Ministry of Higher Education & Scientific Research
University of Baghdad
College of Engineering
Electronic and Communication Engineering Department

Reviewed Self-Assessment Report
Electronic and Communication Engineering Program
Electronic and Communication Engineering Department
College of Engineering –University of Baghdad

2019-2020

BACKGROUND INFORMATION

Prepared by

Assist. Prof. Dr. Husam Abduldaem Mohammed
Quality Assurance and Academic Perfomance Committee, Chair
Tel. +964-7705815120
Email: husam.a@coeng.uobaghdad.edu.iq

Dr. Sinan Sabah Mahmood
Department ccordinator for undergraduate studies
Tel. +9647702794176
Email: sinan.mahmoud@coeng.uobaghdad.edu.iq

Reviewed by:

Dr. Aqiel Almamori
Head of ECE Dept.
Tel. +964-7829407835
Email: a.eced@coeng.uobaghdad.edu.iq

PREFACE

The present report is the self-assessment report written for the Department of Electronics and Communications Engineering (ECE) Department at the College of Engineering - University of Baghdad regarding the 2019-2020 year. The report represents the first step towards achieving Quality Assurance in accordance with international standards, which is a strategic and important decision for the scientific and educational process of the department. The decision was adopted by the "General Board" of the College of Engineering. The report coincides with a wide and comprehensive campaign carried out by the College of Engineering and University of Baghdad in this area and under a central guidance and support from the Iraqi Ministry of Higher Education and Scientific Research (MOHESR). In writing the report, we have relied mainly on the template of a self-assessment report issued by the UNESCO Iraq Office (Amman), in addition to a number of similar reports of a number of Arab and international universities that have already presented such a report. The report includes in its first and second parts a definitive introduction to the department and its history, scientific disciplines and awarded degrees, the system of study and curriculum, organizational structure, the general features of the policy of the department in the various fields and aspects ... etc. After that, the report reviews the required criteria for the self-assessment and the related appendices according to specifications of SAR. The report also contains a very important article, that is a SWOT analysis for the (Strengths, Weaknesses, Opportunities, and Threats) of the department. SWOT analyses is a very important tool for planning and developing strategies and policies for the office in question, and we have tried in our writing of this paragraph to be very precise in our diagnosis of the strengths and weaknesses, as well as opportunities and threats facing the scientific and educational process of the department. We hope that we have been successful in our writing of this report, and that we achieve the minimum requirements of SAR. We hope that the report receives the attention of the experts involved in the UNESCO Iraq Office and to enrich it with their valuable observations to help us in guiding the department in the right direction towards ensuring quality and reliability of the educational system of ECE program according to international specifications and standards.

Table of Contents

QA Committee
Chair
Assist. Prof. Dr. Husam Abduldaem Mohammed

1. BACKGROUND INFORMATION

The Electronics and Communications Engineering (ECE) Department at the College of Engineering-University of Baghdad (UOB) offers engineering programs leading to the degree of Bachelor of Science (B.Sc.) and Master of Science (M.Sc.) in the Electronics and Communications Engineering. Our graduates, who can be found in agencies and businesses throughout the country and abroad, are the best indicator of our dedication to student success.

1.2. Contact Information

Dr. Aqiel Almamori
Head of Electronic and Communication Department
College of Engineering
University of Baghdad
Tel. +964-7829407835
Email: a.eced@coeng.uobaghdad.edu.iq

1.2 Program History

Electronics and Communications Engineering Department at the College of Engineering-University of Baghdad began as a postgraduate program in 1986. Comprehensive curricula were prepared for the undergraduate studies to ensure that basic theoretical and applied aspects of Electronic and Communication Engineering are covered. The B.Sc. degree awarded by the department well-prepares its holder for his/her professional or academic career.

Graduates are cautioned though that there is no substitute for experience. Their degrees are being gate-passes for the long arduous road engineering capability. Success in achieving this goal will depend not only on hard work but also on proper utilization of acquired engineering principles and knowledge as well as the systematic methodology to problem tackling. This approach results in proactive graduates willing to serve both state and society in various Electronic and Communication Engineering fields.

The Department of ECE at the University of Baghdad was born from the mother department that is the Electrical engineering department. The duration of study is four years, after which the graduate obtains a bachelor degree in Electronics and Communication Engineering. The postgraduate studies in the department started at the academic year (2000-2001) to obtain the M.Sc. degree in Electronic and Communication Engineering in two fields; (Electronic and Communication Engineering) and (Computer Engineering).

1.3 The Scientific Specialties and the Awarded Degrees

The department offers engineering programs leading to the degree of Bachelor of Science (B.Sc.), Master of Science (M.Sc.) and Degree of Philosophy (Ph.D.) in Electronics and Communications Engineering.

The annual system of study is followed in the department for the (B.Sc.) undergraduate study. The study period is 4 years with 160 units distributed over the four years of study. For the postgraduate study, the semester's system of study is followed in the department. The minimum period of study is 2 years for the M.Sc. degrees. The first year for M.Sc. studies is for courses with two semesters. The second year for M.Sc. is for thesis work.

1.4 Educational program and Department policy

The main department educational program is to convert the student's way of thinking to well organized and more practical in handling engineering problem. The student prepared to face any engineering problem in any field and solves the problem in a scientific engineering manner .In addition, the department provides the student with a principle base of knowledge.

The Department of Electronics and Communications Engineering aspires to be renowned in Iraq and the region through setting and working hard to achieve the following goals regarding students, members of staff, cooperation with state/society and interaction with universities/ institutes in developed countries.

Students

- Instilling high ethical and professional standards over and above the engineering science quality.
  - Enhancing leadership tendencies through encouragement of team-work, inter-discussions and amicable behavior.
  - Encouraging and rewarding scientific and technical quest useful to social needs.
  - Appreciating and caring for students with outstanding potential / achievements.
  - Emphasizing a conductive Electronic and Communication Engineering for work, study, discussions and exchange of information.

Faculty members

- Attracting capable academic / managerial personnel to join the department.
- Enhancing quality of staff members with respect to accomplishments.
- Encouraging scientific research work; giving priority to sound applied research of practical use.
- Utilization of individual staff members according to qualification, capability and experience.
- Encouraging staff members to interact with state / society regarding various aspects of Electronic and Communication Engineering.

Cooperation with State / Society

- Continuing education seminars for staff members of state establishments.
- Consultations for state establishments / private sector.
- Basic, detailed and designs checking and overseeing execution of Electronics and Communications engineering projects.
- Evaluation of scientific research works and patents.
- Undertaking the resolution of specific practical problems through contractual agreement with concerned state establishments via postgraduate research work.
- Establishment of a special committee within the department to activate, coordinate and follow-up all aspects of cooperation with state / society.

1.5 Interaction with Foreign Universities / Institutes

The department intends to sign partnership agreements with universities and institutes in different countries to exchange staff, knowledge, experience and most important to keep up with the rapid

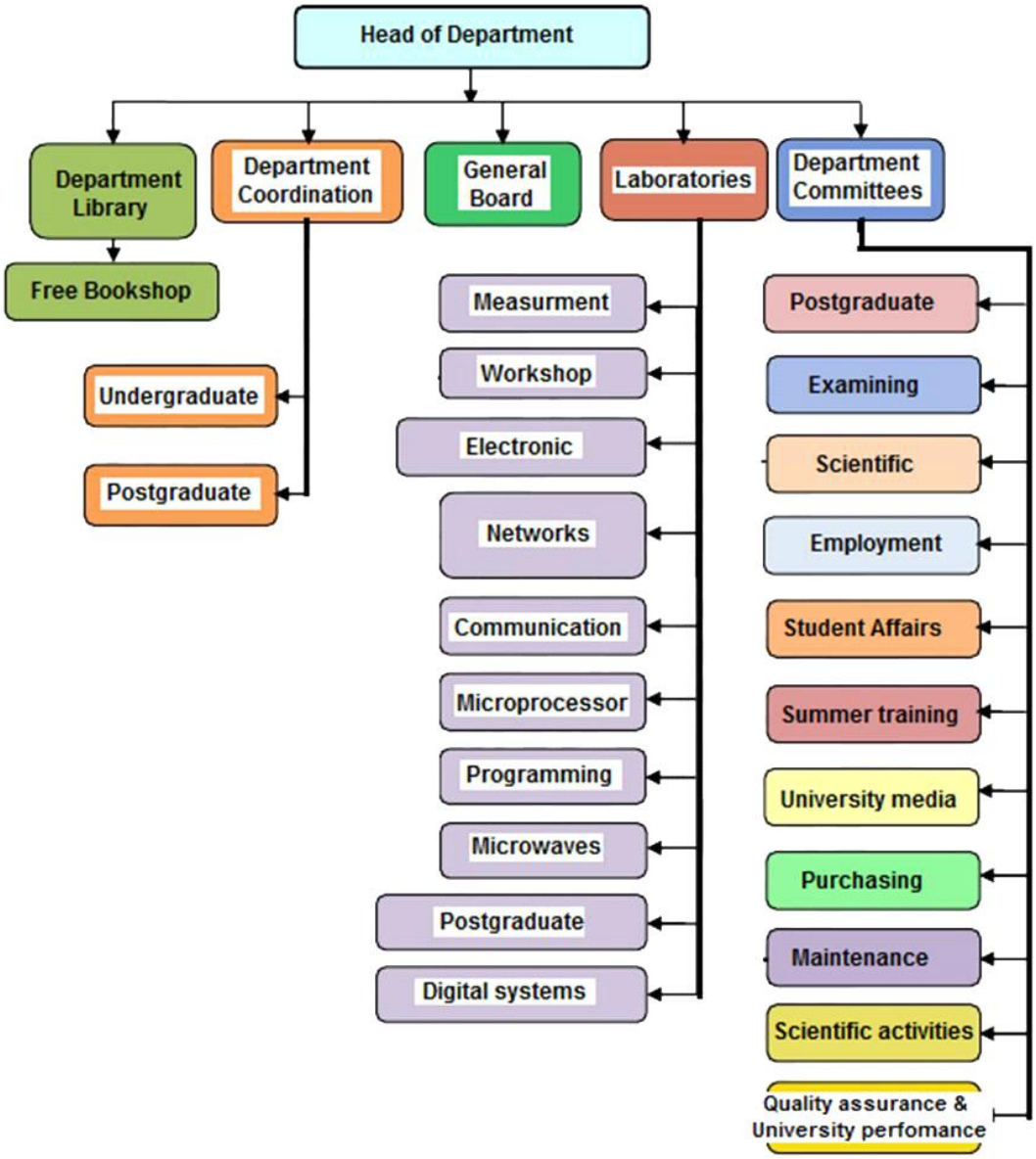
pace of development in the increasingly crucial field of the Electronics and Communications Engineering.

1.6. Public Disclosure

All details about the academic program outcomes (PEOs), graduate outcomes (GOs), student's admission and many others are all published publicly on the website www.http://coeng.uobaghdad.edu.iq.

1.7. Organizational Structure

The scientific, technical, and administrative structure of the ECE Department at the College of Engineering – University of Baghdad includes a set of integrated elements. Each one of these elements of the structure has authorities, duties and responsibilities which are specified accurately so that the department can work well and achieve the required goals through the integrity of the work of these elements. Figure (1.1) shows the organizing structure of the department. Appendix A presents the most important activities of the department during the academic year 2020-2021, which are the results of integration between the elements of this structure.



Figure(1.1): Organizational Structure of the ECE Department/College of Engineering

Accreditation Criteria

2.1 Criterion 1: Program Educational Objectives

2.1.1 Strategic Planning (Vision and Mission Statements)

Vision

The Department of Electronics and Communications Engineering endeavours to be one of the leading Electronics and Communications Engineering Programs in Iraq and the region.

Mission

1. Graduating highly qualified ethical electronics and communications engineers.
2. Building the leadership qualities in its graduates through teaching how to lead, problem solving, team work, quality considerations, and professionalism at work.
3. Raising the spirit and commitment for acquiring knowledge and community service in graduates.
4. Contributing ideas of projects and carrying out research for the benefit and development of the community.
5. Nurturing and care for outstanding students and encouraging them to use their skills.
6. Student counselling, guidance and strengthening of citizenship spirit.
7. Providing a good working Electronic and Communication Engineering for students, faculty, and other personnel with emphasis on high academic, professional and ethical standards within the university campus. Freedom of opinions and respect of others opinions and encouragement in exchanging knowledge

2.1.2 Statement of Program Educational Objectives (PEO)

Since its establishment, the ECE Department at University of Baghdad, worked hardly and continuously based on his noble mission in society service to achieve a number of strategically goals and objectives, the most important of them are:

1. Graduate electronics and communications engineers to serve in industry, construction and other sectors of the electronics and communications engineering labour market.
2. Provide students with a sound foundation in the
basic principles and engineering in the field of
design and engineering analysis.
3. Develop the theoretical study and skills to enable students to apply these skills in the areas of work such as real solutions to real problems and the ability to make appropriate decisions.
4- Ensure that there is awareness of the importance of Electronic and Communication Engineering protection in all industrial sectors, and develop methodologies to work out, in addition to search for legal ways to apply them.
5-Improve the teaching and research skills of the faculty members to meet international standards and the goals of the Department by joining training programs abroad and continuing professional development through gaining leadership skills in order to provide career success.
6-Improve the abilities of administration and technical supporting staff.
7-Optimum use of resources and potentials of the department.
8-Encourage the cooperation with Universities and Academic Centers in developed countries.
9-Encourage the cooperation with local Governmental Institutes.

10-Encourage the publishing in International Journal with impact factors

2.1.3 Consistence of the Program Educational Objectives with the Mission and Activities of the Engineering College of UoB

The Electronics and Communications Engineering Department PEOs are aligned well, closely linked to, and consistent with the department's mission. The first one of the objectives (PEO-1) provides the first step towards a career of achievement and service. The needed background of knowledge and skills are acquired to achieve this objective. Students acquire quality education through several avenues, including knowledge, skills and values as reflected in PEO 1. The professional and ethical issues are also preserved in (PEO-1). PEOs 2, 3, 4, 6 and 7 ensure the qualities for self-development and professional growth and improvement of the faculty and administrative and technical staff. The Electronics and Communications Engineering Department PEOs are closely linked to, and consistent with, the University of Baghdad and College of Engineering missions. The University and College missions are directly served by the first, fifth and seventh Electronics and Communications Engineering Department PEOs

2.1.3.1 Process for Establishing Program Educational Objectives PEO Definition

The primary function of the ECE program that is compatible with the missions of the College of Engineering, UoB is to instill in its graduates a solid foundation of mathematical, scientific, and engineering knowledge in addition to developing the intellectual skills essential for excelling in their careers. The PEOs were discussed with all faculty members in several departmental meetings. ***Objective #1*** provides students with a solid foundation in the Electronics and communications Engineering discipline and design methodologies through emphasis on the application of mathematical, scientific, and engineering principles. It provides the students with the knowledge of proper ethical and professional practices relevant to Electronics and Communications Engineering, as well as awareness of the societal impact of electronics and communications engineering technologies. ***Objective #2*** focuses on the improvement, development and qualification of the teaching and administrative activities of the department. ***Objectives #3 & #4*** concentrate on the development and improvement of the faculty, engineering, technical, and administrative staff capabilities. ***Objectives #5*** considers the optimum use of the department facilities and resources, and improvement and qualification of these facilities. ***Objectives #6*** is related to the engagement and cooperation of the department with the highly qualified and developed universities and countries in order to improve and develop the ECE Program of the department. ***Objectives #7 to #10*** focuse on the scientific research activities of the department and how it can be directed towards the service of community, government and state.

2.1.4 Program Constituencies

The program constituents are those who must be satisfied with the performance of the Electronic and Communication Engineering program, and they are:

Faculty

Faculty members are involved on regular basis in the assessment processes. The faculty members are a congenial group who work as a team to improve the education in the Department. They are committed to the undergraduate program and producing graduates who will be active. Many of the faculty members are currently engaged in their particular field of expertise outside the College setting as consultants, and most faculty members are engaged with researches.

Students

Students are interested in whether the program adequately prepares them for future employment. The students in the program are motivated to become successful engineers.

Alumni

This group consists of recent graduates and graduates who have been employed for 3 to 5 years. Graduates with work experience of 3 to 5 years constitute a key part of the assessment process. They should have the incentives to assess the quality of PEOs based on their career achievements.

Employers

(Government, Industry and Universities): Employers' satisfaction with our students' education provides measure of the program success. Their satisfaction translates to employment opportunities for our students.

Student's parents.

2.1.5 Program Educational Objectives Evaluation PEOs Review

The process of review and evaluation of the ECE program is done through the following assessment channels:

1. Alumni survey.
2. Employer's survey.
3. Faculty discussion.
4. Student's survey.
5. Industry consultations.

2.1.5.1 Achievement of Program Educational Objectives

The assessment process of ECE Program objectives is done continuously and informally whenever possible through many channels, such as employers and Alumni surveys, students' questioners process, faculty members' opinions, experts from industry opinions… etc. Since the academic year 2010-2011, a systematic documentation for a number of questionnaires was made. The assessments are analyzed by the faculty to determine if changes are needed. To support the program, the Electronics and Communications Engineering Department has made questioners to (20) different state offices, factories, companies and also private sector companies asking them about their opinions in the department graduates and their suggestions to improve the program. The results of the questioners are shown in Figure (2.1).

University of Baghdad/College of Engineering

Electronic and Communication Engineering Department

Work Institutions Opinion Questionnaire about Graduates of Baghdad University

Score		1	2	3	4	5
No.	Question	**StronglyAgree**	**Agree**	**IDon'tKnow**	**Disagree**	**IDon'tAgreeAtAll**
1	Has sufficient knowledge and information related to employment issues	3	12	2	3	-
2	Has sufficient skills related to employment issues	3	10	1	6	-
3	Possesses the skills of social communication with customers	3	11	2	4	-
4	Have written communication skills (writing the required reports are properly)	5	12	2	1	-
5	Possesses the skills of research and analysis in the affairs of the work	4	10	4	2	-
6	Possess critical thinking skills and the ability to solve problems	3	13	1	3	-
7	Possesses the skills of teamwork	3	12	3	2	-
8	Has the skills to work within the team	3	13	3	1	-
9	Possesses the skills of planning and organization for work	4	12	2	2	-
10	Has the ability of high productivity at work	4	10	3	3	-
11	Has the quality of work performance piece	7	11	1	1	-
12	Has the capacity to creativity, innovation and work development	4	9	4	3	-
13	Has the ability to comply with the various conditions of the work	6	10	3	1	-
14	Has the ability to take responsibility	8	9	1	2	-

15	Possesses the skills of social interaction with colleagues	7	8	4	1	-
16	Has the ability to accept guidance and ready for implementation	6	11	1	2	-
17	Has a sense of the importance of work performed by	7	12	1	-	-
18	Has the ability to audit and review the work assigned to him	6	12	1	1	-
19	Has the ability to deal with the problems and difficulties of working with	7	9	-	4	-
20	Has the capacity to follow up on any up-dates in the field of work	7	11	1	1	-

Figure (2.1): Labor Institutions Opinion Questionnaire about Graduates of ECE-Program

2.2. Criterion 2: Graduate Outcomes

2.2.1 Adopted Graduate Outcomes

The main adopted Graduate Outcomes by ECE are:

a. An ability to distinguish, identify, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics.
b. An ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process.
c. An ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences.
d. An ability to skill fully communicate orally with a gathering of people and in writing with various managerial levels.
e. An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequnces in worldwide financial, ecological and societal considerations.
f. An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly.
g. An ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty.

2.2.2. Relating GOs to PEOs

The tight correlation between graduate outcomes and program educational objectives is illustrated in Table (2-1). By meeting the program's outcomes students gain the tools necessary to join the

professional world. These skills in turn allow graduates to achieve the program's educational objectives by succeeding after graduation and reaching their long-term goals.

Table 2.1: Correlation between graduate outcomes and program education objectives

PEOs	GOs						
	a	b	c	d	e	f	g
PEO1	X	X	X	X	X	X	X
PEO2	X	X	X		X		
PEO3				X	X		
PEO4			X			X	
PEO5						X	X
PEO6							X
PEO7			X			X	
PEO8							X
PEO9							X
PEO10							X

2.3. Criterion 3: Curriculum

2.3.1 Program Structure and Content

The curriculum requirements specify subject areas appropriate to engineering but do not prescribe specific subjects. The professional component must include:

a. A combination of mathematics and basic sciences general education component (some with experimental experience) appropriate to the discipline.

b. Engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study.

c. A general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

2.3.1.1 Program Curriculum

The Bachelor of Science (B. Sc.) in Electronics and Communications Engineering is a four years program and it is a one branch specialization.

2.3.1.2 Credit Hour Distribution

The curriculum subjects and weights of the Electronics and Communication Department are shown in Tables (2.2) and Figure (2.2).

Table (2.2): B.Sc. Degree Curriculum of ECE

FIRST YEAR		
CODE	**SUBJECT**	**UNITS**
GS101	HUMAN RIGHTS	2
GS102	ENGLISH LANGUAGE I	2
GS103	COMPUTER I	2
GS104	SPORT EDUCATION	Sat.
ECE101	MATHEMATICS I	6
ECE102	LOGIC CIRCUITS	4
ECE103	ELECTRONICS I	6
ECE104	COMPUTER PROGRAMMING I	4
ECE105	ELECTRICAL CIRCUITS I	6
ECE106	ENERGY CONVERSION	3
ECE107	WORKSHOP OF ELECTRONICS	2
ECE108	ELECTRICAL MEASUREMENTS LAB.	3
SECOND YEAR		
CODE	**SUBJECT**	**UNITS**
GS201	ARABIC LANGUAGE	1
GS202	ENGLISH LANGUAGE II	2
GS203	COMPUTER II	2
GS204	SPORT EDUCATION	Sat.
ECE201	MATHEMATICS II	6

ECE202	COMPUTER PROGRAMMING II	4
ECE203	ELECTROMAGNETIC FIELDS	4
ECE204	ELECTRONICS II	6
ECE205	COMMUNICATION THEORY I	4
ECE206	ELECTRICAL CIRCUITS II	2
ECE207	COMPUTER ARCHITECTURE	4
ECE208	ELECTRONICS LAB.	2
ECE209	COMMUNICATION LAB.	2
THIRD YEAR		
CODE	**SUBJECT**	**UNITS**
GS301	ENGLISH LANGUAGE III	2
GS302	SPORT EDUCATION	Sat.
ECE301	DIGITAL SYSTEM DESIGN	4
ECE302	ENGINEERING ANALYSIS	4
ECE303	PROBABILITY AND STATISTICS	2
ECE304	ANTENNAS AND PROPAGATION	4
ECE305	COMMUNICATION THEORY II	6
ECE306	ELECTRONICS III	6
ECE307	POWER ELECTRONICS	2
ECE308	CONTROL THEORY	4
ECE309	ELECTRONICS AND COMMUNICATIONS LAB.	3

ECE310	COMPUTER AIDED DESIGN	2
FOURTH YEAR		
CODE	**SUBJECT**	**UNITS**
GS401	ENGLISH LANGUAGE IV	2
GS402	SPORT EDUCATION	Sat.
ECE401	ENGINEERING PROJECT	4
ECE402	MICROWAVES	4
ECE403	DIGITAL SIGNAL PROCESSING	4
ECE404	DIGITAL COMMUNICATIONS	6
ECE405	COMPUTER NETWORKS	4
ECE406	COMMUNICATION ELECTRONICS	4
ECE407	OPTICAL FIBER COMMUNICATIONS	4
ECE408	INFORMATION THEORY AND CODING	4
ECE409	EMBEDDED SYSTEMS	2
ECE410	ELECTRONICS AND COMMUNICATIONS LAB.	2
ECE411	MICROWAVES LAB.	1
ECE412	COMPUTER NETWORKS LAB.	1

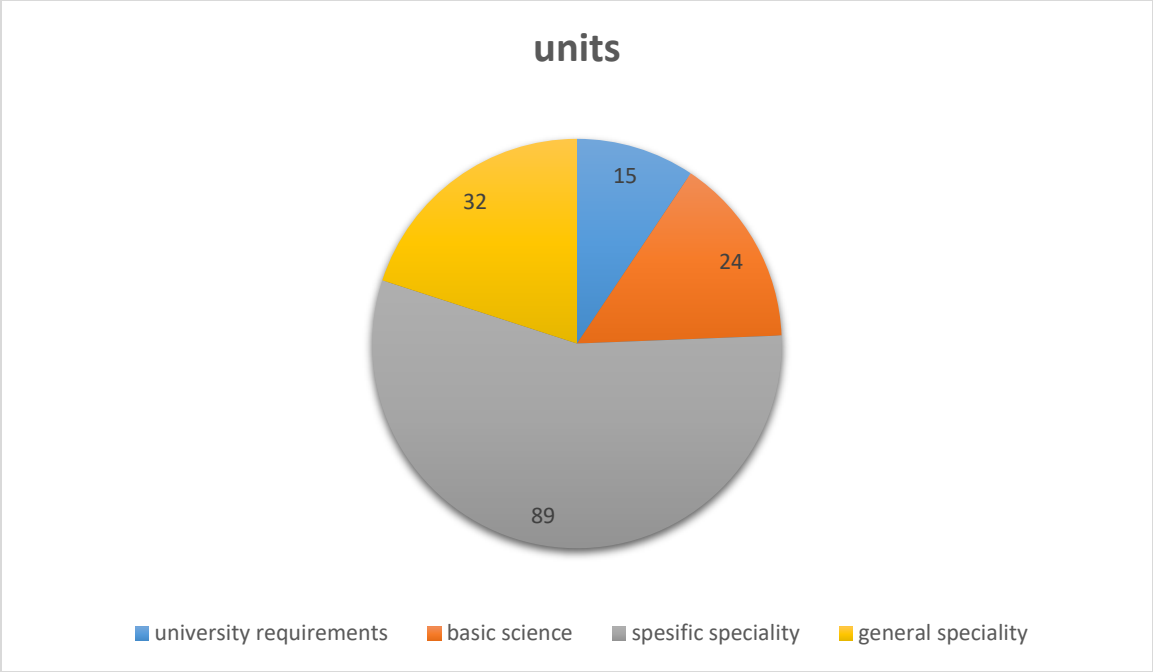


Figure (2.2): B.Sc. Degree Curriculum of ECE distribution

The program's credit hours and curricular components distribution are summarized in Table (2.3).

Table (2.3): ECE Curriculum \ Credit Requirements

Type	University Requirement	Basic Science	Specific Specialty	General Specialty
Units	15	24	89	32
Percentage	9.375 %	15 %	55.625 %	20 %

2.3.1.3 Requirements for Bachelor of Science in Electronics and Communications Engineering

The curriculum subject in the ECE program can be grouped in the following groups
1- Mathematics (4 subjects, 18 units)
2- Programming (5 subjects, 14 units)
3- Electronics (13 subjects, 49 units)
4- Communications (14 subjects, 50 units)
5- General Electrical (5 subjects, 18 units)
6- Humanities (10 subjects, 11 units)

Figure (2.3) shows the detailed distribution of the subject groups for the electronics and communications program. The Electronics and Communications Engineering program subjects develop the knowledge and skills that will enable students to:

- Apply basic mathematical and scientific concepts for the description and solution of engineering problems,
- Develop initial proficiency in electronics engineering disciplines,
- Develop the ability to conduct experiments, and critically analyze and interpret data,

- Perform electronics and communications engineering integrated design of systems, components, or processes using practical experiences (group projects),
- Identify, formulate, and solve electronics and communications engineering problems using modern engineering tools, techniques, and skills,
- Collaborate in group projects,
- Develop their written and oral communication skills through presentations of project results,
- Acquire an appreciation for some of the ethical problems that arise in the exercise of the profession.

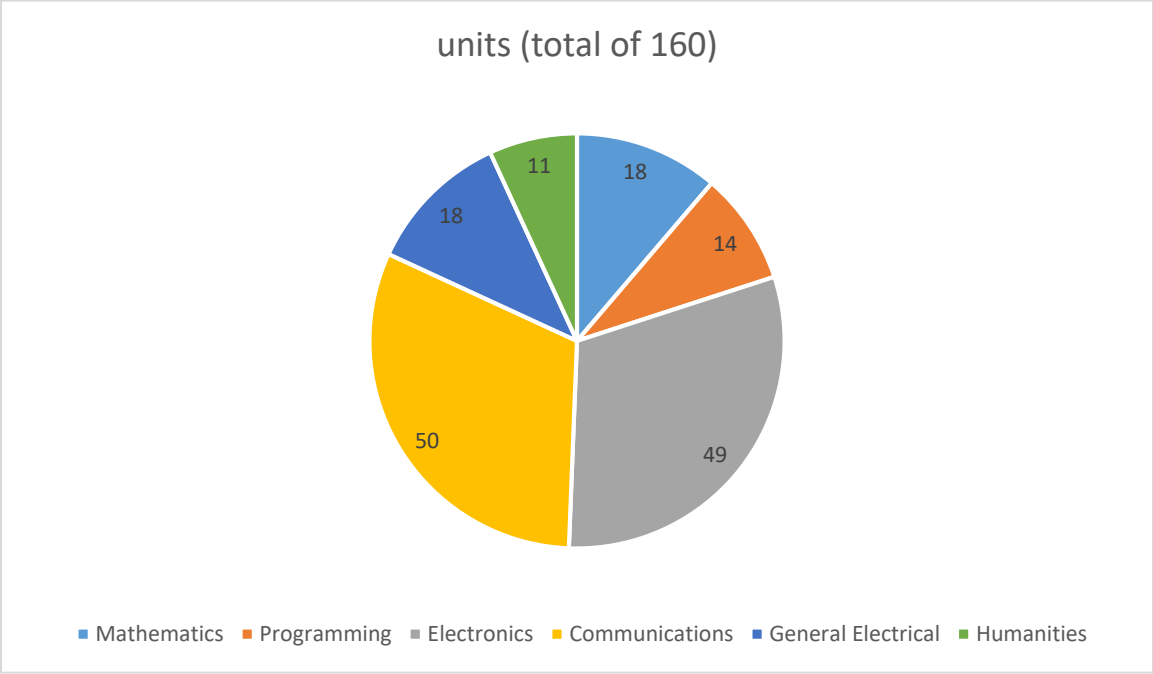


Figure (2.3): Detailed Distribution of Subject Groups of ECE Program

2.3.1.4 Summer Training

The Electronics and Communications Engineering curriculum requires students to complete thirty days of summer training at private industries or governmental firms. This training is a compulsory component of graduation requirements. It is supervised by the Summer Training Committee of the department.

2.3.2 Allignment of the Curriculum with the Program Educational Objectives (PEOs)

The faculty has complete authority to define, revise, implement, and achieve program educational objectives. Input is required from the students, alumni, and the employers of our alumni in the implementation of program objectives. The major role of the faculty is to create, revise, and evaluate subjects for the program as well as define and revise program educational objectives and ensure achievement of student outcomes. Therefore, the above process ensures alignment of the curriculum with Program Educational Objectives as shown in various tables. The electronics and

communications faculty ensures that the students receive all the engineering analysis within the context of engineering program. At our faculty meetings, the curriculum subjects are continuously reviewed and if needed revised to the requirements ns of the electronics and communications industry.

2.3.2.1 Curriculum Relationship to the Graduate Outcomes

The learning outcomes of the curriculum are mapped to the Program Outcomes with a level of emphasis being Low (L), Medium (M), or High (H). The level of emphasis of a program outcome is determined by the weight used for assessing the outcome in each subject. The level of emphasis for an outcome is determined by the weight as follows:

- When the subject outcome weight is < 10%, it will be given a Low rank (L).
- When the subject outcome weight is between 10% and 20% it will be given a Medium rank (M).
- When the subject outcome weight is > 20% it will be given a High rank (H).

The learning outcomes are

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

Mapping between the program learning outcomes to the curriculum courses of ECE is shown in table (2.4).

Table (2.4): Required Subjects and Their Emphasis on Program Outcomes

Year	Outcome		a	b	c	d	e	f	g	h	i	j	k
	Subject No.												
1st Year	GS101	HUMAN RIGHTS							M				
	GS102	ENGLISH LANGUAGE I							H				
	GS103	COMPUTER I	L										
	ECE101	MATHEMATICS I	H										
	ECE102	LOGIC CIRCUITS		L									
	ECE103	ELECTRONICS I					H					M	

	ECE104	COMPUTER PROGRAMMING I					L				M	L	
	ECE105	ELECTRICAL CIRCUITS I					M						
	ECE106	ENERGY CONVERSION						M					
	ECE107	ENGINEERING DRAWING									M		
	ECE108	WORKSHOP OF ELECTRONICS		M									
	ECE109	ELECTRICAL MEASUREMENTS LAB.		H		L							
2nd Year	GS201	ARABIC LANGUAGE							H				
	GS202	ENGLISH LANGUAGE II							H				
	GS203	COMPUTER II	L										
	ECE201	MATHEMATICS II	H										
	ECE202	COMPUTER PROGRAMMING II									H	L	
	ECE203	ELECTROMAGNETIC FIELDS	M									M	
	ECE204	ELECTRONICS II					H					M	
	ECE205	COMMUNICATION THEORY I										M	
	ECE206	ELECTRICAL CIRCUITS II					M						
	ECE207	COMPUTER ARCHITECTURE		L	L								
	ECE208	ELECTRONICS LAB.		H		M							
	ECE209	COMMUNICATION LAB.		H		M							
3rd Year	GS301	ENGLISH LANGUAGE III							H				
	ECE301	DIGITAL SYSTEM DESIGN			H					M	L		H
	ECE302	ENGINEERING ANALYSIS	H										
	ECE303	PROBABILITY AND STATISTICS	M										
	ECE304	ANTENNAS AND PROPAGATION			M		H					L	
	ECE305	COMMUNICATION THEORY II			L		M			L		M	
	ECE306	ELECTRONICS III			H		H					M	
	ECE307	POWER ELECTRONICS			M		M						
	ECE308	CONTROL THEORY	M					M				L	
	ECE309	ELECTRONICS AND COMMUNICATIONS LAB.		H		M							
	ECE310	COMPUTER-AIDED DESIGN		H									M
4th Year	GS401	ENGLISH LANGUAGE IIII							H				

	ECE401	ENGINEERING PROJECT			H	H	M		H				M
	ECE402	MICROWAVES					L	M				M	
	ECE403	DIGITAL SIGNAL PROCESSING	L										
	ECE404	DIGITAL COMMUNICATIONS			M		H			M		H	
	ECE405	COMPUTER NETWORKS					M						
	ECE406	COMMUNICATION ELECTRONICS			H		H		M	M		H	
	ECE407	OPTICAL FIBER COMMUNICATIONS					L	M				M	L
	ECE408	INFORMATION THEORY AND CODING	M										
	ECE409	EMBEDDED SYSTEMS			H						H	M	
	ECE410	ELECTRONICS AND COMMUNICATIONS LAB.		H		M							
	ECE411	MICROWAVES LAB.		H		L							
	ECE412	COMPUTER NETWORKS LAB.		H									M

2.3.3 SWOT Analysis

Figure (2.5) shows the SWOT analysis for the curriculum of the department.

STRENGTHS (INTERNAL)	**WEAKNESSES (INTERNAL)**
1. Designed to meet both local needs and international standards. 2. Strong engineering science components. 3. Availability of a good variety of general education subjects. 4. A well structured laboratory experience. 5. A strong professional component.	1. Central control of curriculum development by the sectoral committee in the ministry, and the possibility of changes in the curriculum only in a limited rate. 2. Lack of attention to give courses in English, especially in the scientific discussion within the classroom. 3. The style of the given curriculum tends to make the student recipients and not learner. 4. Lack of allocation enough credit hours to acquire good skills in computer programs that needed for the electronics and communications engineer. 5. Lack concentration of curriculum to teach students to work in team.
OPPORTUNITIES (EXTERNAL)	**THREATS (EXTERNAL)**
1. Emerging technologies. a. Technologies that does not require extensive industrial infrastructure. b. Information based technologies. 3. New trends in multi-disciplinary professional education and new teaching methods. a. Possibility of re-designing curriculum and by-laws to allow multi-disciplinary teaching and learning.	1. Quality of incoming students (language, analytical thinking, motivation).

b. Possibility of utilizing e-learning and distance education.	

Recommendations

-The control of curriculum development should be more flexible and controlled by the College generally.
-The curriculum should include the principal of team work.
-Strength the learning of modeling and computer program applications in most subjects.
- The faculty members should start updating the course portfolio.

4. Criterion 4: Continuous Improvement

The Electronics and Communications Engineering Department at University of Baghdad offers program leading to a bachelor's of Science degree in Electronic and Communication Engineering. A comprehensive assessment program to evaluate the program objectives and the student outcomes to improve the program on a continuous basis has been initiated. This document outlines the procedure with which the outcomes and objectives are assessed and the results are evaluated and then benchmarked against targeted goals and how the curriculum and/or program requirements are changed to meet these goals. The continuous improvement process is based upon the assessment, evaluation and comparison to targeted levels of performance and then feedback to changes in the curriculum.

2.4.1. Organize Information Used for the Program Improvement

Continuous improvement of the ECE program is a continuous task that is carried out by the ECE Department through the Scientific Committee and the specialized committees branched from it. Curriculum revisions or corrective actions proposed by either of the above committees are presented to all ECED faculty members in General Board meetings for discussion, review, and approval. The ECED faculty actively participates in board discussions leading to a finalized set of curriculum revisions and/or corrective actions.
The last major Cycle of Curriculum Assessment-Correction and development process was made in the academic year (2010-2011) and reviewed each academic year since then. It was carried out after a general and comprehensive review of the old curriculum and in response to the comments/assessment of the Scientific Committee and the specialized committees branched from it and the faculty members.

2.4.1.1. Actions to Improve the Program

Continuous improvement is the focus of our department and is done every day as a natural part of our profession. We strive always to improve processes that are weak and fix processes that are broken. We have not set "degrees of attainment" goals for each of the outcomes. We attempt to work on every deficit we uncover in our efforts to achieve outcomes. We expect every instructor to continuously improve the performance of students in his / her subjects, whether they are currently at a low or high level. The following specific actions have either been successfully implemented or are in process.

1. Comprehensive changes in curriculum in the academic year 2010-2011 and reviewed yearly.
2. Continuous improvement of faculty through training programs.

3. Promoting a number of faculty members to higher ranks.

4. Purchasing a number of laboratory equipment and instruments.

5. Purchasing a number of books for the library of the department.

6. Purchasing a number of computers.

7. Establishment of network access facilities provided by the Computer Center of Baghdad University in the form of a Wireless LAN network with 15 terminals available now in the department.

8. Increase in extra-curricular activities for students such as setting up scientific conferences and seminars.

9. Reconstruction and rehabilitation of classrooms and rooms in the department, as well as services and infrastructure.

10. Starting the electronics education in all subjects for all students using google classroom.

2.4.2. Review of Program Outcomes and Graduate Objectives

The program outcomes will be periodically reviewed (every other year) with the faculty and the related committees in the department. To support the program, the Department is planning to made questioners to different state offices, firms, companies and also private sector companies asking them about their opinions in the department graduates and their suggestions to improve the program.

2.4.3. Responsibilities of Assessment, Evaluation, and Continuous Improvement Process

Faculty members are responsible for writing the rubrics for embedded assessment and for determining level of acceptable performance. They are responsible for keeping track of the assessment and for offering changes to the program, if needed based upon the results of assessment.

The related Committees have been formed to perform a yearly internal audit of the continuous improvement process. These committees will meet annually. Action plans resulting from this annual meeting will be presented depending upon the action plan.

The College of Engineering developed a questioner process to make students aware of the correct procedures for being advised, this questioner process is shown in Figures (4-1) and (4-2) for the students opinion about curriculum and faculty, respectively.

Table (4-1): Students Opinion Questionnaire about Curriculum

Electronics and Communications Engineering Department

Students Opinion Questionnaire about Curriculum

Department: _____ Academic year: ___Classification (check one): 1 st ___ 2nd __ 3rd __ 4th ___

Curriculum Name: _____ Code No.: ___ Faculty member's name: ____ ____ ____

Dear Students: For the development of the educational process at the university, we hope to express your opinion by answering accurately with mark √ in the place which reflects your opinion taking into consideration the accuracy and objectivity.

Score		1	2	3	4	5
No.	Question	Strongly Agree	Agree	I don't know	Disagree	I don't agree at all
1	Overall, this Curriculum subject is good and useful					
2	Lecture time is sufficient to cover the contents of the article					
3	The content of article commensurate with the objective of Curriculum					
4	Subject content is an interdependent information					
5	Textbooks and references are available and meaningful					
6	available of References helpful for stimulate and thinking					
7	The book is free of grammatical errors Printing					
8	Contents of the book of outdated information					
9	The book contains a variety of examples and exercises					
10	The evaluation of the subject system is appropriate (test method)					
11	Exams reflect the content of the subject					
12	Number of exams be exhaustive of the content subject					
13	Examinations and assignments helped to absorb the subject					
14	Examinations and exercises in line with the objective of subject					
15	Examinations and exercises help to think of more conservation					
16	Number of exams and the their recurrence appropriate					
17	The case of equipped lecture halls satisfactory					
18	Capabilities and laboratories appropriate and effective					

Table (4-2): Students Opinion Questionnaire about faculty member

Electronics and Communications Engineering Department

Students Opinion Questionnaire about Faculty Member

Department: _____ Academic year: ____ Classification (check one): 1 st ___ 2nd ___ 3rd ___ 4th ___

Curriculum Name: _____ Code No.: _____ Faculty member's name: ____ ____ _____

Is the plan of teaching the subject was distributed from the beginning of the semester? Yes_ No _ I don't know__

Is the faculty member is committed to the specific office hours of the subject? Yes_____ No _____ I don't know__

If the answer is (No) explained that_____

Dear Students: For the development of the educational process at the university we hope to express your opinion by answering accurately with mark √ in the place which reflects your opinion taking into consideration the accuracy and objectivity.

Score		1	2	3	4	5
No.	Question	Strongly agree	Agree	I don't know	Disagree	I don't agree at all
1	Has the ability to communicate scientific material in a smooth and easy way					
2	Keen to use the tools and techniques of modern education					
3	Illustrates the theoretical aspects in the subject with examples from the reality					
4	Gives the scientific material in a manner covering the time of the lecture					
5	Committed to the dates of lectures					
6	Improve in the management ranks and give equal opportunities to students in dialogue and discussion					
7	Motivates students and encourages them to think and research					
8	Puts exam questions clearly					
9	Corrects test papers and return them back to students					
10	Follow up activities and duties to put the evaluation weights					
11	Talks about issues outside the scope of the scientific method					
12	The relationship between Lecturer and students based on mutual respect and taking their views and suggestions					
13	The Lecturer has a special personality					

2.4.3.1. Data Collection and Analysis

1. Direct assessment data

- Will be collected during the academic year and analyzed at the end of each academic year.
- Analysis will be discussed by faculty.
- Department head will be seeing the inputs after the initial analysis of data by faculty, depending upon the level of action.

2. Indirect assessment data

- Will be collected on a proposed timescale.
- The analysis will be performed by the related committees.

- Analysis will be discussed with the faculty, the Department Head, and depending upon the situation, students, and suggested action will be solicited and implemented.

2.4.4. Actions to Improve the Department

Continuous improvement of the program is the main goal in the department and that achieved through the followings:

-It is expected from the instructors to continuously improve the performance of students in his / her subjects.

-Continuous improvement of faculty through training programs.

-Purchasing a laboratory equipments and instruments.

-Purchasing books for the library of the department.

-Purchasing computers.

-Increase in activities for students such as setting up scientific conferences and seminars.

-Increase the activities of the faculty such as setting up scientific conferences, lectures, meetings, workshops and seminars

SWAT Analysis

Strength

-The Department started the assessment, evaluation, and continuous improvement process

- The course portfolio preparation started through lectures and continuous advising to the faculty by the QA committee in the Department and the Dean office.

Weakness

-There are weaknesses as shown in Figure (4-1) in two points related to the correction of the tests and the use of the tools and techniques in teaching and learning.

-The lack for more smart boards in the classrooms.

- Lack of large classrooms (with a proper area) where the original classrooms which are large enough for an expected increase in the number of enrolled new student during the next years. The old classroom are donated to the newly established Aviation Engineering Department by the Dean Office. The new classrooms too small to accommodate the number of student in the second, third and fourth years.

Opportunities

-The College provided each Department with some Data show, although the Department needs more tools.

- The continuous encourage and support of the Dean office and the Dean personally to the Departments.

-The continuous support of the University and the Ministry of Higher Education and Scientific Research.

Threats

-The lack in the financial support for establishing modern laboratories particularly for the research laboratories.

-The lack of tools, instruments, and modern techniques used in teaching and learning like smart boards.

- The Lack of large classrooms to accommodate then number of present students in different years.

Recommendations

-There is a serious interest to solve these weaknesses through the instructions from the Dean sent to each Department some of these instructions are: returning the exam papers to the students after few days and explain the answers in the class. For the second weakness there will be training for each Department in the College by experts to introduce the new techniques of teaching and learning to the faculty members and encourage the faculty members to use them.

- The Department must get back the old classrooms because the Department is in a critical status.

-Increase the financial support for the Department..

2.5. Criterion 5: Students

2.5.1 Students Admissions

An applicant for admission to an undergraduate program of Electronics and Communications (ECE) at the ECE Dept. must satisfy the following minimum requirements:

- He / She should have an Iraqi secondary school certificate, or its equivalent, and majored in natural or technological sciences.
- Acceptance is entirely controlled by the Ministry of Higher Education and Scientific Research.
- The distribution of students to the 15 engineering departments of the college of engineering, including the ECE Department, is made according to the capacity plan of the departments and the rating average of the applicants and their wishes. The capacity plan of the ECE Department in the last three years was 40 students but the overall acceptance was 29 students.
- Also included a plan to accept the top students from Technical Institutes Foundation, and the outstanding employees from state institutions and ministries.
- The applicant must submit the required documents within a specified period.
- An applicant who has graduated from a high school system outside Iraq must have completed twelve years of combined elementary and high school studies from a recognized school. He is also required to provide an equivalency certificate from the Iraqi Ministry of Education.

Table 5.1 shows the history of admissions standards of student enrollment trends over the past five years of (ECE) Bachelor's degree program.

Table (5.1): History of Admissions Standards for Past Five Years

Academic Year	Composite Score		Number of New Students Enrolled	Transfer Students	Number of Graduates
	Minimum.	Average			
2015-2016	90.20	94.12	36	11	32
2016-2017	89.14	93.03	48	10	21
2017-2018	89.7	92.95	45	6	25
2018-2019	86.58	89.38	35	5	25
2019-2020	90.85	93.78	32	3	9

Academic Year	Percentile Rank in High School (min)	Percentile Rank in High School (average)	Plan to accept students	Number New Students Enrolled	Female to male ratio	Number Transfer Students Enrolled	Number of Graduated Students
2019-2020	90.85	91.98	45	32	8:24	3	9
2018-2019	86.58	89.75	45	35	11:24	4	25
2017-2018	89.7	90.41	30	45	18:27	9	25
2016-2017	89.14	91.64	30	48	18:30	9	21
2015-2016	90.20	90.44	30	36	15:21	14	32

Our data from the last five years tells us that approximately 12 %) of our undergraduate students enrolled from institutes. Approximately (5 %) transferred from other major engineering departments. Approximately, (10 %) of the enrolled students were transferred from the department.

2.5.2 Evaluating Student Performance

Student performance in each subject is evaluated by the faculty member, culminating with the assignment of a grade for that subject. The number and types of graded assignments vary according to what is most appropriate for the subject in question. These assignments are generally a combination of examinations, quizzes, homework, and/or laboratory reports. Projects and/or oral presentations are required for some subjects. Certain assignments are graded by a group of faculty or instructors. For example, at the end of the senior year, the student presents a final written graduation project report. The student also gives an oral presentation of his / her project work, and answer questions on it.

2.5.2.1 Educational Programs / Credit Hour Definition

The department follows the university wide standard definition of a credit hour. (ECE) program has an annual system of study which is followed for all subjects. Excluding the final examination week, one semester credit hour represents one class hour per week with a stipulated duration of 50 minutes. Based on the definition of a 30-week per year, a typical three-credit hour class consists of 90 hours of contact hours.

2.5.2.2 Participants and Graduation Trends

Table (5.2) shows participants and the percentage of success for each class over the past five years of (ECE) Bachelor's degree program.

Table (5.2): History of participants and the percentage of success for each class over the past five years of (ECE) Bachelor's degree program

Academic Year	Number of Participants Students/Percentage for Success %				
	1st year	2nd year	3rd year	4th year	total
2015-2016	26/76.9	41/70.7%	33/75.7%	32/96.8%	132/79.9%
2016-2017	20/60%	25/84%	26/96%	26/80.7%	97/80%
2017-2018	23/57.5%	8/37.5%	25/84%	29/86.2%	85/66%
2018-2019	34/70.5%	27/70.4%	11/72.7%	26/96.2%	98/77.6%
2019-2020	35/82.8%	30/96.6%	24/87.5%	9/100%	98/89.8%

2.5.2.3 Monitor the Progress of Students

A student's progress is monitored by faculty advisors and the Registration Committee, they turn in final grades at the end of the academic year to the Examining Committee, and each student's transcript is checked to ensure that he/she remains in good academic standing. Grades are also forwarded to advisors, to assist them in monitoring student progress.

To enable the student to follow the curriculum and study vocabulary and assimilated well, he/she must abide by the attendance regularly and not repeat his absence of classes so as not to exceed the percentage specified (15% of the total number of hours during the year).

2.5.3. Advising of Students

Full-time faculty members in the ECE Department advise students. Table 5.3 show the ratio of the (106) number of students to the faculty members and their qualifications during the academic year (2019-2020). While Figure 5.4 show the percentage of faculty members and their qualifications to the (106) number of students for the same year.

Table (5.3): Number of Faculty Members / 109 Students for the Last Five Academic Year

Academic Year	Number of Students	Number of Students per 1 faculty member (Ph.D.)	Number of Students per 1 faculty member (MSc.)
2019-2020	**106**	**8.83**	**11.77**
2018-2019	**109**	**9.08**	**12.11**
2017-2018	**112**	**16**	**11.2**
2016-2017	**122**	**24.4**	**12.2**
2015-2016	**134**	**22.33**	**14.88**

Table 5.4: Ratio of the faculty members and their qualifications to the number of students

	Number of ECE Department Members						Total
	Degree		Scientific Rank				
	Ph. D.	M. Sc.	Prof.	Assist. Prof.	Lect.	Assist. Lect.	
	12	**9**	**1**	**2**	**14**	**4**	**21**
Percentage of 106 students	**11.32%**	**8.49%**	**0.94%**	**1.88%**	**13.2%**	**3.77%**	**19.81%**

2.5.3.1 Opinion of Students

During the period of the academic year, the student is required to meet with faculty members and to review his/her progress. The Department of ECE determined that a standardized advising process needed to be developed and posted to make students aware of the correct procedures for being advised, this proposal process is shown in Figures (5.1) and (5.2) for the students' opinion about curriculum and faculty, respectively

University of Baghdad / College of Engineering
Electronics and Communications Department
Students Opinion Questionnaire about Curriculum
Academic Year
Code No. & Curriculum Name: ***Year:***

Faculty Member's Name:

Dear Students: For the development of the educational process at the university, we hope to express your opinion by answering accurately with mark √ in the place which reflects your opinion taking into consideration the accuracy and objectivity

Score		1	2	3	4	5
No.	Question	**Strongly Agree**	**Agree**	**I Don't Know**	**Disagree**	**I Don't Agree At All**
1	Overall, this Curriculum subject is good and useful					
2	Lecture time is sufficient to cover the contents of the article					
3	The content of article commensurate with the objective of Curriculum					
4	Subject content is an interdependent information					
5	Textbooks and references are available and meaningful					
6	available of References helpful for stimulate and thinking					
7	The book is free of grammatical errors Printing					
8	Contents of the book are of outdated information					
9	The book contains a variety of examples and exercises					
10	The evaluation of the subject system is appropriate (test method)					
11	Exams reflect the content of the subject					
12	Number of exams be exhaustive of the content subject					
13	Examinations and assignments helped to absorb the subject					
14	Examinations and exercises are in line with the objectives of the subject					
15	Examinations and exercises help to think of more conservation					
16	Number of exams and the their recurrence are appropriate					
17	The case of equipped lecture halls satisfactory					
18	Capabilities and laboratories are appropriate and effective					

Figure (5.1): ECE Questionnaire Process: Curriculum

University of Baghdad / College of Engineering
Electronics and Communications Department
Students Opinion Questionnaire about Faculty Member
Academic Year
Code No. & Curriculum Name: ***Year:***
Faculty Member's Name:
Is the plan of teaching the subject was distributed from the beginning of the year? Yes No I don't know
Is the faculty member is committed to the specific office hours of the subject? Yes No I don't know

If the answer is (No) explained that_____

Dear Students: For the development of the educational process at the university, we hope to express your opinion by answering accurately with mark √ in the place that reflects your opinion taking into consideration the accuracy and objectivity.

Score		1	2	3	4	5
No.	Question	**Strongly Agree**	**Agree**	**I Don't Know**	**Disagree**	**I Don't Agree At All**
1	Has the ability to communicate scientific material in a smooth and easy manner					
2	Keep to use the tools and techniques of modern education					
3	Illustrates the theoretical aspects in the subject with examples from the reality					
4	Gives the scientific material in a manner covering the time of the lecture					
5	Committed to the dates of lectures					
6	Improve in the management ranks and give equal opportunities to students in dialogue and discussion					
7	Motivates students and encourages them to think and research					
8	Respects the different views of the students					
9	Through self-learning encourages students to search for what is new and modern					
10	Accept criticism and suggestions with an open mind					
11	Be objective and fair in his / her evaluation of students					

12	Uses a variety of methods to assess the performance of students (such as reports, research, and quizzes(,					
13	Follow up activities and duties to put the evaluation weights					
14	Has the ability to discuss all issues of the subject					
15	Working to increase the knowledge of the outcome requested					

Figure (5.2): ECE Questionnaire Process: Faculty

2.5.4 Transfer Students and Transfer Subjects

Admission of transfer students is done centrally by the college through a committee chaired by the Assistant Dean for Student Affairs and worked according to laws and legislations made by the Ministry of Higher Education and Scientific Research MOHESR. The transfer students are subjected to a scientific cut-off for the subjects taken at their institutions or universities. The Scientific Committee of the Department converts the subjects from the other institutions to actual ECE subject numbers and posts them to the student's ECE transcript. Table (5.4) shows the number of transfer students enrolled in the department over the past three academic years.

Table (5.5): Transfer Students for Past Four Academic Years

Academic Year	Number of Transfer Students Enrolled
2014-2015	**10**
2015-2016	**10**
2016-2017	**12**
2017-2018	**4**
2018-2019	**0**
2019-2020	**0**

2.5.5 Graduation Requirements

To become eligible for a Bachelor of Science degree in an engineering program, a student must fulfill the academic status which includes the following requirements:

1. Passing the four academic years successfully within the maximum allowed period of study (6 years).
2. Passing the summer training successfully.

The College Records Office, Graduation Records and Examination Committees of the department maintain a complete file on the academic program and progress of each student. This file contains all academic records and related correspondence and documents for the student, including the following:

- Transcript, updated at the completion of the senior year with 51 Subjects and 160 Units.
- Computer-generated degree audit sheet tailored to the Electronics and Communications Engineering curriculum, which shows subjects completed in required categories and separate sections detailing math and science, humanities, engineering major, and other credits.

- Copies of all correspondence of an academic nature with the student, including letters of admission to the College of Engineering.
- Any exceptions to the rules filed by the student and any action taken on those exceptions.
- Any comments or instructions included by the student's faculty advisor, department chair, Engineering Records Office, or another pertinent source.
- Any supplementary information used in transcript evaluations of transfer credit.
- Staff of the Department maintains all files and other pertinent records for the academic program. They also provide assistance in reviewing files to ensure that students are following their program and meeting any conditions of their enrollment, such as reduced hours for students on probation.

2.5.5.1. Degree Check

The department head meets with some graduating students to evaluate his / her academic record during the study period. Table (5.6) shows the Total Credits Required for Graduation**.** This evaluation also ensures that the ECE program criteria are fulfilled.

Table (5.6): Total Credits Required for Graduation

Class	No. of Subjects	No. of Units	Number of Hours/ Week			
			Total	Theory	Tutorial	LAB
1st Year	12	40	31	15	7	9
2nd Year	13	39	31	15	8	8
3rd Year	12	39	30	17	8	5
4th Year	14	42	31	18	7	6
Total	51	160	123	65	30	28

2.5.5.2 Enrollment and Graduation Trends

Table (5.6) and figure (5.3) show enrollment trends for the last five academic years

Table (5.6): Enrollment Trends for Past Five Academic Years

Academic Year	Full-Time Students	No. of Graduates
2015-2016	134	32
2016-2017	122	21
2017-2018	112	25
2018-2019	109	25
2019-2020	106	9

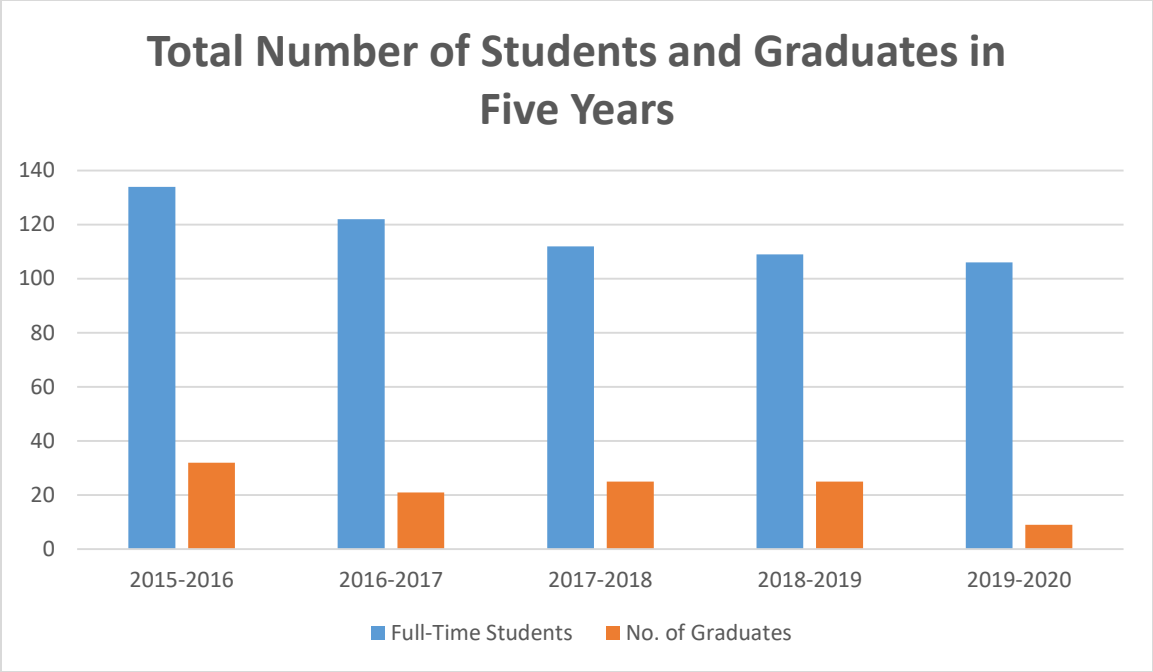


Figure (5.3): Total Number of Students and Graduates in Five Years

2.5.6 SWOT Analysis

Figure (5.4) shows the SWOT analysis for the students of the department.

STRENGTHS (INTERNAL)	WEAKNESSES (INTERNAL)
1. A very good experience in academic education for a good number of faculty members. 2. Many faculty members joined scholarship programs abroad for Ph. D. degree studies. 3. A very good number of young and dynamic faculty members. 4. Good relationships between employees and students of the department	1. Deficiencies in certain outcomes in graduating students. • Communication skills. • Design / real world applications. • Contemporary technical and economic issues. • Impact of engineering solutions in a global and societal context. 2. Quality and quantity of current students. • The lack of motivation to excel. • The culture of being "spoon-fed". • Inadequate language preparation. • Inadequate training in critical or analytical thinking. 3. Inappropriate mode of teaching. • Inadequate classroom assets and facilities. 4. a Large number of students' admissions compared to the department capacity.
OPPORTUNITIES (EXTERNAL)	**THREATS (EXTERNAL)**
1. Emerging technologies. • Technologies that do not require extensive industrial infrastructure. • Information based technologies. 2. New trends in multi-disciplinary professional education and new teaching methods.	1. Competition (local, regional and global). • Emerging local and regional private colleges. • Accessibility of international schools via distance education. • Weaknesses in the general level of scientific awareness of society.

• Possibility of re-designing curriculum and by-laws to allow multi-disciplinary teaching and learning. • Possibility of utilizing e-learning and distance education. 3. The presence of government financial support for official universities	3. Quality of incoming students (language, analytical thinking, motivation). 4. Instability of the country situation (political, security, economic... etc.)

Figure (5.4): SWOT Analysis for Students of Electronics and communications Engineering Program

Recommendations

-Improve the English language preparation for the undergraduate and graduate students. (There is a Committee in the College for achieving this)

-Support the graduated students financially.

-The need of scientific programs for the training of the students.

-Appreciating and caring for students with outstanding potential / achievements.

-Emphasizing a conductive environment for work, study, discussions and exchange of information.

-Develop and improve summer training.

-Improve teaching and learning through continuous assessment

-Continuous development of the Department infrastructure

-The Scientific Committee discussed holding a meeting for the alumni.

-Encourage the team work between students.

2.6. Criterion 6: Faculty

2.6.1 Faculty Qualifications

This article describes the qualifications of the faculty and how they are adequate to cover all the curricular areas of the program and also meet any applicable program criteria. The faculty research and areas of interest are explained in Table (6.1).

Table (6.1): Faculty Research and Areas of Interest

No	Faculty Member	Rank	Degree	The institution from which Highest Degree Earned \ Year	Teaching, Research and Areas of Interest
1	Jafar Wadi Abdulsadah	Prof.	Ph. D.	Antonino-Brno - Czechoslovakia/ 1984	Signal Processing and Communications
2	Oday Abdul Latif	Assist. Prof.	Ph. D.	Energy Institute – Russia/2005	Digital Systems Design and Microcontrollers
3	Mohammed Kasim M. Al-Haddad	Assist. Prof.	M. Sc.	Baghdad/ 1998	Electronics and Communications
4	Hussam Abdaldaem Mohammed	Lect.	Ph. D	UPM, Malaysia/ 2018	Optical Fibers and Communications, Optical sensors, Optical sensor networks

5	Yaman Ismael Majeed	Lect.	Ph. D.	Baghdad/ 2007	Electronics and Communications
6	Buthaina Mosa Omran	Lect.	Ph. D.	Baghdad/ 2007	Electronics and Communications
7	Basma Mohammed Sa'eed	Lect.	Ph. D.	Al-Nahrain/ 2007	Communications
8	Ghassan Nihad Jawad	Lect.	Ph. D	Manchester, UK/ 2017	Microwaves, Electronics and Communications
9	Bilal Rabah Noori	Lect.	Ph. D	Arkansas at Little Rock, USA / 2018	Telecommunications and Networking Engineering
10	Sinan Sabah Mahmoud	Lect.	Ph. D	UPM, Malaysia/ 2018	Nanoelectronics
11	Aqiel Ne'ama Za'ayan	Lect.	Ph. D.	Arkansas at Little Rock, USA / 2019	Telecommunications and Networking Engineering
12	Akeel Abdul Azeez	Lect.	Ph. D	UPM, Malaysia/ 2019	Control and Robotics
13	Haifaa Mohammed Husein	Lect.	Ph. D	Malaysia/ 2018	Electrical Engineering
14	Zainab Noori Ghanim	Lect.	M. Sc.	Baghdad/ 1999	Electronics and Communications
15	Malath Salah Al Deen	Lect.	M. Sc.	Baghdad/ 1999	Microprocessor and Programming
16	Ashwaq Abbas Abid	Lect.	M. Sc.	Baghdad/ 2000	Computer Networks and Communications
17	Ammar Abdulmajeed Radhi	Lect.	M. Sc.	Stuttgart-Germany/2012	Electronics and Communications
18	Zahraa Ali Jawad	Assit. Lect.	M. Sc.	Baghdad/ 2009	Programming, Electronics and Communications
19	Bashar Adil Stefan	Assit. Lect.	M. Sc.	Baghdad/ 2011	Microwaves, Electronics and Communications
20	Sadiq Fouad Kadhim	Assit. Lect.	M. Sc.	Baghdad/	Electronics and Communications
21	Suha Abdul Raheem Jhawaja	Assit. Lect.	M. Sc.	Baghdad/	Electronics and Communications

2.6.2 Faculty Workload

The number of ECE department faculty members remained through the last 10 years relatively small compared to the number of students enrolled. That makes the workload for each faculty member much heavier than faculty members in other departments. Still, the faculty members of the ECE department accept the challenge and deliver their best effort to fulfil their duties both in academic side and administrative side. The course load is distributed in accordance with faculty rank; that is; 8 credit hours maximum for Professor, 10 credit hours maximum for an Assistance Professor, 12 credit hours maximum for Lecturer, and 14 credit hours maximum for Assistance Lecturer. The faculty workload for the fulltime of academic year 2019-2020 is shown in Table (6.2). The table also shows the distribution of faculty activity.

Table (6.2): Faculty Teaching Load Summary (Academic Year 2018-2019)

No.	Faculty Member Name	Classes Taught (Course No. /Credit Hrs.)	Program Activity Distribution%		
			Teaching	Research	Administrative
1	Jafar Wadi Abdulsadah	ECE203 (4)	40%	30%	30%
2	Oday Abdul Latif	ECE301 (4), ECE409 (2), ECE410 (2)	40%	30%	30%
3	Mohammed Kasim Al-Haddad	ECE201 (6), ECE209 (2), GS401 (2)	50%	30%	20%
4	Husam Abdaldaem Mohammed	ECE103 (6) ECE107 (2) ECE407 (4)	50%	25%	25%
5	Yaman Ismael Majeed	5 years Leave	-	-	-
6	Buthaina Mosa Omran	ECE105 (6), ECE108 (3) ECE404 (6)	60%	20%	20%
7	Basma Mohammed Sa'eed	ECE303 (2) ECE309 (3) ECE408 (4)	60%	10%	30%
8	Ghassan Nihad Jawad	ECE304 (4) ECE402 (4) ECE411 (1)	50%	25%	25%
9	Bilal Rabah Noori	ECE101 (6) ECE405 (4) ECE412 (1)	50%	25%	25%
10	Sinan Sabah Mahmoud	ECE206 (2) ECE302 (4)	40%	10%	50%
11	Aqiel Ne'ama Zaaian	ECE403 (4)	30%	10%	60%
12	Akeel Abdul Azeez	ECE308 (4), ECE310 (2), ECE406 (4)	50%	10%	40%
13	Haifaa Mohammed Husein	GS102 (2), GS103 (2), GS202 (2), GS203 (2), GS301 (2)	80%	10%	10%
14	Zainab Noori Ghanim	ECE204 (6) ECE208 (2) ECE306 (6)	80%	10%	10%
15	Malath Salah Al Deen	ECE102 (4) ECE207 (4)	80%	10%	10%
16	Ashwaq Abbas Abid	ECE205 (4) ECE305 (6)	80%	10%	10%
17	Ammar Abdulmajeed Radhi	Study Leave	-	-	-
18	Zahraa Ali Jawad	ECE106 (3)	80%	10%	10%
19	Bashar Adil Stefan	ECE307 (2)	80%	10%	10%
20	Sadiq Fouad Kadhim	ECE106 (3) ECE310 (2) ECE403 (4)	80%	10%	10%
21	Suha Abdul Raheem Jhawaja	ECE104 (4), ECE202(4) ECE207 (4)	80%	10%	10%

2.6.3. Faculty Size

The number of faculty members in ECE Department for the academic year 2019-2020 is (21). It is a challenge to teach the required courses and also to perform other tasks related to program assessment and continuous improvement in addition to administrative tasks assigned by the

department. There are 12 faculty members with Ph. D. degrees and 9 faculty members with M. Sc. Degrees. By gender, there are 13 males and 8 females faculty members. By academic rank there is 1 Full Professor, 2 Assistant Professor, 14 Lecturers and 4 Assistance Lecturer.

2.6.3.1 Interactions with Students

At ECE Department, quality teaching and student interactions are emphasized. All faculty members maintain regular posted office hours, and most have an open-door policy; supervise senior design project teams, requiring regular weekly meetings with the students; and many serve as advisors to undergraduate research projects. Faculty members also serve as advisors for professional societies requiring meetings attendance, advising student leaders, and travelling with students to regional and national conferences and competitions.

2.6.3.2. Interactions with Industry and Government

The department contributed over many years in providing services to several different state offices and the private sector as well. These services have included a variety of activities including engineering consultancy, to conduct preliminary and final designs, check designs, supervision of project implementation, organizing courses and developmental courses of continuing education, research and evaluation of patents, contract research for postgraduate students with state offices, and other activities.

2.5.4. Student Advising

Freshman advising is handled by the Committee of Student Affairs in the Department of ECE. The Committee consisting of some members of the faculty is responsible for advising students. The faculty advises, motivates, and helps students with their professional development. There are occasions in which faculty members spend time with students outside the classroom on special projects and in undergraduate research activities. Students' advising is provided by all faculty members based on expertise and guidance as preferred by the student. This service is provided by all ECE faculties and it is offered voluntarily, with no academic release time.

2.6.5. Faculty Development

Faculty professional development activities include: attending seminars and lectures, participation in training workshops, attending professional conferences, professional writing activities, review activities, conducting new and original research, training programs inside and outside Iraq.

- **Leave of Absence (Study Abroad):**

An institutional program allows faculty who have not completed a Ph.D. degree and are in a tenure or tenure-track position to obtain an opportunity to study abroad. The ministry provides tuition, travel, and a monthly stipend. Those who are not in tenure-track positions also participate through temporary contracts with the same benefits. Many professors have successfully participated in this program and have been successfully retained at the department.

- **Center for Continuing Education**

The centre offers professional development courses and training to faculty and to recently admit graduate teaching assistants. All new faculty and graduate teaching assistants are required to take at least one year of training in their first year of work.

Faculty Development

The main responsibilities of the faculty member are:
– Adequate levels of student-faculty interaction.
– Student advising and counseling.

– University service activities.
– Professional development.
– Interactions with industrial / professional practitioners and employers of students.
- Must have competencies to cover all program curricular areas.
- Faculty must have appropriate qualifications.
- Faculty must have and demonstrate sufficient authority to ensure proper program guidance.

Develop and implement processes for the department is to:
- Evaluate.
- Assess.
- Continual improvement.
- Including educational objectives and outcomes.

The faculty overall competence may be judged by:
– Education.
– Diversity of backgrounds.
– Engineering experience.
– Teaching effectiveness and experience.
– Ability to communicate.
– Enthusiasm for developing more effective programs.
– Level of scholarship.
– Participation in professional societies.
– Licensure as Professional Engineers.

Faculty members are supported in several ways for professional development. Sabbatical leave is offered per the university guidelines.
New faculty members take part in a one month development program in University of Baghdad Development and continuous Education Center, in order to improve a quality & efficiency of education and Enhancing creativity and innovation, at all levels of education. The new faculty reviewed orally Committee before start teaching in the Department.

2.6.6. Authority and Responsibility of Faculty

The head of the department is appointed by the President of the University based on the recommendation of the Dean of the Faculty of Engineering. The authority of the department's head spans in general for four conductive years. At the end of four years, the authority can be extended or another faculty member is appointed to take his place. The department's head assigns the members and coordinators of the department and various committees. He distributes the administrative tasks and academic affairs to the designated department Committee. The department's head leads the department council meetings and represents the department at the college of engineering's council meetings. The Head of Department shall exercise scientific, administrative and financial authorities by which he can perform his job. Our full-time faculty responsibility includes teaching, research, institutional and committee services, and professional society services. Most of the department academic and the general program issues are taken care of by the relevant committees. Usually, course modification and evaluation is the main task of the scientific committee. However, a faculty member can initiate the creation of a new course. Major curriculum renovation is usually presented by the scientific committee at the department's General

Board meeting where each faculty member has the chance to interfere in the creation or modification process. The curriculum modification proposal is presented to the college of engineering curriculum committee for final approval.

2.6.7. SWOT Analysis

Figure (6.1) shows the SWOT analysis for the faculty of the department.

STRENGTHS (INTERNAL)	WEAKNESSES (INTERNAL)
1. A very good experience in academic education for a good number of faculty members. 2. A very good number of young and dynamic faculty members. 3. Excellent and versatile academic backgrounds. 4. Great loyalty and affiliation to the department, college and university for most faculty members. 5. Faculty salaries and wages are good compared to other categories of state employees, and to other universities in neighbouring countries. 6. A very well specifically defined responsibilities and authorities for all faculty members. 7. Large and continuous desire for development, and strong motivation for service for most faculty members of the department. 8. Good social relationships between faculty members of the department. 9. Good relationships between faculty members and students of the department.	1. Insufficient number of faculty members. 2. Faculty members overloaded with administrative tasks 2. Increasing proportion of new faculty with limited teaching experience due to inadequate training programs for development. 3. Large proportion of faculty with limited industrial and research experience. 4. Poor rehabilitation programs for faculty members. 5. Poor relationship with international research centers and academic institutions. 6. Insufficient funding for faculty development.
OPPORTINITIES (EXTERNAL)	**THREATS (EXTERNAL)**
1. Available faculty development opportunities. a) Institutional support for study abroad. b) Availability of international conferences, workshops, seminars etc. c) Possibility of utilizing local talent for teaching and research. 2. Emerging technologies. a) Technologies that do not require extensive industrial infrastructure. b) Information based technologies. 3. New trends in multi-disciplinary professional education and new teaching methods. a) Possibility of re-designing curriculum and by-laws to allow multi-disciplinary teaching and learning. b) Possibility of utilizing e-learning and distance education. 4. Good case for the security of the local community and environment. a) High proportion of demand for higher education in Iraq. b) High rate of population growth in Iraq.	1. Competition (local, regional and global). a) Emerging local and regional private colleges. b) Start the establishment of private universities in neighboring countries and the opening of branches in Iraq. c) Weaknesses in the general level of scientific awareness of society. 2. Declining interest in engineering. c. Lack of a sufficient number of quality students with a strong interest in engineering. d. Inadequate public awareness for the engineering profession and job opportunities. 3. Quality of incoming students (language, analytical thinking, motivation). 5. Instability of the country situation (political, security, economic... etc.). 6. Reduced financial support for a professor as a scientific researcher, leading to a reduction in the level of research, where publishing in international scientific journals is the basis for enhancing the reputation of the college and then the university to be in level of international universities.

5. The presence of government financial support for official universities	

Recommendations

-Support and encourage the training of the faculty members in the International Universities.
-Support the faculty members to contribute or attend the international conferences financially.
-Improve the IVSL (Iraq Virtual Science Library).
-Improve the Learning and Teaching skills of the faculty by following the modern methods of teaching (e.g., E-learning, using minute paper, and muddiest point paper, etc.).
-There must be an Advisory Institutes within the University or the College to improve the learning and teaching skills of the faculty members.
-Enhancing leadership tendencies through encouragement of team-work, inter-discussions and amicable behavior.
-Attracting capable academic / managerial personnel to join the department.
-Enhancing quality of staff members with respect to accomplishments.
-Activate relations with field work.
-Create a strong relationship with industry to cooperate in advancement of the country's economy.
-Develop the infrastructure.
- Financial assistance from the College, University and Ministry for the Faculties to perform their researches and publish their result in highly prestigious journals.

- Faculty members must be supported by the University to participate in professional conferences so that the expenses funded by the University.

2.7. Criterion 7 & 8: Administrative and Financial Support

2.7.1 Program Budget Process

The ECE Departmental budget is part of the overall College of Engineering budget. The departmental budget is mainly dominated by the laboratory budget that is submitted separately per the process explained in the previous article. Additional budget items include furniture, rehabilitations of university buildings, books, supplies… etc. In addition to the approved laboratory budgets presented earlier

2.7.2 Sources of Financial Support

The University of Baghdad and its colleges and departments are fully supported by a government institution, with the entire budget coming from the Iraqi government. Moreover, the university also receives some grants and gifts from some state offices and institutions, as well as from some international organizations and civil society organizations. However, such contributions amount to only a small fraction of the government allocations. Thus, the main source of departmental financial support is from government allocations. Additional sources of departmental financial support come indirectly from faculty funded research grants, experimental tests made in some laboratories for various state organizations, and industry consultations. All these activities are covered by the Central Cooperation Mechanism Committee of the university, which is working according to the law of cooperation mechanism.

2.7.3 Inadequacy of Budget

The ECE Department has a great shortage and inadequacy in the budget to continue updating and enhancing the labs, to achieve its program's outcomes, and to support the faculty's teaching and scholarly activities.

2.7.4 Support of Faculty Professional Development

As stated in the Faculty Development article (5.5), the faculty professional development efforts represent a prime objective of the department, college and university administrations and are manifested in the following two areas:

1. Academic Development, which is administered by the Ministry (R & D Office in the MOHESR), College and University.
2. Research Development, which is administered also by the Ministry (R & D Office in the MOHESR), College and University.

Funding allocated is inadequate for the needs of both lines. Accordingly, both planned activities and allocated funding are inadequate for the faculty professional development.

2.7.5 Support of Facilities and Equipment

The allocation of office space and laboratory facilities is the responsibility of the college and university with suggestions and recommendations from the department. On the other hand, the scheduling of classrooms is the responsibility of the department. Moreover, the college maintenance department is responsible for all maintenance issues related to offices, laboratories. The college maintenance department accepts maintenance requests from the departments through written orders. In general, the support of facilities and equipment is inadequate to achieve program's outcomes in a perfect manner.

2.7.6 Inadequacy of Support Personnel and Institutional Services

The ECE Department has one highly qualified secretary to assess the department in all administrative aspects, but still this secretary does not have an assistant or a replacement when she is on leave. The department relies on the college Network/Computing services group for support on computing and networking facilities. The department has no specialized engineer or technician to supervise the tasks of running, maintaining, and upgrading the various teaching and research laboratories at the department. Accordingly, the aforementioned personnel resources are inadequate to meet the program's outcomes. Furthermore, the department and faculty rely heavily on some resources and support facilities provided by the college and university. These include:

1. The Electronic Computer Center of the University.
2. The Purchasing Committees in both college and university.
3. The Maintenance Department in the college.
4. The College Library.
5. The Central Library of the University.

With respect to the college and university libraries, both contain a good collection includes books, periodicals, proceedings, theses, reports, maps, charts, electronic resources, and audiovisual

materials. The libraries assist the faculty and students in their search for information and library materials.

2.7.7 SWOT Analysis

Figure (7.1) shows the SWOT analysis for this article.

STRENGTHS (INTERNAL)	WEAKNESSES (INTERNAL)
1. Good salaries and wages for the staff.	1. Complicated decision-making process at the College level. a) Complicated and restrictive purchasing procedures. b) Complicated and restrictive hiring procedures. 2. Insufficient funding for; a) Research. b) Teaching improvement. c) Hiring adequate human resources. d) Maintaining and upgrading facilities. 3. The college frequently rely on some of the department staff to do their own work.
OPPORTUNITIES (EXTERNAL)	**THREATS (EXTERNAL)**
1. The presence of government financial support for official universities	1. Lack of self-care and unfaith, especially from some officials on the decision-making, especially concerning factors associated with the development of the university, college, and department.

Figure (7.1): SWOT Analysis for Support of ECE Department

Recommendations

- Starting self-financing sources
- Increase funding for infrastructures, buildings and laboratories.

2.9. Criterion 9: Facilities

2.9.1. Space

The ECE Department faculty and students have barely adequate (with minimum requirements) facilities available for conducting a successful program. The facilities include several classrooms, laboratories, workshop, faculty offices, department library, college and university libraries, university students club, and network access facilities. There is one seminar room equipped with computer integrated projection equipment (LCD and/or Data Show). We also have a break room equipped with sufficient requirements. As for the university library, it is located in the campus centre. The network access facilities are provided by the Computer Center of Baghdad University in the form of a Wireless LAN network available in all university buildings. In the following sections, we provide detailed information regarding the faculty offices, classrooms, laboratories, workshop, faculty offices, department library, and college and university libraries.

2.9.1.1. Faculty Offices

The faculty offices are located in the main building of the department that is shared with other departments. Most of these offices are for two faculty members each. The offices have adequate furniture, but they are not air-conditioned and not equipped with computers or network connection. It should be noted, though, that the faculty offices are small in size such that they are inadequate to hold a discussion between the faculty and more than 2-3 students. The average faculty office space is about 10 square meters.

2.9.1.2.9 Classrooms

The classrooms include large and small ones. All are equipped with whiteboards, and blackboards, as the main tool for lecture presentation. Table (9.1) provides the classrooms types and sizes and the number of students (or persons) the classroom can accommodate. All classrooms are not equipped with network-connected computers or high-resolution projectors which can be used to deliver electronic class notes and perform in-class demos and presentations.

Table (9.1): Classrooms Types and Sizes

Classroom		Area (m^2)	Maximum number of Students
Room No.	Type		
ECE1	Lectures	45	30
ECE2	Lectures	40	26
ECE3	Lectures	28	18
ECE4	Lectures	28	18
ECE5	Lectures	30	20

2.9.1.3. Laboratories

Electronics and Communications Engineering Department contains many laboratories and a workshop which includes many devices and equipment used to conduct the experimental tests by undergraduate students and it is helpful to conduct the engineering projects by the fourth class students and postgraduates researches. Table (9.2) summarizes the list of available labs and their sizes.

Table (9.2) Laboratories of the Department

No.	Lab Name	Subjects served by the lab.	Lab capacity (no. of students/session)	Area (m^2)
1	Electronics	ECE208, ECE309, ECE410	16-20	130
2	Communications	ECE209	14-16	130
3	Workshop + CAD	ECE107, ECE310	16-20	130
4	Microwaves	ECE411	10-12	100
5	Measurements	ECE108	14-16	100
6	Projects	ECE401	6-8	40
7	Microprocessor	ECE102, ECE207	14-16	90
8	Computers	GS103 ECE104 GS203 ECE202 ECE412	16-20	90

2.9.1.4. Libraries

The students can have access to three libraries in the university campus; these are the libraries of the department, college and the university.

The Department's Library

The department library is a small library intended to provide books that can help the students for extra references other than the texts books provided by the department for every subject of the 4 year of studies. The Library's books also help researchers whether they are undergraduate students, postgraduate students or faculty members. The library contains about 500 titles with a total of about 775 copies.

The College's Library

The Library of Engineering College is one of the oldest scientific libraries in the University of Baghdad. It was established in 1941, and then developed well in the later years to become one of the mother libraries in engineering and contains more than (74901 books) and (1450 periodicals titles). The library offers its services to the students, faculty members, and researchers from inside and outside the college. Lastly, the library finished the documentation of all books, periodicals, theses and dissertations in a complete database to facilitate the accessing process for students and researchers. The library continuously organizes and/or participates in book fairs.

The University's Library

The Central Library of Baghdad University is one of the main oldest libraries in Iraq. It was established in 1959. The library offers services to users through many sources of information; such as books, periodicals, thesis and dissertations, films, laser CDs, audio labs, maps, internet services …. etc. The library now has two buildings, one in the Al-Jadiriyah Campus and the other in the Bab Al-Muaatham Campus. The following is a brief of the library facilities and activities:

- Area of the library (20549 m2)
- 319142 Books
- 20784 Periodicals
- 4 Reading Halls, (549 m2) each
- 210 Reading Seats
- 3 m^2 / Person for Reading
- 62 Computers for Office Work
- 544 CDs & 35 Flash Ram
- 791 Scientific Film
- 35 Internet Service Terminals
- 35 Hours / Week Access
- 356 Books / Day Circulating
- Continuous Organization of Book Fairs
- Continuous Learning Courses

- Installing WIN-ISIS Electronic Systems for Offices Work
- Number of Employees (131)

2.9.2. Resources and Support

2.9.2.1. Computing Assets

As stated above, the network access facilities are provided by the Computer Center of Baghdad University in the form of a Wireless LAN network available in all university buildings. There are 3 wireless access points and about 10 LAN terminal points available in the department. Both faculty and students can access the network. Networking facilities at Baghdad University have seen exponential growth over the last few years.

2.9.2.2. Laboratory Equipment Planning, Acquisition, and Maintenance

One of the most important and challenging problems encountered in the department is the lack of laboratory equipment and instrumentation in the department laboratories, despite considerable progress achieved by the department in this area in the last year. The Electronic and Communications Engineering Department continuously addresses any upgrades / additions for the labs by estimating the yearly budget needed for the labs and submitting it to the college and university. The full process used to determine the department lab budget is divided into two levels: (1) the college and university level, and (2) the department level. The two levels are described next.

At the college and university level, as every fiscal year is coming to an end, the planning committee at the college and university level is required to review the needs of major equipment and PCs of all academic colleges and departments make consolidated recommendations for the allocation of an appropriate budget for the next fiscal year. In this connection, a memo will be sent to all the academic colleges/departments by the chairman of the university planning committee before the end of every fiscal year requesting them to prepare their lists of major equipment and PCs for labs to be procured during the following fiscal year. A standard form is provided to all the departments to fill their lists of major equipment and PCs for labs. At the department level, the Head of the ECE department sends a memo to all the faculty and lab supervisors asking them to prepare the list of major equipment for all the labs to be procured during the present or following fiscal year. The lists of items required for all the labs are to be prepared on the prescribed form providing appropriate information (*Item description, quantity, estimated unit cost, Total amount, Priority, justification ...etc).* These form the basis for future lab budget allocations and justifications. The objective is to consider the upgrade/enhancement of lab facilities (in terms of addition of new equipment and PCs as well as replacing old ones) to:

- Support lab experiments, students senior design projects, course projects, and PG thesis and dissertation work.
- Support the conduct of newly proposed lab experiments.
- Support setting up of new labs proposed in the emerging areas.
- To support faculty research.
- To replace obsolete items.

The laboratory equipment planning, acquisition, and maintenance processes are adequate with minimum requirements for achieving the program’s outcomes at the ECE department.

2.9.2. SWOT Analysis

Figure (9.1) shows the SWOT analysis for this article.

STRENGTHS (INTERNAL)	WEAKNESSES (INTERNAL)
1. Acceptable equipped laboratory, library and IT Facilities.	1. Complicated decision-making process at the College level. a) Complicated and restrictive purchasing procedures. b) Complicated and restrictive hiring procedures. 2. Insufficient funding for Maintaining and upgrading facilities. 3. Centrality of work which rely mainly on the decisions of the university and the ministry which limits the possibility of development.
OPPORTINITIES (EXTERNAL)	**THREATS (EXTERNAL)**
1. Emerging technologies. a) Technologies that does not require extensive industrial infrastructure. b) Information based technologies. 2. The presence of government financial support for official universities.	1. Administrative and financial corruption. 2. Intense competition from new and private colleges of higher financial support compared to the old College of Engineering, which caused the low level of infrastructure compared to the modern college.

Figure (9.1): SWOT Analysis for Facilities of Electronics and communications Engineering Department

Recommendations

-The Electronic and Communication Engineering Department needs additional infrastructure such as classrooms, laboratories, and furniture to support research, teaching and learning activities.

APPENDICES

Appendix A: Course Syllabi (Attached)

Appendix B: Faculty Vitae (Attached)

Appendix C: Equipment

Appendix D: Institutional Summary