ATTACHMENT 2 (m)

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Self-Study Report for Programs
(SSRP)
Electrical Engineering Program

A GENERAL INFORMATION

Institution: Majmaah University
Title of College and Department in which the program is offered College of Engineering/ Electrical Engineering Department
Title of Program Electrical Engineering
Date of Report 14-4- 2015
Name and Contact details for Dean Dr. Muhammad Alsalamah m.alsalamah@mu.edu.sa
Name of Person Responsible for Preparation of Report (Head of Department) Dr. Abdullah Almuhaisen a.almuhaisen@mu.edu.sa **Name and contact details for person to contact for further information about matters discussed in the report and for arrangements for an external review visit. (if different from above)** Dr. Abdullah Alahmadi a.alahmadi@mu.edu.sa

B. GENERAL PROGRAM PROFILE INFORMATION

1. Program title and code Electrical Engineering (EE)
2. Credit hours required for completion of the program 136 Credit Hours excluding the preparatory year (29 Credit Hours)
3. Award (s) granted on completion of the program (for community college programs, add degree granting policy) Bachelor Science in Electrical Engineering
4. Major tracks or pathways within the program - Communications and Electronics - Electrical Power and Machines

– Control and Systems
5. Professional occupations (licensed occupations, if any) for which graduates are prepared N/A
6. Name of program chair/ coordinator. If a program coordinator or manager has been appointed for the female section as well as the male section, include names of both. Dr. Abdullah Almuhaisen.
7. Branches/locations of the program. If offered on several campuses or by distance education as well as on-campus, including details. N/A
8. Date of approval of program specification within the institution The program of EE is approved with the establishment of the college in 1430 H
9. Date of approval by the authorized body (Ministry Of Higher Education "MoHE" for private institutions) and Council of Higher Education for public institutions). The program approved by the University council and Ministry of Higher Education in 1433 H.
10. Date of most recent self-study (if any) 25/6/1433 H
11. Provide Institutional and Program level administrative flowcharts

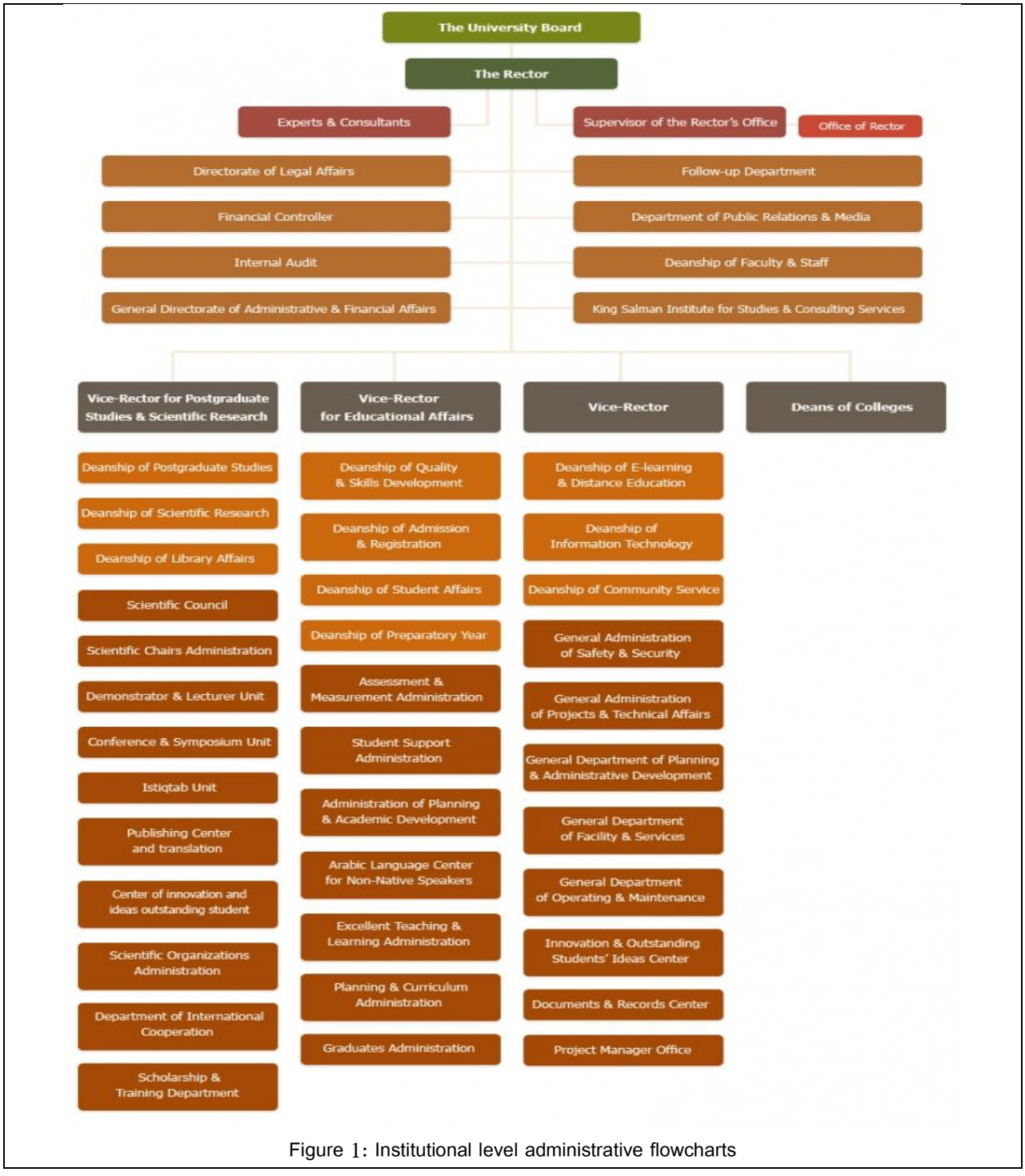


Figure 1: Institutional level administrative flowcharts

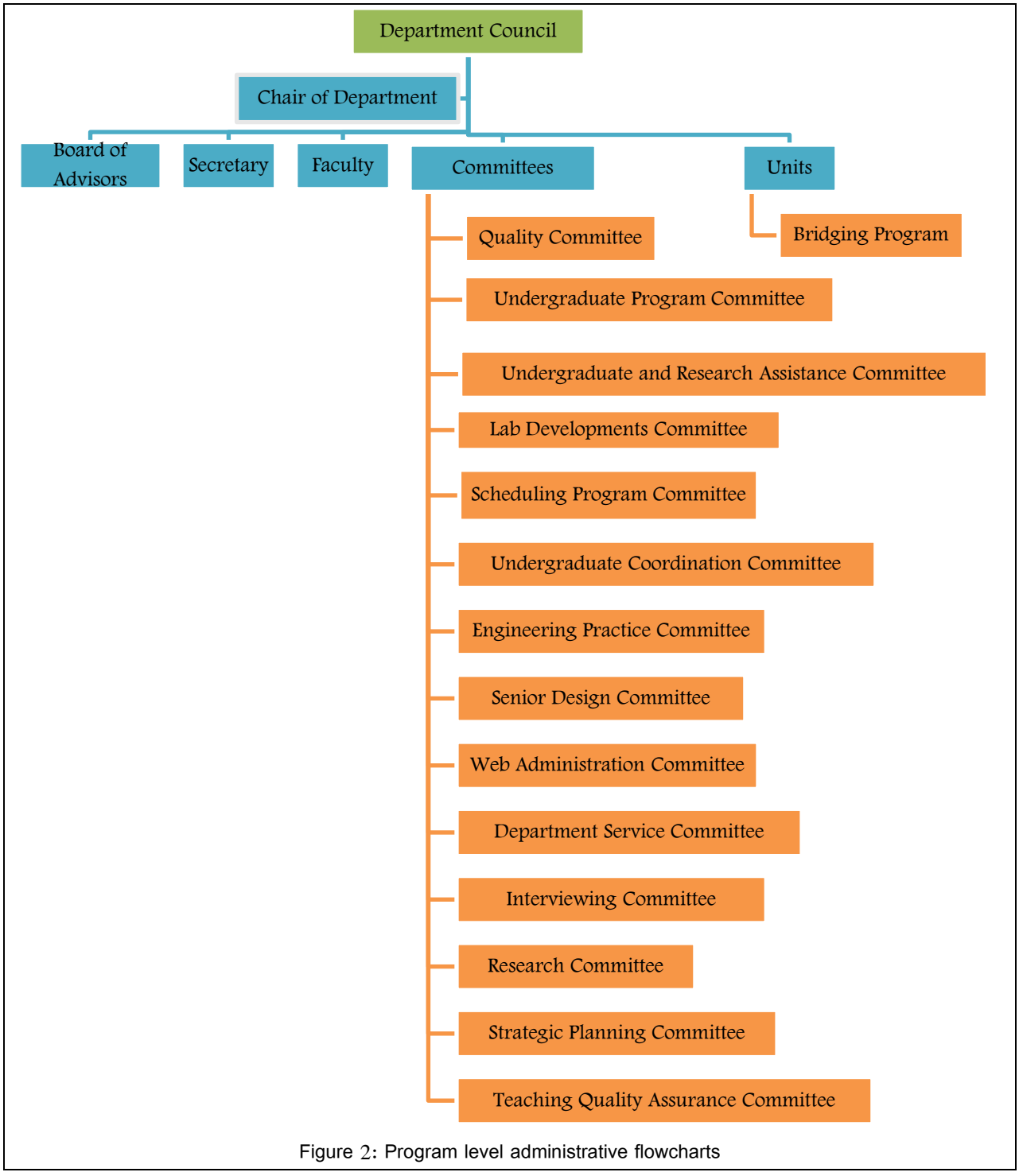


Figure 2: Program level administrative flowcharts

C. Periodic Program Profile Template B: College Data

College: Engineering **Program:** Electrical Engineering

*(**On Campus Programs**, **Distance Learning**): The study Mode is "On Campus" for all Faculty members.

- All Faculty members are Full Time".
- No female section in the EE program.

No.	Name of Faculty	Nationality	Academic Rank	General Specialty	Specific Specialty	Institution Graduated From	Degree	List Courses Taught This Academic Year
1	Dr. Abdel Rahman Al-Qawasmi	Jordan	Associate Professor	EE	Telecommunications	Ukraine	PhD	Wireless Communications Optical Communications Microprocessor Engineering Economics
2	Dr. Ahmed Galal Abo Khalil	Egypt	Assistance Professor	EE	Power Electronics	South Korea	PhD	Electric Machines Electric circuit analysis Electromagnetics 1 Energy Utilization
3	Dr. Omar A.M.Aly	Egypt	Assistance Professor	EE	Communications	Germany	PhD	Principles of Communications Electronic circuits and devices Fundamentals of circuit theory
4	Dr. Abdullah Al Ahmadi	Yemen	Assistance Professor	EE	Electrical Engineering	Malaysia	PhD	Signal and systems Image processing Principles of Communications

								Satellite communications
5	Dr. Ahmed Bilal Awan	Pakistan	Assistance Professor	EE	Power Electronics	France	PhD	Fundamentals of power systems Power system planning High voltage protection
6	Dr. Abdullah Almuhaisen	Saudi	Assistance Professor	EE	Electronics–Microwaves	UK	PhD	Electronics 2
7	Dr. Tahar Tafticht	Canada	Assistance Professor	EE	Industrial & Power Electronics	Canada	PhD	Power Electronics Electric circuit analysis Electric machines (2)
8	Dr. Praveen	India	Assistance Professor	EE	Electric Machines	India	PhD	Electric machines (2) Special topics in electric machines Electric machines Electronic circuits and devices
9	Dr. Yazeed	Jordan	Assistance Professor	EE	Microwave	Malaysia	PhD	Electromagnetics 1 Electromagnetics 2 Microwave and Antenna
10	Dr. Siva	India	Assistance Professor	EE	Electric Machines	India	PhD	Fundamentals of circuit theory Power system planning
11	Eng. Muhammad Humran Khan	Pakistan	Lecturer	EE	Telecommunications	Sweden	M.Sc	
12	Eng. Talha Moaiz	Pakistan	Lecturer	EE	Telecommunication	Sweden	M.Sc	

	Kamran				Radio Communication			
13	Eng. Hussam Habibeh	Syria	Lecturer	EE	Communication system		M.Sc	
14	Eng. Mohammad Abdul Baseer	India	Lecturer	EE	Electrical Power Systems	India	M.Sc	
15	Eng. Abdullah Aljumaah	Saudi	Lecturer	EE	Communications		M.Sc	

Number of Graduates in the Most Recent Year (2013\2014)

	Undergraduate Students	Post Graduate Masters Students	Post Graduate Ph.D. Students
Male	30		
Female			
Totals	30		

The Apparent Student Completion Rate: (30/60)= 50%

Students	Undergraduate Programs			Postgraduate Programs	
	Four Years	Five Years	Six Years	Master	Doctor
Male	60				
Totals	60				

Mode of Instruction – Student Enrolment (excluding preparatory program)

Students	On Campus Programs			Distance Education Programs		
	Full time	Part time	FTE	Full time	Part time	FTE
Male	164					
Female						
Totals	164					

Mode of Instruction – Teaching Staff (excluding preparatory program)

Number of Teaching Staff	On Campus Programs			Distance Education Programs		
	Full time	Part time	FTE	Full time	Part time	FTE
Male	15					
Female						
Totals	15					

D. PROGRAM PROFILE DATA

Historical Summary

The program was introduced in 1430 H. The EE Program is essential to the community as its mission to provide graduates with distinguished engineering knowledge, professional and engineering problem solving skills. These skills are essential for both community services, industry and for technological development. In addition, the program meets the national science, technology and innovation plan of the Kingdom of Saudi Arabia where two of the main strategic priorities are the electronics and communication technology, and the energy technology.

During the last six years, the number of enrolled is increased year by year. The following graph (Figure 3) shows the distribution of number of students over years and tracks

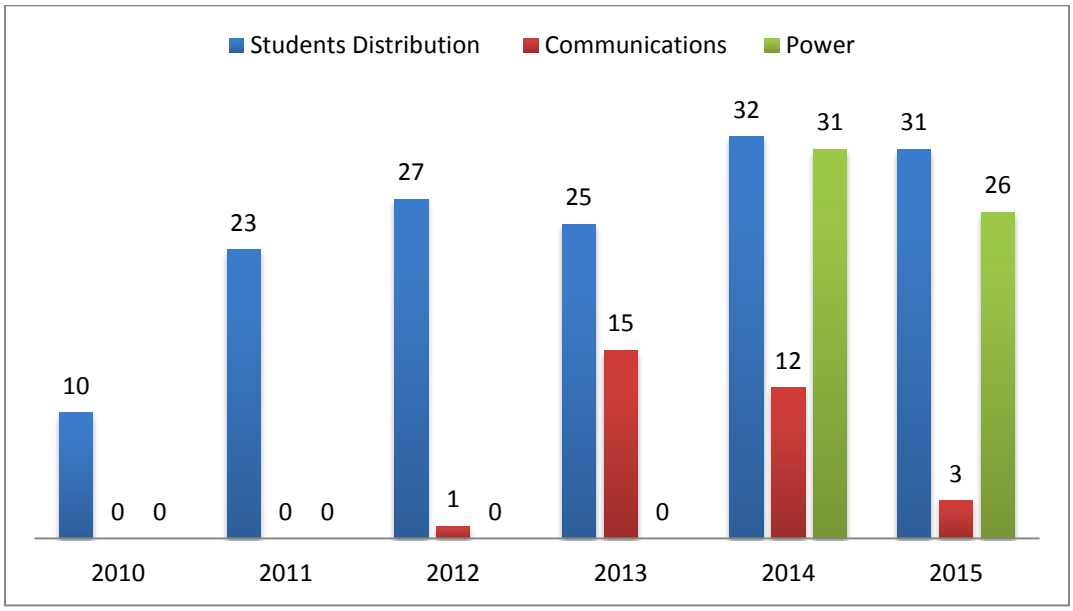


Figure 3: distribution of students over academic years and tracks

The program has its Advisory board that contains members from Industry and Academy. This Board is formed in 2014\2015 to link the program curriculum, specifications and outcomes with the need of industry and the need of the academy for advanced studies and research.

During the past six years, the program had continues development due to:

1- The need to have high quality standards and to meet the NCAAA standards.

2- Gaining more experience in the evaluation of the previous documentations such as program specification, course specifications, annual program report, course report and self-evaluation report.

3- The need to decrease the gap between the academy and the industry by modifying the mission, objectives and learning outcomes to meet the requirements of all stakeholders.

4- The need to enhance the quality qualifications of the faculty members, this was accomplished through training and workshops.

The program is in continues progress, the mission, objectives and learning outcomes have been reviewed several times. In addition, the program specification and course specification have been updated.

The Advising procedure, teaching strategies, assessment methods can be considered as strong points in the EE program.

The research and funds are of high percentages in the university which reflect high research activity in the program.

Preparatory or Foundation Program

Do you offer a preparatory program Yes [X] **No** [ ]

If yes, is the preparatory program is offered is it out-sourced? Yes [X] **No** [ ]

If a preparatory or foundation year program is provided prior to entry to this program, are all students required to take that program? Yes [X] **No** [ ]

The academic credit on the preparatory year is 29 credit hours. All credit hours are not included in the student's GPA. For new student enrolled in the program the credit hours earned by student in the preparatory year will be included in the GPA.

Table1: Courses in the preparatory Year

Course Number	Course Title	Credit Hours	Weekly Hours			Prerequisite
			Lecture	Lab.	Ex.	
PENG 111	Preparatory English (1)	8	20	0	0	-
PMTH 112	Introduction to Mathematics (1)	2	2	0	1	-
PCOM 113	Computer Skills	2	1	2	0	-
PSSC 114	Learning and Communication Skills	2	1	2	0	-

PENG 121	Preparatory English (2)	6	14	0	0	PENG 111
PENG 123	English for Science and Engineering	2	2	0	0	PENG 111
PMTH 127	Introduction to Mathematics (2)	4	4	0	1	PMTH 112
PPHS 128	General Physics	3	2	2	0	–
	Total	29	48	2	0	

What is the total number of credits required by the program? 136 Credit Hours

Table 2: Courses in the EE Program

1- General Courses:

Year	Course Code	Course Title	Required or Elective	Credit Hours	College or Department
Preparatory Year	PENG 111	English Language 1	Required	8	College
	PMTH 112	Introduction to Mathematics 1	Required	2	College
	PCOM 113	Computer Skills	Required	2	College
	PSSC 114	Communication and Education Skills	Required	2	College
	PENG 121	English Language	Required	6	College
	PMTH 127	Introduction to Mathematics 2	Required	4	College
	PENG 123	Scientific and Engineering English Language	Required	2	College
	PPHS 128	Physics	Required	3	College
Total Hours				29	
1st Year Semester 1	MURE	University Requirement	Required	2	University
	Math 105	Differential Calculus	Required	3	College
	PHY 103	General Physics	Required	4	College
	GE 101	Fundamentals of Engineering Technology	Required	2	College
	GE 102	Fundamentals of Engineering Drawing	Required	3	College
	GE 103	Engineering Mechanics (Statics)	Required	3	College
Total Hours				17	
1st Year Sem	Math 106	Integral Calculus	Required	3	College
	Math 107	Algebra and Analytical Geometry	Required	3	College

	GE 108	Engineering Mechanics (Dynamics)	Required	3	College
	GE 105	Engineering Chemistry	Required	3	College
	EE 101	Fundamentals of Electric Circuits	Required	3	Department
	EE 111	Basic Electronic Devices and Circuits	Required	3	Department
Total Hours				18	
2nd Year Semester 1	MURE	University Requirement	Required	2	University
	Math 204	Differential Equations	Required	3	College
	EE 205	Electric Circuits Lab.	Required	1	Department
	EE 207	Logic Design	Required	3	Department
	EE 208	Logic Design Lab.	Required	1	Department
	EE 202	Electric Circuits Analysis	Required	3	Department
	EE 206	Electromagnetics 1	Required	3	Department
	EE 212	Basic Electronic Devices and Circuits Lab.	Required	1	Department
Total Hours				17	
2nd Year Semester 2	STAT 101	Statistics and Probability	Required	3	College
	CEN 210	Introduction To Programming	Required	3	College
	EE 288	Principles of Electric Machines	Required	3	Department
	EE 234	Electromagnetics 2	Required	3	Department
	EE 221	Signals and Systems Analysis	Required	3	Department
	EE 270	Fundamentals of Electrical Power Systems	Required	2	Department
	EE 271	Principles of Electric Power and Machines Lab	Required	1	Department
Total Hours				18	
3rd Year Semester 1	MURE	University Requirement	Required	2	University
	GE 306	Engineering Report Writing	Required	2	Department
	EE 341	Automatic Control Systems	Required	3	Department
	EE 307	Analog and Digital Measurements	Required	3	Department
	EE 308	Measurements and Control Lab.	Required	1	Department
	EE 322	Communications Principles	Required	3	Department
	EE 323	Communications Principles Lab.	Required	1	Department
	EE 360	Microprocessors	Required	3	Department
Total Hours				18	

2- Communications and Electronics Track

3rd Year Semester 2	MURE	University Requirement	Required	2	University
	Math 254	Numerical Methods	Required	3	College
	EE 361	Microprocessors Lab	Required	1	Department
	EE 314	Analogue and Digital Electronic Circuits	Required	3	Department
	EE 315	Analogue and Digital Electronic Circuits Lab	Required	1	Department
	EE 324	Digital Signal Processing	Required	3	Department
	EE 325	Digital Communications	Required	3	Department
Total Hours				16	
4th Year Semester 1	MURE	University Requirement	Required	2	University
	GE 407	Engineering Economy	Required	2	College
	EE 435	Antenna & Wave Propagation	Required	3	Department
	EE 426	Wireless Communications	Required	3	Department
	EE 427	Communication and Signal Processing Lab.	Required	1	Department
	EE 436	Antennas and Wave Propagation Lab.	Required	1	Department
	EE 4**	Elective (1)	Required	3	Department
	EE 498	Senior Design (1)	Required	2	Department
Total Hours				17	
4th Year Semester 2	MURE	University Requirement	Required	2	University
	GE 408	Project Management	Required	2	College
	EE 415	VLSI	Required	3	Department
	EE 4**	Elective (2)	Required	3	Department
	EE 4**	Elective (3)	Required	3	Department
	EE 499	Senior Design (2)	Required	2	Department
Total Hours				13	

3- Power and Machine Track:

3rd Year Semester 2	MURE	University Requirement	Required	2	University
	Math 254	Numerical Methods	Required	3	College
	EE 361	Microprocessors Lab	Required	1	Department
	EE 389	Electric Machines	Required	3	Department
	EE 372	Electric Power Systems Analysis	Required	3	Department
	EE 373	Electric Power and	Required	1	Department

		Machine Lab 2			
	EE 374	Power Electronics	Required	3	Department
Total Hours				16	
4th Year Semester 1	MURE	University Requirement	Required	2	University
	GE 407	Engineering Economy	Required	2	College
	EE 475	Applied Control	Required	3	Department
	EE 476	Electric Power Systems Protection	Required	3	Department
	EE 477	High-Voltage Systems	Required	2	Department
	EE 4**	Elective (1)	Required	3	Department
	EE 498	Senior Design (1)	Required	2	Department
Total Hours				17	
4th Year Semester 2	MURE	University Requirement	Required	2	University
	GE 408	Project Management	Required	2	College
	EE 478	Planning of Electric Distribution Systems	Required	2	Department
	EE 479	Protection & High Voltage Lab.	Required	1	Department
	EE 4**	Elective (2)	Required	3	Department
	EE 4**	Elective (3)	Required	3	Department
	EE 499	Senior Design (2)	Required	2	Department
Total Hours				13	

Statistical Summary

Table3: Statistical Summary excluding the preparatory year

N	Item	Number of credit Hours	Percentage (%)
1	University Requirements	12	8.8
2	College Requirements	42	31
3	General Courses in EE program	48	35.2
4	Communications and Electronics Track	34	25
5	Power and Machine Track	34	25
6	Total Credit Hours	136	100

Note: The total sum of credit hours is performed with the credit hours of one of tracks.

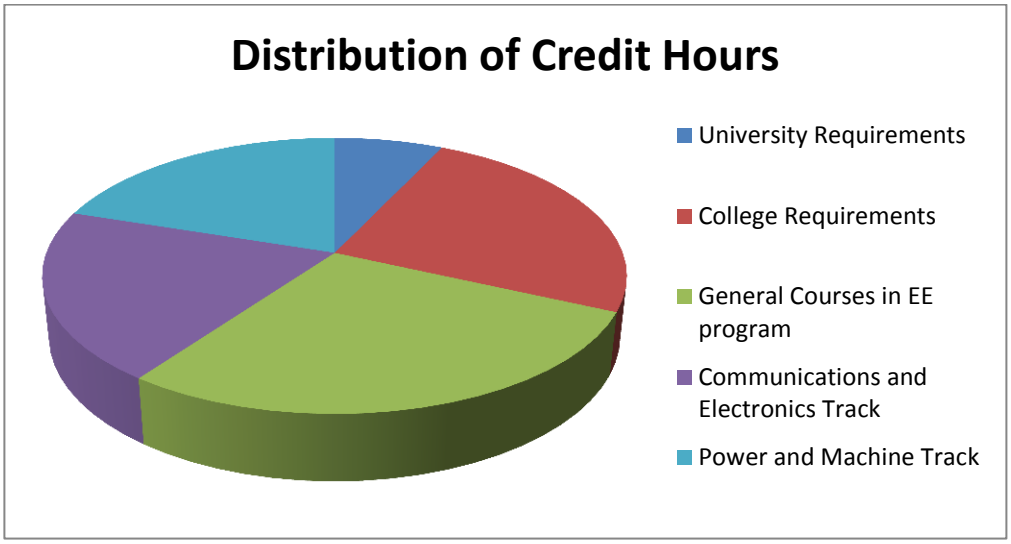


Figure 4: Distribution of Credit Hours over different requirements

The student in each track should study 12 elective credits from:

Table4: Electronics and Communications Track Elective Courses

Course Code	Course Title	Credit Hours
EE 439	Optical Fiber Communications	3
EE 416	Industrial Electronics	3
EE 417	Electronic Communication	3
EE 418	FPGA	3
EE 419	Analysis Of Electronic Circuits Using Computer	3
EE 428	Communication Networks	3
EE 429	Simulation of Communication Systems using MATLAB	3
EE 430	Speech Signal Processing	3
EE 431	Digital Image and Video Processing	3
EE 432	Exchange and Switching	3
EE 437	Electronics of Microwave	3
EE 438	Microwave circuits and devices	3
EE433	Satellite Communications	3

Student Enrolment (Not including preparatory or foundation programs)

Students	On Campus Programs			eLearning Education Programs		
	Full time	Part time	*FTE	Full time	Part time	*FTE
Male	164					
Female						
Total	164					

Confirmed enrolment at the beginning of the current academic year

Level/Year of Study	Male	Female	Total
First Year	41		41
Second Year	29		29
Third Year	30		30
Fourth Year	64		64
Fifth Year (if applicable)			
Sixth Year (if applicable)			
Total	164		164

No. of Staff	On Campus			eLearning Education		
	Full time	Part time	FTE	Full time	Part time	FTE
Faculty	10					
Teaching staff	5					
Total	15					

Faculty and Teaching Staff Highest Qualifications

	Ph.D.		Masters		Others		Total	
	No.	%	No.	%	No.	%	No.	%
Male	10	67%	5	33%			15	100%
Female	-		-	-			-	
Total	10	67%	5	33%			15	100%

A. Calculate the average number of credit hours taught by the full-time faculty for the past year and calculate the average number of students enrolled per class taught.

Full-time Faculty	Average Credit Workload 1st Semester	Average Credit Workload 2nd Semester	Average Class Enrollment 1st Semester	Average Class Enrollment 2nd Semester
Male	17	15	16.4 Students/Class	13.5 Students/Class
Female				
Total	17	15	16.4 Students/Class	13.5 Students/Class

Provide Analysis – Analyse the entire table and provide detailed class enrollment analysis of the different instructional levels.

1. Workload Analysis:

For first semester, the total number of credit hours for two tracks about is 180, and the total number the full-time faculty members was 9. Then, the average credit workload approximately equals 17 taking into consideration the difference in the assistant and associate professors.

For second semester, the total number of credit hours for two tracks about is 165, and the total number the full-time faculty members was 10. Then, the average credit workload approximately equals 15 taking into consideration the difference in the assistant and associate professors.

2. Class Enrollment Analysis:

The number of registered students in EE courses is listed in the table 5. The average number of students per class 15 students/class for the two semesters.

Table 5: Number of students registered in the first and second semester.

Course ID	Course Title	Number of Registered students	
		First Semester	Second Semester
EE 101	Fundamentals of Electric Circuits	7	46
EE 111	Basic Electronic Devices and Circuits	17	39
EE 205	Electric Circuits Lab.	27	9
EE 207	Logic Design	28	10
EE 208	Logic Design Lab.	16	17
EE 202	Electric Circuits Analysis	38	15
EE 206	Electromagnetics 1	21	13
EE 212	Basic Electronic Devices and Circuits Lab.	22	10
EE 288	Principles of Electric Machines	11	16

EE 234	Electromagnetics 2	24	16
EE 221	Signals and Systems Analysis	11	15
EE 270	Fundamentals of Electrical Power Systems	13	17
EE 271	Principles of Electric Power and Machines Lab	9	7
EE 341	Automatic Control Systems	24	14
EE 307	Analogue and Digital Measurements	11	13
EE 308	Measurements and Control Lab.	10	20
EE 322	Communications Principles	27	9
EE 323	Communications Principles Lab.	21	6
EE 360	Microprocessors	28	18
EE 361	Microprocessors Lab	12	23
EE 314	Analogue and Digital Electronic Circuits	9	5
EE 315	Analogue and Digital Electronic Circuits Lab	9	5
EE 324	Digital Signal Processing	9	6
EE 325	Digital Communications	8	10
EE 435	Antenna & Wave Propagation	16	5
EE 426	Wireless Communications	9	8
EE 427	Communication and Signal Processing Lab.	7	6
EE 436	Antennas and Wave Propagation Lab.	8	1
28		452	379

3. Class Enrollment Level Analysis (Level means post or under graduate levels and year to year levels):

The following figure (Figure 5) shows the registered students distributed over levels.

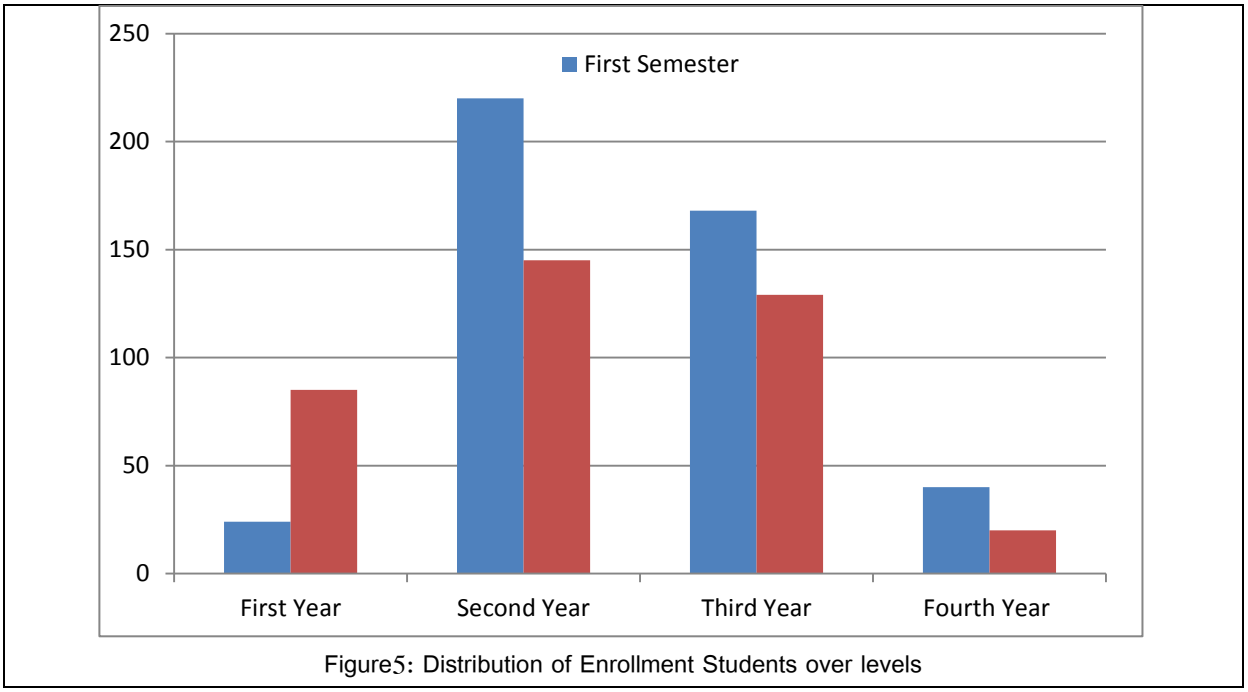


Figure5: Distribution of Enrollment Students over levels

B. Calculate the average number of credit hours taught by the part-time faculty for the past year and calculate the average number of students enrolled per class taught. (N/A)

C. Calculate the average number of credit hours taught by the full-time teaching staff for the past year and calculate the average number of students enrolled per class taught.

Full-time Teaching Staff	Average Credit Workload 1st Semester	Average Credit Workload 2nd Semester	Average Class Enrollment 1st Semester	Average Class Enrollment 2nd Semester
Male	15	15	21	18.3
Female				
Total	15	15	21	18.3

Provide Analysis – Analyse the entire table and provide detailed class enrollment analysis of the different instructional levels.

1. Workload Analysis:

For first semester, the total number of credit hours for two tracks about is 55, and the total number the full-time faculty members was 5. Then, the average credit workload approximately equals 11 taking into consideration the difference in the assistant and associate professors.

For second semester, the total number of credit hours for two tracks about is 65, and the

total number the full-time faculty members was 10. Then, the average credit workload approximately equals 13 taking into consideration the difference in the assistant and associate professors.

2. Class Enrolment Analysis:

The number of registered students in EE courses is listed in the table 6. The average number of students per class 20 students/class for the two semesters.

Table 6: Number of students registered in the first and second semester.

Course ID	Course Title	Number of Registered students	
		First Semester	Second Semester
EE 101	Fundamentals of Electric Circuits	7	46
EE 111	Basic Electronic Devices and Circuits	17	39
EE 207	Logic Design	28	10
EE 202	Electric Circuits Analysis	38	15
EE 206	Electromagnetics 1	21	13
EE 288	Principles of Electric Machines	11	16
EE 234	Electromagnetics 2	24	16
EE 221	Signals and Systems Analysis	11	15
EE 270	Fundamentals of Electrical Power Systems	13	17
EE 341	Automatic Control Systems	24	14
EE 307	Analogue and Digital Measurements	11	13
EE 322	Communications Principles	27	9
EE 360	Microprocessors	28	18
EE 314	Analogue and Digital Electronic Circuits	9	5
EE 324	Digital Signal Processing	9	6
EE 325	Digital Communications	8	10
EE 435	Antenna & Wave Propagation	16	5
EE 426	Wireless Communications	9	8
18		311	275

3. Class Enrollment Level Analysis (Level means post or under graduate levels and year to year levels):

The following figure (Figure 5) shows the registered students distributed over levels.

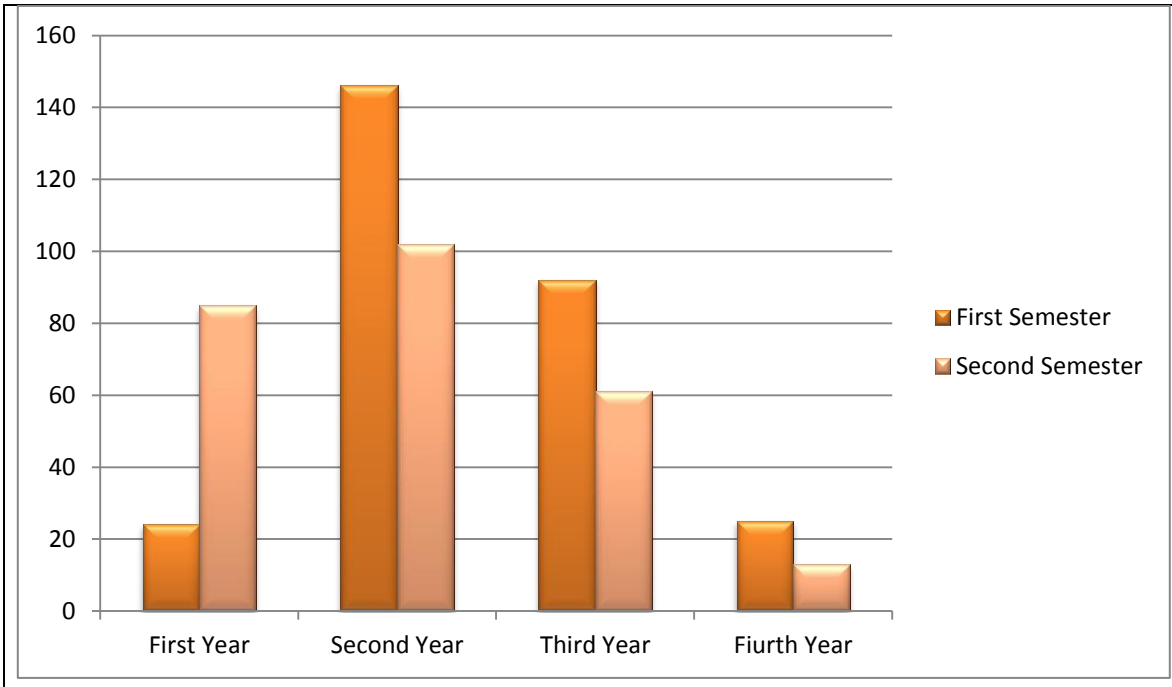


Figure5: Distribution of Enrollment Students over levels

D. Calculate the average number of credit hours taught by the part-time teaching staff for the past year and calculate the average number of students enrolled per class taught *(N/A)*

E Self-Study Process

Provide a summary description of the procedures followed and administrative arrangements for the self- study.

Electrical Engineering Department has a road map and determined plan to guide the ambitious development in the department for the several coming years. The goals and objectives which are set by the council members are the side-corner of the strategies plan of the department. Having the accreditation is one of the main challenges and objectives of the department that encouraged the department to make a very precise steps and procedures to meet this objective.

Some of these steps are stated as follows:

- The department established a Quality Unit in order to develop and improve the department's activities such as the teaching, research and administrative work.

- In addition, this Quality Unit unifies the works and the efforts in the department and particularly in the quality and academic accreditation process.
- The mission of the unit is developing and improving the developmental process and evaluation quality in the department and also applying for the academic accreditation.
- The Self-Study report was carried by the Quality Unit with the support from the HOD and other committees such as Department Service Committee especially in collecting data.

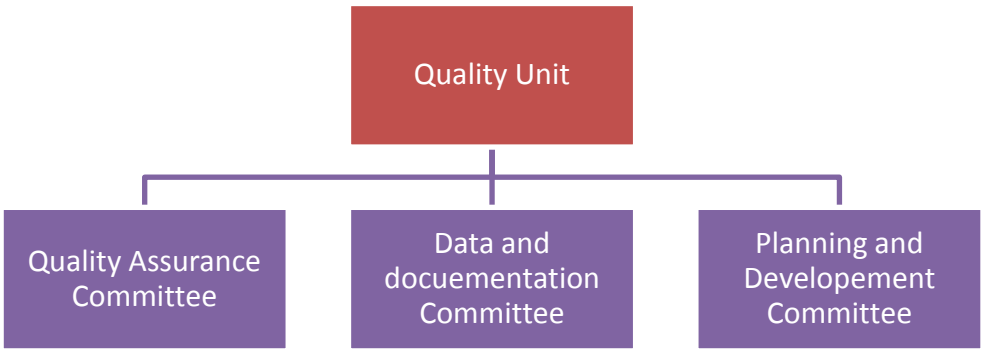


Figure 6: Flowchart of Quality Unit

- **Describe membership and terms of reference for committees and /or working parties.**

The quality unit contain three main committees:

- Quality Assurance Committee: This committee is responsible to follow up the quality work in the program and to check the feedback from student's surveys, course reports and annual reports.
- Data and Documentation committee: This committee is responsible to filing and archiving quality document s related to the program such as Course file, Forms and other administrative documents. All new and needed forms are created in this committee.
- Planning and developing Committee: This committee is responsible about planning the quality work of the program and to work on the operational and executives plans. This committee cooperates with other committees in the program. The following table (table 7)

shows the Committees working in the Electrical Engineering Program:

Table7: Program committees and responsibilities

Committee Name	Main Responsibilities
Undergraduate Program Committee	– Supervising all aspects of program development and delivery. – Development of undergraduate programs and structure.
Undergraduate Research & Assistance Committee	– Support student research in elective courses, senior design and micro projects. – Induction, seminars and training courses for student
Lab Developments Committee	– Developing EE labs. – Operation, Maintenance and Safety of Labs
Scheduling Program Committee	Planning Course Scheduling Major Exams Coordination
Undergraduate coordination Committee	– Academic Advising – Monitoring undergraduate student progress – Undergraduate student petitions
Engineering Practice Committee	Supervise the summer training seminar and reports.
Senior Design Committee	Coordinator for all senior project activates
Quality Committee	–Dissemination of quality culture. –Improving academic performance in accordance with Faculty and University strategic plans. –Supporting the EE program to achieve national (NCAAA) and international program accreditation.
Web Administration Committee	Administration of EE websites and virtual server. Encourage faculty website development for learning.
Bridging Program	Administration of the bridging program
Department Service Committee	– Department Annual Report – Supporting Department activities – Administrative Communication – Archiving and organizing
Interviewing Committee	– Reviewing Applicant's documentation.
Research Committee	– To enhance the educational activities and to support the researchers
Teaching Quality Assurance Committee	To provide a comprehensive framework for the enhancement and evaluation of the teaching, learning quality and assessment process in the EE department
Strategic Planning Committee	–Proposing a strategic plan for the department.

	–Proposing an operational plans for the strategic plan. –To provide direction and counsel to the EE department.

Table 8: Members of the Quality Unit

No.	Name	Degree	Position
1	Dr. Abdullah Alahmadi	Assistant Professor	Chairman
2	Dr. Praveen	Assistant Professor	Member
3	Dr. Yazeed	Assistant Professor	Member
4	Eng. Ahmad Altwejari	Lecturer	Member

E MISSION, GOALS AND OBJECTIVES

1. Mission Statement of the Program (Insert the Mission Statement).

To provide graduates with distinguished engineering knowledge, professional and engineering problem solving skills and to be engaged in research and experiential work for the benefit of community.

Use the following table and write clear, measurable goals and objectives of the program and align each one with quality performance indicators and the target benchmark.

2. Goal	3. **Objectives for the goal** The Electrical Engineering Program in Majmaah University prepares students to have strong foundation in mathematical, scientific and engineering sciences who are able to:	**4. Performance Indicators**	**5. Target Benchmarks (College Strategic Plan)**
Providing a high quality of academic service based on national and international standards to enhance the competence	Demonstrate technical competence in identifying, formulating, analysing and solving engineering problems.	–Number of students participated in training courses (Computer skills and English language)	50%
		Number r of students participated in training courses in general	50%

of our graduate in labour and to contribute in the society		Identifying, formulating, analysing and solving engineering problems.	3 Out of 5
Enhancing the quality of program and to support the program to achieve its Mission, Goals and Objectives and to be accredited nationally internationally	Demonstrate the professional skills necessary to lead their professional discipline and have the lifelong learning skills to adapt to rapidly changing technologies.	Number of students participated in Engineering practice to the number of students that pass 90 Cr. Hours.	90%
		Number of students finished Engineering practice	90%
		Percentage of students finished senior designs	90%
		Percentage of students finished Labs successfully	90%
		Demonstrate the professional skills.	4 out of 5
		Adapt to rapidly changing technologies.	4 out of 5
	Practice and inspire high ethical and professional standards.	Percentage of graduates from undergraduate program leaving their works due to professional issues	5%
		Employee satisfaction (out of 5)	4 out of 5
		Number of students who came to senior management positions	10%
Enhancing the quality qualifications of the faculty members to achieve high levels of quality and excellence in all future teaching, scientific research and serving society.	Pursue higher learning in the field of engineering and multidisciplinary areas to emerge as successful researchers, entrepreneurs, experts and educators	Number of publications in peer reviewed national and international journals	1:2 ratio
		Number of organized scientific and Research activities: workshops seminars, symposiums & conferences)	1 per semester
		Number of subscription in periodicals and Journals.	SDL (100%)
		Number of students participated in conference	10%
		number of student patents and	10%

		scientific inventions	
		percentage of students awards	10%
		percentage of faculty members trained to the total numbers	50%
		Number of training programs for faculty members	(Quality office)
		Percentage of trained to the total numbers Number of training programs	70%
		Number of training programs	(Quality Office)

Provide a list of the strengths and recommendations for improvement based on an assessment of this data.

Strengths:

1- Mission is consists with College and University Missions

2- The objectives, goals and KPIs are defined

3- Goals, objectives and KPIs consists with the program strategic plan

Recommendations of improvements:

1- Achieving other objectives

2- To perform overall analysis to compare actual internal and external benchmarks.

Evidences

1- Mission statement

2- Approval of Mission by QU, department and college

3- Mission Faculty survey

4- Program Strategic Plan

5- Program Operational Plan

6- Minutes of strategic plan committee

7- Administrative forming of strategic Plan committee

1.State goal/objective

Goal: Providing a high quality of academic service based on national and international standards to enhance the competence of our graduate in labour and to contribute in the society

Objective: Demonstrate technical competence in identifying, formulating, analysing and solving engineering problems.

Target benchmark or standard of performance

Standard of performance: 3 out of 5

Result achieved or actual benchmark

The actual benchmark: 2.95 out of 5

Comments and analysis

Results extracting from EP results and evaluation forms of senior design for number of students from 9th and 19th levels shows the following:

Table 9: Rubrics used for KPI Identifying, formulating, analysing and solving engineering problems

KPI	Unsatisfactory (1)	Developing (2)	Satisfactory (3)
Identifying, formulating, analysing and solving engineering problems	Student can identify the problem and has poor performance in analysing and solving The engineering Problem	Student can identify the problem partially and his performance in analysing and solving problem is average	Student demonstrates high performance in identifying the engineering problem and has the skills to analyse and solve the engineering problem.
Number of students	14	9	7
- Number of student: 20 from Engineering Practice - 10 students from senior design The assessment methods used: Engineering practice report and oral presentations and senior design evaluation forms.			

The average grade: ((14+18+21)/90)*100%=59%=2.95 0ut 0f 5

2. State goal/objective

Goal: Enhancing the quality of program and to support the program to achieve its Mission, Goals and Objectives and to be accredited nationally internationally

Objective: Demonstrate the professional skills necessary to lead their professional discipline and have the lifelong learning skills to adapt to rapidly changing technologies

Target benchmark or standard of performance

Demonstrate the professional skills

Result achieved or actual benchmark

60%

Comments and analysis

Based on national Proficiency test, about 60% demonstrated their professional skills.

3. State goal/objective

Goal: Enhancing the quality of program and to support the program to achieve its Mission, Goals and Objectives and to be accredited nationally internationally/

Objective: Practice and inspire high ethical and professional standards.

Target benchmark or standard of performance

Percentage of graduates from undergraduate program leaving their works due to professional issues

Result achieved or actual benchmark

5%

Comments and analysis

It is very difficult to follow graduates but after meeting several graduates , the number of students leaving their work is very small and not exceeds 5%

4 State goal/objective

Goal: Enhancing the quality qualifications of the faculty members to achieve high levels of quality and excellence in all future teaching, scientific research and serving society/

Objective: Pursue higher learning in the field of engineering and multidisciplinary areas to emerge as successful researchers, entrepreneurs, experts and educators

Target benchmark or standard of performance

Number of publications in peer reviewed national and international journals (1:2 ratio)

Result achieved or actual benchmark

1:1.4 ratio

Comments and analysis

Number of publications in journals is 14 and the number of PhD holder is 10. Twelve research projects are funded by the university.

Table 7 shows the funded research projects:

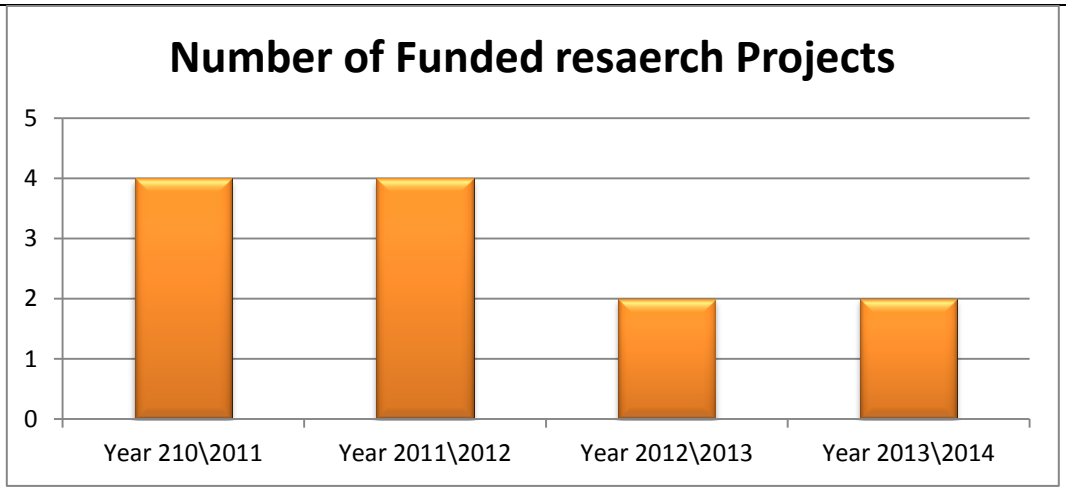


Table 7: Funded research projects in the EE program

F. PROGRAM CONTEXT

1. Describe the significant elements in the external environment (including any important recent changes)

1- Starting the track of Electrical power and machines.

2- E-learning courses are introduced to continue serving the students need and improving the teaching methods.

3- Curriculum updates and revises.

2. Analyse the mission, goals, content, and methods of delivery of the program and describe any implications for changes that may be required in as a result of changes noted under 1 and 2.

The mission of the University and College focuses on the education and research for the benefits of the society. The EE program fulfil the mission of the institute by providing an educational program that is based on providing graduates with the knowledge and professional and research skills.

Methods of delivery of program are based on the teaching strategies, assessment method used and analysis of results. Mainly, lectures, projects, labs, senior designs and summer training (Engineering practice) are major methods to deliver the program. Also, assignments, E-learning (D2L) and scientific visits to factories and industry companies can be used for the same purpose.

Based on the new strategy in enhancing the teaching strategies, the university is planning to give more attention to E-learning to support the traditional (face-tot-face) learning method. So, in the future there will be changes in the teaching strategies of courses to include a percentage of course contents to be deliver through e-learning platform.

3. NOTE: A SEPARATE TABLE MUST BE USED FOR EACH BRANCH/LOCATION CAMPUS.

Enrollment Management and Cohort Analysis (Table 1)

Student Category	2007 - 08	2008 -09	2009- 10	2010 - 11	2011 - 12	2012 - 13
Total cohort enrollment	*PYP		25	24	32	75
Retained till year end			0	0	0	2
Withdrawn during the year and re-enrolled the following year			14	12	22	4
Withdrawn for good			0	0	0	1
Graduated successfully			11	12	13	5
Provide a Cohort Analysis of the Academic Years: 2008 – 2011 There are two tracks in the EE program: All students graduated from Communications and electronics Track. In (2012-13), the graduated students that not succefully finished the program ontime.						

G PROGRAM DEVELOPMENTS

1. Provide a list of changes made in the program in the period since the previous self-study or since the program was introduced. This should include such things as courses added or deleted or significant changes in their content, changes in approaches to teaching or student assessment, or program evaluation processes etc.

- Updating the program specifications
- Updating the course specifications
- Added new elective course (satellite communications)
- Added new teaching strategies, assessment methods, KPIs and Rubrics

2. Comparison of planned and actual enrollments table.

Year	Planned Enrollment	**Actual Enrollment**
2011	30	25
2012	30	48
2013	30	23
2014	25	19
Total	105	117

Provide analysis and an explanation report if there are significant differences between planned and actual numbers.

There is a significant difference in the year 2012 but in the general the total number of enrollment students close the planned number

H. Evaluation in Relation to Quality Standards (Refer to *Standards for Quality Assurance and Accreditation of Higher Education Programs*)

Standard 1. Mission and Objectives (Overall Rating__**__ Stars)**

To provide graduates with distinguished engineering knowledge, professional and engineering

problem solving skills and to be engaged in research and experiential work for the benefit of community.

Provide an explanatory report about the development and use of the mission for each of the following sub-standards:

1.1 Appropriateness of the Mission

In order to make a consistency between the college mission and program mission, the quality committee examined the old program mission that stated:

"The mission of the department of Electrical Engineering is to provide students with a supportive environment that facilitates learning to solve problems in electrical engineering. The department is committed to excellence in student learning. Graduates of the program will be problem solvers and able to apply engineering principles to electrical systems. The faculty uses their background in teaching, research, and industry to prepare students to be successful as they move into the workforce."

The old statement was reviewed and advice also taken from an external reviewer, the program mission was changed to

"To provide graduates with distinguished engineering knowledge, professional and engineering problem solving skills and to be engaged in research and experiential work for the benefit of community**"**.

The quality committee conducted a series of surveys for instructors and students to exploit their views regarding the mission of the program. The results showed that their views tend toward the updated revised mission statement.

The consistency between the EE program mission and University Mission is shown in table 10

Table10: The consistency of EE program mission with the University mission

		University mission: Majmaah University provides educational and research services via an academic system that is capable of competing with an eye on the market demands and the society partnership				
		Developed Educational services	Developed research services	Academic competition	Ethical Responsibilities	Society partnership
college mission	Educate students in engineering	X				
	Provide high quality Engineering knowledge			X		
	Research facilities		X			
	benefit of society				X	X

Table11: The consistency of EE program mission with the college mission

		College Mission: To provide and educate students with the highest quality in engineering knowledge and to facilitate cutting edge research for the benefit of the society.			
		Educate students in engineering	Provide high quality Engineering knowledge	Research facilities	benefit of society
P	Distinguished engineering	X			

	knowledge				
	Be creative, professional and engineering problem solver	X		X	
	Engaged in research		X	X	X
	Experiential work			X	
	Serve community.				X

Table11: The consistency of EE program mission with the EE program objectives

		Program Mission: To provide graduates with distinguished engineering knowledge, professiona and engineering problem solving skills and be engaged in research an experiential work for the benefit of community.				
		Distinguished engineering knowledge	professional and solve engineering problems	Engaged in research	Experiential work	Serve community
program Objectives	Demonstrate technical competence in identifying, formulating, analysing and solving engineering problems	X	X			
	Demonstrate the professional skills necessary to lead their professional discipline and have the lifelong learning skills to adapt to rapidly changing technologies		X		X	
	Pursue higher learning in the field of engineering and multidisciplinary areas to emerge as successful researchers,		X	X		X

	entrepreneurs, experts and educators						
	Practice and inspire high ethical and professional standards.				X	X	

The consistency of the EE program Mission, College Mission and University Mission based on Four main Objectives:

- Knowledge and Skills
- Professionalism and Ethics
- Research
- Serving Community

1.2 Usefulness of the Mission Statement

The mission statement provides an effective guide for choices between various planning strategies. Also the mission is important to determine goals, objectives and Learning Outcomes. In addition, the mission satisfies and consists with the college mission

1.3 Development and Review of the Mission

- The process of development and review of the program mission was first by the Quality Committee, then by all faculty staff. All comments and feedback from stakeholders are taken in consideration and final statement was sent to the department council for approval which then endorsed by the Dean.
- The mission statement periodically reviewed by the head of department and Quality Committee. Any recommendation of updates are first reviewed by faculty and then surveyed by all stakeholders such as faculty and students.

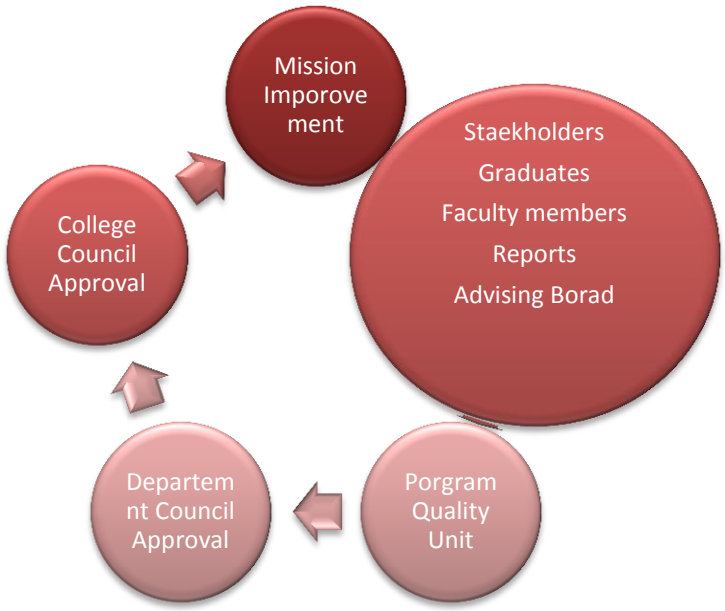


Figure8 : Improvement plan of EE Program Mission

1.4 Use Made of the Mission

The program mission publicized in various ways such as department webpage, posters in front of the quality archive room and also by informing faculty and students. The mission is the core reference for any plans and activities in the department.

1.5 Relationship Between Mission, Goals, and Objectives

The mission is the base for the development of the program objectives. The consistency between the mission and objectives approved by the department council meeting. This consistency shown in Objectives Goals and objectives for the development of the program are periodically modified if necessary in response to results achieved and also for any changing circumstances.

The procedure used to write the mission based on several factors:

- National and international benchmark'
- Mission of the university and the college
- Discussions and analysis by the quality members
- Faculty survey related to mission
- Approval of mission by EE department and college.

Provide a description of the process for investigation and preparation of report on this standard.

The mission is approved the department council after passed through several steps:

- The quality committee studied and analyzed keywords of the mission of the university and the mission of the college: Providing high knowledge and skills, preparing professionals, engaged in reproach and to serve community.
- Keywords used in writing the mission of the program by the quality committee.
- Feedback about mission is collected through special survey.
- After minor corrections, the mission is discussed by department council and approved.
- Objectives are defined to achieve mission.

Choose ONE OR MORE KPIs that best supports that the program meets this standard. Each KPI should use a separate KPI table. Insert the KPI in the table below, add the actual KPI benchmark with the other benchmarks, and provide an analytical interpretation that describes the outcome (most benchmarks are numerical and others may be descriptions that verify quality using a rubric).

KPI: **Consistency of the EE Mission with The College Mission**	
Target Benchmark	**100%**
Actual Benchmark	**100%**
Internal Benchmark	**100%**
External Benchmark	**Not Needed due to reaching the maximum target**
New Target Benchmark	**100%**
Analysis: **The EE mission consists with College Mission with 100%. Table 11 shows the consistency for 4 main items.**	

KPI: **Consistency of the EE Mission with The Objectives**	
Target Benchmark	**100%**
Actual Benchmark	**90%**
Internal Benchmark	**100%**
External Benchmark	**100%**
New Target Benchmark	**100%**

Analysis:

The EE mission consists with objectives 90% Table 12 shows the consistency for 4 main items. Serving society should be clearer.

Overall Evaluation of Quality of Mission, Goals and Objectives. Refer to evidence obtained and *provide a report* based on that evidence; including a list of particular strengths, recommendations for improvement, and priorities for action.

The Objectives of the EE program and their consistency with the Mission are discussed in the quality unit meetings, faculty survey and department council. The following results are based on Program educational objectives Faculty survey (PEO):

Objective: 1. Demonstrate technical competence in identifying, formulating, analyzing and solving engineering problems.

Accept	8	88.9%
Accept but needs revision	1	11.1%
Not Accept	0	0%

Objective: 2. Demonstrate the professional skills necessary to lead their professional discipline and have the lifelong learning skills to adapt to rapidly changing technologies.

Accept	7	77.8%
Accept but needs revision	2	22.2%
Not Accept	0	0%

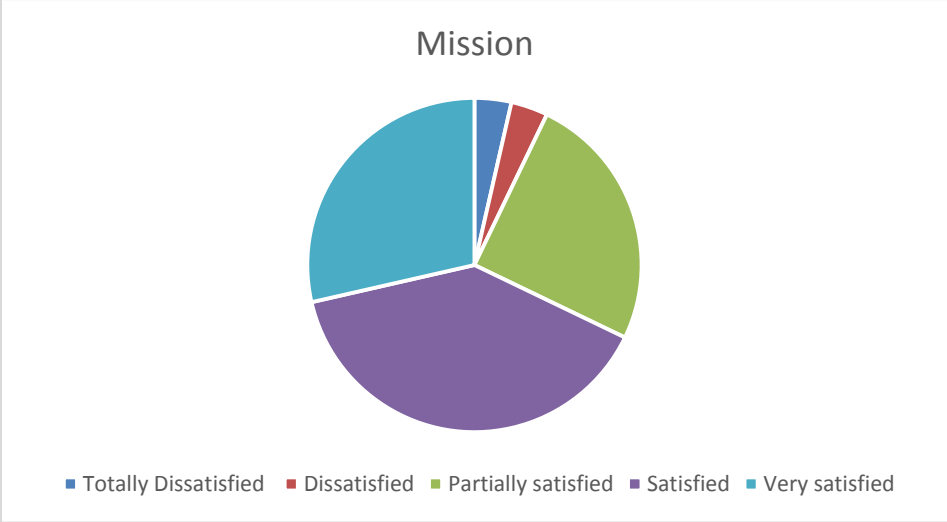
Objective: 3.Pursue higher learning in the field of engineering and multidisciplinary areas to emerge as successful researchers, entrepreneurs, experts and educators.

Accept	8	88.9%
Accept but needs revision	1	11.1%
Not Accept	0	0%

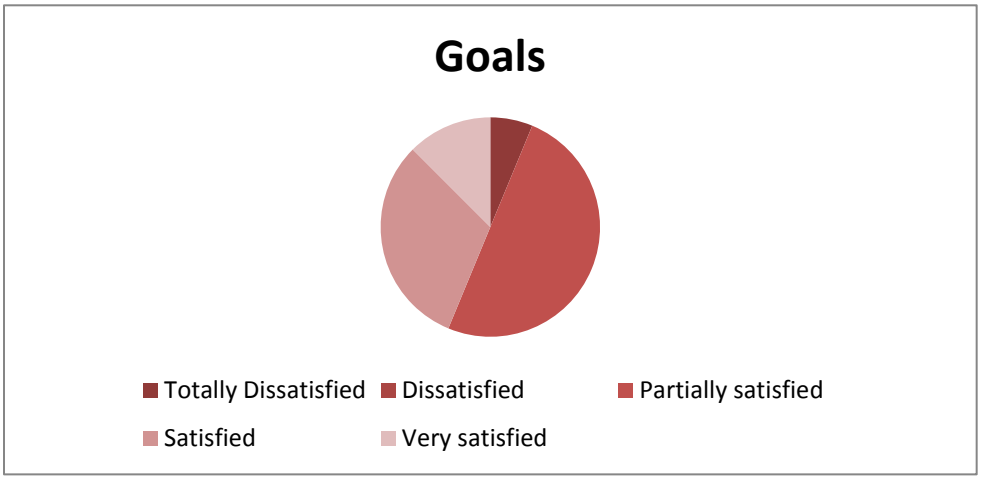
Objective: 4. Practice and inspire high ethical and professional standards.

Accept	8	88.9%
Accept but needs revision	1	11.1%
Not Accept	0	0%

Also, the mission, goals and objective students surveys are performed and below the results of samples



(a)



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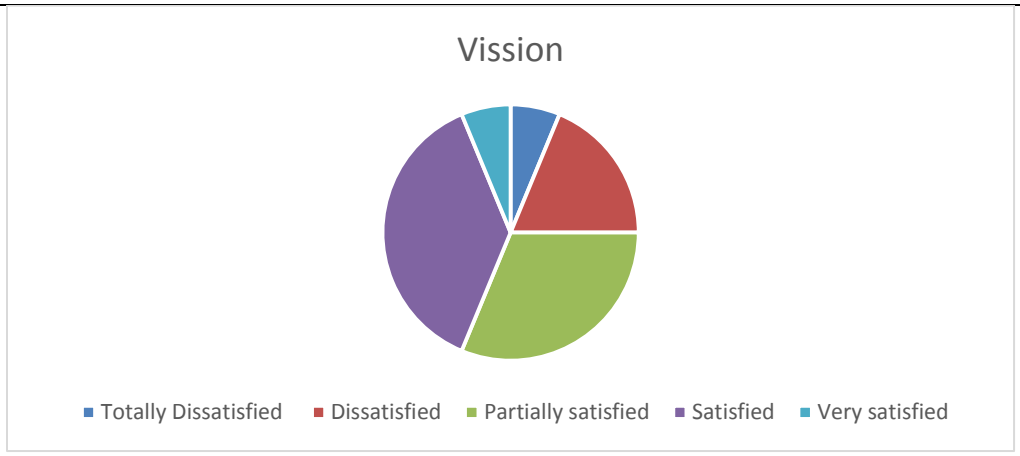


(c)

Strengths:

- The mission statement is clear and consists with University and College missions.
- The mission developing and approval process is used.

Recommendations of improvements:

To be reviewed by the Advisory Board

Evidences:

- PEO Faculty survey
- Department approval
- Full report consistency of the mission and Objectives with college and University

Standard 2. Program Administration (Overall Rating__**_ Stars)**

Provide an explanatory report about the development and use of the program administration for each of the following sub-standards

2.1 Leadership

- The responsibilities of program administrators defined in position descriptions at the college level.
- The program has established the Undergraduate Program Committee (UPC). Its responsibilities are to check and review the course reports at the end of every semester then suggest some recommendations to the HoD regarding the changing of courses textbooks, reference lists, modify

planned teaching strategies, details of assessment tasks and updating of course content as far as possible subject to conditions set by the university council or other responsible authority.

- The program staff receives their evaluation from the HoD for their performance in the last semester. The data collected from the students as course surveys and send to the statistics and evaluation unit for processing.

- Advisory Board is established and approved by the Department Council to give guidance and to get inputs from the industry and from national academic institutions.

2.2 Planning Processes

The established committees of EE department have its goals to achieve the objectives of the EE program. The responsibility of each committee is defined and each committee has its operational plan. The committee performance is reported by committee's coordinators twice per year.

2.3 Relationship Between Sections for Male and Female Students

N/A

2.4 **Integrity**

The performance of all activities of the committees is reported to the HOD, these reports points out the good practice and any notification and recommendation for the improvement of the program.

2.5 Internal Policies and Regulations

The rules and regulations for students, staff and employees defined and published at the university level. These manuals are available also in front of the registrar office at the college of engineering.

Evidences:

- Figure 1: Institutional administrative flowcharts
- Figure 2: Program Level administrative flowchart
- Semi-Annual report by Committees
- Semi-Annual report by Committees
- College website and EE website
- Hard copy of regulation in the College

Standard 3. Management of Program Quality Assurance (Overall Rating__*_ Stars)**

Provide an explanatory report that describes and analyzes the quality assurance processes used in the program, particularly relating to indicators and benchmarks of performance and verification of standards for each of the following sub-standards.

3.1 **Commitment to Quality Improvement in the Program**

The Improvement process based on feedback from all related committees. Main documents used in improvement process are:

- Program Annual Reports (two years at least)
- Course Reports: Analysis of assessment results (KPIs and Rubrics) to improve the teaching strategies and assessment method.
- Self-Evaluation Report (2012)
- Students Surveys: Course, Experience and Program
- Field experience Report
- Reports from different committees
- New Administrative regulations and standards
- EE Program Strategic plan and operational Plans of all committees.

Figure 9: Committees participating in improvement process of EE Program

Commitment to Quality Improvement in the Program

The self-study report is prepared by the quality committee in the program. The committee

usually asks staff to participate in contributing with some parts of the report.

The electrical engineering program participated in the most readiness program contest. The program was able to improve its ranking compared to previous ranking.

Mistakes and weaknesses are recognized by the program administration and used as a basis for planning for improvement.

3.2 Scope of Quality Assurance Processes

In order to meet the requirements of international and national accreditation standards, the program has adopted a set of student learning outcomes (SLO) based on the ABET standards in addition to fours SLOs that are specific to the electrical engineering program. The adopted learning outcomes are shown in table 12

Table12: Mapping between ABET and NCAAA learning outcomes

Domain	Code		learning outcomes
	ABET	NCAAA	
A Knowledge	(h)	a1	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
	(j)	a2	Knowledge of contemporary issues.
	EE4	a3	The ability to recall, understand, and present information, including knowledge of specific facts, knowledge of concepts, principles and theories, and knowledge of procedures
B Cognitive Skills	(b)	b1	An ability to design and conduct experiments, as well as to analyze and interpret data
	(c)	b2	An ability to design a system, component, or process to meet desired needs within realistic constraints
	(e)	b3	An ability to identify, formulate, and solve engineering problems
	(EE1)	b4	The ability to analyze, design, and implement systems.
	(EE2)	b5	The ability to apply project management techniques to electrical systems.

C Interpersonal Skills & Responsibility	(d)	c1	An ability to function on multidisciplinary teams
	(f)	c2	An understanding of professional and ethical responsibility
	(i)	c3	Recognition of the need for and an ability to engage in life-long learning.
D Communication, Information Technology, Numerical	(a)	d1	An ability to apply knowledge of mathematics, science, and engineering
	(g)	d2	An ability to communicate effectively
	(k)	d3	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
	(EE3)	d4	The ability to utilize statistics/probability, transform methods, discrete mathematics, or applied differential equations in support of electrical systems.
E Psychomotor		e1	
		e2	

Improvement of teaching strategies and assessment methods based on course report using KPs and Rubrics is shown in figure

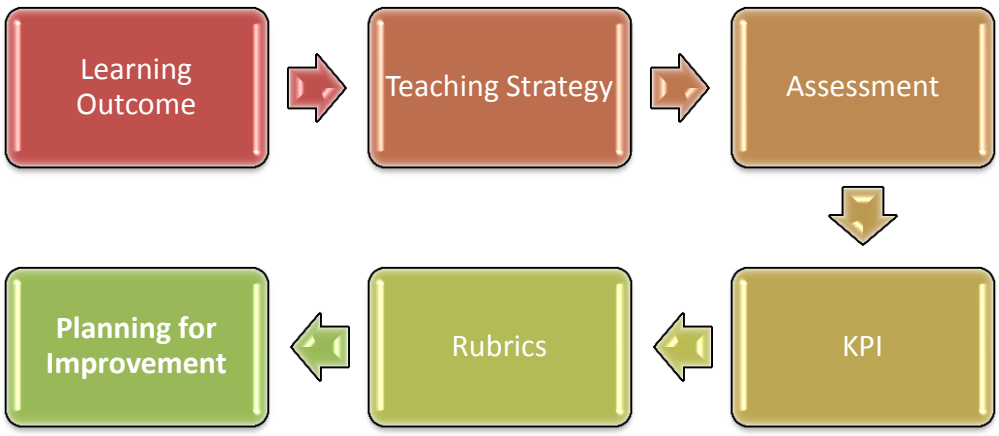


Figure 10: Improvement process of teaching strategies and assessment methods

The improvement process showed above based on the performance of students and achievement of learning outcome delivery.

3.3 Administration of Quality Assurance Processes

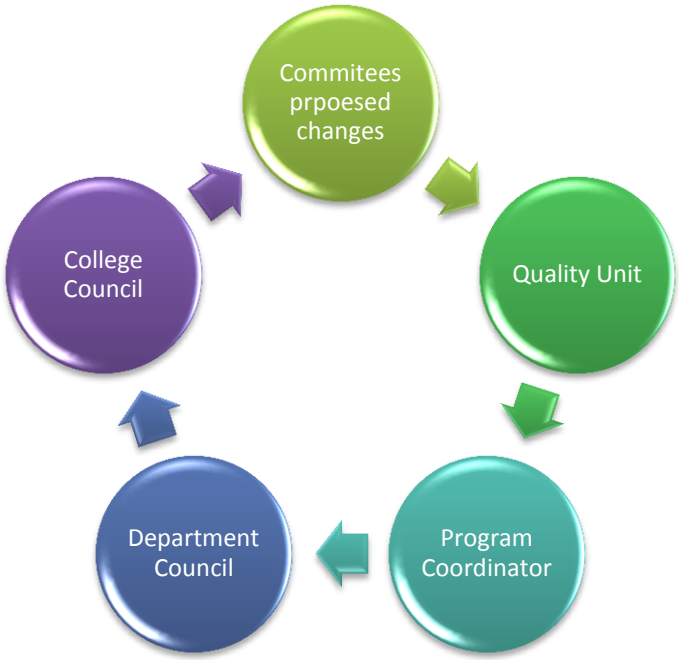


Figure 11: Administration Improvement process

The administrative checking the quality of the program through a feedbacks:

- Students Course Report (Quality Unit)
- Instructor Annual Report (Teaching Quality Assurance Committee)
- Quality assurance processes for the program makes use of survey instruments for use in the institution as well as gathering any special information required for program.
- Survey data are collected from students and analyzed for individual courses, the program as a whole, and from graduates.
- Quality assurance responsibility is given to a member of the teaching staff to provide direction and support for the management of quality assurance processes. The responsible person involves other staff in activities of the quality committee.

3.4 Use of Performance Indicators and Benchmarks

- All courses that are taught in the program are evaluated by students at the end of each semester. The results are handed over to the head of the department who in turn send them to each instructor individually
- Students from the seventh level and above are surveyed for their experience in the

program at the end of each semester.

- The format for indicators and benchmarks should be consistent with those used across the institution.

- The Indicators and Benchmarks are used as a reference for the development of the program

The following table shows the KPIs for The first Learning outcome (a1)

Table 13: Learning outcome with list of KPIs

(a1) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.		
KPIs	KPI (1)	Awareness of current trends and events
	KPI (2)	Historical aspects of engineering solutions
	KPI (3)	Technical periodicals
	KPI (4)	Personal Perspective in Electrical engineering

3.5 Independent Verification of Evaluations

The standards achieved by students of learning need to be verified in relation to the requirements of the national qualifications framework similar to standard other comparable institutions as shown in table 14

Table 14: Consistency between Student Learning Outcomes and NCAAA Outcomes

			NCAAA Outcomes																				
			A NCAAA				B NCAAA						C NCAAA					D NCAAA			E NCAAA		
			A1	A2	A3	A4	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	D1	D2	D3			
Student Learning Outcomes	A	a1	X		X	X																	
		a2		X	X																		
		a3	X	X																			
	B	b1										X											
		b2					X																
		b3					X	X		X													
		b4					X	X	X	X	X												
		b5								X	X	X											
	C	c1											X	X	X								
		c2													X	X	X						
		c3												X		X							
	D	d1																X					
		d2																	X	X			
		d3																X					

		d4															X						

Provide a description of the process for investigation and preparation of report.

The process for investigation and preparation this report :

- The quality unit with the cooperation with the deanship of quality and skills development filled the 1-20 form related to the quality
- The Program committee adopted these changes and applied in program specifications, course specifications.
- Several committees formed and worked together to preview; discuss the mission, goals, objectives and learning outcomes. All are approved by department and college councils.
- The program committee not only mapped the ABET and NCAAA learning outcomes, but also, added a new Learning outcome (EE4) related to the delivery of knowledge to the students during their study.

The quality of course specifications is checked and the changes approved after performing a full procedure :

- After collecting course specifications from instructors, the subcommittees (Basic courses, power and machine course and Communications and electronics subcommittees) checked the consistency of the contents of the course specifications with the approved course description.
- Then the undergraduate committee with cooperation of the quality unit checked the learning outcomes, teaching strategies and assessment method assigned for each course.
- Finally the department council and college council approved course specifications using new NCAAA form 2013.
- Different activities organized to enhance the instructor performance such as workshops and presentations.

KPI: **Quality of undergraduate students**	
Target Benchmark	**3.5 out of 5**
Actual Benchmark	**(3.14)**
Internal Benchmark	**3.5 out of 5**
External Benchmark	**4 out of 5**
New Target Benchmark	**3.5**
Analysis:	

Based on the faculty survey, the following results

Rubric	Number of faculty members	(%)	Weight
Very dissatisfied (1)	**1**	7.1%	1
Somewhat dissatisfied (2)	**3**	21.4%	6
Neither satisfied nor dissatisfied (3)	**3**	21.4%	9
Somewhat satisfied (4)	**7**	50%	28
Very satisfied(5)	**0**	0%	0
Total	**14**	100%	44

The result=44/70=0.62= (3.14)

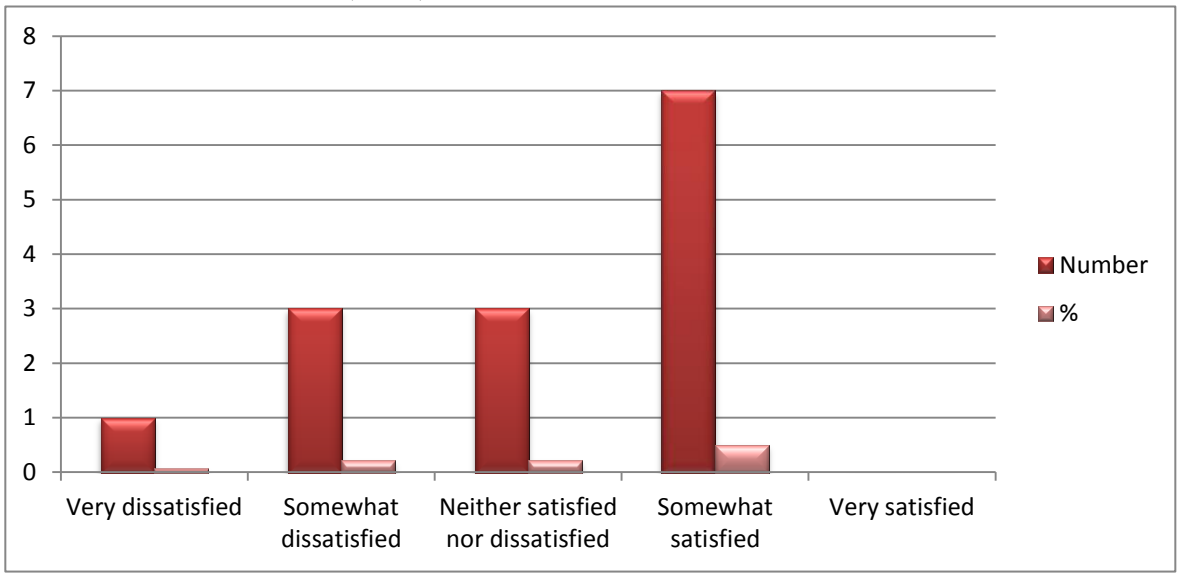


Figure 12: Results of Faculty survey (Quality of undergraduate students)

Strengths:

- The quality assurance process is performing based on clear process
- Mission, goals, objectives and Learning outcomes are defined and approved
- Teaching strategies and assessment methods are updated and approved
- Program specifications, course specifications are updated based on new NCAAA format
- The quality documentation and monitoring the quality process in the EE program are achieved through different committees that formed.

Recommendations for improvements:

- More reviewing process and working on clear procedure to check the quality of teaching

- Working on effective arching and documentation producer for data to be used when needed.
- Still the monitoring process needs additional steps in analyzing results and feedback to use in closing the loop for improving process.

Evidences:

- Forming of Quality unit and other committees
- Updated course specifications
- Faculty survey
- Updated Program specifications
- Quality forms (1-20)

Standard 4. Learning and Teaching. (Overall Rating_** Stars)**

The EE program uses NCAAA Learning outcomes mapped with ABET learning outcomes. Additional four Learning outcomes added to occupy specific knowledge and skills related to electrical engineering.

All results of direct assessments are analyzed and discussed to have feedback that can be used for improvement teaching strategies and assessment methods.

For every Learning outcome already number of KPIs is assigned with rubrics (Unsatisfactory, developing and satisfactory). So, instructors use those KPIs to check the delivery of the learning outcome and the performance of students and write a feedback in the course report.

All scores of all assessment results are collected and analyzed

Table 15: Results of direct assessment of several course (see full report)

Course Code	Number of Students					Result Analysis*						
	Registered	Banned	Withdrawn/Excused	Regular	Attended	Passed		Failed		Average Mark	Maximum Mark	Minimum Mark
						No	(%)	No	(%)			
EE439	13	0	0	13	13	13	100	0	0	78.7	93	61
EE426	9	0	0	9	9	9	100	0	0	76.33	91	60
EE325	0	0	0	8	8	8	100	0	0	73.75	90	60
EE323	22	0	0	22	21	21	95	1	5	75.8	87	65
EE436	17	0	0	17	17	17	100	0	0	80.9	85	68

The analysis of the scores shows the following for 35 courses (Theoretical and Labs) in table 16

Table 16: Results of direct assessment of all courses (see full report)

Number of registered students		Number of banned students		Withdrawn		Passes		Average Mark	
Fall 2014	Spring 2014	Fall 2014	Spring 2014	Fall 2014	Spring 2014	Fall 2014	Spring 2014	Fall 2014	Spring 2014
431	367	2	3	10	15	418	329	62.5%	74

The following figure shows analysis of direct assessment method

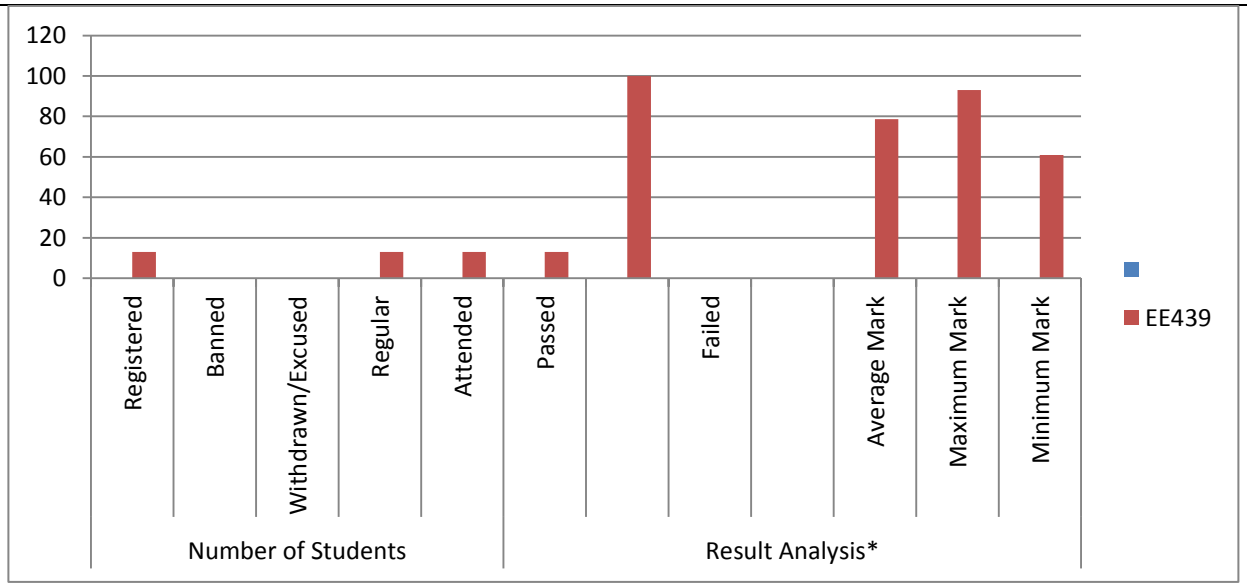


Figure 13: Analysis of Direct assessment of one course

Distribution of assessment results in two semesters

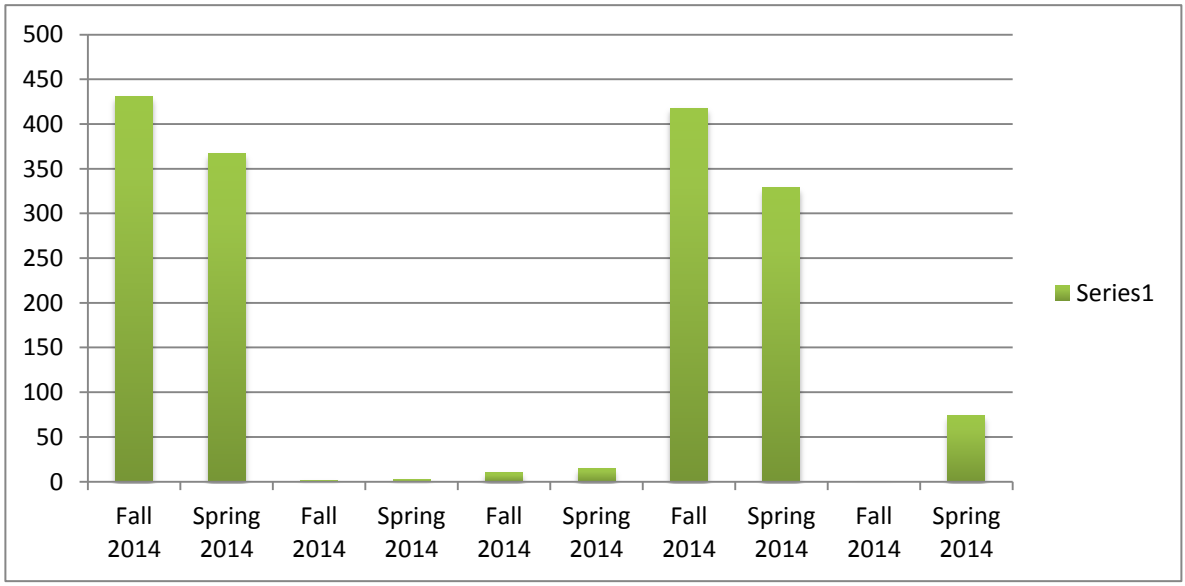


Figure 14: Analysis of Direct assessment of all courses

The analysis of KPIs (Average, maximum mark and minimum marks) show limited information about the performance of the students and the delivery of the Learning outcome.

Subsection 4.1 Student Learning Outcomes (Overall Rating_**_ Stars)**

The learning outcomes are written based on:

1- Mission , objectives and goals of EE program

2- EE program adopted ABET learning outcomes and these outcomes are mapped with NCAAA outcomes.

	NQF Learning Domains and Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		
1.1	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.	Research activities, debates, case studies and guest speakers	Reports, discussions and presentations
1.2	A knowledge of contemporary issues.	Lecture, research activities, debates, case studies and guest speakers	Exams and presentations
1.3	The ability to recall, understand, and present information, including knowledge of specific facts, knowledge of concepts, principles and theories, and knowledge of procedures	Lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, memorization and individual presentation	Standardized exams, Seminars and Assignments
2.0	Cognitive Skills		
2.1	An ability to design and conduct experiments, as well as to analyze and interpret data	Lecture, small group work, , research activities, lab demonstrations, projects and individual presentation	Standardized exams, Oral exams, Micro projects
2.2	An ability to design a system, component, or process to meet desired needs within realistic constraints	Lecture, small group work, , research activities, lab demonstrations, projects and individual presentation	Reports and presentations
2.3	An ability to identify, formulate, and	Lecture, small group work, ,	Standardized exams, Oral

	solve engineering problems	research activities, lab demonstrations, projects and individual presentation	exams, Micro projects
2.4	The ability to analyze, design, and implement systems.	Lecture, small group work, , research activities, lab demonstrations, projects and individual presentation	Standardized exams, Oral exams, Micro projects
2.5	The ability to apply project management techniques to electrical systems.	Lecture, small group work, , research activities, lab demonstrations, projects and individual presentation	Behavior observation and reports
3.0	Interpersonal Skills and Responsibility		
3.1	An ability to function on multidisciplinary teams	Debate, small group work, whole group and small group discussion, research activities, projects and brainstorming	Behavior observation and presentations
3.2	An understanding of professional and ethical responsibility	Lecture, debate, small group work, whole group and small group discussion, research activities, projects and brainstorming	Discussions
3.3	A recognition of the need for and an ability to engage in life-long learning.	Lecture, debate, small group work, whole group and small group discussion, research activities, projects and brainstorming	Reports, discussions and presentations
4.0	Communication, Information Technology, Numerical		
4.1	An ability to apply knowledge of mathematics, science, and engineering	Lecture, research activities, lab demonstrations, projects, case studies, memorization and individual presentation	Standardized exams, Oral exams, Micro projects
4.2	An ability to communicate effectively	Lecture, debate, small group work, whole group and small group discussion, role playing, guest speakers,	Reports, discussions and presentations

		individual presentation and brainstorming	
4.3	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Lecture, research activities, lab demonstrations, projects, case studies, memorization and individual presentation	Exams, quizzes and reports
	The ability to utilize statistics/probability, transforms methods, discrete mathematics, or applied differential equations in support of electrical systems.	Lecture, research activities, lab demonstrations, projects, case studies, memorization and individual presentation	Standardized exams, Oral exams, Micro projects
5.0	Psychomotor (if applicable)		
5.1	NA		

Describe the general performance of the program learning outcomes; including external KPIs with benchmarks and analysis assessments from students and employer surveys and a summary of the direct assessment of student learning achievements (How well are the students learning?).

Describe the program learning outcome assessment system (What is it?); including the results and analysis for the last four years, a description of the leaders, faculty, committees and responsibilities and the names people who serve on each committee.

Describe the process and steps utilized for the complete assessment for all program learning outcomes (How does the system or process work?).	
List the strengths and recommendations for improvement of the learning outcome assessment (Based on the student performance results, how can the program improve?) (See *Annual Program Reports* for detailed data).	

Evaluation of intended student learning outcomes. Refer to evidence about the appropriateness and adequacy of the intended learning outcomes for students in this program and *provide a report* including a list of strengths, recommendations for improvement, and priorities for action.

Subsection 4.2 Program Development Processes (Overall Rating _*_ Stars)**

Describe the processes followed for developing the program and implementing changes that might be needed.

Improvement of EE Program

The Quality Unit and the Undergraduate Program Committee (UPC) put a clear procedure to update and modify the curriculum of electrical department. The updating process will consider three main feedbacks: work of committees, course report and students surveys. In the future, surveys from stakeholders and graduated students will be considered in the next year. The UPC committee devised the development of the program to three sub-committees: Basic Undergraduate Program Sub-Committee (BUPS), Communication Undergraduate Program Sub-Committee (CUPS) and Power Undergraduate Program Sub-Committee.

Evaluation of program development processes. Refer to evidence and provide a report including a list of strengths, recommendations for improvement, and priorities for action.

Strengths:

- NCAAA Learning outcomes mapped with ABET are used and fit with NQF
- Course specifications and program specifications are updated using NCAAA forms
- There is a strategic and operational plans to review achieved and to compare what can be achieved.
- The program specification is based on the NCAAA format.
- The quality committee is responsible for filling and submitting the program specification for approval by the department council.
- Courses evaluated and reported every semester. Reports include information about the effectiveness of planned strategies and the extent that intended learning outcomes being achieved.
- Records of student completion rates are kept for all courses and for the program.
- Reports on the program are reviewed annually by UPC and quality committees.

Recommendations for improvement:

- Completing the review process
- Defining external benchmarks and performing more analysis

Subsection 4.3 Program Evaluation and Review Processes (Overall Rating ****_ Stars)

Describe the processes followed for program evaluation and review.

Work of UPC and Subcommittees: UPC= Undergraduate Program Committee; BUPC=Basic Undergraduate Program Subcommittee; PUPS= Power Undergraduate Program Subcommittee; CUPS=Communications

First:

N	The proposed changes	Suggested by	Discussed By	Documents	QU and Recommer
1	Changing the prerequisite of EE 208 from EE205 to EE202 in the EE description	UPC	BUPS	Report UPC and Report BUPC	Accept
2	Changing the prerequisite of EE 234	UPC	BUPS	Report UPC and	Accept

	from EE205 to EE206 in the EE description			Report BUPC		
3	Changing the prerequisite of EE 369 from EE205+EE111 to EE208+EE111 in the EE description	UPC	BUPS	Report UPC and Report BUPC	Accept	
4	Changing the prerequisite of EE 307 from EE203 to EE208 in the EE description and from EE207 to EE208 in the curriculum	UPC	BUPS	Report UPC and Report BUPC	Accept	
5	Changing the title of EE 372 from "Electric Power system Analysis" to "Power system Analysis" in the EE curriculum	UPC	PUPS	Report UPC and Report PUPC	Accept	
6	Changing the credit Hours of EE484 for 2(2,0,1) to 3(3,0,1)	UPC	PUPS	Report UPC and Report PUPS	Accept	
7	Changing the prerequisite of EE 477 from EE288 to EE270 in the EE description	UPC	PUPS	Report UPC and Report PUPS	Accept	
8	Changing the Co-requisite of EE 271 from EE284+ EE 270 to EE288 +EE270 in the EE description	UPC	PUPS	Report UPC and Report PUPS	Accept	
9	Changing the title of EE 271 from "Principles of electric power and Machines Lab" to "Electric power and Machines Lab" in the EE curriculum	UPC	PUPS	Report UPC and Report PUPS	Accept	

Second: Feedbacks from Course Reports:

Analyzing the course reports, most of comments are related to enhance the basic mathematical, programing and English language skills of the students.

Results of final scores show deviations between the courses.

Most of course reports not fully filled and there were no feedback comments.

Sr. No.	Course Code	Course Name	COMMENTS
4	EE 206	Electromagnetics-1	Section G-3 (Action plan for improvement)
8	EE 212	Basic of Electronic Devices and	Section G-1 & 3 (Planning for improvement)

		Circuits Lab.		
11	EE 221	Signals and Systems Analysis	Official Book should be changed Course syllabus should be revised	
14	EE 234	Electromagnetics 2	Section G-3 (Action plan for improvement)	
20	EE 360	Microprocessors	Section G-1 & 3 (Planning for improvement)	
2	EE 314	Analog and Digital Electronic Circuits	Problems regarding software and transistors with their linear models	
3	EE 315	Analog and Digital Electronic Circuits Lab	Student training kits for CMOS and ECL	
5	EE 426	Wireless Communications	Section G-1 & 3 (Planning for improvement)	
8	EE 433	Satellite Communication Principles	Official reference book is not available Requested to avail the text book	
10	EE 436	Antennas and Wave Propagation Lab.	Section G-1 & 3 (Planning for improvement)	
11	EE 439	Optical Communications	Section G-1 & 3 (Planning for improvement)	
12	EE 415	VLSI Circuit Design	Problems with simulation software New VLSI simulation lab recommended	

Checked all course reports by the UPC. The main items checked are the assessment analysis, improving the teaching strategies and the problems faced the instructor during delivering skills and knowledge.

The following comments are collected from some of course reports:

Third: Feedbacks from Students' surveys:

Student Experience Survey (SES) Results

Item	R
1. It was easy to find information about the institution and its programs before I enrolled at this institution for the first time.	3.84
2. When I first started at this institution the orientation program for new students was helpful for me.	3.61
3. There is sufficient opportunity at this institution to obtain advice on my studies and my future career.	3.75
4. Procedures for enrolling in courses are simple and efficient.	3.69
5. Classrooms (including lecture rooms, laboratories etc.) are attractive and comfortable.	3.49
6. Student computing facilities are sufficient for my needs.	3.68
7. The library staff is helpful to me when I need assistance.	3.65

8. I am satisfied with the quality and extent of materials available for me in the library.	3.52
9. The library is open at convenient times.	3.55
10. Adequate facilities are available for extracurricular activities (including sporting and recreational activities)	3.59
11. Adequate facilities are available at this institution for religious observances.	3.64
12 Most of the faculty with whom I work at this institution is genuinely interested in my progress.	3.84
13. Faculty at this institution are fair in their treatment of students	3.59
14. My courses and assignments encourage me to investigate new ideas and express my own opinions.	3.73
15. As a result of my studies my ability to investigate and solve new and unusual problems is increasing	3.72
16. My ability to effectively communicate the results of investigations I undertake is improving as a result of my studies.	3.82 3.68
17. My program of studies is stimulating my interest in further learning.	3.67
18. The knowledge and skills I am learning will be valuable for my future career.	3.77
19. I am learning to work effectively in group activities.	3.77
20. Overall I am satisfied with my life as a student at this institution.	

Number of participants: 75

Analysis:

The item 14 is related to courses and number (3.73) shows that students' evaluation is between true sometimes and agree.

Items (15-19) show that students are satisfied in average with learning outcomes and skills that they gain during their study.

Recommendations: No actions needed.

Program Evaluation Survey (PES) Results

n	R
Adequate academic and career counselling was available for me throughout the program.	3.9
The instructors were available for consultation and advice when I needed to speak with them.	3.9
The instructors in the program inspired me to do my best.	3.7
The instructors in the program gave me helpful feedback on my work.	3.8
The instructors in the program had thorough knowledge of the content of the courses they taught.	3.8
The instructors were enthusiastic about the program.	3.6
The instructors cared about the progress of their students.	3.7
Study materials in courses were up to date and useful.	3.8

9.	Library resources were adequate and available when I needed them.	**3.71**
10.	Classroom facilities (for lectures, laboratories, tutorials etc) were of good quality.	**3.63**
11.	Student computing facilities were sufficient for my needs.	**3.80**
12.	Adequate facilities were available for extracurricular activities (including sporting and recreational activities).	**3.73**
13.	Adequate facilities were available for religious observances.	**3.75**
14	Field experience programs (internship, practicum, cooperative training) were effective in developing my skills. (Omit this item if not applicable to your program)	**3.76**
15	What I have learned in this program will be valuable for my future	**3.70**
16	The program has helped me to develop sufficient interest to want to continue to keep up to date with new developments in my field of study.	**3.68**
17.	The program has developed my ability to investigate and solve new problems.	**3.80**
18.	The program has improved my ability to work effectively in groups.	**3.88**
19.	The program has improved my skills in communication.	**3.78**
20.	The program has helped me to develop good basic skills in using technology to investigate issues and communicate results.	**3.76**
21	**I have developed the knowledge and skills required for my chosen career.**	**3.81**
22.	**Overall I was satisfied with the quality of my learning experiences at this institution.**	**3.97**

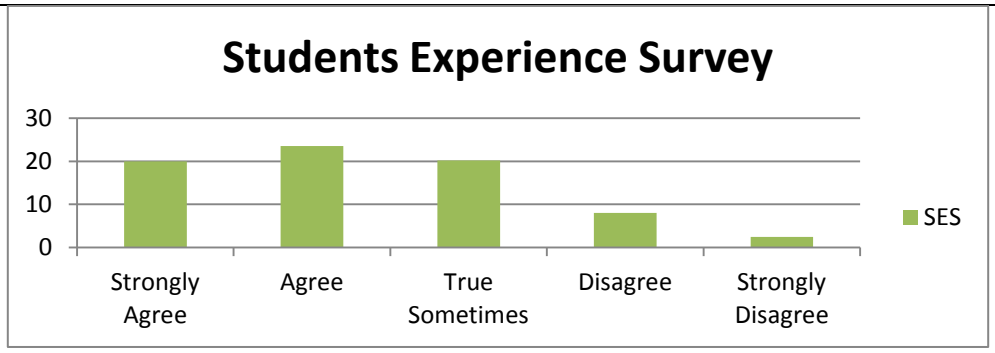
Number of participants: 77

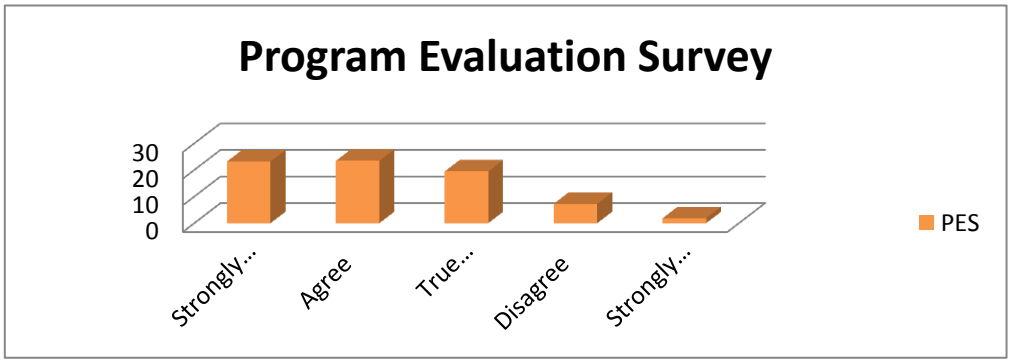
Analysis:

The item 8 is related to courses and number (3.81) shows that students' evaluation is between true sometimes and agree.

Items (15-19) show that students are satisfied in average with learning outcomes and skills that they gain during their study.

The results of surveys (Program and experience show a satisfaction of students of the EE program)





Conclusions:

1- Several courses should be updated urgently: Already approved changes by Department Council

2- The analysis of Students surveys (Experience and Program) show satisfactions of students.

Subsection 4.4 Student Assessment (Overall Rating * _Stars)**

Describe the strategies for student assessment in the program and the processes used to verify standards of student achievement.

The assessment methods are divided into two categories:

Direct methods: provide for the direct examination or observation of student Including examination or observation of student knowledge or skills against measurable learning outcomes:

a) Exit interviews: Asking individuals to share their perceptions about the program (e.g., their own skills/attitudes, skills and attitudes of others, or program qualities) in a face-to-

face dialog with an interviewer.

b) Standardized exams: Subject-specific examinations, generally group administered mostly multiple choices, "objective" tests, usually purchased from a private vendor.

c) Locally developed exams: • Objective (includes true-false, fill-in-the blank, matching, and multiple choice question) and/or subjective (open-ended— require students to write) tests designed by faculty of the program.

d) Portfolios: • Collections of student work which is archived and rated for level of attainment using scoring rubrics. The design of a portfolio is dependent upon how the scoring results are going to be used.

e)Simulations: A person's abilities are measured in a situation that approximates a "real world" world setting

f) Performance Appraisal: Systematic measurement of the demonstration of acquired skills through direct observation

g) External examiner: Using an expert in the field from outside the program (usually from a similar program at another institution) to conduct, evaluate, or supplement assessment of your students

h) Oral exams: An assessment of student knowledge levels through a face-to-face dialogue between the student and examiner— usually faculty.

i) Behavioural observations: Measuring the frequency, duration, relationships, etc. of student actions, usually in a natural setting with non-interactive methods (e.g., formal or informal observations in a classroom).

Indirect Methods: are those that Includes ascertain the opinion or self-report of the extent or value of learning experiences

a) Written surveys and questionnaires: Asking individuals to share their perceptions about the program (e.g., their own or others' skills/attitudes/behaviour, or program/course qualities and attributes)

b) Exit interviews: Asking individuals to share their perceptions about the program (e.g., their own skills/attitudes, skills and attitudes of others, or program qualities) in a face-to-face dialog with an interviewer.

c) Archival records: Biographical, academic, or other file data available from the college or

other agencies and institutions.

d) Focus groups: Group discussions conducted by a trained moderator with participants to identify trends/patterns in perceptions

strengths:

- Assessment methods are defined and approved for every course to match with learning outcomes
- All exams, solutions (Key answers) are checked in the course file
- Standards and regulations about exams are included in the students undergraduate handbook

Recommendations for improvement:

- Diversity of using assessment methods
- Activation the online exams

Evidences:

- Undergraduate handbook
- Program specifications
- Course Files

Subsection 4.5 Educational Assistance for Students (Overall Rating _**_ Stars)**

Provide a summary report of what assistance is provided in relation to the matters listed in this sub-standard (e.g. orientation programs, office hours, identification and assistance for students in need, referrals to support services etc.).

- Teaching staff are available at sufficient scheduled times for students as appropriate consultation and advice to students.
- Teaching resources including staffing, learning resources and equipment, and clinical or other field placements are sufficient to ensure achievement of the intended learning outcomes.
- Adequate tutorial assistance is provided to ensure understanding and ability to apply learning.
- Appropriate preparatory and orientation mechanisms are provided to prepare students for study in a higher education environment.
- There is an online system for monitoring and coordinating student workload across

courses.

- Progress of individual students is monitored and assistance and counselling provided to those facing difficulties.
- Feedback on performance by students and results of assessments are given to students.

In order to assist students more effectively, the E-learning platform D2L is used to support students and provide him with information.

Strengths:

- Using D2L to assist students
- Office hours are mentioned and approved by the program committee in the program specifications

Recommendations for improvement:

- Working on new regulation and standards to make the students assistance more active
- linking the students assistance with academic advising process

Evidences:

- Undergraduate handbook
- Program specifications

Subsection 4.6 Quality of Teaching (Overall Rating _**_ Stars)**

Provide information about the planning of teaching strategies to develop the intended learning outcomes of the program, for evaluating quality of teaching, and processes for preparation and consideration of course and program reports. This section should include a table indicating the proportion of teaching staff whose teaching is regularly assessed in student surveys (or by other mechanisms).

The Teaching Quality Assurance Committee is responsible to provide a comprehensive framework for the enhancement and evaluation of the teaching, learning quality and assessment process in the EE department. The committee goal is to:

1. Provide advice to the faculties about high quality teaching and learning methods in undergraduate award courses and subjects.
2. Provide quality assurance of award courses (including course structure and coherence),

assessment and examination policies, processes for course management, learning support, student progress and student transition into courses and careers.

3. Develop, in collaboration with faculties and related Academic Board committees, appropriate qualitative and quantitative measures of performance of teaching and learning, taking into account national and international recommended practices, and overseeing, monitoring and reviewing their use;

4. Review and evaluating quality in teaching and learning of all award courses and associated student support services and programs, and making recommendations to the HOD on actions to improve the quality of teaching and learning in those courses and programs.

5. Advice and make recommendations to HOD on modifications to the structure, content, and method of presentation and delivery of award courses in response to quality assessments received in the previous year in order to ensure that these programs are of the highest possible quality.

The quality unit performs biannual student's course survey to have feedback about the quality of teaching. Program uses SPSS to analyses results.

The following is examples of course survey results:

KPI: Overall satisfaction of students about teaching quality	
Target Benchmark	4 out of 5
Actual Benchmark	3,35 out of 5
Internal Benchmark	4 out of 5
External Benchmark	4.5 out of 5
New Target Benchmark	3.5

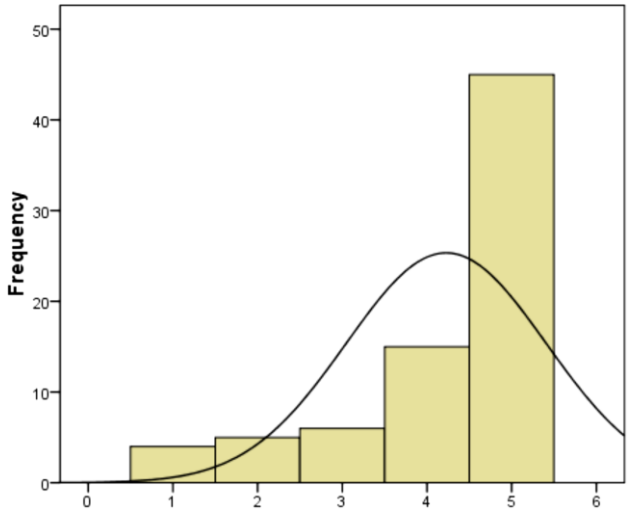
Analysis:

The overall results of course survey for all questions (31 Courses):

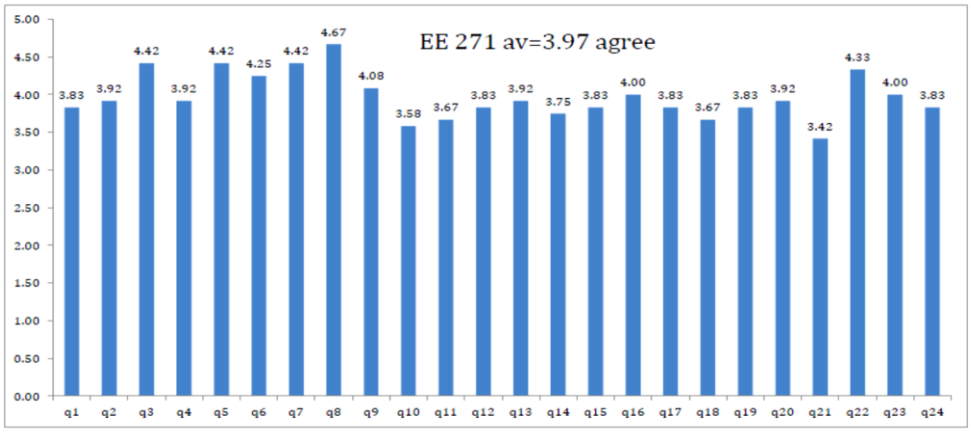
Answer	Range	Number of courses	Weight
Completely disagree	1	2	2
Disagree	2	4	8
Neutral	3	7	10
Agree	4	6	24
Completely agree	5	12	60
Total		31	104

The average satisfactions of students : 104/155=0.67= (3.35 out of 5)

The knowledge of the instructor of the course is excellent



Results of courses survey EE 271:



Strengths:

- The quality of teaching is controlled by Teaching Quality Assurance Committee
- Students Course surveys used to control the teaching quality
- SPSS program used to analyze results of surveys

Recommendations for Improvements:

Working on new procedure to be added to procedures used in quality teaching control

Evidences:

- Samples of students course survey
- Report of analysis students course survey

Subsection 4.7 Support for Improvements in Quality of Teaching (Overall Rating _**_ Stars)**

Based on the Student Survey Report, there were not any indication of problems in teaching quality; however, the Teaching Quality Assurance Committee is in the process to look at different strategies to assist the teaching performance of faculty members and to recognize the outstanding teaching performance.

Evaluation of arrangements for supporting improvements in quality of teaching. Refer to evidence about the effectiveness of strategies used and provide a report including a list of strengths, recommendations for improvement, and priorities for action. This evidence could include matters, such as, trend data and analysis from student course evaluations and

survey responses from staff participating in programs offered.

The following table shows training courses attended by instructors and their activities:

-	Requirements for Academic Accreditation Deanship of Quality and skills management , MU 22/6/1345H
-	Five skills for Quality Assurance – Deanship of Quality and skills management , MU– 27/6/1435H
-	Stress Management – Deanship of Quality and skills management, MU – 10/2/1436H
-	D2L Learning Management System – Deanship of Electronic and Distance Learning, MU – 6/7/1435H
-	The Interpersonal and Strategic Bases for Effective Leadership – Academic Leadership Center, ministry of Highe
-	Reviewer: Inderscience Journal.
-	SDL training course
-	Deanship of Quality training courses.
-	Emona TIMS seminar.
-	National Instruments seminar
-	Reviewer of Journal of Energy and Natural Resources
-	Guest Editor of Journal of Energy and Natural Resources (Electrical Power Resources: Coal versus Renewable
-	Saudi digital library (SDL)
-	Design to learn (D2L)
-	Attended SDL workshop training in DEC-2014.
-	Attended D2L online training course in FEB-2015.
-	Attended SDL workshop training in APRIL-2015.
-	Attended workshop of SDL in the main campus during February 2015.
-	Reviewer of International Journals for IEEE Transactions on Industrial Electronics
-	Reviewer of International Journals for IEEE Transactions on Magnetics
-	Reviewer of International Journals for Electric Power Components and Systems Journal – Taylor and Francis
-	Reviewer of International Journals for J-PIER Journals
-	Attended SDL workshop training in DEC-2014.
-	Attended D2L online training course in FEB-2015
-	TOT Training Course
-	Study plans requirements

Strengths:

- The students course survey is performing every semester
- A Teaching Quality Assurance Committee is formed to follow up the teaching process

Recommendations for improvement:

- Working on modifying more effective methods to keep quality of teaching at high level.

Evidences:

- Results of students courses surveys (SPSS)
- Samples of students surveys

Subsection 4.8 Qualifications and Experience of Teaching Staff (Overall Rating _* _ Stars)**

- Teaching staff have appropriate qualifications and experience for the courses they teach.
- The percentage of teaching staff who has a Ph.D. is 71.42%

The faculty members' qualification who hold a PhD are mainly in two fields, either in power

or communication and electronics, those fields are the needed qualification for the two tracks in the EE program: Power and Machine track and Electronics and Communication track.

KPI: Percentage of teaching staff who has Ph.D.	
Target Benchmark	**90%**
Actual Benchmark	**71.42%**
Internal Benchmark	**80%**
External Benchmark	**90%**
New Target Benchmark	**80**

Analysis:

Number of PhD holders is increased comparing to last three years. The interviewing try to select and hire high qualified PhD holders that fit with requirements and specialization.

Program	Achievements Ratio 2012/2013			Achievements Ratio 2013/2014			Average in faculty members	Average in students	The average
	Number of faculty members	Number of students	Ratio	Number of faculty members	Number of students	Ratio			
EE	6	172	28.7	8	189	23.6	0.33	0.01	5.1–

Strengths:

- Teaching staff is qualified and covering Basic courses and tracks
- Number of PhD holders is increased last two years
- The faculty members are qualified with high experience.
- The average experience of faculty staff around (5–7) years
- All faculty members are full–time

Recommendations for improvement:

- Increasing number of teaching staff (PhD Holders) in Power track
- To meet the high requirements of faculty members regarding teaching and research.

Evidences:

- Faculty members statistics for the last two years
- Faculty members qualifications

Subsection 4.9 Field Experience Activities (if used in the program) (Overall Rating__**_ Stars)**

Describe the processes for planning field experience activities and planning for improvement.

Describe the processes for planning field experience activities and planning for improvement.

The registration for Engineering Practice (EP) starts at the beginning of the third week of second semester and lasts for one week.

The student must have a total 90 credit hours included earned and registered credit hours. This restriction is applicable at the time of registration for EP.

The registration steps are:

•The applicant for Engineering Practice program should contact the coordinator of his department to complete the registration form.

•Should the student decide to drop the Engineering Practice, he MUST complete a dropping form, two weeks before the final examination.

•EP Unit contacts companies and governmental organizations to seek Engineering Practice opportunities.

•EP Unit provides department with updated list of Engineering Practice opportunities.

•Department Engineering Practice Coordinator matches students to training opportunities.

•The Company provides the university with a letter that shows the starting date of the training and the training site, also the name and address of the supervisor.

EP Unit:

Prepares letter of assignment to be sent to companies.

Collects acceptance letters from training sides.

Handles a copy of the obtained letter of acceptance to student and Department Engineering Practice coordinator.

Prepares a letter of training placement and acknowledgement to institutions and evaluation form.

Arranges a seminar for the accepted Engineering Practice students before the end of the

second semester

After the Engineering Practice finishes:

Students should visit the EP coordinator at the beginning of the spring semester following the period of Engineering Practice to submit their reports and schedule their presentations.

EP Coordinator:

•Collects reports from students and get reports from the companies

•Schedules presentations

•Reports grades to department council

The Department Council approves the grades, and HOD reports grades to college council.

College council approves the grades and the Dean reports the final results to the Deanship of Admission and Registration.

Evidence:

•EP Regulation

Provide an evaluation report of field experience activities including evaluation of processes for planning and managing them. Refer to evidence and provide a report including a list of strengths, recommendations for improvement, and priorities for action.

The evaluation process is included in Engineering practice Guide. In the guide information about procedure and evaluation process.

The Engineering practice unit started its work from last year by giving each student his forms to fill some of them and to take the others to the training sites.

The unit collects the forms, which include the data of the student and the data of the company where he will attend his practice. The student takes with him the forms of progress report and confidential report to let his supervisor fill during and in the end of the practice and he should give us all these forms after coming back to the college. In addition, each student should write a technical report about his practice during the 8 weeks he spent in the company.

In EE department, seventeen students submitted their primary forms to the unit. Fifteen of these seventeen submitted their final reports and the technical reports. The other two still did not submit their final and technical reports.

After the receiving and examining the students' reports, the department announced the oral

exam date to the students.

Only 9 students attend the oral exam and the other students did not attend because some of them have final exams in the same time and two of them said they did not know about the exam.

The unit will arrange another exam time early this semester.

Some comments from the examiners about the oral exam system:

1. The oral exam should be earlier and the final exam time is not the best time.
2. It should be a template for the technical report that helps the students and guides them in the writing process.
3. The power students should take their training in Power Company and also communications students should be same. Some students in communications track took their training in the Saudi electricity company!

The unit also have its recommendations:

1. It should be some protocols with high standard companies (e.g. Aramco, Sabec, STC…) to guarantee high quality practice.
2. In summer, the college may assign a supervisor to visit the students in the training sites to make sure that the training quality is as expected.
3. A template for the technical report and presentation must be handed to the students before going to the training and asking them to submit the report and presentation in the 3rd week at most.
4. Fixed and sharp deadlines for submitting the forms and report must be announced and clear for everyone.

The learning outcomes of the field experience are listed in table below:

Knowledge				Cognitive Skills			Interpersonal Skills And Responsibility				Communication IT And Numerical Skills		
Facts	Concepts	Theory	Procedure	Apply skills when asked	Creative thinking	Problem Solving	Responsibility For own learning	Group participation and leadership	Act responsibly– Personal and professional situations	Ethical standards of behaviour	Oral and written communication	Use of IT	Basic Maths and statistics
√	√	√	√	√	√	√	√	√	√	√	√	√	√

Strengths:

- There is an engineering practice committee responsible about engineering practice
- The NCAAA Field experience form is used for regulations and standards
- The average number of students finished EP is around 20 student every year
- The achieving of EP requirements follows up using 8 forms for quality assurance

Recommendations for improvement:

- Finding more companies and institutions that have engineering environment for students
- Enhancing the EP requirements and standards

Evidence:

- EP Regulation
- EP standards Forms
- Field experience NCAAA form

Subsection 4.10 Partnership Arrangements With Other Institutions (it these exist) (Overall Rating __ Stars)
Not Exist

Standard 5. Student Administration and Support Services (Overall Rating__**__ Stars)**
Provide an explanatory report about the student administration arrangements and support services for each of the following sub-standards:
5.1 Student Admissions
Admission requirements are consistently and fairly applied for all students.
Student advisors familiar with details of course requirements are available to provide assistance prior to and during the student registration process.
Complete information about the program, including the range of courses, program requirements, services and other relevant information are publicly available to potential students and families prior to applications for admission.
A comprehensive orientation program is provided for commencing students to ensure thorough understanding of the range of services and facilities available to them, and of their obligations and responsibilities.
5.2 Student Records
There are automated procedures for monitoring student progress throughout their programs.
The student record system regularly provides statistical data required for planning, reporting and quality assurance.
5.3 Student Management
Student appeal and grievance procedures are specified in regulations, published, and made widely known within the institution.
The regulations make clear the grounds on which academic appeals is based, the criteria for decisions, and the remedies available.
The students are notified with the disciplinary rules in the undergraduate college catalogue.
There is a committee to study students' cases and apply the disciplinary list.

There is a neutral committee to appeal to the complaints.

5.4 Student Advising and Counseling Services

Student support system is available to identify students in difficulty and provide help with study related issues.

Academic advisors are linked to their students through Edugate. They have full information about students for effective advising.

At college level, the registration process and solving related problems are maintained through the college without referring to the admission and registration deanship.

Describe the processes used to evaluate performance in relation to this standard.

KPI: Student evaluation of academic and career counselling. (Average rating on the adequacy of academic and career counselling on a five point scale).	
Target Benchmark	4 out of 5
Actual Benchmark	1.36
Internal Benchmark	3.5 out 5
External Benchmark	4.5 out of 5
New Target Benchmark	2.5

Analysis:

Based on the advising list, the following table ,shows students distributed among Advisors (See advising lists):

Advisor	Number of students	Number of students Academically counseled	Percentage (%)
1	20	7	35
2	20	5	25
3	20	3	15
4	20	8	40
5	20	3	15
6	20	6	30
7	20	6	30
Total	140	38	27.14% (1.36)

Rubrics used:

Unsatisfactory	Developing	Satisfactory

0 to 2	2.1–3.5	3.6–5

The result based on the average and rubric is **Unsatisfactory**

Students should be encouraged to get help and advising through linking the registration of the student with the approval of the advisor

Strengths:

1- Registration process is performed in the Engineering college

2- The advising day organized every semester to provide students with efficient counseling.

3- Admission process is organized by the Admission and registration deanship

4- Students are distributed among advisors and linked through Edugate

Recommendations for improvements:

Working on a procedure to encourage students to visit his advisors

Evidences:

- List of advisors and students
- Undergraduate handbook (catalog) for regulations
- Book about Advising day

6. Learning Resources (Overall Rating_***_ Stars

6.1 Planning and Evaluation

- Teaching staff responsible for the program and for courses within it regularly provide advice on materials required to support teaching and learning.
- Teaching staff and students participate in user surveys dealing with adequacy of resources and services.
- Teaching staff have opportunities to provide input to evaluations of forward planning for provision of resources and services.

6.2 Organization

- Library and resource centers and associated facilities and services available for sufficient extended hours to ensure access when required by users in the program.
- Heavy-demand and required reading materials required for the program are held in reserve collections.
- There is an electronic database for journals, papers and books with easy access for staff.

6.3 Support for Users

- Electronic systems with search facilities available to assist in locating resources within the institution and in other collections.
- Assistance available to help users in conducting searches and locating and using information.
- Teaching staff and students in the program kept informed about library developments such as acquisition of new materials, training programs, or changes in services or opening hours.

6.4 Resources and Facilities

- Adequate books, journals and other reference material including on-line resources available to meet program requirements.
- Up to date computer equipment and software available on a sufficient scale to meet program requirements to support electronic access to resources and

reference material.

KPI: **Stakeholder evaluation of library services (Average rating on adequacy of library services on a five point scale).**	
Target Benchmark	**4 out of 5**
Actual Benchmark	--
Internal Benchmark	--
External Benchmark	--
New Target Benchmark	**5 out 5**
Analysis: There is no sufficient information to provide analysis	

Strength:

- There is A library in the engineering building
- Saudi Digital Library

Improvement for recommendations:

- More support in E-learning resources and books

Evidences:

- List of updated text books
- Engineering Library
- Computer labs for information survey.

7. Facilities and Equipment (Overall Rating__***_ Stars)

7.1 Policy and Planning

Teaching staff consulted before major equipment acquisitions to ensure that current and anticipated emerging needs met.

Equipment planning provide for acquisition, servicing and replacement according to a planned schedule.

7.2 Quality and Adequacy of Facilities and Equipment

Facilities meet health and safety requirements.

Adequate facilities provided for confidential consultations between teaching staff and students.

7.3 Management and Administration of Facilities and Equipment

A complete inventory of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual staff for teaching and research is available.

Services such as cleaning waste disposal, minor maintenance, safety, and environmental management is efficiently and effectively carried out.

7.4 Information Technology

Adequate computer equipment available and accessible for teaching staff and students in the program.

Technical support available for teaching and other staff and students using information and communications technology.

There is one personal desktop for each instructor.

There are three personal desktops for each four students.

The EE program has several new Labs that equipped with newest technology:

Labs Name
- Electric Power and Machine - Protection & High Voltage - Electric Circuits - Communications Principles Lab Antennas and wave propagation Lab - Electronic workshop - Principles of Electric Power & Machines - Basic of Electronic Devices and Circuits

- Measurements & Control
- Analogue and Digital Electronic Circuits
- Microwave Lab
- Communication and signal processing

KPI: Number of accessible computer terminals per student.	
Target Benchmark	**0.4:1**
Actual Benchmark	**0.11:1**
Internal Benchmark	**0.7:1**
External Benchmark	**1:1**
New Target Benchmark	**0.5:1**
Analysis: There are three labs with 20 computers each. The total number of commuters is 60 for all programs with number of students 520 students. The ratio **(60/520)=0.11** **The university provides students with WiFi access. Students uses their Laptops and Smart devices to access the internet.**	

Strengths:

- Technical Support for all students and faculty staff
- Facilities meet health and safety requirements
- Computer ratio of faculty staff 2:1 (Desktop and laptop)

Recommendations for Improvements:

- Increasing number of computers for students

Evidences:

- EE program building
- Computer Labs
- EE program Labs

8. Financial Planning and Management (Overall Rating____ Stars)

(N/A)

9. Employment Processes (Overall Rating_**_ Stars)**

9.1 Recruitment

Recruitment processes ensures that teaching staff have the specific areas of expertise, and the personal qualities, experience and skill to meet the teaching requirements in the program.

Candidates for employment provided with full position descriptions and conditions of employment.

9.2 Personal and Career Development

Consultations about work performance are confidential and supportive, and occur on a formal basis at least once each year.

Junior teaching and other staff with leadership potential are identified and given a range of experiences to prepare them for future career development.

Teaching staff participate in activities that ensure they keep up to date with developments in their field.

The department makes regular announcement for open faculty positions. After the application requests have been collected, a series of steps and actions are conducted to evaluate the received applications and make recruitment recommendations. The steps are:

1. The application requests are sent to the Interviewing Committee in the EE Department.
2. The interviewing Committee conducts an initial evaluation and accordingly the applicant is either rejected or passed to the second stage of the application process.
3. If an applicant has passed successfully the first screening stage, the applicant will be scheduled for an interview
4. The interview concentrates on the education background and qualification, research, teaching experience (if any) and all academic activities.
5. If the applicant is recommended by the Committee, the application will go to either:

a. If the applicant is Saudi, the application needs to be recommended and approved by the following Councils: Department Council, College Council, and University Council.

b. If the applicant is non-Saudi, the application file is sent to the Dean of the College to sign up a contract with the applicant.

Strength:

- The interviewing committee is formed to follow up the employment process
- EE program uses regulations and standards of the University and it has its own requirements regarding specialization, quality and experience
- EE program providing high quality selection through studying documents and interviews.

Recommendations for Improvements:

- Improving the employments process

Evidences:

- Forms and regulations
- minutes of Meetings

10. Research (Overall Rating_****_ Stars)

10.1 Teaching Staff and Student Involvement in Research

- Teaching staff are encouraged to include in their teaching information about their research and scholarly activities that are relevant to courses they teach, together with other significant research developments in the field.
- Expectations for teaching staff involvement in research and scholarly activities clearly specified and performance in relation to these expectations considered in performance evaluation and promotion criteria.

10.2 Research Facilities and Equipment

Security systems are established to ensure safety for researchers and their activities and for others in the institutional community and the surrounding region.

10.3 Teaching Staff and Student Involvement in Research

Teaching staff is involved in the research through publications in journals and attending conference. Most of faculty members are funded internally by university to complete their proposed research projects.

At this moment, several research projects (Major and Minor) are applied to the King Abdul-Aziz City.

The following table shows the publications of teaching staff for the last three years and assigned to Majmaah University.

No.	Article Title	Journal Name	Year
1	The Effect of Interference on Bluetooth Data Exchange over WLAN	WSEAS Transactions on Communications	October, 2012
2	A Current Sensor-less Maximum Power Point Tracking Method for PV System. Doi7 : 10.4156/ijact	International Journal of Advancements in Computing Technology (IJACT)	July, 2013
3	Wind Turbine Simulator Development Using a Separately Excited DC Motor	International Journal of Advancements in Computing Technology (IJACT)	July, 2013 Doi : 10.4156/ijact
4	Design and Control of Large Scale Photovoltaic System for High Power applications	International Journal of Control, Automation and Systems	April, 2013
5	Design and Simulation of a Grid-Connected Photovoltaic System for the EE Department Building in Assiut University	Journal of Engineering Sciences, JES	Spt., 2012
6	Modelling and Simulation of a Grid-Connected		Nov., 2012

	Photovoltaic System for an Middle-Class Apartment in New Assiut City	Journal of Engineering Sciences, JES	
7	Exponential Spline Perfect Reconstruction Decomposition with Applications in Compression and De-noising	Journal of Signal, Image and Video Processing Springer	July 2013
8	Joint Watermarking and Compression for Images in Transform domain	International Journal of Modern Engineering Research	July-Aug. 2012 pp-2341-2351
9	Shift Variance Behavior For Different Sub-Band Coding Systems, Biorthogonal, Orthogonal And Bspline Wavelets	International Journal of Modern Engineering Research	July-Aug. 2012 pp-2331-2340
10	Travelling Waves For Finding The Fault Location In Transmission Lines	JEEE Science PG	2 April, 2013
No.	**Article Title**	**Name of Conference**	**Number**
1	Low-Complexity FEC Encoding Technique Based Parity Selected Codes	IEEE Signal Processing Symposium SPS-2013	978-1-4673-6319-8/13/S31.00
2	Noise Immune Spectrum Sensing Algorithm for Cognitive Radio	IEEE 30th National Radio Science Conference (NRSC 2013)	978-1-4673-6222-1
3	A Novel Islanding Detection Method for Three-Phase Photovoltaic Generation Systems	Applied Electrical Engineering and Computer Technologies (AEECT)2014	1569797849
4	A Novel High-frequency converter for Induction Heating Systems	Middle East Power Conference Mepcon, Egypt,	978-1-4673-6080-7
5	Sensorless Control for DFIG Wind Turbines Based on Support Vector Regression	Industrial Electronics Conference IECON, Canada ISBN:978-1-4673-2420-5	ISSN: 1553-572x
6	Current Estimation-based Maximum Power point Tracker of Grid Connected PV	Power Electronics and Drives Systems (PEDS), Japan ISBN:978-1-4673-1791-7	ISSN: 2164-5256
7	B-Spline based Perfect Reconstruction of Non-band Limited Signals Through Noisy Sensors	IEEE International Symposium for Signal Processing and Information Technology	Under Review
8	Image Enhancement using E-spline Functions	IEEE International Symposium for Signal Processing and Information Technology	Under Review
9	Two-Stage Spectrum Sensing Algorithm for Low Power Signals in Cognitive Radio	The Second Saudi International Electronics, Communications and Photonics Conference SIECPC '13	978-1-4673-6195-8
10	A new Approach to Improve the Energy Efficiency of Middle-East Buildings	7th Conference of Future of Renewable and New Energy in the Arab World, Assiut University	
No.	**Title of Book**	**Publisher Name**	**Year**

1	Impacts of Wind Farms on Power System Stability Wind Farm	Intech Open Science Europe	2013
2	Electrical Machines	LAMBERT Academic Publishing (Germany)	2013

Students are encouraged to participate in research through Senior design, Micro projects. Every year the college organizing the Students Conferences for research and inventions. From EE two research projects won second and third place this year.

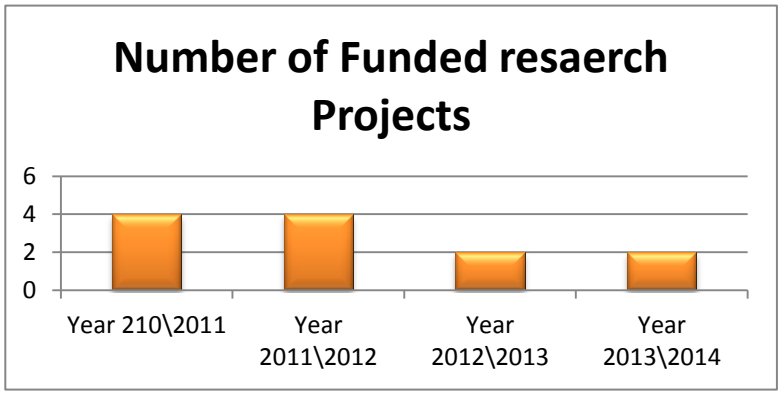
10.4 Research Facilities and Equipment

For students, the EE program Labs and electronic workshop provide students with chance to demonstrate their skills.

KPI: Number of publications in peer reviewed national and international journals	
Target Benchmark	**2:1**
Actual Benchmark	**1:1.4**
Internal Benchmark	**1:2**
External Benchmark	**1:3**
New Target Benchmark	**1:1.9**

Analysis:

Number of publications in journals is 14 and the number of PhD holder is 10. Twelve research projects are funded by the university. Table below shows the funded research projects:



Funded research projects in the EE program

Strength:

1- research committee is formed to follow up research activities in the department

2- Several Research projects are funded by the university

3- The publications ratio is acceptable

4- Students participations in research through minor projects and participations in annual research conference.

Recommendations for Improvement:

- working on providing the college with facilities and equipment
- More participations of students in conferences and research activities
- Increasing the publications: staff ratio

Evidences:

- Minor project report and analysis
- report about publications and funded projects
- Research committee annual report

Program Research Information Table

(For all individual branch/location campuses)

Complete the *Program Research Information Table* for each branch/location campus that offers the specific program. FTE (full-time equivalent) is calculated as 12 credit hours and should not include research, teaching or laboratory assistants.

Program Branch/ Location Campus (City)	Annual Research Budget Total Amount	Annual Research Budget Actual Expenditure	Publications Per FTE Faculty Member Per Year (male)	Publications Per FTE Faculty Member Per Year (female)	Research Conference Presentations Per FTE Faculty Per Year (male)	Research Conference Presentations Per FET Faculty Per Year (female)	Describe Research Activity (past 2 years)
Main Campus		240000 SR	14		12		- Applying for internal fund (see table below) - Applying for external fund (KASCT)

1. Attach the research approval flowchart
2. Attach the program research strategic plan
3. Attach the research policy manual

11. Relationships with the Community (Overall Rating__***_ Stars)

Provide an explanatory report about community activities carried out in connection with the program for the following sub-standards.

11.1 Policies on Community Relationships

- Contributions to the community by staff teaching in the program are reported on annually.
- Community contributions included in promotion criteria and staff assessments.
- Departmental initiatives in working with the community are coordinated with responsible units in the institution to avoid duplication and possible confusion

11.2 Interactions with the Community (Report description should include reference to interactions with the community by faculty)

Continuing contact are maintained with schools in the region, offering assistance and support in areas of specialization, providing information about programs and activities and subsequent career opportunities, and arranging enrichment activities for the schools.

Workshop and training on the maintenance of electricity of Masjeds in Majmaah region.

Staff is encouraged to participate in forums in which significant community issues are discussed.

The Bridging Program “Communications and Electronics Program” can be considered of the main services for society for students who cannot attend the regular morning program.

Now there are 28 students that are studying in the bridging program. In the future the program will serve more students. This program cooperates with the continuous learning and society service deanship.

Describe the processes used to evaluate performance in relation to this standard and summarize the evidence obtained.

Serving society can be measured through number of services provide to society.

KPI: Proportion of full time teaching and other staff actively engaged in community service activities.	
Target Benchmark	**40%**
Actual Benchmark	**30%**
Internal Benchmark	**45%**
External Benchmark	**50%**
New Target Benchmark	**45%**

Analysis:

The average load of teaching staff in the regular morning program is 15 Credit Hours. The time of staff actively engaged in community in bridging system is 4 credit hours plus part of time for internal and internal activities 0.5 credit hour. So, the total time for social activities is 4.5.

The Proportion is 4.5/15=30%

Strength:

- Bridging program
- Social activities for school students
- Helping in maintenance of social problems

Recommendations for improvement:

- More activities needed through research and scientific activities.
- Working on a plan to serve society in different areas.

Evidences:

- Bridging program documentations
- Reports about internal and external activities.

H Review of Courses

1. **Describe the processes followed in reviewing courses (e.g. Surveys of graduates, faculty, or members of the profession, analysis of student course evaluations, review of course and program reports, interviews with faculty, comparison with similar programs elsewhere, consultancy advice, etc.).** The processes followed in reviewing courses: – Faculty surveys: Performed three faculty surveys the included several questions (see the analysis of results Fall 2913, Fall 2014, Fall 2015): – Student Course evaluations: every semester (See SPSS1, SPSS2 and SPSS3) – Review of course reports (See full report analysis of Course reports)
2. **Course Evaluations** **Provide a list report on the strengths and recommendations for improvement in courses and any other conclusions from the processes described directly above.** **Strength:** – All course specifications are evaluated and updated using NCAAA June 2013 – The Learning outcomes are updated and a new LO (3) is added – All course reports (first Semester 2015) are analysed **Recommendations for improvement:** – Consultancy advising from stakeholders – Feedback from graduates **Evidences:** – Students course survey (Three years) – Faculty evaluations survey (three semesters) – Course specifications – Course reports

I Independent Evaluations

1. **Describe the process used to obtain independent analysis on the quality of the program and the reliability and validity of analyses carried out in the report. Processes may include a review of documentation by an experienced and independent person familiar with similar programs at other institutions and who could comment on relative standards, consultancy advice or a report by a review panel, or even the results of an accreditation review by an independent agency. An independent evaluation may be conducted in relation to the total self-study, or involve a number of separate comments by different people on different issues.**

Professor Adel Elmaghraby (University of Louisville, Kentucky USA) visited MU upon the invitation of the College of Engineering in December 2013. The visit goal was mainly to evaluate and advise on the current curriculum, reviewing program educational objectives, outcomes assessment activities, and other related factors for external accreditation

The professor Adel Elmaghraby **in December 15, 2013** reviewed the program and the following comments:

Institutional Support

The Dean has shown a strong commitment to quality and to the accreditation process. This leadership is consistent with ABET expectations and is complemented with an excellent laboratory facilities and a commitment by the University to move to new facilities that are designed with the current needs and growth expectations of the college.

Some issues for consideration:

a) Faculty size is at a minimum acceptable level and any unexpected turnover may be viewed negatively.

b) Faculty professional development is not well documented and policies are not clear based on discussions with faculty members.

Students

Student admissions, transfers and advising are centralized without much involvement from

departmental faculty.

Program Mission, Objectives, and Outcomes

The college and departmental mission are ***consistent and clearly publicized on the college web site****. Each of the engineering programs is expected to also make their respective mission, objectives, and student outcomes visible and publicly available on the web.*

Curriculum and course assessment

Newly instated curriculum changes seem to be consistent with ABET expectations. However an in-depth review of issues such as the physics course may be needed.

The use of the ABET a-k outcomes and mapping courses based on their contribution to these outcomes is needed.

As in the presentations, it is important to distinguish between direct measures and indirect measures of program outcomes for assessment purposes.

a) Direct measures of program outcomes can be used in every course.

b) Direct measures of program outcomes should be planned to provide complete coverage of all a-k outcomes

Also, it is recommended that capstone design experience (graduation project) is composed from teams of at least three students. This is necessary for students to gain experience working as a team of reasonable size. Additionally, it is important to distinguish capstone from research as projects need to address an engineering problem design and implementation

Faculty

For the Self-Study, it is necessary to have clear documentation of policies and procedures for hiring faculty, distributing teaching loads, committee assignments and professional development.

Laboratories *are in good condition and have state of the art equipment. However it is important to have documents describing facilities and purchase dates. Also for consideration is documentation showing that resources are available, accessible, systematically maintained and upgraded, and otherwise adequately supported to enable students to achieve the program's outcomes and to support faculty teaching needs and scholarly activities. Also a*

policy ensuring that students and faculty receive appropriate guidance regarding the laboratory and computing resources available to the program needs to be documented
2. Summary of matters raised by independent evaluator(s). *Provide a response report* to each of the recommendations provided by the independent evaluators 1- The admission rules mentioned in the report 2- Number of faculty members 3- Clear documentations about hiring 4- Modifications of Mission, objectives and learning outcomes. Response to report: 1-EE program modified the admission rules in the program 2-The EE program already developed its mission, goals, objectives and Learning outcomes 3- Learning outcomes are modified and mapped with NCAAA learning outcomes. In addition, a new learning outcome is added to cover knowledge 4- EE program defined the assessment methods for all learning outcomes, KPIs and Rubrics 5- In EE program regulations, at least three students should participate in the senior designs to cover the team work skills
3. Provide an analysis report on matters raised by independent evaluator(s) (Agree, disagree, further consideration required, action proposed, etc.). At the time of the report, some of quality elements are performed but they were not perfect enough. Course specifications with intended learning outcomes (ABET) are used from the first semester 2011. The picture becomes clear and faculty members gained enough experience to complete the quality forms (course specifications and course reports) in satisfactory way. In the first semester 2013, the work begun to rewrite missions of college and other objectives. EE program has it mission but it should be modified to be consist with the college one. Beginning from the second semester 2013, EE program started update his mission after the approval of college mission and objectives. In first semester 2014, EE program approved mission, goals and objectives. All course

specifications are updated. The program specifications form is updated to meet NCAAA requirements. In the second semester The course specification are approved by college council. Learning outcomes before, updated by adding a new learning outcome (a3).

EE program partially agree with comments reported in the Dr. Al-Mughrabi report but his comments were useful and helpful.

Attach or hyperlink the independent evaluation report and CVs

CV of Dr. Al-Mughrabi : https://www.linkedin.com/in/adelelmaghraby

The independent evaluation report is available in the department under request.

J Conclusions

1. List and briefly describe aspects of the program that are particularly successful or that demonstrate high quality.

- Program and course specifications are up-to-date and meet all NCAAA and NQF requirements.
- The field experience in the EE department is full described and as good practice
- The research productivity is good and several research projects are funded.
- Students surveys (Course, experience and program) used as feedback for quality improvement and assurance using SPSS for results analysis.
- Annual Faculty survey is used to find out the opinions and response of faculty members used several and informative questions.
- The administrative work is organized; Specific committees are formed to execute the operations and activities to achieve goals and objectives.
- Mission, goals, objectives and learning outcomes are updated based on the strategic plan of the EE program
- The EE program has its own strategic and operational plan based on the college and the University strategic plans.
- There is a specific procedure to check course file and its contents based on biannual check and make results and analysis (See reports related to course file check).

- Labs of the EE program are new and cover all practical courses.
- Students research is supported through senior design projects and minor projects in every course. (See the Minor project activity)
- Faculty members are adequate and the students faculty ration 1: 11.7

2. List and briefly describe aspects of the program that are less than satisfactory and that need to be developed.

- The external and independent reviewing process should be improved
- Advising regulation should be modified to make the advising process more efficient.
- Number Textbooks and elated references should be increased
- A research equipment and device
- Companies for Engineering practice

K1. Action Proposals

Action proposal should be based on the matters identified in sections F, G, H, and I and indicate recommendations for improvement proposed to deal with the most important priorities for action identified in those sections.

-

1. **Changes in Course Requirements (if any)**

The following changes in the course requirements:

N	The proposed changes
1	Changing the prerequisite of EE 208 from EE205 to EE202 in the EE description
2	Changing the prerequisite of EE 234 from EE205 to EE206 in the EE description
3	Changing the prerequisite of EE 369 from EE205+EE111 to EE208+EE111 in the EE description
4	Changing the prerequisite of EE 307 from EE203 to EE208 in the EE description and from EE207 to EE208 in the curriculum
5	Changing the title of EE 372 from "Electric Power system Analysis" to "Power system Analysis" in the EE curriculum
6	Changing the credit Hours of EE484 for 2(2,0,1) to 3(3,0,1)
7	Changing the prerequisite of EE 477 from EE288 to EE270 in the EE description
8	Changing the Co-requisite of EE 271 from EE284+ EE 270 to EE288 +EE270 in the EE description
9	Changing the title of EE 271 from "Principles of electric power and Machines Lab" to "Electric power and Machines Lab" in the EE curriculum
10	Adding the EE 433 to EE description
11	Adding EE 208 to the EE description
12	Adding EE 207 to the EE description
13	Adding EE 111 to the EE description
14	Adding CEN 210 to the EE description
15	Adding EE 288 to the EE description
16	Adding EE499 to the EE description
17	Adding All Courses GE and MATH to EE descriptions
18	The recommendations are to update both the course description and the Text Book of EE314 and EE111
19	Updating the textbook of EE270

The above changes will be approved first from the Department council and college council then the approved updates will be included in the new EE program curriculum

2. Action Recommendations.

Recommendations for improvement are made for action to be taken to overcome problems or weaknesses identified. The actions recommended should be expressed in specific, measurable for terms for assessment, rather than as general statements. Each action recommendation should indicate who should be responsible for the action, timelines, and any necessary resources.

Action Recommendation 1
To update course files and using KPIs Rubrics for analysis of assessment results to check the performance of students and the delivery of the intended learning outcomes
Person (s) responsible
Quality Unit and Faculty members
Timelines (For total initiative and for major stages of development)
First and second semester 2014\2015
Resources Required
Workshop on Learning outcomes, KPIs and Rubrics

Action Recommendation 2.
Analysis of responses of stakeholders about the performance and skills of Graduates
Person(s) responsible
Quality Unit
Timelines
Beginning from the first semester 2015\2016
Resources Required
Surveys, statistics analysis

Action Recommendation 2.
Updating the Curriculum of EE program

Person(s) responsible
Undergraduate Program Committee and Quality unit
Timelines
Beginning from the first semester 2015\2016
Resources Required
Old curriculum, UPC annual report, Course reports, Students surveys (Experience and Program for 3 year

Action Recommendation 2.
Increasing the number of teaching staff to meet university operational plan to
Person(s) responsible
Strategic Planning committee
Timelines
For Years 2015-2019
Resources Required
Interviewing committee report, statistics

K2 Program KPI and Assessment

KPI #	List of Program KPIs Approved by the Institution	KPI Target Benchmark	KPI Actual Benchmark	KPI Internal Benchmarks	KPI External Benchmarks	KPI Analysis	KPI New Target Benchmark
1	Identifying, formulating, analysing and solving engineering problems.	3 out of 5	2.95 out of 5	3.5 out of 5	---	Results extracting from EP results and evaluation forms of senior design for number of students from 9th and 10th levels	3 out of 5
2	Demonstrate professional skills.	70%	60%	65%	75%	Based on national Proficiency test, about 60% demonstrated their professional skills.	70%
3	Percentage of graduates from undergraduate program leaving their works due to professional issues	5%	-	--	--	It is very difficult to follow graduates but after meeting several graduates , the number of students leaving their work is very small and not exceeds 5%	4%
4	Number of publications in peer reviewed national and international journals	1:2 ratio	1:1.4	1:2	---	Number of publications in journals is 14 and the number of PhD holder is 10. Twelve research projects are funded by the university. Table 7 shows the funded research projects:	1:2
6	Number of organized scientific and Research activities: workshops seminars, symposiums &						

	conferences)						
7	Number of subscription in periodicals and Journals.						
8	Percentage of graduates from undergraduate program leaving their works due to professional issues						
9	Employee satisfaction (out of 5)						
10	Number of students who came to senior management positions						

Student Learning Outcome Assessment

Use the rating scale with 5 reflecting the higher value and 1 the lowest value

	Learning Domains for Learning Outcomes Rating Scale	1	2	3	4	5
1.0	Knowledge Content – Assessment					X
	Do the knowledge content requirements align with the requirements normally expected by a professional society or employers?					X
2.0	Cognitive Skills – Assessment				X	
	Do the cognitive skill requirements align with the requirements normally expected by a professional society or employers?				X	
3.0	Interpersonal Skills and Responsibility – Assessment		X			
	Do the interpersonal skills and responsibility requirements align with the requirements normally expected by a				X	

	professional society or employers?					
4.0	Communication, Information Technology, Numerical –– Assessment					X
	Do the communication, information technology, and numerical requirements align with the requirements normally expected by a professional society or employers?					X
5.0	Psychomotor Skills –– Assessment					
	Do the psychomotor skills requirements align with the requirements normally expected by a professional society or employers?					
	Total Scores					
	Composite Score					
Analysis of Student Learning Outcomes (Provide strengths and recommendations for improvement): The EE program knowledge foundation is excellent. The cognitive skills are the important learning outcomes and they are covered carefully. The Interpersonal Skills and Responsibility should be improved.						

Authorized Signatures

Dean / Program Chair	Name	Title	Signature	Date
Program Dean or Chair of the Board of Trustees Main Campus				
Vice Rector				