Program Specification

(Bachelor)

Program:	**Bachelor of Electrical Engineering**
Program Code (as per Saudi university ranking):	**071301**
Qualification Level:	Level 6
Department:	Electrical Engineering
College:	College of Engineering
Institution:	Shaqra University
Program Specification:	New ☐ updated* ☒
Last Review Date:	28/11/2024

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information

1. Program's Main Location :
Main Campus of the College of Engineering, Al Dawadmi, Riyadh, Kingdom of Saudi Arabia (KSA).
2. Branches Offering the Program (if any):
None.
3. Partnerships with other parties (if any) and the nature of each:
None.
4. Professions/jobs for which students are qualified
The program graduates are expected to acquire the knowledge and skills that enable them to effectively perform in the technical fields of electrical engineering whether in governmental organizations or private companies. Some positions that electrical engineers can be occupied are as follow (According to the Unified Saudi Occupational Classification) • Electrical Engineer (215101) • Electromechanical Engineer (215104) • Automation Engineer (215105) • Power Generation Engineer (215106) • Power Transmission and Distribution Engineer (215107) • Wiring Electrical Engineer (215108) • Electronics Engineer (215201) • Device Electronic Engineer (215207) • Medical Devices Engineer (215208) • Communications Engineer (215301) • Radio Engineer (215302) • Broadcast Engineer (215303) • Radar Engineer (215304) • Network Engineer (214912)
5. Relevant occupational/ Professional sectors:
1- The Electricity and Energy Sector 2- The Communication Sector

6. Major Tracks/Pathways (if any):		
Major track/pathway	**Credit hours** (For each track)	**Professions/jobs** (For each track)
1. Electrical Power Engineering (Active Track)	170	Electrical Power Engineering
2. Electrical Communication Engineering (Active Track)	170	Electrical Communication Engineering
3. Electronics Engineering (Inactive Track)	170	Electronics Engineer
4. Automation and Intelligent Systems (Inactive Track)	170	Control Engineer

7. Exit Points/Awarded Degree (if any):	
exit points/awarded degree	**Credit hours**
1. None	

8. Total credit hours: (170)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:
Providing distinguished education and scientific research to keep pace with developments in the field of electrical engineering to prepare competitive engineering cadres capable of solving industry and community problems.
2. Program Goals:
Goal_1: Developing the electrical engineering program by advancing the quality and efficiency of teaching and learning. **Goal_2: Continuous development of the skills and capabilities of the faculty members in the electrical engineering program and motivating them.** **Goal_3: Graduating distinguished students equipped with scientific theories, practical and interactive skills, and creative and competitive capabilities to cope with changes in the labor market.** **Goal_4: Developing the local community by enhancing the community partnerships in the field of electrical engineering.** **Goal_5: Directing the scientific research to meet the development requirements in the Kingdom of Saudi Arabia and linking the research topics to the society needs.**

3. Program Learning Outcomes*

Knowledge and Understanding	
K1	The student will be able to demonstrate comprehensive knowledge of language, mathematics, and science necessary for an advanced understanding of the theories, principles, concepts, axioms, and terminology in electrical engineering.
K2	The student will be able to engage in lifelong learning by acquiring knowledge necessary for specialized understanding and conducting research on emerging advances in electrical engineering.
Skills	
S1	The student will be able to apply complex knowledge, advanced skills and creativity to design a system, component, or process to meet desired needs.
S2	The student will be able to practice experimental investigation related to the electrical engineering topics and theories using necessary tools, machines, materials, devices and software.
S3	The student will be able to apply the underlying concepts, principles and theories to solve engineering problems
S4	The student will be able to communicate effectively with a range of audience in various ways to demonstrate an understanding of theoretical knowledge, imparting knowledge, specialized skills and complex ideas.
S5	The student will be able to apply mathematical operations and use advanced techniques and tools for both solving complex electrical engineering problems, and supporting specialized research and projects.
Values, Autonomy, and Responsibility	
V1	The student will be able to function effectively on a team, either as a cooperated member, or as a flexible and effective leader who creates a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
V2	The student will be able to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
V3	The student will be able to use engineering judgement to take logical decisions in work or learning contexts supported by evidence based on analyzing and interpreting information.

* The above listed outcomes are common for all tracks in the Electrical Engineering Department.

C. Curriculum

1. Curriculum Structure (for the Two Active Tracks)

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	6	12	7
	Elective	-	-	-
College Requirements	Required	18	53	30
	Elective	-	-	-
Program Requirements	Required	19	46	26.5
	Elective	52	23	15.3
Capstone Course/Project	Required	2	4	2.3
Field Training/ Internship	Required	1	0	0
Residency year				
Others (Preparatory Year)	Required	10	32	18.8
Total		108	170	100

* Add a separated table for each track (if any).

2. Program Courses

A. Electrical Power Engineering Track

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	RAD 101	Entrepreneurship	Required	-	2	University
	ACT 105	Academic and Life Skills	Required	-	3	University
	ENGL 109	English (1)	Required	-	6	University
	ENGL 128	English for Engineering Purposes	Required	-	2	University
	MATH 130	Introduction to Math	Required	-	3	University
	RAD 101	Entrepreneurship	Required	-	2	University
Level 2	CHS 101	Health and Fitness	Required	-	2	University
	PHYS 107	Introduction to Physics (1)	Required	-	3	University
	ENGL 110	English (2)	Required	ENGL 109	4	University
	CT 130	Computer Skills	Required	-	3	University
	MATH 135	Mathematics-2	Required	MATH 130	4	University

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 3	IC 101	Introduction to Islamic Culture	Required	-	2	University
	MATH 105	Differential Calculus	Required	-	3	College
	CHEM 101	General Chemistry (1)	Required	-	4	College
	PHYS 103	General Physics (1)	Required	-	4	College
	GE 212	Computer Programming	Required	-	3	College
	GE 106	Introduction to Engineering	Required	-	2	College
Level 4	ARAB 101	Language Skills	Required	-	2	University
	MATH 106	Integral Calculus	Required	MATH 105	3	College
	MATH 107	Vector and Matrices	Required	MATH 105	3	College
	PHYS 104	General Physics (2)	Required	PHYS 103	4	College
	GE 107	Engineering Drawing and Design	Required	-	3	College
	ENGL 116	English Composition	Required	-	3	College
Level 5	ENGL 107	Technical Writing	Required	-	3	College
	MATH 203	Calculus for Engineering Students	Required	MATH 106 MATH 107	3	College
	EE 201	Fundamentals of Electric Circuits	Required	MATH 106 PHYS 104	3	Department
	EE 205	Electric Circuits Laboratory	Required	-	1	Department
	EE 208	Logic Design	Required	-	3	Department
	EE 210	Logic Design Laboratory	Required	-	1	Department
	EE 213	Engineering Electromagnetics (1)	Required	PHYS 104	3	Department
Level 6	IC 102	Islam and Society Building	Required	-	2	University
	IC 103	The Islamic Economic System	Required	MATH 203	3	University

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	MATH 204	Differential Equations	Required	MATH 107	3	College
	MATH 254	Numerical Methods	Required	EE 208	3	College
	EE 353	Introduction to Microprocessors	Required	EE 201 MATH 107	2	Department
	EE 212	Electric Circuit Analysis	Required	EE 213	3	Department
	EE 215	Engineering Electromagnetics (2)	Required	-	2	Department
Level 7	IC 104	Fundamentals of Islamic Political System	Required	-	2	University
	ARAB 103	Expository Writing	Required	-	2	University
	STAT 324	Engineering Probability and Statistics	Required	-	3	College
	EE 301	Signals and Systems Analysis	Required	EE 212	3	Department
	EE 309	Electronics (1)	Required	EE 212	3	Department
	EE 312	Electronics Laboratory	Required	-	1	Department
	EE 340	Fundamentals of Power Systems	Required	EE 212	3	Department
Level 8	EE 314	Measurements and Instrumentation	Required	EE 212	3	Department
	EE 318	Industrial Electronics	Required	EE 310	2	Department
	EE 320	Communications Principles	Required	EE 301	3	Department
	EE 330	Electromechanical Energy Con. (1)	Required	EE 212 EE 213	3	Department
	EE 331	Electromechanical Energy Con. Lab (1)	Required	-	1	Department
	EE 351	Automatic Control	Required	EE 301	3	Department
	EE 471	Renewable Energy Engineering	Required	EE 309 EE 340	2	Department
Level 9	GE 404	Management of Engineering Projects	Required	-	2	College
	EE 496	Senior Design Project (1)	Required	126 C.H	2	Department
	EE 499	Cooperative Summer Training	Required	126 C.H	0	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	GE 404	Management of Engineering Projects	Required	-	2	College
	EE 4xx	Specialized Elective Courses	Elective	-	14	Department
	EE 431	Electromechanical Energy Conversion (2)	Elective	EE330	2	Department
	EE433	Electromechanical Energy Conversion Lab. (2)	Elective	EE431Co-	1	Department
	EE435	Electric Drives	Elective	EE 330 EE318	3	Department
	EE436	Electrical Machine Dynamics and Stability	Elective	EE 330	3	Department
	EE441	Power System Analysis	Elective	EE 340	3	Department
	EE444	Power System Planning	Elective	EE 340	3	Department
	EE445	Electrical Power Laboratory	Elective	EE441Co-	2	Department
	EE446	High Voltage Engineering	Elective	EE 340	3	Department
Level 10	GE 403	Engineering Economy	Required	-	2	College
	GE 490	Ethics and Professional Practice	Required	-	2	College
	EE497	Senior Design Project (2)	Required	EE 496	2	Department
	EE 4xx	Specialized Elective Courses	Elective		9	Department
	EE443	Power System Operation and Control	Elective	EE 441	3	Department
	EE447	Electricity Market and Energy Transactions	Elective	EE 441	3	Department
	EE448	Power Distribution Systems	Elective	EE 340	3	Department
	EE449	Power System Protection	Elective	EE 441	3	Department
	EE475	Power System Grounding	Elective	EE 340	3	Department
	EE479	Selected Topics in Electrical Power Engineering	Elective	Instructor &Department Approval	3	Department
	EE 420	Digital Signal Processing	Elective	EE301	3	Department

B. Communication Engineering Track

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	RAD 101	Entrepreneurship	Required	-	2	University
	ACT 105	Academic and Life Skills	Required	-	3	University
	ENGL 109	English (1)	Required	-	6	University
	ENGL 128	English for Engineering Purposes	Required	-	2	University
	MATH 130	Introduction to Math	Required	-	3	University
	RAD 101	Entrepreneurship	Required	-	2	University
Level 2	CHS 101	Health and Fitness	Required	-	2	University
	PHYS 107	Introduction to Physics (1)	Required	-	3	University
	ENGL 110	English (2)	Required	ENGL 109	4	University
	CT 130	Computer Skills	Required	-	3	University
	MATH 135	Mathematics-2	Required	MATH 130	4	University
Level 3	IC 101	Introduction to Islamic Culture	Required	-	2	University
	MATH 105	Differential Calculus	Required	-	3	College
	CHEM 101	General Chemistry (1)	Required	-	4	College
	PHYS 103	General Physics (1)	Required	-	4	College
	GE 212	Computer Programming	Required	-	3	College
	GE 106	Introduction to Engineering	Required	-	2	College
Level 4	ARAB 101	Language Skills	Required	-	2	University
	MATH 106	Integral Calculus	Required	MATH 105	3	College
	MATH 107	Vector and Matrices	Required	MATH 105	3	College
	PHYS 104	General Physics (2)	Required	PHYS 103	4	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	GE 107	Engineering Drawing and Design	Required	-	3	College
	ENGL 116	English Composition	Required	-	3	College
Level 5	ENGL 107	Technical Writing	Required	-	3	College
	MATH 203	Calculus for Engineering Students	Required	MATH 106 MATH 107	3	College
	EE 201	Fundamentals of Electric Circuits	Required	MATH 106 PHYS 104	3	Department
	EE 205	Electric Circuits Laboratory	Required	-	1	Department
	EE 208	Logic Design	Required	-	3	Department
	EE 210	Logic Design Laboratory	Required	-	1	Department
	EE 213	Engineering Electromagnetics (1)	Required	PHYS 104	3	Department
Level 6	IC 102	Islam and Society Building	Required	-	2	University
	IC 103	The Islamic Economic System	Required	MATH 203	3	University
	MATH 204	Differential Equations	Required	MATH 107	3	College
	MATH 254	Numerical Methods	Required	EE 208	3	College
	EE 353	Introduction to Microprocessors	Required	EE 201 MATH 107	2	Department
	EE 212	Electric Circuit Analysis	Required	EE 213	3	Department
	EE 215	Engineering Electromagnetics (2)	Required	-	2	Department
Level 7	IC 104	Fundamentals of Islamic Political System	Required	-	2	University
	ARAB 103	Expository Writing	Required	-	2	University
	STAT 324	Engineering Probability and Statistics	Required	-	3	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	EE 301	Signals and Systems Analysis	Required	EE 212	3	Department
	EE 309	Electronics (1)	Required	EE 212	3	Department
	EE 312	Electronics Laboratory	Required	-	1	Department
	EE 340	Fundamentals of Power Systems	Required	EE 212	3	Department
Level 8	EE 314	Measurements and Instrumentation	Required	EE 212	3	Department
	EE 318	Industrial Electronics	Required	EE 310	2	Department
	EE 320	Communications Principles	Required	EE 301	3	Department
	EE 330	Electromechanical Energy Con. (1)	Required	EE 212 EE 213	3	Department
	EE 331	Electromechanical Energy Con. Lab (1)	Required	-	1	Department
	EE 351	Automatic Control	Required	EE 301	3	Department
	EE 471	Renewable Energy Engineering	Required	EE 309 EE 340	2	Department
Level 9	GE 404	Management of Engineering Projects	Required	-	2	College
	EE 496	Senior Design Project (1)	Required	126 C.H	2	Department
	EE 499	Cooperative Summer Training	Required	126 C.H	0	Department
	GE 404	Management of Engineering Projects	Required	-	2	College
	EE 4xx	Specialized Elective Courses	Elective	-	14	Department
	EE 401	Advanced Electronic Circuits		EE 310	3	
	EE 420	Digital Signal Processing		EE 301	3	
	EE 421	Communications Laboratory		EE 320	2	
	EE 422	Digital Communications		EE 320	3	
	EE 423	Wave Propagation and Antennas		EE215	3	
	EE 426	Microwave Engineering		EE 215	3	
	EE 429	Coding and information theory		STAT324	3	
Level	GE 403	Engineering Economy	Required	-	2	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
10	GE 490	Ethics and Professional Practice	Required	-	2	College
	EE497	Senior Design Project (2)	Required	EE 496	2	Department
	EE 4xx	Specialized Elective Courses	Elective		9	Department
	EE425	Satellite Communications	Elective	EE 423	3	Department
	EE428	Error Correcting Coding for Communication Systems	Elective	EE 422	3	Department
	EE448	Power Distribution Systems	Elective	EE340	3	Department
	EE460	Advanced Communication	Elective	EE 420 EE 422	3	Department
	EE463	Wireless Communications	Elective	EE 422 EE 423	3	Department
	EE464	Optical Communications	Elective	EE423		Department
	EE468	Selected Topics in Communications and Signal Processing	Elective	Instructor &Department Approval	3	Department
	EE469	Selected Topics in Engineering Electromagnetics	Elective	Instructor &Department Approval	3	Department

3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (T-104)

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with program courses, according to the following desired levels of performance *(I = Introduced & P = Practiced & M = Mastered).*

Electrical Power Engineering Track.

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
RAD 101		I				I		I	I	
ACT 105		I				I		I	I	
ENGL 109	I					I			I	
ENGL 128	P					I			I	
MATH 130	I				I			I		
CHS 101						I		I	I	
PHYS 107	I			I		I	I			
ENGL 110	P					I			I	
CT 130	I			I	I	I				
MATH 135	I				I			I		
CHEM 101	I	P	I	P	I	I	I	I	I	P
MATH 105	I				I				I	
GE 106	I			P	P	P				
GE 212	I	I		I	I				I	
IC 101	P					P		I	I	
PHYS 103	I				I			I		
MATH 106	I				I	I				
GE 107	I		P						I	
ARAB 101	I					P		I	I	
ENGL 116	P		I					I		
MATH 107	I				I				I	
PHYS 104	I			I	P			P		
ENGL 107	P	P				P		P	I	
MATH 203	I				I	I		I	I	
EE 201	I	I			P	I				
EE 208	I	I	I		I	I			I	
IC 102	P					P		I	I	
MATH 204	I				I				I	
EE 205	I	I		P	I			I	I	
EE 210	P		P			P		P	P	
EE 213	I	I			I	I	I	I		
EE 212	I		P		P			P		P
IC 103	P					P		I	I	

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
MATH 254	I				P			P		I
EE 353	I		P		P	P		P		
EE 215	I	P	I		I	P		P		P
ARAB 103	P					P		I	I	
STAT 324	I	I			P	I				I
EE 309	I	I	I		I					I
EE 301	I				I	P			I	I
IC 104	P					P		I	I	
EE 312	I			P		P		I	I	
EE 314	I	P	P		M	M	P	P		
EE 340	I	I			P	I	I	I		
EE 320	P	P	P		I					
EE 330	I	P		I	I	P				I
EE 331	P			P	P	P		P		P
EE 351	I		I		I	P			P	I
EE 471	I	P			I					I
EE 318	I	P	P		P	P	P			P
GE 404	I				M	M		M	P	
EE 496	P	M	M	M	M	M	M	M	M	M
EE 499	P	P				P		M	P	P
EE 431	P	M		P	P	M				P
EE441	P		P		M	M	M	M		
EE445	P			M	M	P	M	P	M	P
EE436	P	M	M		M					P
EE444	P	M	M		M					P
GE 490	I					P			M	
EE497	P	M	M	M	M	M	M	M	M	M
EE443	P	M	M		M					P
EE448	P	P	P		P	P	P			
EE433	P			M	P	P		M		M
EE435	P	M	M		M					P
EE447	P	M	M		M					P
GE 403	I		P	P	P	P		P	P	I
EE 420	P	M	M		M	P				

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
EE446	I	M	P		M	P	M	M		
EE449	P	M	M		M	M			M	

Communication Engineering Track.

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
RAD 101		I				I		I	I	
ACT 105		I				I		I	I	
ENGL 109	I					I			I	
ENGL 128	P					I			I	
MATH 130	I				I			I		
CHS 101						I		I	I	
PHYS 107	I			I		I	I			
ENGL 110	P					I			I	
CT 130	I			I	I	I				
MATH 135	I				I			I		
CHEM 101	I	P	I	P	I	I	I	I	I	P
MATH 105	I				I				I	
GE 106	I			P	P	P				
GE 212	I	I		I	I				I	
IC 101	P					P		I	I	
PHYS 103	I				I			I		
MATH 106	I				I	I				
GE 107	I		P						I	
ARAB 101	I					P		I	I	
ENGL 116	P		I					I		
MATH 107	I				I				I	
PHYS 104	I			I	P			P		
ENGL 107	P	P				P		P	I	
MATH 203	I				I	I		I	I	

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
EE 201	I	I			P	I				
EE 208	I	I	I		I	I			I	
IC 102	P					P		I	I	
MATH 204	I				I				I	
EE 205	I	I		P	I			I	I	
EE 210	P		P			P		P	P	
EE 213	I	I			I	I	I	I		
EE 212	I		P		P			P		P
IC 103	P					P		I	I	
MATH 254	I				P			P		I
EE 353	I		P		P	P		P		
EE 215	I	P	I		I	P		P		P
ARAB 103	P					P		I	I	
STAT 324	I	I			P	I				I
EE 309	I	I	I		I					I
EE 301	I				I	P			I	I
IC 104	P					P		I	I	
EE 312	I			P		P		I	I	
EE 314	I	P	P		M	M	P	P		
EE 340	I	I			P	I	I	I		
EE 320	P	P	P		I					
EE 330	I	P		I	I	P				I
EE 331	P			P	P	P		P		P
EE 351	I		I		I	P			P	I
EE 471	I	P			I					I
EE 318	I	P	P		P	P	P			P
GE 404	I				M	M		M	P	
EE 496	P	M	M	M	M	M	M	M	M	M
EE 499	P	P				P		M	P	P
EE 431	P	M		P	P	M				P
EE441	P		P		M	M	M	M		
EE445	P			M	M	P	M	P	M	P
EE436	P	M	M		M					P
EE444	P	M	M		M					P

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
GE 490	I					P			M	
EE497	P	M	M	M	M	M	M	M	M	M
EE443	P	M	M		M					P
EE448	P	P	P		P	P	P			
EE433	P			M	P	P		M		M
EE435	P	M	M		M					P
EE447	P	M	M		M					P
GE 403	I		P	P	P	P		P	P	I
EE 420	P	M	M		M	P				
EE446	I	M	P		M	P	M	M		
EE449	P	M	M		M	M			M	

5. Teaching and learning strategies applied to achieve program learning outcomes.

It is important to remember that student-centered teaching is teaching that is 'aware' of students and their needs above and beyond anything else. It places students at the center of the learning process. Teachers encourage student-centered learning by allowing students to share in decisions, believing in their capacity to lead, and remembering how it feels to learn. Placing students at the center of their own learning requires their collaboration. They need a voice in why, what, and how learning experiences take shape

Examples for teaching and learning strategies in the EE program that contains activities that encourage active learning are 1) working groups in classes and/or labs and 2) interactive learning through discussions. They contain many activities that encourage active learning as: case –based learning, group teaching, and work at the whiteboard, reciprocal questioning, the pause procedure, and the muddiest point technique, peer teaching activities and rotating chair group discussions.

Teaching strategies in our college encourage and allow students to develop the skills and knowledge required for the self-directed learning. They achieve this through the suitable pedagogy adapted by all staff members:

This pedagogy delivers knowledge through:

- The course lectures; Interactive learning process through discussions in class, presentation, study course materials before coming to class, include case studies, debates, exercises, discussions and presentations
- Tutorials to help students to understand the course materials and solve problems; to reflect on what they have learnt, reading assignment leading to write essays, group projects to conduct design following the course topics

This teaching method proposed for use in developing different kinds of learning outcomes. staff are appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in different training and activities organized by the university to improve their teaching effectiveness. The college have an effective system for ensuring that all programs meet high standards of learning and teaching through initial approvals and monitoring of performance. Teaching quality and the effectiveness of programs are evaluated by curriculum committee in the college also graduate and employer surveys with feedback used as a basis for plans for improvement.

Course Learning Outcomes (CLOs) are the basis for all direct assessments of the Programming Learning Outcomes PLOs. Each course has a set of outcomes, which describes the amount of knowledge and/or skills to be attained by the students at the end of the course. The curriculum committee is responsible for updating and revising the CLOs based on the recommendations of the Course Coordinators.

For the learning domain "knowledge" which includes the K1 and K2 PLOs, basic Teaching/ learning Strategies are used as Lectures, Tutorials, Scientific videos and presentations, Field trips, Interactive learning through discussions and/or inquiry-guided instructions.

When moving to following learning domain "Skills" which includes the S1 to S5 PLOs, the Teaching/ learning Strategies are enhanced to include more suitable strategies to cover this advanced learning domain. The added strategies include running simulations using appropriate software, working groups, demonstrating experiments and running demos.

Finally, for the learning domain "Values" which includes the V1 to V3 PLOs, presentations and/or posters prepared by the students are added to those teaching/ learning Strategies of previous domain to cover this final domain.

The alignment and matching between learning strategies methods in the EE program with its PLOs is presented in the following tables.

Teaching and learning strategies

Learning Domains	PLOs	Outcomes Statement	Teaching/ learning Strategies
Knowledge and understanding	K1.	The student will be able to demonstrate comprehensive knowledge of language, mathematics, and science necessary for an advanced understanding of the theories, principles, concepts, axioms, and terminology in electrical engineering.	Lectures, Tutorials, Scientific videos and presentations, Field trips, Interactive learning through discussions and/or inquiry-guided instructions.
	K2.	The student will be able to engage in lifelong learning by acquiring knowledge necessary for specialized understanding and conducting research on emerging advances in electrical engineering.	
Skills	S1.	The student will be able to apply complex knowledge, advanced skills and creativity to design a system, component, or process to meet desired needs.	Lectures, Tutorials, running simulations using appropriate software, Interactive learning through discussions and/or inquiry-guided instructions, Working groups.
	S2.	The student will be able to practice experimental investigation related to the electrical engineering topics and theories using necessary tools, machines, materials, devices and software.	Lectures, working groups, demonstrating experiments, Running demos and/or simulations on appropriate software, Scientific videos and presentations.
	S3.	The student will be able to apply the underlying concepts, principles and theories to solve engineering problems.	Lectures, Tutorials, Interactive learning through discussions and/or inquiry-guided instructions, Working groups.
	S4.	The student will be able to communicate effectively with a range of audience in various ways to demonstrate an understanding of theoretical knowledge, imparting knowledge, specialized skills and complex ideas.	Lectures, working groups in classes and/or labs, Presentations and/or posters prepared by the students,

Learning Domains	PLOs	Outcomes Statement	Teaching/ learning Strategies
	S5.	The student will be able to apply mathematical operations, and use advanced techniques and tools for both solving complex electrical engineering problems, and supporting specialized research and projects.	Lectures, Tutorials, Running simulations on appropriate software, Interactive learning through discussions and/or inquiry-guided instructions.
Values, autonomy, and responsibility	**V1.**	The student will be able to function effectively on a team, either as a cooperated member, or as a flexible and effective leader who creates a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	Lectures, Working groups
	V2.	The student will be able to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	Lectures, Interactive learning through discussions and/or inquiry-guided instructions
	V3.	The student will be able to use engineering judgement to take logical decisions in work or learning contexts supported by evidences based on analyzing and interpreting information.	Lectures, Tutorials, Interactive learning through discussions and/or inquiry-guided instructions about unpredictable work or learning contexts

6. Assessment Methods for program learning outcomes.

The program applies appropriate mechanisms and tools for measuring the learning outcomes and verifying their achievement according to specific performance levels and assessment plans. The Electrical Engineering program uses various mechanisms to evaluate courses at the department and prepares reports on them. There are a variety of direct and indirect assessment methods for students at the Electrical Engineering department, ranging from oral and written tests to presentations and discussions or by observing student performance and responsiveness. The student's ability to apply learning is evaluated through experiments, projects, and research. Evaluation techniques and the measurement of learning outcomes vary according to the nature of the program. Students are assessed using different methods such as Quizzes, Midterms, Final

exams, Assignments and oral exams and each component has a weightage for different learning outcomes. The most prominent of these mechanisms are the questionnaires related to the evaluation of courses as well as the evaluation of the educational experience of the student.

After linking the CLOs of each course to the relevant PLOs, it is important to carefully choose the appropriate assessment methods to measure the students' achievement in various PLOs. The accreditation unit and all the faculty members have agreed to use the following assessment methods: Written Exams, Oral Exams, Discussions/Contributions, Experiments, (Mini) Projects, Presentations, Reports, and Homework. Even though many other assessment methods can be utilized, the faculty members decided to use these ones due to their direct relation to the various PLOs.

A careful look for the assessment methods will provide the proof for suitability of the chosen Teaching/ learning Strategies together with the assessment method with the EE program PLOs.

For the learning domain "knowledge" which includes the K1 and K2 PLOs, The assessment methods are also compatible with these strategies and provide ability to measure this basic introductory level. They include homework, written exams, oral exams, presentations reports and oral presentation.

When moving to following learning domain "Skills" which includes the S1 to S5 PLOs, the assessment methods are enhanced to contain more suitable methods to cover this learning domain together with those for previous domain. The added assessment methods include, class project, practical exam, class discussion and solving problems on the board by students.

Finally, for the learning domain "Values" which includes the V1 to V3 PLOs, the assessment method is enhanced by adding oral presentation and class project.

The following table illustrates the alignment and matching between the assessment methods in the EE program with its PLOs.

PLOs assessment methods

Learning Domains	PLOs	Outcomes Statement	Assessment methods
Knowledge and understanding	K1.	The student will be able to demonstrate comprehensive knowledge of language, mathematics, and science necessary for an advanced understanding of the theories, principles, concepts, axioms, and terminology in electrical engineering.	Homework, written exams, oral exams and presentations
	K2.	The student will be able to engage in lifelong learning by acquiring knowledge necessary for specialized understanding and conducting research on emerging advances in electrical engineering.	Reports and oral presentation.

Learning Domains	PLOs	Outcomes Statement	Assessment methods
Skills	S1.	The student will be able to apply complex knowledge, advanced skills and creativity to design a system, component, or process to meet desired needs.	Homework, reports, oral presentation, class project, oral exams, and written exams
	S2.	The student will be able to practice experimental investigation related to the electrical engineering topics and theories using necessary tools, machines, materials, devices and software.	Reports, oral presentation, class project, oral exams, practical exam, and written exams
	S3.	The student will be able to apply the underlying concepts, principles and theories to solve engineering problems.	Homework, reports, oral exams, and written exams
	S4.	The student will be able to communicate effectively with a range of audience in various ways to demonstrate an understanding of theoretical knowledge, imparting knowledge, specialized skills and complex ideas.	Presentations and/or posters presented by the students, class discussion, solving problems on the board by students
	S5.	The student will be able to apply mathematical operations, and use advanced techniques and tools for both solving complex electrical engineering problems, and supporting specialized research and projects.	Homework, reports, oral exams, and written exams
Values, autonomy, and responsibility	V1.	The student will be able to function effectively on a team, either as a cooperated member, or as a flexible and effective leader who creates a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	Oral presentation, reports, class discussion, and class project
	V2.	The student will be able to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	Reports, Presentations,
	V3.	The student will be able to use engineering judgement to take logical decisions in work or learning contexts supported by evidences based on analyzing and interpreting information.	Homework, reports, oral presentation, class project, oral exams, and written exams

The assessment plan for Program Learning Outcomes (PLOs) is presented below at Section G.4.

D. Student Admission and Support:

1. Student Admission Requirements

The admission requirements and processes for accepting both new students and international ones for the College of Engineering, Shaqra University can be founded through many resources such as online links (https://www.su.edu.sa/en/colleges/college-engineering-dawadmi/regulations-and-regulations and https://www.su.edu.sa/ar/deanships/deanship-admission-and-registration/deanship-projects), the Electrical Engineering (EE) department booklet, and academic advisors.

According to the admission of freshmen, the University Council determines on the proposal of the College Council the number of students who can be admitted in the next academic year. If there are excess in the applicant's number, the selection is done according to their grades in the general secondary certificate, personal interview and admission tests (if found). In addition, the result of the general capabilities test, which is prerequisite for all applicants, is considered. The ratio of each applicant is calculated as follows: 40% of the general cumulative average for the secondary year, 30% for the general capabilities test and 30% for the acquisition test score.

It is worth mentioning that the specialization in the College of Engineering, Shaqra University requires that the student:

- Passes Successfully all preparatory year courses.
- Has a cumulative GPA in the preparatory year at least 3.5.
- Does not conflict with the specialization's rules for the number of accepted students.

All rules can be viewed through the link (https://www.su.edu.sa/ar/deanships/deanship-admission-and-registration/allocation-criteria-after-passing-preparatory-year).

According to be admitted to the EE program, this procedure depends on the students demands. The templates of the program selection are distributed among the level-4 students to choose their desired college program. The first choice is selected by the administration as long as it is not conflicted with the department rules for the number of admitted students.

The program offers at the beginning of each semester a welcome session for new students to introduce several topics such as the rights and duties, the offered services, the department facilities, the importance of accreditation, etc.

2. Guidance and Orientation Programs for New Students

The EE program offers at the beginning of the first semester a welcome session for new students. In this session, the students are well informed about the department. Furthermore, the student rights and duties and the offered services are well introduced. Moreover, the importance of accreditation and academic advising are presented. In addition, they have an exploratory view to the department and the labs.

Further, the EE program has an academic advisory committee, which provides detailed guidance for all department students, ensures their full understanding of the types of resources and facilities available to new students, and provides students with follow-up and advising during their study.

Moreover, the EE program with the aid of the student activities and the workshops committees offers extracurricular activities in variety of fields to develop their abilities and skills. That is done during the continuously organization of seminars, lectures, meetings, field visits, sports activities and others.

3. Student Counseling Services

The EE program has an academic advisory committee, which provides detailed guidance for all department students. The academic advisor is expected to provide educational advising to the student, to evaluate the student's study plan, and to confirm the College and the University requirements. In EE program, each academic advisor conducts meeting with his students' academic performance twice per semester (after each midterm results announcement). Additional meetings are also conducted according to the plan of the academic advisory committee. During the meeting, the students are advised how to increase their personal skills for their future lives. Moreover, the exploration of the careers chances and the future challenges is done. Besides, the academic advisor offers any required counseling within his office hours.

4. Special Support

The EE department can identify gifted, creative, talented, and underachieving students. Underachieved students were defined as all students their cumulative GPA is less than 2.75, while gifted students were defined as those that receive semester GPA greater than 4. Underachieved students are announced to the faculty members at the beginning of each semester to closely monitor their progress in various courses. Faculty members are encouraged to do extra efforts to

underachieved students who receive low marks in the conducted midterms and quizzes in order to advance their performance. On the other hand, gifted students in a given semester are awarded certificates of honor at the beginning of the next semester, and their names are announced on the honor board on the department webpage. This will encourage them and motivate other students to excel in the next semester.

Creative and talented students are identified via the conducted extra curricular activities including cultural, community, artistic, environmental, sports activities, and activities in the engineering club. Similar to gifted students, creative and talented students in a given semester are awarded certificates of honor at the beginning of the next semester, and their names are announced on the honor board on the department webpage.

Regarding the students with special needs, there are no students with special needs in the EE department. Despite of that, the EE program takes into consideration the special needs of the students. In the department, there are special toilets for disable people. Furthermore, an elevator is available for them as first priority. Moreover, special car parking places are existed for them.

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor	-	-	-	-	-	-
Associate Professor	**Electrical Engineering**	**Electrical Power & Machines**	**Power System Gen./Tran./Dist.**	**2**	**-**	**4**
		Communications and Electronics	**Communications**	**1**		
			Digital Signal Processing	**1**		

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Assistant Professor	Electrical Engineering	Electrical Power & Machines	High Voltage	1	-	5
			Power Electronics	1		
		Communications and Electronics	Electronics	1		
			Waves and Antennas	1		
		Control and Automation	Automatic Control	1		
Lecturer	Electrical Engineering	Electrical Power & Machines	----	1	-	2
		Communications and Electronics	----	1		
Teaching Assistant	----	----	----	----	-	----
Technicians and Laboratory Assistant	Electrical	Electrical Engineering & computer	-	1	-	1
Administrative and Supportive Staff	Secretary	Secretary	-	1	-	1
Others (specify)	----	----	----	----	-	----

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

Learning resources required by the Program (textbooks, references, and e-learning resources and web-based resources, etc.)

Following mechanism is in place:

1. The requirements of textbook and other materials for teaching are identified by the instructors.
2. The instructor's suggestions are reviewed by the Curriculum Committee.
3. The instructor, proposing the text book for a course, is asked to review at least two text books on the subject and submit justifications for the chosen text book.
4. The faculty requests the Purchasing department to procure the text books selected by the department.

A brief report about the College of Engineering (COE) Central Library Quality Assurance

The COE Central Library has implemented a series of policies and processes to guarantee the quality assurance of learning resources in general, research resources, in all formats (e.g., hard copy print and electronic version) in order to satisfy needs from students, faculty and staff for teaching, learning and research. Details of the mechanism that Central Library has applied towards its quality assurance of learning resources are displayed as follows:

1. Relevancy of all the library resources to students, faculty and staff in their study and research.
2. Appropriateness and adequacy of the learning resources, especially the online databases are ensured based on requirements of academic programs, course offerings, and research initiatives.
3. Consistency of the learning resources with COE and EE department missions, Strategic Plan, Central library mission and policies.
4. Compliance with the COE Quality Assurance Center framework and guidelines, e.g., acquisition and development of the library learning resources are largely based on satisfaction survey of faculty.
5. Ensuring that changes in the COE academic programs and courses reflected in collection development of learning resources via library committee headed by Library director with faculty participation of academic departments.
6. Exchange of learning resources and cooperation with Saudi Digital Library (SDL).

7. Regularly updating library operational procedures for acquisition of learning resources, esp. online resources according to the request from faculty and student.

In a word, the COE Central Library has seen great changes and achievements in the past years in collection development and provision of learning resources, including the online sources for all the stakeholders under the guidance of COE management.

2. Facilities and Equipment

2.1 College of Engineering Library Facilities

The College of Engineering library at Shaqra University aims to provide access to its printed resources such as books, journals and magazines as well as electronic journals and online databases primarily for the use of faculty members and students. The current plan is to increase the library inventory from year to year. Any member of the EE Department may recommend the purchase of a desired or a related textbook to the Librarian. The followings are the current Engineering Library resources and facilities.

A. Logistics Facilities in the Library

No.	Item	Quantity
1	3M Self check system	1
2	Main Desktop Computer	1
3	3M Library Security Systems (Detection Gate)	1
4	Spirit A3 Self-service Book Scanner	1
5	KARDEX Lektriever Automated File & Media	1
6	PC Computers for Students	8

B. Learning and Resource Centre Collections

No.	Books	Quantity	Planned
1	Electric Machines	26	56
2	Power Systems	22	52
3	Communications	32	62
4	Electronics	29	59
5	Digital Signal Processing (DSP)	23	53
6	Antennas & Microwaves	16	46
7	Digital Design	14	44
8	Other Related Books	58	88
9	Mathematics	260	260
10	Physics	102	102
11	Chemistry	207	207
	Total	789	1029

2.2 List of laboratories and related taught and served courses

The EE laboratories serve the needs of the courses offered by the power and communications tracks. They serve for power electronics, adjustable speed drivers, power systems, electromechanical energy conversion, logic design, microprocessor, antenna, radio frequency (RF) and microwave engineering, advanced communications, digital communications electrical engineering labs. Full listings of all laboratories in the program with their maximum capacity and the taught/served courses are included in the following table.

No.	Room No.	Laboratory	Max. Capacity	Course taught	Served Courses
1	F-044	Electromechanical Energy Con. Lab.	15	EE331 EE431	EE330 EE433
2	F-057	Power Electronics Lab.	15	EE445	EE418
3		Adjustable Speed Drives Lab.			EE444
4	F-048	Measurement and devices Lab	18	EE351	EE314

No.	Room No.	Laboratory	Max. Capacity	Course taught	Served Courses
5		Automatic Control Lab.			
6	F-063	Logic Design Lab.	18	EE210	EE208
7		Electronics Lab.		EE312	EE309
8	G-063	Basic Communications Lab.	18	EE421	EE320 EE422
9	G-064	Antennas and Microwaves LAB	18	EE421	EE423, EE215
10	G-069	Advanced Communications Lab	18	EE460	EE460
11		Electronics 2		EE401	EE401
12	G-072	Electrical Circuits Lab.	18	EE 205	EE210
13		Microprocessor Lab.		EE353	EE353
14	G-075	Electric Power Lab.	15	EE445	EE340 EE441 EE448 EE449
15	G-081	Computer LAB	20	GE212	

2.3 List of Classrooms with their Facilities and Courses taught

The EE program classrooms of are minimally equipped with accessible Wi-Fi for students, monitors, and presentation systems. Class capacity ranges from about 15 to 50 students. Most Electrical Engineering courses are taught and located in the Electrical Engineering section. The following table illustrates the classrooms and their maximum capacities.

No.	Classroom ID No.	Max. Capacity	Facilities
1	F-042	25	All classrooms are equipped with at least desks, chairs, white board, data show, and Wireless Local Area Network (WLAN) internet connection.
2	F-046	50	
3	F-050	50	
4	F-052	45	
5	F-055	50	
	Total	**220**	

2.4 List of Safety Equipment in the Laboratories, Classrooms and Offices

The college of Engineering, and the EE program, are committed to applying safety standards in laboratories, classrooms, offices and corridors, where all safety devices and safety posters are required for them, such as guidelines and lighted stickers. The program of EE conducts seminars to educate students to preserve the environment, security and electrical safety through the Student Activities Unit and the Community Service Unit. The following table lists a summary for the safety equipment that used in different sites in the building.

No.	Room Type	Number	Safety Equipment
1	Staff Offices	30	– The facilities are equipped with fire extinguishers and are inspected regularly by the fire marshal. – The building is also equipped with a number of fires exits to ensure that there is always a safe route for escape from the building. – All laboratories are equipped with smoke detectors to ensure that fires are detected early and properly handled. – In addition, all computer labs, which comprise the majority of laboratories in the program, are equipped with surge protection and uninterrupted power supply devices in order to protect equipment from power fluctuations. – There is also a fire alarm in each building and a set of fire sensors distributed across each building. – Fire hoses are also housed in prominent positions to enable personnel to quickly respond to the presence of fire.
2	**Classrooms** F-042, F-046, F-050, F-052, F-055	5	
3	**Laboratories** F-044, F-048, F-057, F-063, G-063, G-064, G-069, G-072, G-075, G-081, G-143	11	

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

The summary for the student satisfactions for issues of the different provided services is listed in the following table. From aggregated results, the students have very good gratification for the offered safety facilities and the social life in the campus. While they are pleased with the student diversity and the different extracurricular activities. However, they request more sporting facilitates to be existed.

The EE Program is committed to apply safety standards in laboratories, classrooms, offices and corridors, where all safety devices and safety posters are required for them, such as guidelines and lighted stickers. The Department of Electrical Engineering conducts seminars to educate students to preserve the environment, security and electrical safety through the Student Activities Unit and the Community Service Unit.

The Safety and Security Unit in the University provides security and safety systems to secure the facilities; Cameras are available in the facilities for 24 hours. A fire evacuation policy and fire drills are practiced in all places. First aid is available in all faculties. The College has emergency plans, safety signs, emergency exit signs and laboratory safety posters. All classrooms and laboratory rooms are of sufficient size and it has enough ventilation holes.

General safety tips in laboratories.

All students must follow the general safety guidelines for entering the labs, which can be found in each lab according to the nature of each lab. These instructions can be summarized in the following points.

1. Pay attention to the warning labels on chemical containers and utensils Glasses for the purpose of warning of the danger of their content, and the precautions to be taken when using it.
2. Do not attempt to move chemicals outside the laboratory, if you have to Use both hands to hold the package, do not support it against your chest, and do not carry more than package at once.
3. Wash your hands well with running water after completing the laboratory work, as this reduces from the risk of poisoning with toxic chemicals.
4. Prepare small quantities of gases, especially chlorine and bromine, for immediate use. Only to be done in a degassing cabinet, or in a well-ventilated place with the necessity of using a protective mask.
5. Be careful when shaping glass, and apply general safety precautions in that.
6. Do not taste any chemical, whatever the reasons.
7. If you notice that the warning sign placed on the package of the chemical indicates that it is A flammable substance, so keep away from heating over

direct flames, and keep the source of the flame as far away as possible. possible about your workplace.

8. Do not be complacent in wearing lab coats, masks, goggles, and gloves when handling with chemicals for your safety. But if the quantity is small, you can get rid of it by spraying a quantity of sulfur on it.
9. Be careful when dealing with mercury, and if it spills on soil in large quantities, collect it with your hands.
10. When heating the solutions, try to have the heat distributed evenly, and use the heating grid. for this, or move the test tube continuously over the flame, and keep the nozzle away from your face or your colleague's face.
11. Do not use the solution storage bottle directly in the daily laboratory work, and take what is left of it. The chemical is contaminated, and the remainder is not returned to the package you need to put it in a prevention cup storage.
12. Avoid eating or storing foods in the laboratory, and do not drink water designated for the laboratory.
13. Smoking is prohibited inside the laboratory. Especially near chemicals, as some of them are the same absolutely flammable fumes.
14. Walking calmly in the laboratory, without rushing to walk, or moving suddenly, and leaving amusement and banter inside the lab.
15. Not to block roads and corridors with devices and tools, especially emergency exit ports that must be easily and quickly accessible.
16. Signs and signposts must be placed inside the laboratory, and applied.
17. The student is advised to follow the rules and orders when entering the laboratory.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

https://www.su.edu.sa/en/colleges/college-engineering-dawadmi/electrical-engineering/quality-and-accreditation/quality-and-management-manual-electrical-engineering-program

2. Procedures to Monitor Quality of Courses Taught by other Departments

The EE program follows the following procedures to monitor the quality of the courses taught by instructors either from the EE department or from other departments.

1. The course specification is sent by the AAC committee to the instructor at the beginning of the semester. The course specification contains the CLOs related

to the course, as well as the teaching and the assessment strategies associated with each CLO.

2. The instructor is asked by the AAC committee to submit a course plan, which contains the distribution of the total marks allocated to the course on the various assessment methods, as well as the expected dates for conducting the various quizzes and midterm exams. The course file contains also the distribution of the course contents on the weeks of the semester according to the calendar received from the university.
3. After each midterm exam, each instructor submits a file called CPS as an abbreviation of Course Performance Summary. The CPS contains information about the topics taught from the beginning of the semester, or from the previous CPS file in case that more than one midterm exam was assigned to the students. The CPS file also contains all grades that each student have received from the quizzes and the homework given to the students over the same period. The CPS is used to assess the students' performance, as well as the consistency of the topics taught with the distribution of the course contents listed in the course plan file.
4. By the end of each semester, the Statistics committee distributes the Course Survey on the students to assess the quality of the course and to assess the instructor. The filled surveys are analyzed by the Statistics committee, and if any critical comments from the students (either regarding the quality of the course or the instructor) were found in the analyzed survey, the Statistics committee submits a report to the HoD to discuss the raised issue with the instructor. If similar comments about the same course were observed in two successive semesters, the instructor of the course is changed in the following semester.
5. At the end of each semester, the instructor is asked by the AAC committee to submit a course file containing 11 different items including the course specification, course report, the exams and samples of the students answer sheets. The course file is revised by the AAC to ensure the consistency of the CLOs listed in the course specification and those listed in the course report and in the examination sheets. If a mismatch was observed, the AAC committee asks the instructor to adjust the mismatch, and to stick with the CLOs description listed in the course specification file distributed at the beginning of the semester.
6. The final result of each course is revised by the HoD to check for skewness in the result, either towards high or low marks. If skewness was observed, the HoD discusses the reason with the instructor, and the instructor is asked to list these reasons in the course report.

3. Procedures Used to Ensure the Consistency between Main Campus and Branches (including male and female sections).

Not Applicable

4. Assessment Plan for Program Learning Outcomes (PLOs),

The procedure followed by the Electrical Engineering (EE) Program to measure the students' achievements in the Program Learning Outcomes (PLOs) consists of the following steps.

No	Steps	Time	Responsible
1.	Each course instructor formulates a set of course learning outcomes (**CLOs**) according to the course contents listed in the study plan.	At the beginning of an academic year following the process of updating the **PLOs**.	The **Course Specification** files are prepared by each course instructor, and revised by the **Curriculum** and the **Academic Accreditation Committees (AAC)**
2.	The formulated **CLOs** are then linked to the appropriate **PLOs**.		
3.	A set of teaching and assessment strategies are then assigned to each **CLO**. All the formulated **CLOs** and the related teaching and assessment strategies are listed in the **Course Specifications** file.		
4.	The assigned assessment strategies are utilized during the semester to assess the students' achievements in various **CLOs**.	During each semester.	The instructor of each course
5.	For each course, the students' achievement in each **CLO** is reported in the **Course Report** file. The students' achievement in each **PLO** is calculated as the overall achievements in all the related **CLOs**. In addition, improvement actions related to the **CLOs** that did not achieve the target score are also suggested by the course instructor, and listed at the end of the	At the end of each semester	The instructor of each course

No	Steps	Time	Responsible
	Course Report. The target score of each **CLO** equals **65%** of the total marks allocated to this **CLO**.		
6.	For the whole program, the students' achievement in each **PLO** is calculated as the overall achievements in all the related courses gathered from corresponding course reports, and the result is reported in the **Annual Program Report (APR)** file.	At the end of each academic year	The **AAC** committee
7.	The **APR** also contains an **Improvement Plan** for the **PLOs**. The **Improvement Plan** is collected from the improvement actions listed in each **Course Report** related to the **CLOs** that did not achieve the target score.		
8.	The **Improvement Plan** is applied in the following academic year. The impact of each action (listed in the **Improvement Plan**) on the related course is reported in the **Course Report** of that course in the following academic year, and the overall assessment of the impact of the applied **Improvement Plan** on the program is reported in the **APR** of the following academic year.	In the academic year following the preparation of the **Improvement Plan**.	The **Improvement Plan** is applied by the instructor of each course, and the **APR** is prepared by the **AAC** committee.
9.	In addition to the course reports, the EE Program also utilizes a file called **Direct Assessment Summary** (**DAS**) which summarizes the achievement of each **CLO** (and hence the related **PLO**) using the direct assessment methods implemented during the semester. The **DAS** files are used for preparing a **PLOs Assessment Report**.	The DAS file is filled at the end of each semester, and the **PLOs Assessment Report** is prepared at the end of each academic year.	The DAS file is filled by the instructor of each course, and the **PLOs Assessment Report** is prepared by the **AAC** committee

No	Steps	Time	Responsible
10	In addition to the direct assessment method listed above, indirect assessment of the **CLOs** related to each course is accomplished by filling the **Course survey** by the students at the end of each semester. The results of these surveys are included in the **PLOs Assessment Report** as indirect assessment results of the **PLOs**.	The surveys are filled at the end of each semester, and the **PLOs Assessment Report** is prepared at the end of each academic year	The **Statistics** committee in the EE program is responsible for preparing, distributing, collecting, analysing the surveys and calculating the indirect assessment for each **PLO**.
11.	Other surveys like the **Exit survey**, **Faculty survey**, **Alumni survey**, and **Employer survey** are also used for indirect assessment of students and graduates' achievements in various **PLOs**, and the results of these surveys are reported in the **PLOs Assessment Report**.	At the end of each academic year	The **Statistics** committee.
12.	The results of the indirect assessment method are also taken into consideration when preparing the **Improvement Plan**.	At the end of each academic year	The **AAC** committee.

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
The usefulness of the Mission Statement	Staff, students, alumni, and employers	Surveys	End of academic Year
Appropriateness of the Mission	Staff, students, alumni, and employers	Surveys	End of academic Year

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Consistency of the PEOs with the mission	Staff, students, alumni, and employers	Surveys	If the mission or the PEOs are modified
Course outcomes	Instructor &Peer Reviewer	Grades percentages	End of semester
Course outcomes	Students	Surveys	End of semester
Teaching methods	Students	Surveys	End of semester
Evaluation methods of courses	Students	Surveys	End of semester
Course Material	Students	Surveys	End of semester
Instructor	Students	Surveys	End of semester
Course Contents	Students	Surveys	End of semester
Program Learning Outcomes	Instructors & Students	Surveys	End of each semester
Evaluation of faculty members in teaching and research	Faculty Dean and program leaders	Performance evaluation forms	End of academic year
Effectiveness of teaching & assessment, learning resources	Student exam results, course reports, staff members, teaching/assessment, evaluation & improvement	Grade distribution, CLOs assessment, PLOs assessment, Surveys	Beginning of semesters, end of academic year
Students' satisfaction with the offered services	Students	Surveys	End of the semester
Library accessibility	Students and Staff	Surveys	End of academic year
Availability of digital databases	Students and Staff	Surveys	End of academic year
e-learning (LMS) facilities	Students and Staff	Surveys	End of academic year
Access to Research Journals	Students and Staff	Surveys	End of academic year
Availability of Textbook References	Students and Staff	Surveys	End of academic year
Copy & Print facilities	Students and Staff	Surveys	End of academic year
Study Zone	Students	Surveys	End of academic year
Availability of engineering software	Students and Staff	Surveys	End of academic year

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Smart Classroom	Students and Staff	Surveys	End of academic year
Computer Lab	Students	Analysis	End of academic year
Wifi Facilities	Students and Staff	Surveys	End of academic year
Students Affairs	Students	Surveys	End of academic year
Parking Facilities	Students and Staff	Surveys	End of academic year
Health Service	Students and Staff	Surveys	End of academic year
Cafeteria	Students	Surveys	End of academic year
Water and Electricity Supply	Students and Staff	Surveys	End of academic year
Fire Alarm System	Students and Staff	Surveys	End of academic year
Adequacy of lab equipment	Students	Surveys	End of academic year
Laboratory Staff Assistance	Students and Staff	Surveys	End of academic year
Functionality of lab equipment	Students and Staff	Surveys	End of academic year
Quality of lab equipment	Students and Staff	Surveys	End of academic year
Maintenance of lab equipment	Students and Staff	Surveys	End of academic year
Safety Kits	Students and Staff	Surveys	End of academic year
Program Management	Staff	Surveys	End of academic year

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.)

Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others.

Evaluation Methods (e.g., Surveys, interviews, visits, etc.)

Evaluation Time (e.g., beginning of semesters, end of the academic year, etc.)

6. Program KPIs*

The period to achieve the target (**2**) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	Students' Evaluation of quality of learning experience in the Program	4.5	Exit Survey	At the end of the academic year
2	KPI-P-02	Students' evaluation of the quality of the courses	4.85	Course Survey	At the end of each semester
3	KPI-P-03	Completion rate	75%	Analysis on the students results over the last 5 years	At the end of the academic year
4	KPI-P-04	First-year students retention rate	95%	Analysis on the students who joined the program at the beginning of the academic year	At the end of the academic year
5	KPI-P-05	Students' performance in the professional and/or national examinations	NA	NA	NA
6	KPI-P-06	Graduates' employability and enrolment in post-graduate programs	90% 10%	Alumni survey	At the beginning of year
7	KPI-P-07	Employers' evaluation of the program graduate's proficiency	4.5	Employers Survey	At the end of the academic year
8	KPI-P-08	Ratio of students to teaching staff	7/1	Statistical analysis	At the end of the academic year
9	KPI-P-09	Percentage of publications of faculty members	100%	Statistical analysis	At the end of the academic year
10	KPI-P-10	Rate of published research per faculty member	4/1	Statistical analysis	At the end of the academic year

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
11	KPI-P-11	Citations rate in refereed journals per faculty member	55/1	Statistical analysis	At the end of the academic year
12	AKPI-P-01	The clarity and appropriateness of the Mission Statement	95%	Mission Survey	At the end of the academic year
13	AKPI-P-02	Percentage of staff members participating in the committees in the EE department.	100%	1- The distribution of the faculty members on the committees 2- Committees meeting minutes that show the number of faculty members attended the meetings	At the end of the academic year
14	AKPI-P-03	Percentage of staff members participating in the academic accreditation and quality in the EE department.	100%	The tasks allocated by the Academic Accreditation Committee to each faculty member during the academic year.	At the end of the academic year
15	AKPI-P-04	Percentage of staff members participating in social activities	90%	Analysis	At the end of the academic year
16	AKPI-P-05	The average number of students in the class	15	Student affair report	At the beginning of each semester
17	AKPI-P-06	Students' satisfaction with the offered services	90%	Student survey	At the end of the academic year
18	AKPI-P-07	Satisfaction of beneficiaries with the learning resources	4.5	Learning resources survey	At the end of the academic year

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	**ELECTRICAL ENGINEERING COUNCIL**
Reference No.	**FOURTH DEPARTMENT MEETING FOR THE ACADEMIC YEAR 2024/2025**
Date	**26/05/1446 (28/11/2024)**