rather than exams

More practical application of the studies using different skills and methods.

Appendix G
Mechanical Engineering Program Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

*** Major: Mechanical Engineering**

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

MECHANICAL	**8**	**Male**	**0**	**0%**
		Female	**8**	**100%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**8**	**100%**
Intend to work in the private sector.	**6**	**75%**
Intend to go to graduate school.	**2**	**25%**
Intend to start my own business	**3**	**38%**
Intend to do other things	**0**	**0%**

***** **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 related to the Mechanical Engineering Program Criteria

#	Outcome Attributes	5	4	3	2	1	Average	SI
1	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.	3	4	1	0	0	4.3	**4.4**
		38%	50%	13%	0%	0%	86%	**88%**

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

#	Student Outcomes	Average	SI
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	4.2	**4.8**
		85%	**98%**
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	4.2	**4.7**
		84%	**94%**
3	an ability to communicate effectively with a range of audiences	4.4	**4.8**
		88%	**95%**
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	4.6	**5.0**
		91%	**100%**
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	4.6	**5.0**
		92%	**100%**
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.1	**3.8**
		82%	**76%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.3	**4.4**
		86%	**88%**

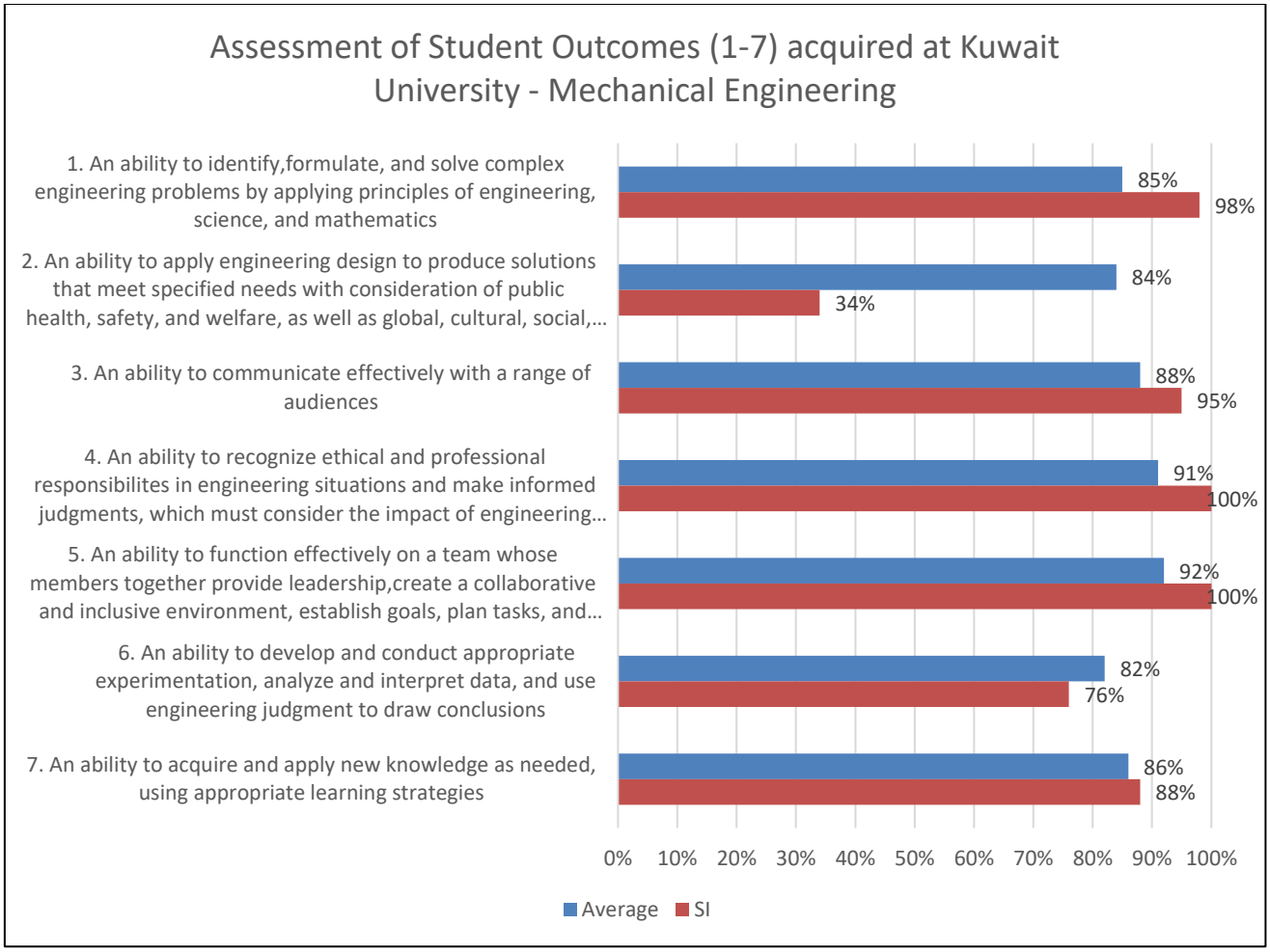

Figure 1 Assessment Student Outcomes (1-7) acquired at Kuwait University- Mechanical Engineering

Table 3 Assessment of the relevance of Program Educational Objectives - Mechanical Engineering

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	3	3	2	0	0	4.1	**3.4**
		38%	38%	25%	0%	0%	83%	**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).	5	1	1	1	0	4.3	**3.6**
		63%	13%	13%	13%	0%	85%	**73%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	6	1	1	0	0	4.6	**4.3**
		75%	13%	13%	0%	0%	93%	**85%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	6	1	1	0	0	4.6	**4.3**
		75%	13%	13%	0%	0%	93%	**85%**

5	Staying current in profession (e.g., participation in seminars and conferences, professional development courses and activities, membership in professional societies)	1	5	2	0	0	3.9	**3.1**
		13%	63%	25%	0%	0%	78%	**63%**
6	Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities)	4	3	1	0	0	4.4	**4.0**
		50%	38%	13%	0%	0%	88%	**80%**

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

#	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)	2	4	1	1	0	0	3.9	**3.8**
		25%	50%	13%	13%	0%	0%	78%	**76%**
2	- Computers (Programming and usage of software packages)	3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
3	- Humanities and Social sciences	3	4	1	0	0	0	4.3	**4.4**
		38%	50%	13%	0%	0%	0%	86%	**88%**
4	- General Engineering	2	5	0	1	0	0	4	**4.4**
		25%	63%	0%	13%	0%	0%	80%	**88%**
5	- Engineering within major	4	3	0	0	1	0	4.1	**4.4**
		50%	38%	0%	0%	13%	0%	82%	**88%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
8	- Career planning	1	5	1	1	0	0	3.8	**3.8**
		13%	63%	13%	13%	0%	0%	76%	**76%**
D. Equity of treatment by:									
9	- Academic administrators	3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
10	- Faculty	3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
11	- Teaching assistants and engineers	3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
12	- Fellow students	4	3	0	1	0	0	4.3	**4.4**
		50%	38%	0%	13%	0%	0%	86%	**88%**
E. Quality of the facilities:									
13	- Classrooms	3	4	1	0	0	0	4.3	**4.4**
		38%	50%	13%	0%	0%	0%	86%	**88%**
14	- Science laboratories	2	5	1	0	0	0	4.1	**4.4**
		25%	63%	13%	0%	0%	0%	82%	**88%**
15	- Engineering Laboratories	3	4	0	1	0	0	4.1	**4.4**
		38%	50%	0%	13%	0%	0%	82%	**88%**
16	- Computing facilities	2	6	0	0	0	0	4.3	**5**
		25%	75%	0%	0%	0%	0%	86%	**100%**
17	- Libraries	3	5	0	0	0	0	4.4	**5**
		38%	63%	0%	0%	0%	0%	88%	**100%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	2	4	1	1	0	0	3.9	**3.8**
		25%	50%	13%	13%	0%	0%	78%	**76%**
19	- Ease of communication with instructors during online learning	3	3	1	1	0	0	4	**3.8**
		38%	38%	13%	13%	0%	0%	80%	**76%**
20	- Quality of learning in online laboratory classes	3	3	1	1	0	0	4	**3.8**

		38%	38%	13%	13%	0%	0%	80%	**76%**
21	- Online capstone design experience and collaboration with team members	2	4	0	1	0	1	4	**4.3**
		25%	50%	0%	13%	0%	13%	80%	**86%**
22	- Fairness of homework, quizzes, exam and other online assessment activities	2	4	1	1	0	0	3.9	**3.8**
		25%	50%	13%	13%	0%	0%	78%	**76%**
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	3	3	0	2	0	0	3.9	**3.8**
		38%	38%	0%	25%	0%	0%	78%	**76%**

Table 5 Assessment of the Support Services at Kuwait University - Mechanical Engineering

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	3	4	0	1	0	0	4.1	**4.4**	2	1	0
		38%	50%	0%	13%	0%	0%	82%	**88%**	25%	13%	0%
2	Training office	3	3	2	0	0	0	4.1	**3.8**	1	2	0
		38%	38%	25%	0%	0%	0%	82%	**76%**	13%	25%	0%
3	Libraries	3	5	0	0	0	0	4.4	**5**	1	2	0
		38%	63%	0%	0%	0%	0%	88%	**100%**	13%	25%	0%
4	Bookstores	3	5	0	0	0	0	4.4	**5**	1	2	0
		38%	63%	0%	0%	0%	0%	88%	**100%**	13%	25%	0%
B. Administrative Offices:												
5	Students affairs office in your department	3	4	1	0	0	0	4.3	**4.4**	1	2	0
		38%	50%	13%	0%	0%	0%	86%	**88%**	13%	25%	0%
6	Administrative offices in the college	2	5	1	0	0	0	4.1	**4.4**	0	3	0
		25%	63%	13%	0%	0%	0%	82%	**88%**	0%	38%	0%
C. Other Services:												
7	Health services	3	4	1	0	0	0	4.3	**4.4**	0	3	0
		38%	50%	13%	0%	0%	0%	86%	**88%**	0%	38%	0%
8	Food services	3	3	1	1	0	0	4	**3.8**	1	2	0
		38%	38%	13%	13%	0%	0%	80%	**76%**	13%	25%	0%
9	Parking	3	3	1	1	0	0	4	**3.8**	1	2	0
		38%	38%	13%	13%	0%	0%	80%	**76%**	13%	25%	0%
10	Recreation and athletics	2	3	2	1	0	0	3.8	**3.1**	0	2	1
		25%	38%	25%	13%	0%	0%	76%	**62%**	0%	25%	13%
11	Others	2	2	1	0	0	3	4.2	**4**	0	1	1
		25%	25%	13%	0%	0%	38%	84%	**80%**	0%	13%	13%

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

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

Presentation skills, communication skills, multitasking, programming, and problem solving

Communication skils - Programming- Time management

Analyzing data by excel very will also in Comsol and matlab

Team work Brain storming

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.

all skills was available

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

Instead of courses and each student choose the classes, I prefer that each year should be ready for each student so it will be fair. The only thing that should be chosen is the elective.

Athletic programming - Good Consultations

Knowing the status of the student and communicating with him

Volunteer programs and projects

Appendix H
Petroleum Engineering Program
Exit Survey Results

For the Academic year 2021-2022

November 2022

Survey Statistics:

*** Major: Petroleum Engineering**

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

PETROLEUM	**27**	**Male**	**4**	**15%**
		Female	**23**	**85%**

Survey Results:

*** Students' Future plans:**

No. of students who:

Plans	N	%
Intend to work in the government sector.	**22**	**81%**
Intend to work in the private sector.	**13**	**48%**
Intend to go to graduate school.	**7**	**26%**
Intend to start my own business	**8**	**30%**
Intend to do other things	**3**	**11%**
i dont know		
Educational courses		

***** **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 related to the Petroleum Engineering Program Criteria

#	Outcome Attributes	5	4	3	2	1	Average	SI
1	None.							

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

#	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 84%	**3.8** **83%**
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	4.0 80%	**3.9** **77%**
3	an ability to communicate effectively with a range of audiences	4.3 85%	**4.1** **79%**
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	4.2 83%	**3.5** **73%**
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	4.4 88%	**4.2** **84%**
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	4.1 82%	**3.9** **78%**
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	4.3 86%	**4.4** **88%**

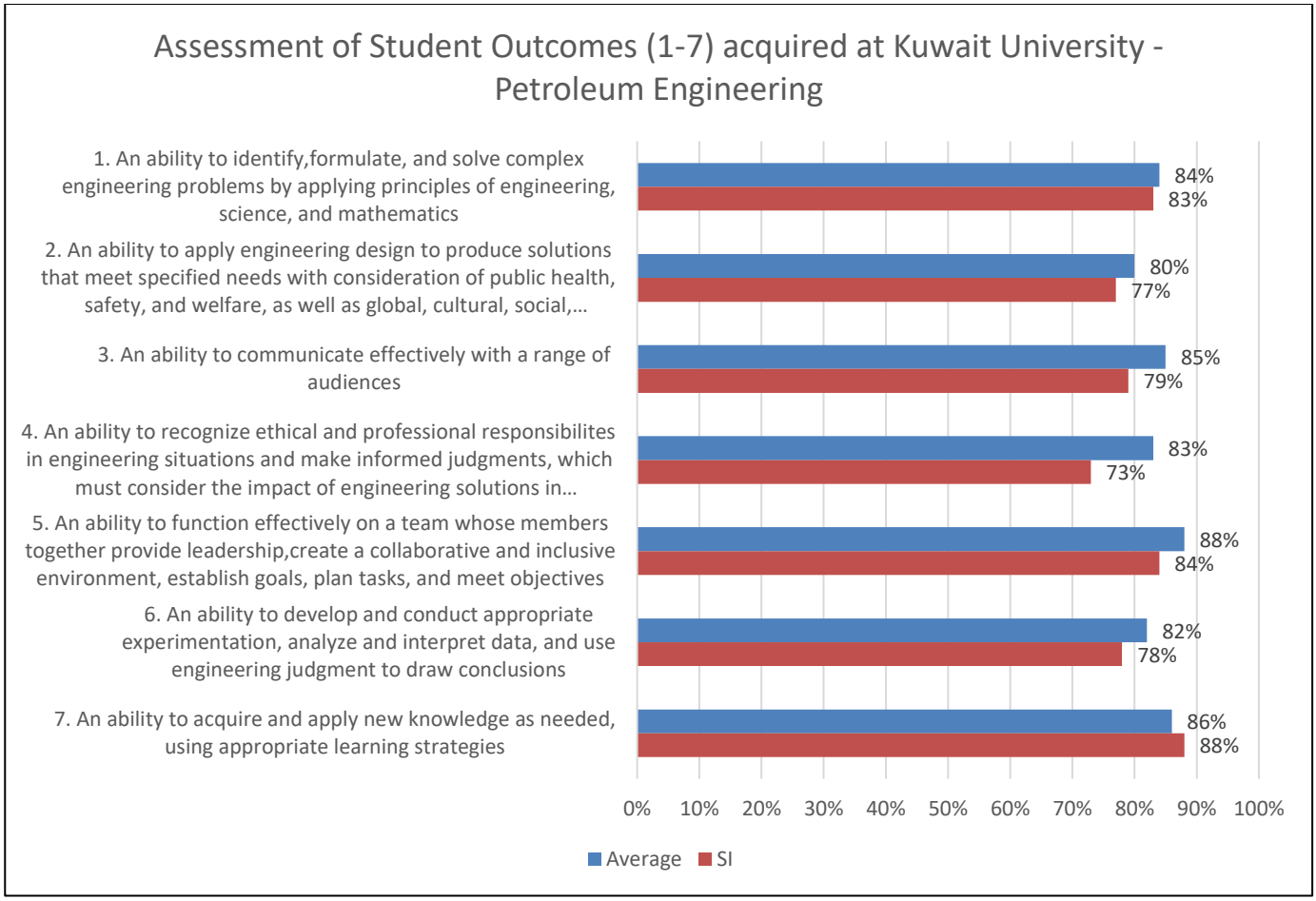

Figure 1 Assessment of Student Outcomes (1-7) acquired at Kuwait University- Petroleum Engineering

Table 3 Assessment of the relevance of Program Educational Objectives - Petroleum Engineering

#	Objective elements	5	4	3	2	1	Average	SI
1	Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	14	5	7	0	1	4.1	**3.3**
		52%	19%	26%	0%	4%	83%	**67%**
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).	15	4	8	0	0	4.3	**3.4**
		56%	15%	30%	0%	0%	85%	**67%**
3	Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities)	13	3	8	1	0	4.1	**3.1**
		48%	11%	30%	4%	0%	82%	**62%**
4	Degree advancement and continuing education. (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification)	12	10	3	2	0	4.2	**3.7**
		44%	37%	11%	7%	0%	84%	**74%**
5	Staying current in profession (e.g., participation in seminars and conferences, professional development	12	7	6	2	0	4.1	**3.3**
		44%	26%	22%	7%	0%	81%	**65%**

	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)	12	7	6	2	0	4.1	**3.3**
		44%	26%	22%	7%	0%	81%	**65%**

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

#	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)	7	9	6	2	3	0	3.6	**3**
		26%	33%	22%	7%	11%	0%	72%	**60%**
2	- Computers (Programming and usage of software packages)	2	13	8	2	2	0	3.4	**2.8**
		7%	48%	30%	7%	7%	0%	68%	**56%**
3	- Humanities and Social sciences	4	9	11	2	0	1	3.6	**2.5**
		15%	33%	41%	7%	0%	4%	72%	**50%**
4	- General Engineering	6	14	5	1	1	0	3.9	**3.7**
		22%	52%	19%	4%	4%	0%	78%	**74%**
5	- Engineering within major	8	10	6	2	1	0	3.8	**3.3**
		30%	37%	22%	7%	4%	0%	76%	**66%**
B. Quality of instruction and support for learning given by teaching assistants and engineers within major.		8	6	9	3	1	0	3.6	**2.6**
		30%	22%	33%	11%	4%	0%	72%	**52%**
C. Quality of advise by the staff with respect to:									
7	- Academic planning	11	5	7	3	1	0	3.8	**3**
		41%	19%	26%	11%	4%	0%	76%	**60%**
8	- Career planning	9	5	7	4	2	0	3.6	**2.6**
		33%	19%	26%	15%	7%	0%	72%	**52%**
D. Equity of treatment by:									
9	- Academic administrators	9	7	5	2	4	0	3.6	**3**
		33%	26%	19%	7%	15%	0%	72%	**60%**
10	- Faculty	6	10	5	2	4	0	3.4	**3**
		22%	37%	19%	7%	15%	0%	68%	**60%**
11	- Teaching assistants and engineers	8	7	7	4	1	0	3.6	**2.8**
		30%	26%	26%	15%	4%	0%	72%	**56%**
12	- Fellow students	8	7	11	0	1	0	3.8	**2.8**
		30%	26%	41%	0%	4%	0%	76%	**56%**
E. Quality of the facilities:									
13	- Classrooms	14	6	5	1	1	0	4.1	**3.7**
		52%	22%	19%	4%	4%	0%	82%	**74%**
14	- Science laboratories	10	8	6	0	2	1	3.9	**3.5**
		37%	30%	22%	0%	7%	4%	78%	**70%**
15	- Engineering Laboratories	13	8	4	1	1	0	4.1	**3.9**
		48%	30%	15%	4%	4%	0%	82%	**78%**
16	- Computing facilities	12	8	5	1	1	0	4.1	**3.7**
		44%	30%	19%	4%	4%	0%	82%	**74%**
17	- Libraries	12	7	7	0	0	1	4.2	**3.7**
		44%	26%	26%	0%	0%	4%	84%	**74%**
F. Online Learning Experience:									
18	- Instructors prepartion and clarity of online instructions	5	6	11	2	3	0	3.3	**2**
		19%	22%	41%	7%	11%	0%	66%	**40%**
19	- Ease of communication with instructors during online learning	6	7	7	3	3	1	3.4	**2.5**
		22%	26%	26%	11%	11%	4%	68%	**50%**
20	- Quality of learning in online laboratory classes	4	4	7	5	3	4	3	**1.7**

		15%	15%	26%	19%	11%	15%	60%	**34%**			
21	- Online capstone design experience and collaboration with team members	8	5	7	5	1	1	3.5	**2.5**			
		30%	19%	26%	19%	4%	4%	70%	**50%**			
22	- Fairness of homework, quizzes, exam and other online assessment activities	5	7	5	4	4	2	3.2	**2.4**			
		19%	26%	19%	15%	15%	7%	64%	**48%**			
23	- Overall satisfaction with attainment of knowledge and engineering skills through online learning	6	8	6	3	3	1	3.4	**2.7**			
		22%	30%	22%	11%	11%	4%	68%	**54%**			

Table 5 Assessment of the Support Services at Kuwait University - Petroleum Engineering

#	Item	5	4	3	2	1	0	Average	SI	3	2	1
A. Academic Services:												
1	Admissions/Registrar	9	9	6	2	1	0	3.9	**3.3**	1	5	2
		33%	33%	22%	7%	4%	0%	78%	**66%**	4%	19%	7%
2	Training office	8	10	6	0	0	3	4.1	**3.8**	1	0	7
		30%	37%	22%	0%	0%	11%	82%	**76%**	4%	0%	26%
3	Libraries	6	14	3	3	0	1	3.9	**3.8**	3	5	0
		22%	52%	11%	11%	0%	4%	78%	**76%**	11%	19%	0%
4	Bookstores	5	12	2	4	0	4	3.8	**3.7**	1	3	4
		19%	44%	7%	15%	0%	15%	76%	**74%**	4%	11%	15%
B. Administrative Offices:												
5	Students' affairs office in your department	5	12	5	2	0	3	3.8	**3.5**	0	3	5
		19%	44%	19%	7%	0%	11%	76%	**70%**	0%	11%	19%
6	Administrative offices in the college	5	12	7	2	1	0	3.7	**3.1**	0	6	2
		19%	44%	26%	7%	4%	0%	74%	**62%**	0%	22%	7%
C. Other Services:												
7	Health services	5	8	6	3	0	5	3.7	**3**	1	2	5
		19%	30%	22%	11%	0%	19%	74%	**60%**	4%	7%	19%
8	Food services	7	5	4	5	4	2	3.2	**2.4**	3	2	2
		26%	19%	15%	19%	15%	7%	64%	**48%**	11%	7%	7%
9	Parking	7	7	5	1	2	5	3.7	**3.2**	3	2	2
		26%	26%	19%	4%	7%	19%	74%	**64%**	11%	7%	7%
10	Recreation and athletics	2	4	5	4	5	7	2.7	**1.5**	0	0	7
		7%	15%	19%	15%	19%	26%	54%	**30%**	0%	0%	26%
11	Others	0	5	1	2	0	19	3.4	**3.1**	0	2	3
		0%	19%	4%	7%	0%	70%	68%	**62%**	0%	7%	11%

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

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

Engineering ethics
Engineering ethics
I learned to always think out of the box , and to be a leader ...
Self dependent, leadership and sharpness
Matlab / excel
Working under pressure Teamwork experience
Time management How to communicate How to work in groups How to use new software's how to work in a lab how to deal with injustice professors
Teamwork Using softwares
pipsim eclipse excell
Many skills
It was not an easy experience but we did it
Group communication skills
I improved my presentation skills in addition to know more softwares that related to my major.
Solving problems
confidence - work under pressure - engineering thinking
Responsibility
Engineering skills, team work and all scientific skills (physics, chemistry, etc.)
Time management Task delegation within team work Logical thinking
Excel VBa Techlog Eclipse Pipsim Opsim
Communication /speaking
The program prepared me for the future career

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.

More workshops

language balance of certain keywords from arabic to English or the other way around

As a petroleum engineer they must prepared more field trips and how the work on it goes

to be more expert in programming to see what we learn in real oil industry

How to use more softwares that related to my major

working hard

Researchs

I think we should take summer course outside the KU to get experience

More programming skills

There is nothing more

Deep linking the theoretical part to the practical to understand the correct basis

Some computer programs for my field

No

No thing

Field visits where limited

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 practical visits are required

More practical visits are required

Good luck

Improve the relationship between doctor and students. Must listen to students more. High level exams and projects must be assessed well by instructor even if it looks easy for them.

More project and team working than theoretical Learning

Help students to get good job offers Stay in touch with students get students Better food

Help students by offering a job for them

Improve the teaching Techniques

Summer course should be outside the KU

Intensifying educational sessions outside the classroom will have an effective impact

I don't have any comments. Everything was good.

Build the trust between employers and students

A student gets the chance to re-take the final exam if he fails in it by a small grade (0.25-10 grades for example) to reach D grade instead of repeating the whole subject

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No thing

APPENDIX C:
CAC Meeting Minutes

College of Engineering and Petroleum
Office of Academic Assessment
MOM No.1 2022-/2023

CAC No.1 2022-2023		
26/10/2022	12:30 PM	Multi-Media Lab
Meeting Chair	Dr. Tariq Chaudhary	
Type of Committee	CAC	
Note taker	Ms. Rincy George	
Attendees	Dr. Tariq Chaudhary, Dr. Essam Ruqubah, Prof. H Kabir, Dr. Maha Faisal, Dr. Nabil Khachab, Dr.Jawad Alhachemi, Dr. Suhailah Al-Mutawa, Dr. Maali Al-Yousufi, Mr. Kanti Sarkar	
Absent with excuse	Dr. Raed Bourisli	

The meeting started at 12:38 pm. Dr. Tariq welcomed the attendees and the newly joined CAC members for Chemical and Computer Departments.

1. Review the Department Annual Assessment Reports for AY 2021-2022	
Discussion	1) Dr. Tariq thanked assessment coordinators from all departments for submitting the annual outcome assessment report. 2) Dr. Tariq summarized the salient findings from the annual report self-assessment form, which was based on the ABET checklist for Criterion 4 and 5 and was submitted by the assessment coordinator of each department. Most of the departments expressed confidence in the knowledge and ABET procedures related to continuous improvement and curricular items addressed in the annual assessment report. Only two departments, i.e. Chemical and Petroleum indicated insufficient knowledge of ABET procedures and expectations related to the continuous improvement process and requested OAA for explanation. Dr. Tariq assured assessment coordinators from these departments that a detailed meeting will be conducted with them later in the semester explaining the assessment procedure and best practices for the continuous improvement process. 3) Dr. Suhaila suggested to follow a template of annual assessment report based on the ABET self-study report so that assessment results are continuously reported in a unified manner following ABET's suggested guidelines. The participants agreed to the suggestion with Dr. Tariq promising to prepare the template for using it in preparation of this year's annual assessment report. 4) Dr. Tariq stressed on the following points regarding the continuous Improvement process: a) The use of performance indicators for assessing SOs.

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	b) The use of appropriate assessment tools (rubrics or checklists). c) Evaluation of SO based on a defined criteria and not on class averages. d) Continuous improvement actions based on SO evaluation results. 5) Regarding the curriculum, the following items were emphasized: **a)** Capstone design should conform to ABET requirements as circulated to the department chairs. **b)** A list of all capstone projects completed during the academic year should be provided in the annual assessment report as it is an ABET requirement. This implies that a record of all capstone projects needs to be maintained. **c)** According to the recent APPM requirement, evidence of all program criteria curricular items is to be maintained.
Conclusion	Participants agreed to take care of the noted observations while preparing annual assessment report for the current academic year.

Action Items:	Person Responsible	Deadline
Preparation of template for annual assessment report based on ABET SSR.	OAA	2nd week of Spring 2023 semester.
Inclusions of the discussed items related to the continuous improvement process and curriculum.	All Assessment Coordinators	End of Spring 2023

2. Finalization of time period for Student Outcome Assessment & Evaluation process	
Discussion	Chemical – Yearly Civil – Yearly Computer – 2 yearly Electrical – Yearly IMSE – 3 yearly Mechanical – 1.5 yearly Petroleum – 1.5 yearly
Conclusion	

Action Items	**Person Responsible**	**Deadline**
Update of department outcome assessment plan reflecting the adopted period	All assessment coordinators	End of Spring 2023

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3. Update on inclusion of PIs for SO assessment	
Discussion	1- Status of adoption of PI-based SO assessment procedures is as follows: Chemical – No Civil – No Computer – Yes Electrical – No IMSE – In process Mechanical – Yes Petroleum – No 2- Dr. Tariq stressed the need for adopting PI based SO procedures or any other similar procedure that is capable of fully assessing various aspects of each SO. 3- Dr. Tariq told that all departments is to let OAA know about the changes in relevance of SOs in courses for updating the ICEF database by 30th November 2022, and that no changes will be allowed after this date for AY 2022-2023.
Conclusion	

Action Items	Person Responsible	Deadline
Adoption of PI-based SO assessment process in required courses according to the updated department assessment plan.	All assessment coordinators	End of Spring 2023

4. Virtual Assessment Room (Spring 2021 CAC Meeting)	
Discussion	1) Dr. Tariq mentioned that the virtual assessment room must be ready during the ABET visit 2025. 2) Status of virtual assessment room in various departments is as follows: Chemical – Not yet, Civil – Yes Computer – Yes Electrical – Almost done IMSE – Yes Mechanical – Yes Petroleum – Yes
Conclusion	

Action Items	Person Responsible	Deadline
Fully operational virtual assessment room	All assessment coordinators	4th week of Spring 2023 semester

3

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5. Change in ABET EAC Criteria related to DEI		
Discussion	1) Dr. Tariq said that changes are made to the EAC criterion 5 (Curriculum) and Criterion 6 (Faculty) related to Diversity, Equity and Inclusion (DEI). These changes will be applicable from the 2023-24 ABET review cycle. It was noted that these changes need to be addressed by the department and college UPCs and are outside the scope of CAC. However, CAC members should be aware of these changes. 2) Dr. Suhaila suggested to invite Zain to do a seminar on importance of diversity as they have a specialized department dealing with it.	
Conclusion		
Action Items	Person Responsible	Deadline

6. Miscellaneous Items		
Discussion	1) ICEF and Exit Survey data for AY 2020-2021 a) The assessment and exit data for the AY 2021-2022 was presented and discussed during the meeting. b) Dr. Tariq asked the departments regarding the ICEF and Exit if they are able to carry out the CI process with this amount of data and are all outcome assessed according to the assessment plan? 2) Launch of Alumni and Employer Survey during the current academic year was discussed. 3) Formation and interaction with Industry Advisory Board(IAB) and Student Advisory Board(SAB) was also discussed.	
Conclusion		
Action Items	Person Responsible	Deadline
IAB and SAB activities	All assessment coordinators	End of Spring 2023

The meeting adjourned by 1:35 pm.

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MOM No.2 2022-/2023

CAC No.2 2022-2023		
13/03/2023	12:30 PM	Exhibition Hall
Meeting Chair	Dr. Tariq Chaudhary	
Type of Committee	CAC	
Note taker	Ms. Rincy George	
Attendees	Dr. Tariq Chaudhary, Dr. Essam Ruqubah, Prof. H Kabir, Dr. Nabil Khachab, Dr.Jawad Alhashemi, Dr. Suhailah Al-Mutawa, Dr. Maali Al-Yousufi, Mr. Kanti Sarkar	
Absent with excuse	Dr. Maha Faisal, Prof. Sorour	

The meeting started at 12:38 pm. Dr. Tariq welcomed the attendees.

1. Review of the action items from CAC meeting #1.	
Discussion	1) Preparation of template for annual assessment report based on ABET SSR. (Deadline: 2nd week of the spring semester 2023). The template was finalized in-time according to the comments received from CAC members. 2) Finalization of the time-period for the Student Outcome Assessment & Evaluation Process and revision to department outcome assessment plan (Deadline: End of spring 2023 semester). All departments have finalized the time-period for assessment and now working on the revisions to the outcome assessment plans. 3) Virtual Assessment Room. All departments are ready. OAA to take a tour of the virtual assessment room in two weeks time. Temporary access to OAA needs to be given. 4) PI based student outcome assessment and evidence collection. No significant progress since the last meeting. Departments to take necessary measures. 5) IAB and SAB activity summaries – Dr. Souhaila mentioned that IAB and SAB are proposed to meeting every year and every semester respectively. Meeting minutes to be included in the department annual assessment reports.
Conclusion	

Action Items:	Person Responsible	Deadline
Updated department outcome assessment plan	Each CAC member	End of Spring 2023
PI based student outcome assessment and evidence collection	Each CAC member	End of Spring 2023

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Office of Academic Assessment
MOM No.2 2022-/2023

Access and review of department virtual assessment rooms	OAA	2nd week of April 2023

2. Annual Assessment Report Template		
Discussion	All aspects of the Annual Department Assessment report were discussed. 1) PEOs: The programs need to provide the evidence of how the PEOs were reviewed by the constituents. Need to include meeting minutes in the annual department assessment report. 2) Continuous Improvement: The programs need to discuss the CI process based on the last year's data. Each program should assess student outcomes based on its outcome assessment plan. ICEF and Exit survey data for AY 2021-22 were already distributed to the departments. Include TAG reports as applicable in Appendices. 3) Curriculum – The titles of all capstone design projects from AY 2022-23 should be included. 4) Program Criteria – Provide a list of required courses where program criteria items are covered. Evidence of coverage from student work is also to be provided.	
Conclusion		
Action Items	**Person Responsible**	**Deadline**
Annual department assessment report	Each CAC member	End of Spring 2023

3. Review procedure for annual assessment report	
Discussion	The procedure for annual department assessment report review was include in the meeting presentation and distributed to all CAC members for reference. It is summarized below: 1. Virtual Review 2. Assessment report and all supporting material to be stored electronically. 3. OAA to be given remote access to the material. 4. What to include in the virtual assessment room? a) Department Annual Assessment Report. b) ALL Capstone projects from AY 2022-23. c) Relevant course folders. d) Evidence for student outcomes assessed during AY 2021-22. e) Evidence for coverage of program criteria items. f) Minutes of TAG meetings where assessment data is discussed, analyzed and continuous improvement decisions were made.

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	g) Minutes of relevant UPC meetings. h) Minutes of IAB meetings. i) Minutes of SAC meetings. 5. How the annual assessment report will be reviewed? The ABET PEV evaluation spreadsheet will be used for this review. A copy was provided to CAC members for their reference while preparing the annual assessment report.		
Conclusion			
Action Items		**Person Responsible**	**Deadline**
.Review of department annual assessment reports and feedback.		OAA	3rd week of Fall 2023

4. Other items (Review and update of assessment tools)			
Discussion	CAC members and OAA were assigned the task of reviewing the existing rubrics and checklists as well as creating new rubrics for missing student outcomes. Teams of two members were formed for this purpose as follows: • Lab report evaluation form and rubric (2 forms) – EE & CHEM (SO6) • Written report evaluation form and rubric (2 forms) – ME &IMSE (SO3) • Oral presentation evaluation form and rubric (2 forms) – ME & IMSE • Teamwork scoring rubrics (1 form) – CpE & CE (SO5) • Social responsibility/ Ethics – CpE & EE (SO4) • Lifelong learning – PE & CHEM (SO7) • Capstone design – OAA & CE (SO 2 & CRITERION 5)		
Conclusion			
Action Items		**Person Responsible**	**Deadline**
• Draft of new rubric/checklist or comments on existing one. • Review and comments by all CAC members. • Adoption		CAC members & OAA	10th April 2023 1ST May 2023 Fall 2023

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5. Lauch of Alumni survey and Employer survey			
Discussion	The result of the Alumni survey responses received so far were presented and all members were urged to use all means to get more responses. The results are summarized as follows: **Department** / **Responses** Chemical Engineering: 6 Civil Engineering: 11 Computer Engineering: 2 Electrical Engineering: 3 Industrial Engineering: 1 Mechanical Engineering: 9 Petroleum Engineering: 0		
Conclusion			
Action Items		Person Responsible	Deadline

6. Assessment Data ICEF and Exit Survey for Fall 2022-23 semester			
Discussion	1) ICEF and Exit data for AY 2022-23 Fall Semester was presented. CAC members expressed satisfaction with the number of responses..		
Conclusion			
Action Items		Person Responsible	Deadline

Meeting adjourned at 1:40 PM.

APPENDIX D:
Lab Safety Visit Reports

Office of Academic Assessment (OAA)
Laboratory Visit Report

Date: 10/11/2022	Visit time 10:30 AM	Department: Electrical Engineering
Attendees	Prof. Mohammed Baidas, Dr. Nabil Khachab, Dr. Mohammad Almulla, , Mr. Ahmad Hayssam, Mr. Abdulla Almekhyal, Mr. Mohammad Alhariri, Mr. Ahmed Saleh and Ms. Ghada Shehada – **Electrical Engineering Department** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) - **OAA**	
Labs Visited	Electronics I Lab – S02 A1 013 Energy Conversion Lab I – S00 A2 024	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to each department at KU-CEP. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues and examine lab procedures and deliverables (student lab reports) for compliance with relevant ABET standards. Given that lab safety issues in particular are directly recorded as program deficiencies/weaknesses by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings - Lab Safety	
Lab	**Observations**
Electronics Lab I (S02 A1 013)	• No lab safety manual was present. • No first aid kit present. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present. • Entrance and exit doors are electric; an instance of a person locked in the lab was mentioned. Lab has only one exit. • Lab lacks safety instructions/posters, exit signage, safety manual, emergency contact numbers and procedure to follow during an emergency. • Lab has a water hazard (water taps), conflicts with nature of work done (electrical) in lab.

Lab	Observations
Energy Conversion Lab I (S00 A2 024)	• No lab safety manual present. • No first aid kit present • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses • Fire extinguisher and fire blankets present • Lab lacks safety instructions/posters, exit signage, safety manual, emergency contact numbers and procedure to follow during an emergency. • Lab experiment machinery not bolted down. Emergency stop present. • Personal protective equipment not present • Improvised earthing installed in lab, was not present when the lab was first made operational was installed post-hoc • Door is propped open using an ad hoc stopgap (wooden wedge) • A low-pressure gas regulator and associated piping protrudes uncovered from wall; the regulator/piping is immediately beside lab entrance. Potential major hazard could result upon impact from heavy machinery used in lab.

2- Lab Safety Checklist

- The OAA prepared and distributed a "Laboratory Health and Safety Checklist" to be studied and completed by relevant lab personnel prior to lab visits
- Dr. Chaudhary communicated that the laboratory health and safety checklist should be used as a standard form and adapted to suit the requirements of individual labs. Prof. Baidas indicated that he will instruct EE lab personnel to use the checklist to conduct safety checks and provide a copy to OAA for record.

3- Lab report evaluation and grading rubric

- The OAA prepared and distributed two forms related to lab report evaluation. The first is a grading form entitled "Lab Report Evaluation Form" that displays all the graded elements of a lab report and student performance on 1-5 scales, while the second is a rubric featuring written descriptions of lab report grading elements. The latter gives written descriptions of what constitutes any of the individual scores (1-5) so that students could better understand how their work will be evaluated.
- At present, student grading rubrics for laboratories are not standardized.
- Dr. Chaudhary requested Prof. Baidas to furnish OAA with a few samples of graded student lab reports along with the tools used for assessment (grading checklist or rubric) before the end of the current semester for assessing compliance with ABET criteria (Student outcome 6).

4- Concluding remarks and recommendations

1) Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from engineering departments and lab personnel.
2) Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students.

It is further recommended that engineers and technicians must be properly trained and possibly certified in "Occupational Health and Safety".

3) Lab safety manuals need to be present in each lab.
4) Contact information and procedures to follow during an emergency need to be distinctly displayed.
5) A mechanism to conduct and record routine and systematic safety checks for all labs should be instituted.
6) It is necessary to provide First Aid Kits for all EE labs.
7) Water taps and Gas (LPG) regulators in all EE labs must be removed or securely turned off at the source.
8) Danger/Warning signs and labels, as well as safety posters must be displayed near lab entrances and within labs.
9) Some labs, e.g. high voltage lab and laser lab will require appropriate hazard signage posting in the corridors outside the labs.

5- Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 11:30 AM.

Office of Academic Assessment
Laboratory Visit Report

Date: 13/11/2022	Visit time 10:30 AM	Department: Mechanical Engineering
Attendees	Engr. Maryam Alshehhemah, Engr. Lotfi, Engr. Khalifa Alqalaf, Engr. Kumar – **Mechanical Engineering Department** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) - **OAA**	
Labs/Workshops Visited	Vibrations Lab – S01 B1 045 Instructional Fitting Workshop – S00 B1 060 Welding Room – S00 C1 059 Instructional Machine Shop – S00 B1 055 Instructional Metal Forming Workshop – S20 C1 056	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to each department at KU-CEP. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues and examine lab procedures and deliverables (student lab reports) for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
Vibrations Lab (S01 B1 045)	• Lab manual for conducting experiments present but needs update. • Expired first aid kit present (items in the first aid kit expired around 2013). • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present. • Door propped open using an ad hoc stopgap (a wastebasket). • Lab has two doors, and neither is clearly identified as an entrance or exit. Doors are electric which could cause a lock-in if there is an electrical problem.

	• Lab personnel reported that there were instances of students gaining access to the lab without authorization. Most probably, the students got another person with a keycard to open the door. Generally, the keycards currently in use could give access to many labs. • Lab lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Two liquified petroleum gas regulators and associated piping protrude uncovered from wall; fire extinguisher is located directly over one of the LPG regulators presenting a potential safety hazard. • Electrically operated lab equipment requires grounding where necessary. • The current layout of the lab/furniture/equipment is highly congested. Lab personnel expressed readiness to adjust lab layout to lessen congestion. • Some lab machinery is attached with improvised and unprofessional bolting/attachments. Duct tape present on some equipment indicating improvised maintenance.
Instructional Fitting Workshop (S00 B1 060)	• No first aid kit in workshop, workshop personnel indicated that the only first aid kit available has expired materials. • Workshop personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Workshop contains fire extinguisher/fire blanket. • Workshop lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Workshop features multiple hanging electrical sockets, which are not required and could invite toying. • Lack of PPE.
Welding Room (S00 C1 059)	• No first aid kit in workshop. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Emergency contact information and procedures were missing. Lab personnel have a casual attitude towards safety. • Fire extinguisher and fire blankets present. • Two Emergency showers with enclosure and drain present. However, these were shut down and the switch was located rather high on the wall. • Workshop lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Fume extractors present. However, lab personnel indicated these need to be checked for proper suction pressure. • One emergency shower in a back corridor of the welding workshop. This shower has no drain below and is not needed in the current arbitrary position it occupies. • Workshop lacks proper PPE for welding.
Instructional Machine Shop (S00 B1 055)	• No first aid kit in workshop. • Workshop contains two fire extinguishers and fire blankets. • One eyewash station present, a second eyewash station is required in this large workshop. • Workshop lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Workshop lacks personal protective equipment (PPE). • Machine oil stored in commercial water bottle and unmarked.

	• Door propped open using an ad hoc stopgap (a wooden wedge) • Lax attitude of lab personnel towards safety. • Emergency door exiting out of the building is locked down as it was malfunctioning.
Instructional Metal Forming Workshop (S00 C1 056)	• No first aid kit in workshop. • Workshop contains fire extinguisher/fire blanket. • Workshop lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Workshop does not contain an eyewash station. • No PPE.

2- Lab safety checklist

- The OAA prepared and distributed a "Laboratory Health and Safety Checklist" to be studied and completed by relevant lab personnel prior to lab visits.
- The laboratory health and safety checklists for the visited labs were not fully filled out and completed.
- Dr. Chaudhary communicated that the laboratory health and safety checklist should be used as a standard form and should be adapted to suit the requirements of individual labs.
- It is re-iterated to conduct safety inspection of all labs using a standardized form at a regular interval and the record be maintained in the labs as well in the office of Chief Engineer of the department.

3-Lab report evaluation and grading rubric

- The OAA prepared and distributed two forms related to lab report evaluation. The first is a grading form entitled "Lab Report Evaluation Form" that displays all the graded elements of a lab report and student performance on 1-5 scales, while the second is a rubric featuring written descriptions of lab report grading elements . The latter gives written descriptions of what constitutes any of the individual scores (1-5) so that students could better understand how their work will be evaluated.
- At present, student grading rubrics for laboratories are not standardized.
- It is again requested to submit samples of lab reports to OAA for assessing these for compliance with ABET criteria (Student Outcome 6).

4-Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from engineering departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that engineers and technicians must be properly trained and possibly certified in "Occupational Health and Safety".
3. Lab safety manuals need to be present in each lab.
4. Contact information and procedures to follow during an emergency need to be distinctly displayed.
5. A mechanism to conduct and record routine and systematic safety checks for all ME labs should be instituted.
6. PPEs appropriate to each ME lab/workshop should be provided in sufficient quantity and should be stored near the lab/workshop entrance.
7. It is necessary to provide First Aid Kits for all ME labs.

8. Unwanted gas (LPG) regulators in ME labs must be removed or securely turned off at the source.
9. Fire extinguishers located close to the LPG regulators should be immediately moved to another location.
10. Danger/Warning signs and labels, as well as safety posters must be displayed near lab entrances and within labs. Some labs/workshops may require warning signs on doors opening in a corridor.

5- Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 11:30 AM.

Office of Academic Assessment
Laboratory Visit Report

Date: 22/11/2022	Visit time 10:30 AM	Department: Civil Engineering
Attendees	Engr. Badr Alsaqabi, Engr. Talal Abdullah , Engr. Bensi Ann Achankunju (Env. Lab only), Mr. Haytham (Transportation lab only) – **Civil Engineering Department** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) - **OAA**	
Labs/Workshops Visited	Soil Mechanics Lab – S01 A1 010 Environmental Room – S01 A1 014 Highway Materials Lab – S00 A1 010 Superpave lab – S00 A1 011 Traffic Lab – S00 A1 007	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to each department at KU-CEP. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues and examine lab procedures and deliverables (student lab reports) for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
2- Summary of Findings- Lab Safety	
Lab	Observations

Soil Mechanics Lab (S01 A1 010)	• Lab manual for conducting experiments present but needs update. • No Material Safety Data Sheets (MSDS) in the lab. Lab engineers are not even aware of MSDS. • The lab is situated in the first floor; ground floor would be preferable due to the nature of work done in the lab. • Expired first aid kit present (holdover first aid kit from the Khaldiya campus). • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present. Fire extinguisher placed in a spot with restricted access (blocked by furniture). • Lab lacks personal protective equipment (referred to as PPE from here onwards). • Waste soil disposal is removed by university cleaning crew. • Lab has two doors, and neither is clearly identified as an entrance or exit. Doors are electric which could cause a lock-in if there is an electrical problem. • Door propped open using an ad hoc stopgap (a wooden wedge). • Lab lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Eyewash stations present. However, the lab engineers were ignorant about their purpose or use. • One of the eyewash stations was improperly used to supply water for the lab equipment (i.e. eyewash faucet connected to a hose in an improvised manner). It seems that University Facilities department was not contacted for this 'ingenuity'. • Sieves in the soil sieve shaker are open/uncovered, which may cause dust problem. This equipment may need specialized exhaust system or may need to be kept within an enclosure. • Very lax stance of lab technicians towards safety was noted.
Environmental Room (S00 A1 014)	• No first aid kit in the lab. • Material Safety Data Sheets (MSDS) for most chemicals used in the lab were available in a folder. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Lab contains fire extinguisher/fire blanket. Fire extinguisher placed directly over a liquefied petroleum gas (LPG) regulator with live connection to LPG. This arrangement may result in an accident while handling the fire extinguisher. It is suggested to change the location of fire extinguisher. • Lab lacks sufficient safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. Some warning signs present but insufficient. • All four fume hoods were not working at the time of visit. Engr. Talal mentioned that a specialized contractor would be providing the maintenance request for the fume hoods that have malfunctioning issues and discussions in this regard are underway. It was reported by Engr. Binsy on 7 Dec. 2022 that the maintenance department took necessary action and all four fume hoods are now functioning. • Acids placed in unlocked cabinet, some containers with chemicals are unmarked. • The lab's storage room-which contains various chemical substances, has large windows permitting sunshine. University safety department needs to be consulted on the suitability of such room for storage of chemicals. The storage

	cabinets have their own exhaust/ventilations ducts. However, ther is no sink, emergency shower, eye wash station or fire extinguisher in this room, which are usually a required feature for such storage rooms. Local health and safety regulations should be checked regarding this. • Lab lacks PPE. • Lab contains an emergency shower that is placed in an odd location without a drain. • Eye-wash stations are present and the engineer confirmed their proper functioning. • Lab work benches contain faucets supplying LPG. Safety hazards related to the use of LPG need to be clearly highlighted. • Currently, there is no safe mechanism of disposing off the chemicals and wastewater used in the lab experiments. • A separate, unlocked storage room adjacent to the lab contains pressurized argon gas cylinders. The cylinders are visible through the glass window in the corridor door. This adjacent room is also mislabeled as "General Purpose Teaching Lab – S01 A1 014F". Engineer not aware of the hazard level of argon gas.
Highway Materials Lab (S00 A1 010)	• No first aid kit in the lab. • No Material Safety Data Sheets (MSDS) in the lab. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present. Fire extinguisher placed over LPG regulator/piping. • Lab contains three unneeded LPG regulators with associated piping. • Emergency alarm over the lab's door was noted. The lab technician told that the alarm was inspected by University facilities department (Mr. Baha). • Lab lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • LA abrasion machine not enclosed with covering or an enclosure. Operation of this machine causes dust as well as noise hazard. • Acetone container stored in a storage room with other materials. Acetone is a highly flammable material and its container is not marked as flammable. Additionally, flammable materials need to be stored seperatly from other materials with appropriate precautions. • Lab lacks proper PPE for the students as well as the lab technicians/workers. • Eyewash station present and the lab engineer confirmed its working. • Lab technician remarked that he could hear operating machinery from another lab (soil lab). • Emergency shower with no drain was present. Handel of the emergency shower was disabled so that the students do not pull it intentionally or unintentionally.
Super pave Lab (S00 A1 011)	• No first aid kit in the lab. • No Material Safety Data Sheets (MSDS) in the lab. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Lab lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • The lab contains an emergency shower with no drain. • Lab contains non-operational fume hood.

	• Experiments involving bitumen are not conducted. Lab personnel remarked that experiments with bitumen proved to be very hazardous in the past due to lack of proper equipment and improper procedures.
Traffic Lab (S00 A1 007)	• No first aid kit in the lab. • Lab contains fire extinguisher/fire blanket. • Lab lacks sufficient safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. Lab personnel placed some safety signs on tables. • The lab's storage room contains storage shelves that are not securely fixed to the metal studs. Lab personnel reported an incident where the shelf was detatched from the wall and the stored material fell down.

2- Lab safety checklist

- The OAA prepared and distributed a "Laboratory Health and Safety Checklist" to be studied and completed by relevant lab personnel prior to lab visits.
- The laboratory health and safety checklists for the visited labs were not fully filled out and completed.
- Dr. Chaudhary communicated that the laboratory health and safety checklist should be used as a standard form and should be adapted to suit the requirements of individual labs.
- It is re-iterated to conduct safety inspection of all labs using a standardized form at a regular interval and the record be maintained in the labs as well in the office of Chief Engineer of the department.

3-Lab report evaluation and grading rubric

- The OAA prepared and distributed two forms related to lab report evaluation. The first is a grading form entitled "Lab Report Evaluation Form" that displays all the graded elements of a lab report and student performance on 1-5 scales, while the second is a rubric featuring written descriptions of lab report grading elements . The latter gives written descriptions of what constitutes any of the individual scores (1-5) so that students could better understand how their work will be evaluated.
- At present, student grading rubrics for laboratories are not standardized.
- It is again requested to submit samples of lab reports to OAA for assessing these for compliance with ABET criteria (Student Outcome 6).

4-Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from engineering departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that engineers and technicians must be properly trained and possibly certified in "Occupational Health and Safety".
3. Lab safety manuals need to be present in each lab.
4. Material Safety Data Sheets (MSDS) need to be present in each lab as appropriate and the lab engineers should understand specific hazard of each substance used in the lab.
5. Contact information and procedures to follow during an emergency need to be distinctly displayed.

6. A mechanism to conduct and record routine and systematic safety checks for all CE labs should be instituted.
7. Fume hoods should be functional according to the requirement of each lab. These should also be inspected at a regular interval.
8. Storage rooms for chemicals and flammable lab materials should follow local safety regulations and recognized best practices.
9. Storage racks should be properly secured to structural elements and load limts should be posted as applicable.
10. PPEs appropriate to each CE lab should be provided in sufficient quantity and should be stored near the lab entrance.
11. Different kind of waste materials resulting from lab experiments should be properly collected, stored and disposed off according to the nature of the waste.
12. It is necessary to provide First Aid Kits for all CE labs.
13. Unwanted gas (LPG) regulators in CE labs must be removed or securely turned off at the source.
14. Fire extinguishers located close to the LPG regulators should be immediately moved to another location.
15. Drains should be placed under safety showers that do not currently have them. Unwanted safety showers must be removed.
16. Danger/Warning signs and labels, as well as safety posters must be displayed near lab entrances and within labs. Some labs may require warning signs on doors opening in a corridor.
17. Lab work involving bitumen should be reintroduced provided proper and safe procedure is followed. All necessary equipment and lab conditions must be provided to permit safe lab work without resorting to improvised and possibly dangerous solutions.

6- Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 12:20 PM.

Office of Academic Assessment
Laboratory Visit Report

Date: 04/12/2022	Visit time 10:30 AM	Department: Computer Engineering
Attendees	Engr. Shahad Alenezi , Engr. Hanadi Alrasheedi, Engr. Hadeel Alqouz – **Computer Engineering Department** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) - **OAA**	
Labs/Workshops Visited	Microprocessor Lab – S03 B1 017 Artificial Intelligence Lab – S03 B1 022 Software and Information Systems Lab - S03 B1 029	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to each department at KU-CEP. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues and examine lab procedures and deliverables (student lab reports) for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
3- Summary of Findings- Lab Safety	

Lab	Observations
Microprocessor Lab (S03 B1 017)	• Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present. Fire extinguisher placed in a spot with restricted access. • Lab lacks sufficient safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Lab has 1 door for exit/entry. Second door in lab leads to adjoining room and not a hallway. • Lab utilizes several extension cords, a safer and more permanent electrical setup is recommended. • Some electical cords/wires positioned in untidy tangles , posing potential trip hazards. • Lab door was propped open with improvised door wedge. • Lab personnel remarked that they have an email which acts as a “hotline” to report safety and security issues.
Artificial Intelligence Lab (S03 B1 022)	• Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Lab contains 2 fire extinguishers/fire blankets. • No first aid kit. • Lab lacks sufficient safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency • Lab has two doors for exit/entry.
Software and Information Systems Lab (S03 B1 029)	• No first aid kit. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present. • A student with food and drink at a computer station was present in the lab before the start of lab visit. How the student attained access is unclear, and whether the access was authorized is also unclear. Need to make sure no unauthorized access to students and no food/drinks in the labs.

2- Lab safety checklist

- The OAA prepared and distributed a “Laboratory Health and Safety Checklist” to be studied and completed by relevant lab personnel prior to lab visits.
- The laboratory health and safety checklists for the visited labs were not fully filled out and completed.
- Dr. Chaudhary communicated that the laboratory health and safety checklist should be used as a standard form and should be adapted to suit the requirements of individual labs.
- It is re-iterated to conduct safety inspection of all labs using a standardized form at a regular interval and the record be maintained in the labs as well in the office of Chief Engineer of the department.

3-Lab report evaluation and grading rubric

- The OAA prepared and distributed two forms related to lab report evaluation. The first is a grading form entitled "Lab Report Evaluation Form" that displays all the graded elements of a lab report and student performance on 1-5 scales, while the second is a rubric featuring written descriptions of lab report grading elements . The latter gives written descriptions of what constitutes any of the individual scores (1-5) so that students could better understand how their work will be evaluated.
- Student grading rubrics for lab reports need to be standardized, distributed to the students and utized for grading.
- It is requested to submit samples of lab reports to OAA for assessing these for compliance with ABET criteria (Student Outcome 6).

4-Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from engineering departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that engineers and technicians must be properly trained and possibly certified in "Occupational Health and Safety".
3. Following the conclusion of the lab visit and in a conversation with CpE Chairman Dr. Mohammad Alfailakawi, Dr. Alfailakawi stated that the college needs to address an issue with its fiber optics network boxes. Namely, that these fiber optic boxes do not close securely and cannot be locked as well. Dr. Alfailakawi further remarked that this issue is present college-wide.
4. During the course of the lab visit, the CpE department engineers remarked that the department has an online system to organize lab safety checks. This system was developed in-house by a CpE engineer. The possibility of introducing similar paperless systems to report regular lab safety checks in other departments at the college should be explored.
5. Lab safety manuals need to be present in each lab.
6. Contact information and procedures to follow during an emergency need to be distinctly displayed.
7. A mechanism to conduct and record routine and systematic safety checks for all CpE labs should be instituted.
8. PPEs appropriate to each CpE lab/workshop should be provided in sufficient quantity and should be stored near the lab/workshop entrance.
9. It is necessary to provide First Aid Kits for all CpE labs that require them.
10. Use of extension cords should be minimized in favor of more secure and permanent electrical setups. Trip hazards resulting from untidy electrical cords/wire positioning must be avoided.
11. It is necessary to ensure that electrical equipment is properly grounded in all labs.
12. Unwanted gas (LPG) regulators in CE labs must be removed or securely turned off at the source.
13. Fire extinguishers located close to the LPG regulators should be immediately moved to another location.

7- Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 12:20 PM.

Office of Academic Assessment
Laboratory Visit Report

Date: 13/12/2022	Visit time 10:30 AM	Department: Chemical Engineering
Attendees	Dr. Ghanima Alsharah – **Chemical Engineering Department** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) - **OAA**	
Labs/Workshops Visited	Process Heat Transfer Lab – S02 B1 047 Process Dynamics and Control Lab – S00 B2 030 Fluids Teaching Lab - S00 B2 035 Mass Transfer Lab - S00 B1 037	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to each department at KU-CEP. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues and examine lab procedures and deliverables (student lab reports) for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
4- Summary of Findings- Lab Safety	
Lab	Observations
Process Heat Transfer Lab (S02 B1 047)	• Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present, 2 of each in lab. One of the fire extinguishers is positioned over an LPG regulator/piping. • Lab has a holdover first aid kit from the Khaldiya campus, a new first aid kit is required. • Lab has some safety signs, lab personnel stated that they contacted the Managing Director's Office and personnel from that office hung the signage. • Lab contains some PPEs including safety goggles and heat resistant gloves. • Lab personnel remarked that a systematic waste disposal procedure should be implemented. They stated that a waste disposal contractor was available in Khaldiya, not so in Shadadiya. • Lab contains an unidentified alarm, this alarm is present in other labs in the College. Lab personnel are unsure of this alarm's purpose. • Lab personnel stated that a lock-in incident occurred last year where a lab user was locked in the lab due to electrical failure rendering lab door unopenable. Some lab personnel/users resort to using door wedges to avoide potential lock-ins. • What appeared to be an emergency fuse/breaker in the lab was unlabeled and had no visible warning sign. • Lab has an emergency safety shower with no drain. • Eyewash stations present and functional. • Lab personnel resort to an improvised method to supply water for lab (hose fixed to eyewash station). Method misuses safety equipment in addition to posing a danger of electrical hazard. • No wheel lock on a trolley with heavy machinery, trolley is movable and presents a potential safety hazard.
Process Dynamics and Control Lab (S00 B2 030)	• Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Lab contains 2 fire extinguishers/fire blankets. • Lab has some safety signs, lab personnel stated that they contacted the Managing Director's Office to receive permission to hang the signage. • **Lab has an emergency safety shower with no drain. There is a floor mounted electrical port panel directly below the safety shower. The lab personnel have taped over this electrical port panel to protect ingress of**

	water and initiation of an electrical emergency. The current situation is extremely hazardous the safety of lab users and should be immediately addressed. • Lab contained a high voltage breaker that does not have associated warning sign or identification. • Lab contains 1 LPG regulator with associated piping. • Lab contains a functional fume hood that is not required for the operations of the lab. • Eyewash stations present, might require draining as part of regular maintenance. • Lab personnel in this lab also resort to an improvised method to supply water for lab (hose fixed to eyewash station). Method misuses safety equipment. • Lab personnel reported that they have had problems opening the lab's backdoor which leads to the outdoors. • **Lab has movable workbench containing heavy equipment and there are no wheel locks. The movable workbench presents a potential safety hazard and should be addressed on urgent basis.**
Fluids Teaching Lab (S00 B2 035)	• Lab manual for conducting experiments not present. • Lab safety manusl not present. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets present, one fire extinguisher is positioned over an LPG regulator/piping. • Lab contains LPG regulators with associated piping. • Lab contains retractable extensions cords (hanging from the ceiling) which are unneeded. • Lab contains a safety shower with no drain. There are several other floor drains in the lab that are unneeded, none of which service the safety shower. • Lab contains an unneeded fume hood. In its present state, the fume hood needs calibration. • **Lab contains a fire cabinet that is surplus to requirements. Other labs (see Mass Transfer Lab – S00 B1 037) which require a cabinet of this or similar nature do not currently have one.** • Door wedges observed in lab, used to prop door open.
Mass Transfer Lab (S00 B1 037)	• Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Lab has a holdover first aid kit from the Khaldiya campus, a new first aid kit is required. • Fire extinguishers and fire blankets present, one fire extinguisher is positioned over an LPG regulator/piping. • Lab has some safety signs. Though in one case NFPA safety sheet relating to acetone was not visible (placed in drawer). NFPA hazard rating sign visible and posted. • Lab contains 2 LPG regulators with associated piping. • Lab has a holdover first aid kit from the Khaldiya campus, a new first aid kit is required. • Lab has insufficient PPEs. Safety gloves present. Lab personnel stated that safety goggles are required specifically. • **The lab location was originally designated as Civil Engineering's stress analysis lab and was then swapped to function as Chemical Engineering's mass transfer lab. Lab personnel reported that the current location does not serve their needs. Some of the issues with the current location are as follows:**

	a) <u>Current location is for a dry lab which does not fit Mass Transfer lab's needs.</u> **b) <u>Location lacks three- phase power.</u>** **c) <u>Poor ventilation in location, lab personnel resort to improvising ventilation using windows.</u>** **d) <u>Location lacks designated outdoor space to place the lab's boiler. Boiler is currently stored in the lab and uninstalled.</u>** **e) <u>Location lacks the necessary chemical/fire cabinet(s).</u>**

2- Lab safety checklist

- The OAA prepared and distributed a "Laboratory Health and Safety Checklist" to be studied and completed by relevant lab personnel prior to lab visits.
- The laboratory health and safety checklists for the visited labs were not fully filled out and completed.
- Dr. Chaudhary communicated that the laboratory health and safety checklist should be used as a standard form and should be adapted to suit the requirements of individual labs.
- It is re-iterated to conduct safety inspection of all labs using a standardized form at a regular interval and the record be maintained in the labs as well in the office of Chief Engineer of the department.

3-Lab report evaluation and grading rubric

- The OAA prepared and distributed two forms related to lab report evaluation. The first is a grading form entitled "Lab Report Evaluation Form" that displays all the graded elements of a lab report and student performance on 1-5 scales, while the second is a rubric featuring written descriptions of lab report grading elements . The latter gives written descriptions of what constitutes any of the individual scores (1-5) so that students could better understand how their work will be evaluated.
- At present, student grading rubrics for laboratories are not standardized.
- Dr. Chaudhary communicated to ChE lab personnel the necessity of including grading rubrics with clear written descripions of grading elements in their lab assignment handouts and on other relevant platforms for communication with students.
- It is again requested to submit samples of lab reports to OAA for assessing these for compliance with ABET criteria (Student Outcome 6).

4-Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from engineering departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that engineers and technicians must be properly trained and possibly certified in "Occupational Health and Safety".
3. Lab safety manuals need to be present in each lab.
4. Contact information and procedures to follow during an emergency need to be distinctly displayed.
5. A mechanism to conduct and record routine and systematic safety checks for all ChE labs should be instituted.
6. PPEs appropriate to each ChE lab/workshop should be provided in sufficient quantity and should be stored near the lab/workshop entrance.
7. It is necessary to provide First Aid Kits for all ChE labs that require them.
8. Unwanted gas (LPG) regulators in ChE labs must be removed or securely turned off at the source.

9. Fire extinguishers located close to the LPG regulators should be immediately moved to another location.
10. Safety showers with no drain should be provided one or removed, as is deemed necessary. **Safety Showers positioned near electrical hazards should be immediately and swiftly removed to avoid potential major electrical hazard.**
11. On the one hand, lab equipment such as fire cabinets or fume hoods which are surplus to requirements in a certain lab should be removed where neccessary. On the other hand, labs which require such specialized equipment must be provided with them to safeguard against major hazard and fully enable the teaching capacity of the lab.
12. Unwanted retractable electrical outlets should be removed.
13. A reliable, readily accessible source of water must be provided for all labs that require water for lab work. Improvised/ad hoc solutions should be discouraged.
14. Danger/Warning signs and labels, as well as safety posters must be displayed near lab entrances and within labs. Some labs/workshops may require warning signs on doors opening in a corridor. Where necessary, NFPA hazard rating warning lables must be clearly displayed along with the relevant material safety data sheet.
15. Heavy machinery must be placed on surfaces/equipment that are functionally immovable. Trolleys/tables with wheels should be provided with a wheel lock if their use involves bearing heavy machinery.

5-Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 12:05 PM.

Office of Academic Assessment
Laboratory Visit Report

Date: 01/12/2022	Visit time 11:00 AM	Department: Industrial and Management Systems Engineering

Attendees	Dr. Esra Aleisa , Engr. Dalal Alenezi, Mr. Kanti Sarkar– **Industrial and Management Systems Engineering Department** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) - **OAA**
Labs/Workshops Visited	Design Studio – S04 C2 025A Acoustic/ Noise Studio – S04 C2 024 Design Studio - S04 C2 019

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to each department at KU-CEP. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues and examine lab procedures and deliverables (student lab reports) for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
Design Studio (S04 C2 025A)	• No Fire extinguisher/ fire blanket. • Lab lacks sufficient safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Lab utilizes multiple extension cords, a more permanent solution to power the lab's electrical devices is reommended. • Some electrical cords in lab are bundled and situated in a way that may present a trip hazard. • The lab has a glass door. Need to find out whether it is OK.
Acoustic/ Noise Studio (S04 C2 024)	• No Fire extinguisher/ fire blanket. • Lab lacks sufficient safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. Some warning signs present but insufficient.
Design Studio (S04 C2 019)	• Fire extinguisher and fire blankets present • Lab lacks safety instructions/posters, exit signage, lab safety manual, emergency contact numbers and procedure to follow during an emergency. • Lab has standard-sized lab door, as opposed to several other labs with smaller doors.
2- Lab safety checklist	

- The OAA prepared and distributed a "Laboratory Health and Safety Checklist" to be studied and completed by relevant lab personnel prior to lab visits.
- The laboratory health and safety checklists for the visited labs were not fully filled out and completed.
- Dr. Chaudhary communicated that the laboratory health and safety checklist should be used as a standard form and should be adapted to suit the requirements of individual labs.
- It is re-iterated to conduct safety inspection of all labs using a standardized form at a regular interval and the record be maintained in the labs as well in the office of Chief Engineer of the department.

3-Lab report evaluation and grading rubric

- The OAA prepared and distributed two forms related to lab report evaluation. The first is a grading form entitled "Lab Report Evaluation Form" that displays all the graded elements of a lab report and student performance on 1-5 scales, while the second is a rubric featuring written descriptions of lab report grading elements . The latter gives written descriptions of what constitutes any of the individual scores (1-5) so that students could better understand how their work will be evaluated.
- At present, student grading rubrics for laboratories are not standardized.
- It is again requested to submit samples of lab reports to OAA for assessing these for compliance with ABET criteria (Student Outcome 6).

4-Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from engineering departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that engineers and technicians must be properly trained and possibly certified in "Occupational Health and Safety".
3. Lab safety manuals need to be present in each lab.
4. Contact information and procedures to follow during an emergency need to be distinctly displayed.
5. A mechanism to conduct and record routine and systematic safety checks for all IMSE labs should be instituted.
6. It is necessary to provide First Aid Kits for all IMSE labs that require them.
7. Use of extension cords should be minimized in favor of more secure and permanent electrical setups. Trip hazards resulting from untidy electrical cords/wire positioning must be avoided.
8. It is necessary to ensure that electrical equipment is properly grounded in all labs.

5-Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 11:40 AM.

Office of Academic Assessment
College of Engineering & Petroleum
Laboratory Visit Report

Date: 4/4/2023	Visit time 11:15 AM	Department: Biological Sciences, College of Science.
Attendees	Dr. Dunia Algharabally (Coordinator of the Departmental Lab Safety Committee) , Mr. Abdullah Ashkanani (Teaching Assistant & Acting Chief of Technicians) **Dept. of Biological Sciences.** Dr. Tariq Chaudhary, Ms. Rincy George (note taker), Eng. Freya Saldhana - **Office of Academic Assessment (OAA),** College of Engineering & Petroleum.	
Labs Visited	Labs from each of the 5 progams within the Dept of Biological Sciences: Plant Biology, Animal Biology, Molecular Biology, Biochemistry, Microbiology.	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to the College of Science labs which are used for the courses taken by the College of Engineering and Petroleum (COEP) students. The purpose of this visit is to take note of possible occupational safety issues in the labs for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
Lab- 0490-101 Course	• A lab safety manual was not present in the lab, but it was told that the lab safety regulations are taken in a pre-lab session by the students followed by a quiz the following lab, which shows the level of committemnt to safety by the Department of Biological Sciences. However, OAA team requested to have a copy of the lab safety manual in the lab as a reference. • OAA team was told that the College of Science is considering to introduce a non-credit Laboratory Safety course that all science students must take prior to registering in 1st year departmental courses. Passing the exam would be a requirement for registering departmental courses. First aid kit was not present in

	the teaching lab, but is present in the adjoining pre-lab of the lab technician. It was told that the department is waiting for the delivery of new first aid kits after moving to the new campus. • Lab personnel are given periodic safety training (first aid, fire safety, etc.). The last such training was conducted about two years ago at the new campus after everyone shifted from the old campus. • Fire extinguisher and fire blankets were present. However, the fire extinguisher was not mounted on the wall and was simply placed on the floor near to the door. It was notified that the fire extinguisher should be mounted on the wall per OSHA and NFPE guidelines. Dr. Algharabally explained that the issue of wall mounting of fire extinguishers has been taken up with the university's health and safety officers. However, the department is restricted by the current university's rule which prohibits attaching anything to the walls due to the warranty issue of the new buildings. • No lab safety guideline posters were displayed in the lab. Dr. Algharabally was aware of this and cited the warranty issue for not currently complying with this. She added that once they are allowed to do so, the dept will hang all the safety guideline posters that were transferred from the old campus. However, emergency contact numbers were taped on to the lab doors. • On inquiry, OAA was told that the department has a well structured safety set up headed by Dr. Algarabally and comprises of a team of lab assistants (one from each of the 5 programs). The department safety setup is also linked with the College level safety committee with outreach to the University Safety and Security department. The department and the College of Science is currently updating the safety manuals at the College and the Department levels and once approved, these documents will be available online. • OAA team was also told that a specilaized outside company is responsible for collecting and disposing off various types of lab waste (biohazard,chemhazard, as well as sharp objects such as blades and broken glassware). Each type of waste is properly segregated and stored within a secure place in the lab before it is collected by the outside company. Quantity of each type of lab waste is logged in the Department record as well. • OAA team was told that personal lab safety measure are strictly enforced while conducting experiments and students are not allowed in the lab if they do not comply with these requirements, especially in terms of wearing a lab coat and avoiding loose apparel, hair or head garments. • The issue of lab door lock-in during a fire event is a design flaw and currently the policy of forced-open entrance to the lab is adopted while the lab is in use to avoid any personal harm to the lab users during such an event. The issue is currently being discussed with the University Facilities department. • The department has a form to report any lab safety related incidence. However, no incidence has yet been reported since the transfer to the new campus.
2-Concluding remarks and recommendations	
1. Safety-related issues in the Department of Biological Sciences are currently being addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from various departments and lab personnel. 2. It is necessary to have documentation of lab safety structure in the College of Science and Department of Biological Sciences showing relationship between various entities and clearly defining their responsibilities.	

3. A mechanism to conduct and record routine and systematic safety checks as well as periodic maniteance work for all labs should be instituted. Such a record can also document occurrance / non-occurance of lab safety incidents during the reported period.
4. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that lab technicians and teaching assistants must be properly trained and possibly certified in "Occupational Health and Safety".
5. Lab safety manuals, in either physical or electrnoic form, need to be present in each lab.
6. It is necessary to provide First Aid Kits for all teaching labs (not only adjoining technician prep-labs).
7. Fire extinguishers should be wall mounted according to OSHA and NFPE guidelines as shown on the last page of this report.

3- Disclaimer

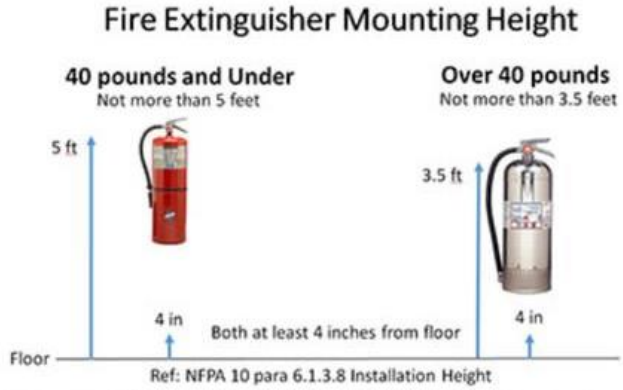
The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 12:45 PM.

Guidelines for mounting of portable fire extinguishers

osha.gov

Installation:



To prevent fire extinguishers from being moved or damaged, they should be mounted on brackets or in wall cabinets with their carrying handles placed 3-1/2 to 5 feet above the floor, depending on the type of extinguisher. Those with gross weights of no more than 40 pounds (lbs.) should be mounted with their carrying handles no higher than 5 feet from the floor. Larger fire extinguishers (over 40 lbs. gross weight) need to be mounted at lower heights, with their carrying handles no more than 3-1/2 feet from the floor. All hand-portable fire extinguishers need to have at least 4 inches of clearance between their bottoms and the floor.

Before installing any portable fire extinguisher, check the label to be sure it is approved by a nationally recognized testing laboratory. [29 CFR 1910.157(c)(2)]

Prohibited Fire Extinguishers:

The following types of portable fire extinguishers

Office of Academic Assessment
Laboratory Visit Report

Date: 4/4/2023	Visit time 11:15 AM	Department: Microbiology (College of Science)
Attendees	Dr. Dunia Algharablly (Microbiology Department), Dr. Tariq Chaudhary, Ms. Rincy George (note taker), Eng. Freya Saldhana - **OAA**	
Labs Visited	Microbiology - 003	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to the College of Science labs which are used for the courses taken by the College of Engineering and Petroleum (COEP) students. The purpose of this visit is to take note of possible occupational safety issues in the labs for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
Microbiology 003	• Lab safety manual was not present in the lab but it was told that lab safety is taken as a pre-lab session by the students followed by a quiz/exam. Passing the quiz/exam is a pre-req for registering the course, which shows the level of committemnt to safety by the Microbiology department. However, it was requested to have a copy of the lab safety manual in the lab as a reference. • First aid kit was not present in the lab as the department was waiting for its delivery after moving to the new campus. • Lab personnel are given periodic safety training (first aid, fire safety, etc.). The last such training was conducted about two years ago. • Fire extinguisher and fire blankets were present. However, the fire extinguisher was not mounted on the wall and was simply placed on the floor near to the door. It was notified that the fire extinguisher should be mounted on the wall per OSHA and NFPE guidelines. Dr. Algharablly explained that the issue of wall mounting of fire extinguishers has been taken up with the University facilties department which currently prohibits attaching anything to the walls due to the warranty issue of the new buildings. • No Exit signage or lab safety guideline posters were displayed in the lab. Dr. Algharablly was aware of this and cited the warranty issue for not currently

	complying with this. However, emergency contact numbers were taped on to the lab doors. • On inquiry, OAA was told that the department has a well structured safety set up headed by Dr. Algarablly and comprises of a team of lab assistants. The department safety setup is also linked with the College level safety committee with outeach to the University Safety and Security department. The department and the College of Science is currently updating the safety manuals at the College and the Department levels and once approved, these documents will be available online. • OAA team was also told that a specilaized outside company is responsible for collecting and disposing off various types of lab waste. Each type of waste is properly segregated and stored within a secure place in the lab before it is collected by the outside company. Quantity of each type of lab waste is logged in the Department record as well. • OAA team was told that personal lab safety measure are strictly enforced while conducting experiments and students are not allowed in the lab if they don't comply with these requirements, es[ecially in terms of loose apparel, hairs or head garments. • The issue of lab door lock-in during a fire event is a design flaw and currently the policy of forced-open entrance to the lab is adopted while the lab is in use to avoid any personal harm to the lab users during such an event. The issue is currently being discussed with the University Facilities department. • The department has a form to report any lab safety related incidence. However, no incidence has yet been reported.

2-Concluding remarks and recommendations

1. Safety-related issues in the Microbiology department are currently being addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from various departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that lab technicians and teaching assistants must be properly trained and possibly certified in "Occupational Health and Safety".
3. Lab safety manuals, in either physical or electrnoic form, need to be present in each lab.
4. It is necessary to provide First Aid Kits for labs.
5. Fire extinguishers should be wall mounted according to OSHA and NFPE guidelines as shown on the last page of this report.

3-Disclaimer

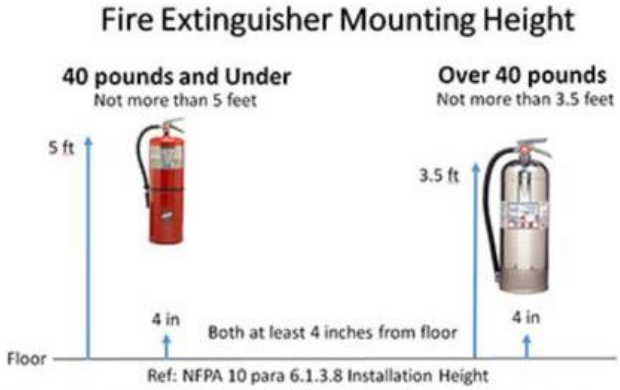
The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 12:45 PM.

Guidelines for mounting of portable fire extinguishers

osha.gov

Installation:



To prevent fire extinguishers from being moved or damaged, they should be mounted on brackets or in wall cabinets with their carrying handles placed 3-1/2 to 5 feet above the floor, depending on the type of extinguisher. Those with gross weights of no more than 40 pounds (lbs.) should be mounted with their carrying handles no higher than 5 feet from the floor. Larger fire extinguishers (over 40 lbs. gross weight) need to be mounted at lower heights, with their carrying handles no more than 3-1/2 feet from the floor. All hand-portable fire extinguishers need to have at least 4 inches of clearance between their bottoms and the floor.

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Prohibited Fire Extinguishers:

The following types of portable fire extinguishers

Office of Academic Assessment
College of Engineering and Petroleum
Laboratory Visit Report

Date: 4/4/2023	Visit time 10:00 AM	Department: Physics, College of Science.
Attendees	Engr. Mathukutty Joseph (Physics Department) Dr. Tariq Chaudhary, Ms. Rincy George (note taker), Eng. Freya Saldhana – Office of Academic Assessment (OAA), College of Engineering & Petroleum.	
Labs Visited	Physics 1 – SC O2 C1(031), 033, 036 Physics 2 – SC 02 C1(016)	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to the College of Science labs which are used for the courses taken by the College of Engineering and Petroleum (COEP) students. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
Physics 1 SC O2 C1(031), 033, 036 Physics 2 SC 02 C1(016)	• Lab safety manual was not present but it was told that lab safety is taken as a pre-lab session by the students during their 1st class. It was requested to have a copy of the lab safety manual in each lab. • First aid kit was not present in the lab as the department was waiting for its delivery after moving to the new campus. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. • Fire extinguisher and fire blankets were present. However, the fire extinguisher was not mounted on the wall and was simply placed on the floor near to the door. The lab manager was notified that the fire extinguisher should be mounted per OSHA and NFPE guidelines. The lab manager requested for such guidelines so that the department can request the University facilities department to do the needful. • No Exit signage or lab safety guideline posters were displayed in the lab.

	• The lab had LPG regulators with associated piping, which are not needed in the lab. On inquiry from Dr. Chaudhary, it was told that LPG supply is already shut off, there are no LPG cylinders connected to the pipes. It is also preferable to provide a box out around the LPG regulator and piping to prevent any damage/accident. • Doors are electric which could cause a lock-in if there is an electrical problem. • Door propped open using an ad hoc stopgap (a wooden wedge). • Emergency contact numbers were displayed on the door. • There is a safety officer in the Department but the lab manager didn't know if periodic lab safety checks are conducted and a record of such checks is kept. • The lab manager requested a soft copy of the COEP lab safety checklist so that it can be modified and adopted by the Physics department.

2- Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from various departments and lab personnel.
2. It is necessary to have documentation of lab safety structure in the College of Science with relationship between various entities and their responsibilities clearly defined.
3. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that lab technicians and teaching assistants must be properly trained and possibly certified in "Occupational Health and Safety".
4. Lab safety manuals need to be present in each lab.
5. Contact information and procedures to follow during an emergency need to be distinctly displayed in the labs.
6. A mechanism to conduct and record routine and systematic safety checks for all labs should be instituted.
7. It is necessary to provide First Aid Kits for all Physics labs.
8. Unwanted gas (LPG) regulators in the labs must be removed or securely turned off at the source.
9. Fire extinguishers should be wall mounted according to OSHA and NFPE guidelines as shown on the last page of this report.

3- Disclaimer

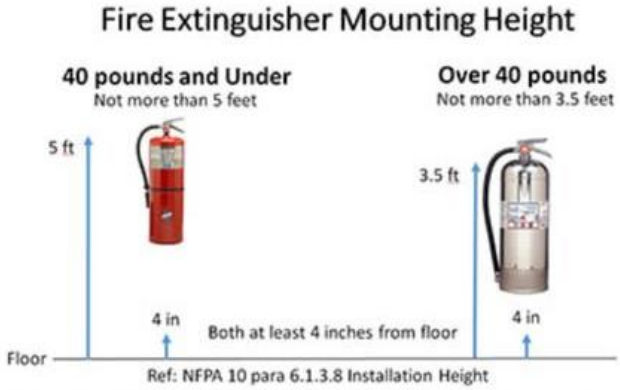
The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 11:10 AM.

Guidelines for mounting of portable fire extinguishers

osha.gov

Installation:



To prevent fire extinguishers from being moved or damaged, they should be mounted on brackets or in wall cabinets with their carrying handles placed 3-1/2 to 5 feet above the floor, depending on the type of extinguisher. Those with gross weights of no more than 40 pounds (lbs.) should be mounted with their carrying handles no higher than 5 feet from the floor. Larger fire extinguishers (over 40 lbs. gross weight) need to be mounted at lower heights, with their carrying handles no more than 3-1/2 feet from the floor. All hand-portable fire extinguishers need to have at least 4 inches of clearance between their bottoms and the floor.

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Prohibited Fire Extinguishers:

The following types of portable fire extinguishers

Office of Academic Assessment
College of Engineering & Petroleum
Laboratory Visit Report

Date: 30/4/2023	Visit time 10:00 AM	Department: Chemistry (College of Science)
Attendees	Ms. Noor Ahmad, Ms. Sakina Abbas **(Chemistry Department)** Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker), **Office of Academic Assessment (OAA),** College of Engineering & Petroleum.	
Labs Visited	S03C1 014	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to the College of Science labs which are used for the courses taken by the College of Engineering and Petroleum (COEP) students. The purpose of this visit is to take note of possible occupational safety issues in the labs for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
S03C1 014	• Lab safety manual was not present in the lab, but lab personnel stated that lab safety is taught to the students in a pre-lab session and and that they are quizzed on the topic. The OAA team recommended that a copy of the lab safety manual be present in the lab as a reference. • First aid kit was not present in the lab. Lab personnel mentioned that a first aid kit is within range in a nearby room, though first aid kit is a holdover from Khaldiya and likely contains some expired materials. • Lab personnel expressed the need for safety related training courses on a regular basis. • Fire extinguisher and fire blankets were present. However, the fire extinguisher was not mounted on the wall, and was placed on the floor. Fire extinguisher should be wall mounted according to OSHA and NFPA guidelines. See the last page for these requirements. • Exit signage is needed. Lab personnel posted improvised safety procedure signage (some safety instructions, emergency contact information near outer door). More prominent, and permanently fashioned safety signange required. • Corrosive/flammable signs present on the compartments with such materials. Lab personnel stated that the lab does not use any flammable substance. However, diluted acids are regularly used.

	• PPE (goggles, hand protection) present. • Lab contained eyewash stations. Lab personnel related that the eyewash stations are regularly tested. However, no record of such testing is maintained. • The lab waste was being collected in improvised containers that were freely accessible. Appropriate procedures need to be adopted to storage of lab waste. • OAA team was told that a specilaized outside company is responsible for collecting and disposing of lab waste. An engineer at the department (Eng. Mohammad Tablawi) is the point of contact for facilitating waste disposal. • OAA team was told that personal lab safety measure are strictly enforced while conducting experiments and students are not allowed in the lab if they don't comply with these requirements, especially in terms of loose apparel, hairs or head garments. • Lab contains two exits. At the time of the visit one of the exits was temporarily closed pending renovations in adjacent hallway. • Lab contains an emergency safety shower with no drain. On inquiry, the OAA team was told that due to the lack of drain, the safety shower is not regularly tested. • Fumehoods in the lab were in working order and are regularly calibrated. The record of such calibration was not available in the lab. • Lab incident reporting form or other relevant documentation was not present.

2-Concluding remarks and recommendations

1. Safety-related issues in the Chemistry department are currently being addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from various departments and lab personnel. However, the lab personnel were not aware of the exact safety structure in the College and roles & responsibilities of various entities in this set-up.
2. It is necessary to have documentation of lab safety structure in the College of Science and Department of Chemistry showing relationship between various entities and clearly defining their responsibilities.
3. A mechanism to conduct and record routine and systematic safety checks as well as periodic maniteance work for all labs should be instituted. Such a record can also document occurrance / non-occurance of lab safety incidents during the reported period.
4. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that lab technicians and teaching assistants must be properly trained and possibly certified in "Occupational Health and Safety". Proper documentation of such courses should also be kept for future reference.
5. Lab safety manuals, in either physical or electrnoic form, need to be present in each lab.
6. It is necessary to provide First Aid Kits for Chemistry labs.
7. Material Safety Datasheets (MSDS) should be available in print or as a soft copy.
8. Fire extinguishers should be wall mounted according to OSHA and NFPE guidelines as shown on the last page of this report.
9. Exit signage and prominently placed safety instructions/signage should be displayed in each lab. Such signages should be of a permanent nature rather than stem from individual initiative.

3-Disclaimer

The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or

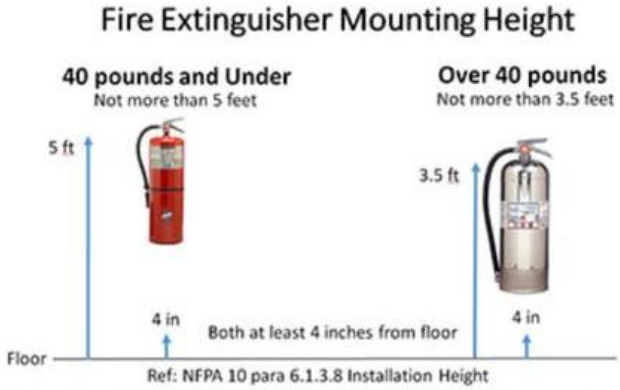
regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 11:15 AM.

Guidelines for mounting of portable fire extinguishers

osha.gov

Installation:



Ref: NFPA 10 para 6.1.3.8 Installation Height

To prevent fire extinguishers from being moved or damaged, they should be mounted on brackets or in wall cabinets with their carrying handles placed 3-1/2 to 5 feet above the floor, depending on the type of extinguisher. Those with gross weights of no more than 40 pounds (lbs.) should be mounted with their carrying handles no higher than 5 feet from the floor. Larger fire extinguishers (over 40 lbs. gross weight) need to be mounted at lower heights, with their carrying handles no more than 3-1/2 feet from the floor. All hand-portable fire extinguishers need to have at least 4 inches of clearance between their bottoms and the floor.

Before installing any portable fire extinguisher, check the label to be sure it is approved by a nationally recognized testing laboratory. [29 CFR 1910.157(c)(2)]

Prohibited Fire Extinguishers:

The following types of portable fire extinguishers

Office of Academic Assessment
College of Engineering & Petroleum
Laboratory Visit Report

Date: 30/4/2023	Visit time 11:00 AM	Department: Geology (College of Science)
Attendees	Mrs. Nehaya Said (Geology Department) Dr. Tariq Chaudhary, Mr. Soud Alrashed (note taker) **Office of Academic Assessment (OAA),** College of Engineering & Petroleum.	
Labs/Workshops Visited	Petrology – SC 03 C2 208	

Introduction	As part of the Office of Academic Assessment's continued efforts to ensure compliance with ABET accreditation requirements, the OAA is conducting lab visits to the College of Science labs which are used for the courses taken by the College of Engineering and Petroleum (COEP) students. The purpose of these visits is to visit several labs within a given department and take note of possible lab safety issues for compliance with relevant ABET standards. Given that lab safety issues are directly recorded as program deficiencies by ABET, the OAA aims to raise institutional awareness of any potential issues in this regard and help initiate necessary remedial action.
1- Summary of Findings- Lab Safety	
Lab	Observations
Petrology SC 03 C2 208	• Lab safety manual was not present. Lab personnel stated that students are not quizzed on safety as this is a low hazard lab. • Lab personnel require safety training (first aid, fire safety, etc.) or require refresher courses. However, due to the low hazard bature of the lab, the lab personnel were not eager for such training. • Lab personnel was not aware of the safety structure in the department as well as the College. • Fire extinguisher and fire blankets were present. However, the fire extinguisher was not mounted on the wall and was simply placed on the floor and near LPG piping. The lab personnel was notified that the fire extinguisher should be wall mounted per OSHA and NFPE guidelines. • No Exit signage or lab safety guideline posters were displayed in the lab. • The lab had LPG regulators with associated piping, which are not needed in the lab. It needs to be ensured that the LPG supply is shut off at the source in the lab. It is also preferable to provide a box out around the LPG regulator and piping to prevent any damage/accident.

	• Emergency contact numbers were not displayed in lab. Additionally, procedures to follow in case of an emergency were also not displayed in the lab. • Lab contains an emergency safety shower with no drain. The shower has not been tested periodically. • Eyewash stations present in lab. Lab personnel stated that they were tested once. • Nature of lab work presents low dust hazard. The lab personnel stated that masks and protetive eyewear are used to protect against this hazard. • No lab safety incident reporting form was present in the lab.

2- Concluding remarks and recommendations

1. Safety-related issues should be addressed interdepartmentally, with involvement from the University Safety and Security Administration, the Office of the Managing Director of the College, as well as relevant members from various departments and lab personnel.
2. Workplace "First Aid, Fire Safety and Health" Training sessions/courses must be conducted on a regular basis, and should be mandatory for all engineers, technicians, and newly enrolled students. It is further recommended that lab technicians and teaching assistants must be properly trained and possibly certified in "Occupational Health and Safety".
3. It is necessary to have documentation of the lab safety structure in the College of Science and the Geology Department showing relationship between various entities and clearly defining their responsibilities.
4. A mechanism to conduct and record routine and systematic safety checks as well as periodic maniteance work for all labs should be instituted. Such a record can also document occurrance / non-occurance of lab safety incidents during the reported period.
5. Lab safety manuals need to be present in each lab.
6. Contact information and procedures to follow during an emergency need to be distinctly displayed.
7. It is necessary to provide First Aid Kits for all geology department labs.
8. Unwanted LPG regulators in the labs must be removed or securely turned off at the source.
9. Fire extinguishers should be wall mounted according to OSHA and NFPE guidelines as shown on the last page of this report.

3- Disclaimer

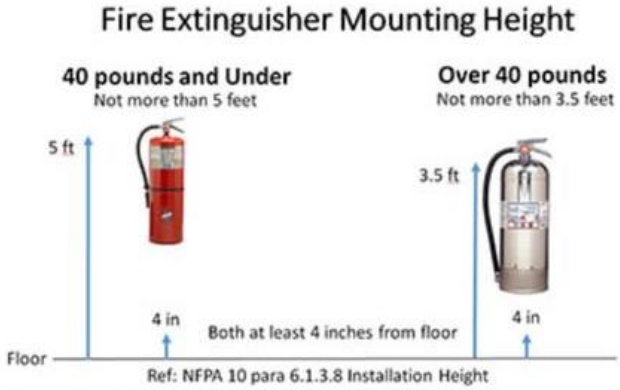
The lab visit by OAA neither constitute a thorough review of all safety issues of the visited labs nor does OAA offer opinions as to whether, or certify that, the visited facilities comply with any or all applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards and recognized best practices for safety.

Laboratory visit adjourned at 11:20 AM.

Guidelines for mounting of portable fire extinguishers

osha.gov

Installation:



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Prohibited Fire Extinguishers:

The following types of portable fire extinguishers

APPENDIX E:
Alumni and Employer Survey Forms

Appendix E-1

Alumni Survey Form

Kuwait University

College of Engineering & Petroleum
Office of Academic Assessment
ALUMNI SURVEY

P.O. Box 5969, Safat 13060, Kuwait *Tel.: +965 24983331/7706*

The College of Engineering and Petroleum at Kuwait University (KU) is dedicated to the continuous improvement of its undergraduate programs. Information you provide through this survey will be very helpful in this process and is much appreciated. All information will be confidential, and your input/comments will be combined with those of other alumni for an anonymous analysis as a group. Thank you for your cooperation and support.

E-mail: _____

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

Name: _____ Gender: ☐ Female ☐ Male

Year of Graduation: _____

Advanced Degrees (M.Sc./PhD if any): _____

University Honors/Recognitions (if any): _____

Membership in Professional Societies (if any): _____

Employment Status:
☐ Employed (Engingeering)
☐ Employed (Non-Engineering)
☐ Self Employed
☐ MSc/PhD Student
☐ Unemployed seeking job
☐ Unemployed not seeking job

Employer Classification:
☐ Ministry/Governoments
☐ Research/Academic
☐ Plants (Power/Water)
☐ Oil Production/Exploration
☐ Oil Refinery/Petrochemicals
☐ Investment (Company/Bank)
☐ Construction
☐ Manufacturing
☐ Consultation
☐ IT
☐ Telecommunications
☐ None (if unemployed)
Other: _____

Job Title: _____

Job Responsibilities:
☐ Project Management
☐ Design
☐ Maintenance
☐ Teaching
☐ Auditing/Review
☐ Planning

☐ Programming ☐ Operation/Inspection
☐ Product/Process Development ☐ Research
☐ Others

Employment Honors/Recognitions (if any): _____
Have you attended any professional/technical society conferences or meetings since graduation?
☐ Yes ☐ No

Have you participated in continuing education activities e.g. (short courses, seminars, conferences) since graduation? Yes ☐ No ☐

How connected do you feel to Kuwait University and your engineering department?
☐ Very well connected ☐ Well connected ☐ Little connected ☐ Not connected

Please evaluate/rate the following elements of program educational objectives according to:

a) How important there are to your career
b) The level of your attainment

Element of Educational Objectives	*Importance to employment*					*Level of attainment*			
	Extremely important	*Very important*	*Important*	*Somewhat important*	*Not important*	*Significant*	*Satisfactory*	*Somewhat Satisfactory*	
1. Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Contribution to the 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, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Career advancement (e.g., promotion to higher ranks/positions, increased responsibilities, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Degree advancement and continuing education (e.g., diplomas, formal course work, graduate courses, graduate degree, training, certificates and professional certification, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Staying current in the profession (e.g., participation in seminars and conferences, professional development	☐	☐	☐	☐	☐	☐	☐	☐	☐

courses and activities, membership in professional societies, etc.)

6. Use of leadership capabilities (e.g., promotion to leadership positions, ability to lead teams, supervisory skills and abilities, etc.) ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Please answer the following questions:

1. Rate your overall preparation at Kuwait University with respect to the following:

	Very well prepared	*Well prepared*	*Prepared*	*Somewhat prepared*	*Not prepared*
a) Be a technically competent engineer	☐	☐	☐	☐	☐
b) Obtain your first job after graduation	☐	☐	☐	☐	☐
c) Have the necessary professional skills to meet expectations of your job	☐	☐	☐	☐	☐
d) Contribute to the society as an engineer	☐	☐	☐	☐	☐
e) Be aware of your responsibility to consider sustainability in engineering solutions	☐	☐	☐	☐	☐
f) Pursue advanced degree	☐	☐	☐	☐	☐
g) Be an entrepreneur and start your own business	☐	☐	☐	☐	☐

2. Would you recommend Engineering programs of Kuwait University to a friend or a relative?
   ☐ Strongly recommend ☐ Recommend ☐ Don't recommend

3. The performance of Kuwait University engineering graduates at your workplace is comparable to their peers from other institutions.
   ☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

4. Taking the engineering training course during your studies at Kuwait University prepares you well in getting or succeeding in your first job.
   ☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

5. From the list below, please select three skills that you found to be the most beneficial in your job.
   - ☐ Application of Engineering principles & design
   - ☐ Use of software packages/modern engineering tools
   - ☐ Project management
   - ☐ Oral/written communication skills
   - ☐ Sustainability & societal impact of Engineering solutions
   - ☐ Teamwork
   - ☐ Creative thinking
   - ☐ Ability to seek new knowledge at your own

6. Please list three technical knowledge or professional skills that you think should be taught/emphasized in the Engineering program that you attended at Kuwait University.
   _____

7. Please select three most important items that will improve the academic experience of Kuwait University Engineering students.

   ☐ Classrooms (e.g. seating arrangement, comfort, visual lecturing aids, etc.)
   ☐ Library resources (e.g. textbooks, journals, project resources, etc.)
   ☐ Computing resources (e.g. WiFi, softwares, printing, etc.)
   ☐ Recreation (e.g. student clubs, social space, etc.)
   ☐ Supplemental instructions (e.g. hands-on tutorials, video lectures, online lecturing, etc.)
   ☐ Faculty-student interaction
   ☐ Parking
   ☐ Internship/interaction with practicing engineers/site visits

8. Would you like to attend the alumni meeting that will give you an opportunity to meet with your old friends and in which results of the survey will be discussed?
   ☐ Yes ☐ No

Appendix E-2

Employer Survey Form

Kuwait University
College of Engineering & Petroleum
Office of Academic Assessment

Employer Assessment of Engineering Graduates

P.O. Box 5969, Safat 13060, Kuwait *Tel: 2498-3331*

The College of Engineering and Petroleum at Kuwait University aims to improve the quality of its educational programs. As a major stakeholder in our college, we seek your assessment on how we have been serving your needs in terms of the quality of our graduates in the last six years (i.e., since 2016). Thank you for your cooperation and support.

Email: _____

Majors of Engineers being evaluated (choose one):

- ☐ Chemical
- ☐ Civil
- ☐ Computer
- ☐ Electrical
- ☐ Industrial
- ☐ Mechanical
- ☐ Petroleum

Company/Organization: _____

Department/Division:_____ Position: _____

Tel: _____

- Which ONE of the following best describes your organization as a whole?
  - ☐ Government
  - ☐ Private Company
  - ☐ Other (please specify) _____

- Job nature of engineering staff (Choose all that apply):
  - ☐ Design
  - ☐ Programming
  - ☐ Maintenance
  - ☐ Procurement
  - ☐ Administrative
  - ☐ Other _____

- Number of engineers employed in your company (if known): _____
  - ☐ < 20
  - ☐ 20 – 50
  - ☐ 50 – 100
  - ☐ > 100

- Percentage of Kuwait University graduates (if known): _____
  - ☐ < 10 %
  - ☐ 10 – 25 %
  - ☐ 25 – 50 %
  - ☐ > 50 %

Please:

First: Rate the following skills, abilities, and knowledge in terms of the level of preparedness of recent Kuwait University engineering graduates.

***Second*:** Rate each item according to its importance to your business and operations.

Assessment of Graduates							***Importance to business***					
Very well prepared	*Well prepared*	*Prepared*	*Somewhat prepared*	*Not prepared*	*Cannot evaluate*	***Skills, abilities, and knowledge***	*Extremely important*	*Very important*	*Important*	*Somewhat important*	*Not important*	*Cannot evaluate*
☐	☐	☐	☐	☐	☐	1. Apply mathematics, science and engineering knowledge	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	2. Identify, formulate, and solve engineering problems	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	3. Develop new or innovative ideas and work independently	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	4. Use techniques, skills, and modern engineering tools necessary for Engineering design and professional practice (Computer, Internet, Engineering software, etc)	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	5. Design a system, component, or process to meet desired needs	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	6. Communicate orally: informal and prepared talks	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	7. Communicate in writing: letters, technical reports, etc	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	8. Understand professional and ethical responsibility	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	9. Understand impact of engineering solutions in a global/societal context	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	10.Understand contemporary social, economic, and cultural issues	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	11.Work in teams and develop leadership skills	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	12.Function effectively in international and multicultural contexts	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	13.Design and conduct experiments, analyze, and interpret data	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	14.Learn new skills and stay current technically and professionally	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐	15.Recognize the need to engage in lifelong learning	☐	☐	☐	☐	☐	

Please evaluate/rate the following engineering programs objectives according to:

- The level of attainment of our graduates.
- How important they are to your company needs

Level of Attainment					***Importance to business***					
Significant	*Satisfactory*	*Somewhat satisfactory*	*Not satisfactory*	***Objectives***	*Extremely important*	*Very important*	*Important*	*Somewhat important*	*Not important*	*Cannot evaluate*
☐	☐	☐	☐	1. Contribution to company/workplace/institution (e.g., improve product/service quality, increase productivity, increase revenues, reduce expenses, improve customer satisfaction)	☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	2. Contribution to wellbeing 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)	☐	☐	☐	☐	☐	☐

- How do Kuwait University graduates compare with graduates from other universities?

  ☐ Much better ☐ Somewhat better ☐ About the same
  ☐ Not as good ☐ Much worse

- Do you find it necessary to provide training to the graduates of Kuwait University during the first year of their employment in your organization? ☐ Yes ☐ No

- Is hiring a KU graduate your first preference? ☐ Yes ☐ No

- Over the past six years, the ratio of Kuwait University Engineering graduates that were hired in your company compared to graduates from other universities has:

  ☐ Increased ☐ Stayed the same
  ☐ Decreased ☐ No information

- From the list below, please select three particular strengths that you observed in Kuwait University Engineering graduates.
  - ☐ Engineering fundamentals & design
  - ☐ Oral/written communication
  - ☐ Consciousness of the impact of engineering solutions on the society
  - ☐ Procurement
  - ☐ Project management
  - ☐ Use of modern engineering tools & softwares
  - ☐ Teamwork
  - ☐ Creative thinking
  - ☐ Ability to seek new knowledge on their own

- Are there other skills, abilities, or knowledge you regard as being important when employing recent graduates? Please outline these below.

  _____

  _____

- Would you be interested in receiving a summary report on the College of Engineering Employer Survey of 2022 – 2023?

  ☐ Yes ☐ No

- Would you be interested in participating at a luncheon briefing with other employers and faculty staff on the results of the College of Engineering Employer Survey of 2022 – 2023?

  ☐ Yes ☐ No

Thank you for completing this survey.
Your feedback will be used to improve the preparation of
Kuwait University Engineering graduates for employment.