Self-Assessment Report

Mechanical Engineering Department
College of Engineering,
University of Basrah,
Basrah, Iraq

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Chapter1: Introduction and Context

The Mechanical Engineering Department was established as same year of college establishing at the beginning of the academic year 1964-1965 and aims to secure, in general, the country's need of mechanical engineers and the southern region in particular.Period of study in the Department is four years. The graduate gets a degree in mechanical engineering,

The graduate studies began at the college at the academic year 1976-1977 for the granting of a Higher Diploma and Master of Science. Also, Studies of doctorate started from the academic year 1992-1993.

The department is providing engineering consultancy for a large number of government industrial institutions and companies through the Engineering Consultancy Bureau, which was founded in 1981 in order to develop engineering expertise in the university community service and contribute to raising the level of practice of the profession of engineering.

Department vision aims to graduation mechanical engineers agree with newest universality international curriculum, consequently to execution different engineering projects which the country needs now. Provide mechanical engineering assignation with best context of engineering, educational and researchable to build and service their country.

The mechanical engineering department adopts equable studios program has various theoretical lecture and practicality sides. Further, the department would be development its laboratories in best way to complete the applied side with theoretical subjects which permit the students to sensible and uptake the engineering subjects deeply. The department has clear way in scientific research contains mainly applied sides to service the development in Iraq. Saving the adequate medium to create best universality life of students department, this can be

done by harmonious and unitary of educational process in university and saving the finest possibility of students on path formation of students efforts to communion and contribution in students work across all its fields and generates wide systems of programs as well as high quality of employments and actuate the students over authorship and innovation. Consequently, attainment the Iraqi society and the south region requirements of mechanical engineers have best quality in education and scientific research as well as society servicer.

The department depend several strategies in teaching and scientific research. In teaching, the process starts when the chairman of the department assigns each faculty member specific curriculum(s) and gives her/his the syllabus and the textbook of the curriculum, which s/he should use in teaching, but s/he has the ability to use other references. From this moment, s/he will be fully responsible of teaching the curriculum to students, but s/he must still under the supervision of the department's who warns her/him if any dereliction occurs. During the year, s/he must afford the examination committee with:

- 1st semester examination's questions and marks.
- 2nd semester examination's questions and marks.
- Final examination set questions and marks.

In doing researches, each faculty member is working alone on his own research and at the beginning of each academic year, the faculty members have to fill out a research accomplishment form that includes:

- Number and titles of the recent published research papers and where they were published.
- Number and titles of papers that are currently under completion and the percentage of their accomplishment.
- Number and titles of future suggested papers.

Sometimes, the department does a research with governmental or private sector agencies. Here, a team is formed and a contract is made between the department and the agency.

The main aims from the above strategies are:

- Give the students enough information in mathematics, engineering sciences and engineering techniques which able them to use knowledge in profession.
- Helping the students in developing the skills that related in design process which involve problems formulation , inventive thinking, effective intelligence, information analysis and teamwork.
- Helping the students in understanding their professional and ethical responsibilities.
- Developing the postgraduate studies by dovetailing the projects with applicable problems from the industry and preparing a compatible program for the scholarships.

The future suggested strategies for the department should be as follows:

- Making financial assignationsto the scientific research process on the department and encourage the department members in participating in international conferences and publishing their researches in international journals.
- Sending the teaching staff outside the country for training courses in management and advance teaching techniques.
- Forming a committee specialist for watching the extent of running the strategies of the department and solve the difficulties that delay its success.

There are several factors affect positively the success of the departmentsuch as:

- The good rules that the chairman of the department and his active wise administration fellow who allow the education grow up smoothly.
- The professional employed faculty members, technicians, and other staff members.
- The department have sufficient number of compatible studying halls, laboratories and ateliers.
- The annual average incoming number of students on the departments is high.
- The curricula that are taught to students which give the engineering principals in addition to latest engineering science.

On the other hand, there are other factors which inhibit the success of the department:

- The college/Ministry not give the department open jurisdictions in its missions.
- The college/ministrynot adopt a plan fulfill the department needs for funds, teaching staff, laboratory equipment….*etc*.
- Absence of sessions for the teaching staff outside the country.
- The weak scientific and research relation between the department and the well-done universities.

The department management must take several precautionstowards the risks that threat theundergraduate/postgraduate studies on it like as:

- Bringing qualitative teachers in a specific specialist.
- Adding new curriculums and developed it continuously.
- Increasing salaries of the teaching staff, payments of additional lectures' hours and advising hours for postgraduate studies.

- Facilitation of the scientific promotion for the teaching staff.
- Limiting the immigration of the scientific qualification outside the country.

Chapter2: Organizationand Management

2.1 Department's Organization

The mechanical engineering department constitutes of the chairman of the department who manages the department's academic and administrative affairs. The chairman administrative support staff constitutes his assistants and secretary. The department panel includes all of the faculty members in it. This entity is responsible for issuing and making crucial decisions in the department that need counseling and sharing experiences.The department also has his own engineers, technicians, and administrators whose primary work is to be responsible for laboratories, their maintenance, warehouse keeping, gratis books duties, and service.

The faculty members and the staff in the department have been assigned into different committees to manage and handle several different duties, see Table2.1.

Table2.1: Department's Committees

Committee Name	Responsibilities
Scientific and Graduate Affairs Committee	- Make decisions and statements. - Issue graduation transcripts. - Develop the curricula.
Examination Committee	- Manage the examination process in each semester as well as the final exams. - Document the students' records, marks, and grades.
Importation Committee	- Determine what the department needs at the beginning of each academic year.
Inventory Committee	- Count and calculate prices of everything in the department and where everything has been moved to/from.
Gratis Books Committee	- Giving the students as well as faculty members the needed textbooks at the beginning of each academic year.
Summer Industrial Training Committee	- Assigning students to their designated summer training governmental companies.
Laboratories Maintenance Committee	- Maintain the healthy environment of laboratories.

Quality Assurance Committee	- Responsible for preparing reports, communicating the quality assurance requirements to the department.

In this way, the overall department structure is shown in Fig.2.1:

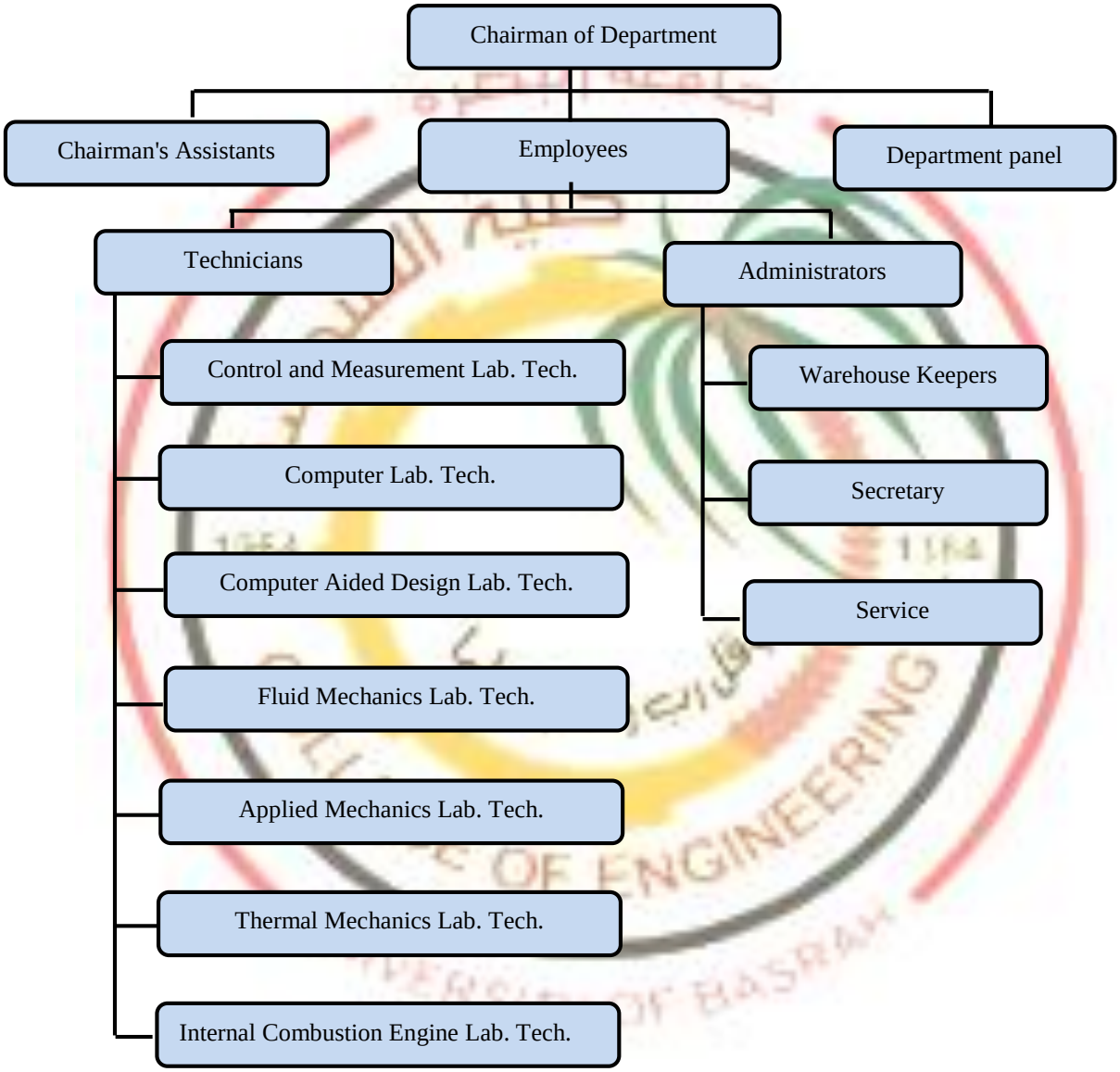


Fig. (2.1): Department Structure

2.2 Leadership Responsibilities

The chairman of the mechanical engineering department is the most pivotal of all positions concerned with the instructional development. The policies of the college and university delegate the prime responsibility of the department daily operation to the chairman. The chairman is thus, assigned the task of running and managing the department. As the executive officer, the chairman is responsible to both the dean of the college of engineering and the department. It is the chairman who maintains daily contacts with the administration, with faculty and with students. It is in this last context where the chairman has to ensure that the department's mission and educational objectives are met. This could be achieved through the following:

1. Departmental affairs: developing and accomplishing departmental missions and objectives within those of the university; establishing departmental policies; conducting departmental meetings; involving faculty members and students in departmental decision making and activities.
2. Academic affairs: establishing departmental degree programs and curricula; evaluating, updating and improving program curricula, and the enforcing the quality of instruction.
3. Office management: administering departmental facilities; hiring, supervising, evaluating staff personnel (secretaries, laboratory assistants); establishing file and record systems (faculty, students, courses, academic data, correspondence); maintaining equipment and other department properties; requisitioning supplies; ordering textbooks.
4. Personal professional performance: providing professional leadership and setting an example in the department; demonstrating professional competence in teaching, research, and other professional activities; participating in

professional associations and community service, setting academic standards; preparing term schedules of courses.

5. Faculty affairs:
    - Recruiting and orienting new faculty members; supporting and encouraging high performance in teaching, research, conference attendance, seminars, workshops, and other professional activities;
    - Enforcing faculty responsibilities and protecting faculty rights; evaluating faculty members and making documented recommendations to the dean for them.
6. Student affairs:
    - Facilitating a constructive environment to consolidate the program teaching and learning process.
    - Curricular and career advising of students.
    - Responding to student grievances and complaints.
    - Certifying students for graduation.
7. Program affairs:
    - Arranging meetings with faculty to decide on further steps to improve the program.
    - Managing the essential funds for laboratory equipment, day-to-day functioning, other department social activities, etc.
    - Executing the ME Program, alteration, and improvement proposed by program constituencies.
8. External communications: conveying university policies and actions to the department, representing the department in the college, the university and all

external agencies and communicating departmental programs and activities to students.

9. Budgetary affairs: preparing annual departmental budget requests; administering budgetary allocations (preparing requisitions, authorizing expenditures, maintaining budget records).

2.3 Department's Rating and Non-Official Responsibilities

The rating of department performance respect to its special plans and college strategies is done by :

1. Putting the plans which aims to developed the scientific level for undergraduate students by furnishing new curriculum books and following the percentage of completing the curriculums during one year.
2. Increasing the number of accepted students in undergraduate studies.
3. Increasing the plan of acceptance for postgraduate study and trying to use teachers from higher degrees (Prof. or Asst. Prof.) in the process of teaching and advising projects , also cooperation with other universities in the country (Kufa-Babel-Thiqar) in advising projects and using their laboratories.

The department did some other practices outside its official missions such as:

1) Doing engineering tests for governmental and special establishments.
2) Doing some other engineering consulting jobs (singular and collective).
3) The mechanical engineering department cooperate with other college departments or other colleges to open its laboratories for students and advise postgraduate students from other similar departments and colleges like Technical College in Basrah, Arabian Gulf Academy, College of Agriculture……*etc*.

Questions and Answers:

1) How is the administrative-work organized in the department?

   The chairman of the department assigns duties and jobs of every member in the department:

- If the member is a faculty, then s/he will be fully responsible of her/his assigned curriculum, laboratories, involved committee(s), and the community services.
- If the member is an administrative staff, s/he does what her/his work needs and gets back to the chairman with any questions and consultation.
- Any crucial decisions at the department must be made by the "department board" that includes all of the faculty members.
- Students' daily issues are the responsibility of the chairman assistant who communicates their issues to the chairman.

2) What are the means of interaction/contacting in the department? What are the evidences? Can these means be improved?

   There are two ways of interaction/contacting in the department, either via coming personally to the College or via using the mail. This can be improved if the College puts a website with official emails for its employees rather than their personal ones.

3) Are the roles of all of the department's staff and their main jobs understood clearly?

   Yes, there is a description of each job made by the ministry; the chairman, his assistant, secretaries, faculty, committees, and board all know exactly what to do.

4) How do workloads in the college compare with those say, in other countries e.g. UK, Europe, USA?

When the administrative-work in the department compared to the administrate-work in the mechanical engineering departments worldwide, it can be said in the US and European academic engineering departments, a more authority is given to the chairman of the department such that s/he can proceed in a more active smooth way.

5) Could the organization of the department be improved? Are synergies realized?

Yes, it can by dividing the job of the chairman's assistant into two new jobs: one for administrating the students affairs and the other for administrating the faculty affairs.

Chapter3: Staff and Facilities

3.1 Authority and Responsibility of Faculty

Faculty members are the backbone of the department and their role in running the department is very crucial. It is the department senate or faculty council that makes decisions, recommendations, proposals, and policy changes within the department. The approval of the majority of the council is essential prior to passing to the chairman for further action. In effect, the department's council role is not limited only to academic matters but goes beyond that to include all aspects of governing the department. Though the responsibilities could vary among individuals in the department, all members participate in the following activities:

1 Teaching: proposing new curriculum courses, modifying and updating existing courses; course evaluation through conducting exams, quizzes, assignments, projects, *etc*. In order to provide consistency in the department, faculty members in the Mechanical Engineering Department are recommended to:

- Keeping up to date with relevant changes in their related fields and carefully preparing lectures and course materials.
- Being accessible to students for academic consultation during scheduled or prearranged office hours.
- Informing students regarding course formats, assignments, and methods of evaluation.
- Maintaining teaching schedules in all but exceptional circumstances.
- Informing students of any necessary cancellation and rescheduling of instruction.
- Adhering to the schedules for submission of grades and evaluations by the department.

2 Research: devote a good portion of their time to carry out research or creative work, within the constraints of the relatively heavy teaching loads. All full time faculty members are encouraged to make the results of such activities available, to other researchers and academicians, through publications, lectures, and other appropriate means.

3 Service to the college and university: some faculty members in the department are assigned different tasks at the university level. This is realized, among other duties, through; reviewing of academic publications, editorial board members, organizing International conferences, and other academic associations and consultancy assignments.

3.2 Faculty

The mechanical engineering department has 49 full,among these faculty there are 19 members of Ph. D. and part time faculty members, including the chairman of department. There are 10 of M. Sc. in Ph. D. study among them there is only one completely forked outside the country the remainder study in department partly forked. In terms of rank distribution, they are broken down as follows and shown as percentage in Fig.3.1:

- 4 Full-Professors
- 8 Assistant Professors
- 26 Lecturers
- 10 Assistant Lecturers

Fig.3.1 shows the statistical percentage distribution of teaching staff reference to rank and it is seen that the Ass. Lecturers form55% of department staff which represents the biggest percentage among the other ranks.

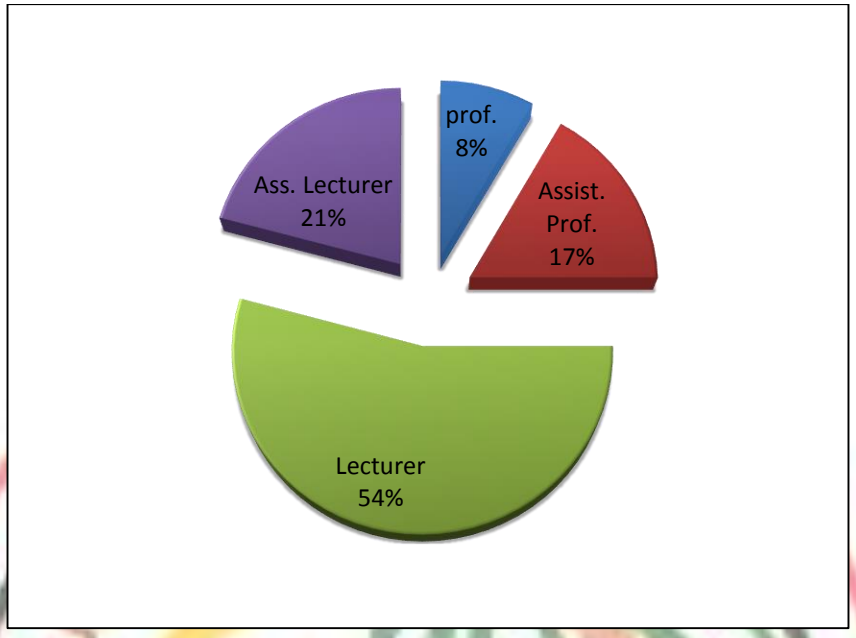


Fig. (3.1):Statistical percentage distribution of teaching staff reference to rank

In the process of assessing the faculty activities in the mechanical engineering department it was realized that, on the average, the department is more tilted towards teaching rather than research and other scholarly activities.In addition to teaching staff the department also has engineers, technicians, and administrators employees. Detailed information regarding thefaculty staff members,techniciansand administratorswith their names, certificates, gender, ages and rank were mentioned in tables 3.1 and 3.2 respectively.

Table (3.1) : ME Department Faculty Members

No.	Certificate	Name	Gender	Age	Rank
1	PhD	Salah Ismail Najim	Male	63	Prof.
2	PhD	Abdul Muhsin Abood Rageb	Male	66	Prof.
3	PhD	Ameen Ahmed Nassar	Male	59	Prof.
4	PhD	Abdul Kareem F. Hassan	Male	60	Prof.
5	PhD	Salman HashamHamady	Male	50	Assist. Prof.
6	PhD	Abdul Baki K. Ali	Male	41	Assist. Prof.
7	PhD	Nathera Abdelhassan Salah	Female	44	Assist. Prof.

No.	Certificate	Name	Gender	Age	Rank
8	PhD	MuneerAbdulJaleel Ismael	Male	39	Assist. Prof.
9	PhD	Falah Ahsy Abood Al-Mansory	Male	48	Assist. Prof.
10	PhD	Hussein Sadeq Sultan	Male	35	Assist. Prof.
11	M.sc	Ali Abdul-MonemAbedalmehseen	Male	60	Assist. Prof.
12	PhD	Jafer Kalef Ali Al-Selety	Male	38	Assist. Prof.
13	PhD	Rafil Mahmood Laftah Al-Jabery	Male	39	Lecturer
14	PhD	Qusai Talib Abdulwahab	Male	40	Lecturer
15	PhD	Khaled Baker SaleemAl-Jassim	Male	36	Lecturer
16	PhD	Sajed Husen Ali	Male	47	Lecturer
17	PhD	Emad Abdullah Khazal	Male	37	Lecturer
18	PhD	Murtadha Abbas Jabber	Male	37	Lecturer
19	PhD	Hassanein Ibraheem Khalaf	Male	37	Lecturer
20	PhD	Ali Hasan Abedalai Jawal	Male	37	Lecturer
21	PhD	Raheem Khazal Muswel	Male	35	Lecturer
22	PhD	Abdulbaseer Shari Bahedh	Male	36	Lecturer
23	PhD	Asma Ahsy Kawy Al-Maleky	Female	36	Lecturer
24	PhD	Sana Mahdy Shrama Al-Jabery	Female	36	Lecturer
25	PhD	Mahmood Shaker Jamel	Male	37	Lecturer
26	PhD	Ali Kadem Hady Al-Helfy	Male	35	Lecturer
27	PhD	Heder Kazel Mhbas Al-Snesel	Male	35	Lecturer
28	PhD	Raad Jamal Jassim	Male	35	Lecturer
29	PhD	Basel Shnen Mnahy Al-Jorany	Male	36	Lecturer
30	PhD	Imad Abdul-KadhemKheioon	Male	38	Lecturer
31	PhD	Ali Habel Zuaibel	Male	40	lecturer
32	PhD	Haider Mahedy Laeth Al-Jabery	Male	37	Lecturer
33	PhD	Alaa Hlejy Mohammed	Male	35	Lecturer

No.	Certificate	Name	Gender	Age	Rank
34	M.sc	Mohammed Kerallel Kadem	Male	36	Lecturer
35	M.sc	Fatehalleh Fadel Khalf	Male	58	Lecturer
36	M.sc	Rana Lateef Ntosh Dawood	Female	36	Lecturer
37	M.sc	Zainab Kareem Rady Al-Esady	Female	36	Lecturer
38	M.sc	Sana Jafer Abas Al-Moswy	Female	37	Lecturer
39	M.sc	Rafed Jhbar Mohammed	Male	36	Assist. Lecturer
40	M.sc	Heder Ali Fadel Hwash Al-Ezerj	Male	37	Assist. Lecturer
41	M.sc	Kahtan Adnan Jwad	Male	37	Assist. Lecturer
42	M.sc	Yahya Mohammed Ameen	Male	45	Assist. Lecturer
43	M.sc	Mohammed Baker Mehsen	Male	37	Assist. Lecturer
44	M.sc	Ahmad Abdulkareem Mahdi	Male	35	Assist. Lecturer
45	M.sc	Feras Moter Khlaf	Male	35	Assist. Lecturer
46	M.sc	Huda Abedallha Abedalkreem	Female	35	Assist. Lecturer
47	M.sc	Ehsan Nadehm Jewad	Male	35	Assist. Lecturer
48	M.sc	Hassanein Sami Abdul-Hadi	Male	33	Assist. Lecturer

Table (3.2) :Engineers, Technicians, and Labs' Administrators in ME department

No.	Name	Appointment Address	Certificate	Gender	Age
1	JehadMarzokHasan	Premier Boss Engineer	B. Sc. Mech. Engg.	Male	47
2	SaefAldeenEsmaelSahem	Assist. Boss Engineer	B. Sc. Mech. Engg.	Male	38
3	SohadTahAbas	Assist. Boss Engineer	B. Sc. Mech. Engg.	Female	37
4	EmanHashm Aziz	Premier Engineer	B. Sc. Mech. Engg.	Female	34
5	HusenMohammd Ali	Assist. Engineer	B. Sc. Mech. Engg.	Male	34
6	AbedalhasanHanonMshary	Premier Boss Programmer	B. Sc. Mech. Engg.	Male	34
7	SafaHafdHeder	Technical	Dip. Mech. Tech.	Male	36
8	AbassSadonHreja	Assist. Technical	Intermediate	Male	34
9	Eklas Ali Abedalkrem		Preparatory	Female	46
10	YesraYaseenMohammd		Preparatory	Female	47
11	BasmaHusenYosef	Premier Technical	Dip. Mech. Tech.	Female	35
12	EkbalQodadaMurad	Assist. Noticeable	Dip. Management	Female	40

No.	Name	Appointment Address	Certificate	Gender	Age
13	AedaYaseenMohammd	Assist. Noticeable	Preparatory	Female	40
14	Marem Tama Hafed	Service Officer	Illiteracy	Female	29
15	JamelaHafedHusen	Premier Service Officer	Primary	Female	30

Table (3.3): Faculty Involvement in Regular Committees at the Department

No.	Committee	Members	
1	Scientific Advisory and Graduate Affairs Committee	-Ali A. Abedalmehseen - Abdul Muhsin A. Rageb -Ameen Ahmed Nassar	-Abdul Kareem F. Hassan -Salman H.Hamady
2	Examination Committee	-Emad Abdullah Khazal -AsmaAhsyKawy -Ammar Ali Ojimi	-Murtadha Abbas Jabber - Hussein Sadeq Sultan - Maher Abdullah Khalid
3	Importation Committee	-QusaiTalibAbdulwahab -Hassanein I.Khalaf	-Murtadha Abbas Jabber - Abbas JasimSabeeh
4	Summer Industrial Training Committee	-Ahmad A. Mahdi -Hasanain S. AbdulHadi	-HusenMohammd Ali -SafaHafdHeder
5	Gratis Book Committee	-Ammar Ali Ojimi -AedaYaseenMohammd -YesraYaseenMohammd	-HaiderMahedyLaeth -BasmaHusenYosef -Eklas Ali Abedalkrem
6	Laboratory Maintenance Committee	- Maher Abdullah Khalid -Saef A.EsmaelSaheb -AbassSadonHreja	-AlaaHlejy Mohammed -JehadMarzokHasan
7	Quality Assurance Committee	- Khaled Baker Saleem	-Abdul Baseer Sheri

3.3 Faculty Competencies

The department is offering a wide spectrum of courses in diverse areas of mechanical engineering courses that includes, though not limited to; Heat Transfer, Fluid Mechanics, Control, Internal Combustion Engines, Vibration, Mechanical Design, Mechanical Drawing, Manufacturing Process, Computer Programming. Mathematics, Strength of Materials….*etc*. Table 3.4 gives the names of faculty, area of interest, and current program curricular areas taught by them.

Table (3.4): Faculty's Specialization and the Program Curricular Areas

No.	Faculty	Area of Interest		Curricular Areas
		General	Specific	
1.	Salah Ismail Najim	Mech. Engg.	Energy Conversion	Power Plants-Thermodynamics
2.	Abdul MuhsinAboodRageb	Mech. Engg.	Heat Transfer	Heat Transfer
3.	Ameen Ahmed Nassar	Mech. Engg.	Applied Mechanics	Theory of Machines
4.	Abdul Kareem F. Hassan	Mech. Engg.	Applied Mechanics	Manufacturing Process
5.	Salman HashamHamady	Mech. Engg.	Heat Transfer	Air Conditioning and Refrigeration
6.	Abdul Baki K. Ali	Mech. Engg.	Applied Mechanics	Design
7.	NatheraAbdelhassan Salah	Mech. Engg.	Applied Mechanics	Strength of Materials
8.	MuneerAbdulJaleel Ismael	Mech. Engg.	Fluid Mechanics	Fluid Mechanics (2)
9.	Falah AhsyAbood Al-Mansory	Mech. Engg.	Heat Transfer	Fluid Mechanics (1)
10.	Hussein Sadeq Sultan	Mech. Engg.	Heat Transfer	Thermodynamics
11.	Ali Abdul-MonemAbedalmehseen	Mech. Engg.	Heat Transfer	Air Conditioning and Refrigeration
12.	RafilMahmoodLaftah Al-Jabery	Mech. Engg.	Applied Mechanics	Control
13.	QusaiTalibAbdulwahab	Mech. Engg.	Applied Mechanics	Control
14.	Khaled Baker SaleemAl-Jassim	Mech. Engg.	Fluid Mechanics	Fluid Mechanics (2)
15.	SajedHusen Ali	Mech. Engg.	Heat Transfer	Power Plants
16.	Emad Abdullah Khazal	Mech. Engg.	Fluid Mechanics	Mathematics (2)
17.	Murtadha Abbas Jabber	Mech. Engg.	Material Engineering	Manufacturing Process
18.	Hassanein Ibraheem Khalaf	Mech. Engg.	Applied Mechanics	Programming-Autocad
19.	Ali HasanAbedalahlJawal	Mech. Engg.	Applied Mechanics	Vibration
20.	Raheem Khazal Muswel	Mech. Engg.	Applied Mechanics	Engineering Mechanics (2)
21.	AbdAlbaseer Shari Bahedh	Mech. Engg.	Applied Mechanics	Mechanical Drawing (1)
22.	Asma Ahsy Kawy Al-Maleky	Mech. Engg.	Applied Mechanics	Mathematics (1)
23.	Sana Mahdy Shrama Al-Jabery	Mech. Engg.	Heat Transfer	Heat Transfer

No.	Faculty	Area of Interest		Curricular Areas
		General	Specific	
24.	JaferKalef Ali Al-Selety	Mech. Engg.	Applied Mechanics	Numerical & Engineering Analysis
25.	Mahmood Shaker Jamel	Mech. Engg.	Heat Transfer	Power Plants
26.	Ali KademHady Al-Helfy	Mech. Engg.	Heat Transfer	Heat Transfer
27.	Heder Kazel Mhbas Al-Snesel	Mech. Engg.	Applied Mechanics	Theory of Machines
28.	Raad Jamal Jassim	Mech. Engg.	Applied Mechanics	Engineering Mechanics (2)
29.	Basel Shnen Mnahy Al-Jorany	Mech. Engg.	Applied Mechanics	Computer Programming
30.	Imad Abdul-KadhemKheioon	Mech. Engg.	Applied Mechanics	Control
31.	Ali HabelZuaibel	Mech. Engg.	Applied Mechanics	Mathematics (2)
32.	Haider Mahedy Laeth Al-Jabery	Mech. Engg.	Heat Transfer	Heat Transfer
33.	Alaa Hlejy Mohammed	Mech. Engg.	Applied Mechanics	Engineering Drawing (1)
34.	Fatehalleh Fadel Kalf	Mech. Engg.	Mathematics Science	Computer Programming
35.	RafedJhbar Mohammed	Mech. Engg.	Fluid Mechanics	Fluid Mechanics (1)
36.	Rana Latef Ntosh Dawed	Mech. Engg.	Heat Transfer	Heat Transfer
37.	Heder Ali FadelHwash Al-Ezerj	Mech. Engg.	Applied Mechanics	Mathematics (2)
38.	Zenab Kareem Rady Al-Esady	Mech. Engg.	Heat Transfer	Mathematics (1)
39.	Kahtan Adnan Jwad	Mech. Engg.	Applied Mechanics	Computer Programming
40.	Yahya Mohammed Ameen	Mech. Engg.	Applied Mechanics	Internal Combustion Engines
41.	Mohammed Baker Mehsen	Mech. Engg.	Heat Transfer	Internal Combustion Engines
42.	Sana Jafer Abas Al-Moswy	Mech. Engg.	Heat Transfer	Heat Transfer
43.	Mohammed KerallelKadem	Mech. Engg.	Heat Transfer	Heat Transfer
44.	Ahmad Abdulkareem Mahdi	Mech. Engg.	Heat Transfer	Heat Transfer
45.	FerasMoterKelf	Mech. Engg.	Heat Transfer	Power Plants
46.	Huda AbedallhaAbedalkrem	Mech. Engg.	Heat Transfer	Heat Transfer
47.	Ehsan Nadehm Jewad	Mech. Engg.	Heat Transfer	Heat Transfer

No.	Faculty	Area of Interest		Curricular Areas
		General	Specific	
48.	Hassanein Sami Abdul-Hadi	Mech. Engg.	Applied Mechanics	Engineering Mechanics (1)

3.4 Faculty Size

The total number of students in the department is 517, and the number of the department members is 49. This data clearly indicate that, in terms of numbers, there has been no serious problem, thus far, in handling the teaching loads and current undergraduate students enrolled in the programs. Thus, student to staff ratio is 11 :1.

The competenciesof the faculty in the departmentas follows:

15 Applied Mechanics

2 Engineering Production and Metallurgy

12 Thermal Mechanics

10 Heat Transfer

4 Fluid Mechanics

2Control

1 Vibration

1 petroleum Engineering

1 Mathematical science

Among our faculty, the number of years of teaching experience ranges from 2 to 33 years.

3.5 Interaction with Students

Every faculty members in the department is requested to allocate a certain number of office hours, depending on his teaching load, per week. These office hours are mainly assigned for helping the students. S/He has the responsibility of

making the students aware of the scheduling of these hours. This interaction is much more manifested in; student advising, supervising senior projects, attending senior project exhibitions, professional society advising, and coordinating industrial training.

3.6 Faculty and Staff Development

In order to promotes the scientific and practical staff capabilities it should be to promote the university relation with universal universities hence the teaching staff can use this relation in developing their scientific, practical and research capabilities through training courses, mutual conferences and visiting of teachers from other universities to our university.The Twining with other universities and development depends on individual motivation more than interest and it must be to put strategic plans from the college for developing this process. There is no induction chances offered to the new staff on the department and there is no training courses in the current time available to them and its suggested to activate this in future by entering them in training programs inside or outside the country.

3.7 Space

The mechanical engineering department is part of the campus of the college of engineering in Qarmat Ali district, north of Basrah, Basrah, Iraq. The department is a three floors building that contains offices for the faculty members and the supporting staff together with classrooms and laboratories offices:

1. Administrative office: the office of the chairman is located on the second floor of the electrical engineering department building with approximately 27 m^2, in area.
2. Administrative Supporting Staff; this consists of:

a. One full time secretary whose job is to administratively assist the chairman; this office is 17 m^2, in area, and is directly connected to the chairman's office.
b. One head's assistant, who is a full-time faculty member whose job is to administratively assist the chairman. This office is 17 m^2, in area.

These three offices, the chairman's and the secretary', combine to form the administrative office of the Electrical Engineering Department.

3. Faculty offices are allocated in two different levels of the Department's Building. There are 18 faculty offices in the department, each of which is a 17 m^2 in area, each faculty (with a PhD or higher) is assigned a separate office. Every faculty office is furnished and equipped with 1 PC and a link to Internet.
4. Storage rooms: There are a total of three storage rooms in the department. Each of these rooms is of 17 m^2, 25m^2,12m^2 respectively.
5. Meeting room**:** this room is about 30m^2, is mainly used for departmental related meetings at different levels. This room is properly furnished and is equipped with data show.
6. Examination Committee Room: it is located at the second floor near the administrative office with 30 m^2, in area. Here is where students' records are held. It consists of one printing machine, one PC, and one photocopying/scanner machine.

3.7.1 Classrooms

Building section contains the 5 five classrooms are similar. In addition to these halls as noted, the department has the right to use the classrooms of a large college and the 3 rooms. Study halls in the section located in the ground and first floor of the building. Classroom space is 52 square meters which is air-conditioned

and equipped with blackboard addition to the special platform for lecturer. The common rooms of the Faculty of Engineering stands at number 3 three rooms and the unit of square 100 m^2, and air-conditioned and equipped with desk can be used to display aids.

3.7.2 Laboratories

Section contains seven fully equipped laboratories for various disciplines. All of these laboratories on the ground floor of a building section. Total area of these laboratories is around 1425 m^2. These laboratories are used for the planned experiments for the materials in the laboratory section in addition to the possibility of use by students of the projects. Manages the laboratory engineers and technicians working on the specialized high protection equipment in good condition.Table 3.5 shows names and areas of the laboratories as well as the laboratory materials connected with it.

Table(3.5) : Mechanical Engineering Laboratories

Lab. Name	Area ($m^{2)}$	Associated courses
Control and Measurement	185	ME432
Fluid Mechanics	200	ME235, ME336
Computer	185	ME113, ME227, ME321
Computer Aided Design	220	ME431
Applied Mechanics	200	ME234 , ME333, ME431, ME435
Thermal Mechanics	185	ME332, ME433
Internal Combustion Engine	250	ME232, ME335, ME436

3.8 Resources and Support

3.8.1 Department Library

Department has a library occupies one of the rooms floor of department building. This library only contains the tidy books and helpful books of the settled

curriculums. Every student has a right to allegory books property with his need in beginning year then recovers these books at the end of the year.

3.8.2 Laboratories

As mentioned above there are seven laboratories in the department used by the B. Sc. and higher graduation students to do their experimental works of the theoretical subjects in addition it can be used by projects students. All these laboratories supplied with air-conditioned in good way to be suitable work place for the students and lecturers. Manages the laboratory engineers and technicians working on the specialized high protection equipment in good condition consists of 12 members from the faculty of the department with full time work distributed on the laboratories. Also, they help the students to do their experimental works in right way as well as to solve any problem with the devices. There are a variety of of laboratories corresponding with mainly mechanical engineering: applied mechanics, thermal mechanics in addition to computer laboratories.

Questions and Answers:

1. How do the faculty-members keep updated modern new ideas in the field of education and teaching methods technology? Does this depend on the individual motive or there is a used strategy at the department?

   Depending on the individual motive, each faculty member follow her/his own way in developing her/his ideas and techniques. There is also a workshop at the university called "teaching methods" which is one of the needed requirements for promoting any faculty member in her/his academic title.

2. What professional development activities are offered to non-academic staff?

There are many professional developmentsactivities offered to non-academic staff such as, training course in computer science, mathematics,engineering sciences and management science.

3. Are the learning resources for the programs poor/adequate/good? How are they manage to ensure that they remain or move towards being good or excellent?

   The learning resources for the programs are poor and can be developed by increasing the financial allocations from the state finical balance for education. All learning and education activities need financial resources to support and fulfill it.

4. Are the physical facilities sufficient to support the college's research, teaching and learning activities?

   The physical facilities still poor to support the department research, teaching and learning activities from books, journals, laboratories, financial resources for scientific research.

5. To what extent is teaching, learning and research constrained by the availability of resources and support provided at institutional level?

   The administrative staff on the department need to financial support to cover life social and scientific purposes which increases steadily and its very important to providing residence knowing that 70% of teaching staff not have homes.

6. Is the financial resources available at the current time sufficient?

   The financial resources available at the current time sufficient for middle level of life but not covered all life requirements such as, private schools, medical expenses, residence rents, transporting costs……*etc*.

Chapter4: Teaching, Learning and Assessment

4.1 Teaching and Learning Sought Assessment Process

The programs at the college of engineering have been carefully designed to provide the graduates with the important tools they need in their future industrial and governmental careers. To measure the level of success in achieving any of the program outcomes, six assessment methods are to be used. It has decided to adopt a uniform metric goal of 3.50(70%), in a scale of (1-5) to be used, in all the program assessment tools. The program will be a success, if a program outcome meets the criteria in five assessment tools out of six assessment tools, and no correcting measure will be taken. Corrective measures will be taken if any of the outcomes failed to meet its metric goal in two or more assessment tools. Table4.1 summarizes the used assessment tools.

Table (4.1) : Assessment Tools, Indices, and Assessment Benchmark

Assessment Method	Indices	Assessment Benchmark
Senior Exit Survey (POs)	Scale of 1 to 5	A score of 3.5
Faculty Assessment (POs)	Scale of 1 to 5	A score of 3.5
Alumni Survey (PEOs)	Scale of 1 to 5	A score of 3.5
Employer Survey (PEOs)	Scale of 1 to 5	A score of 3.5
Evaluation of Senior Project by faculty (POs)	Scale of 1 to 5	A score of 3.5
Evaluation of Senior project by Industry expert (POs)	Scale of 1 to 5	A score of 3.5
Evaluation of Students' Industrial Training by Industry Supervisor (POs)	Scale of 1 to 5	A score of 3.5

It is worth noting that the alumni and employer surveys are only used in improving the PEOs while the other mentioned tools are used in the continuous improvement of the POs. Table4.2 shows the consistency between POs and assessment tools.

Table (4.2): Mapping of POs to Assessment Tools

Program Outcomes	Assessment Tools					
	Direct Assessment by Faculty	Senior Exit Survey	Alumni Survey	Evaluation of Senior Project by Industry Expert	Faculty Assessment of Senior Project	Industrial Training Assessment
PO-a	X	X	X	X	X	
PO-b	X	X	X	X	X	
PO-c	X	X	X	X	X	
PO-d	X	X	X	X	X	
PO-e	X	X	X	X	X	X
PO-f	X	X	X	X	X	X
PO-g	X	X	X			X
PO-h	X	X	X		X	X
PO-i	X	X	X	X	X	X
PO-j	X	X	X	X	X	X
PO-k	X	X	X	X	X	X

One of the main processes, which are used to establish the various Programs' Education Objectives and Program Outcomes in the college, is to seek inputs from key constituencies through questionnaire form distributed on them at specific time tables. The objectives of the surveys are:

To assess the quality of graduating students.

To obtain feedback on the Program outcomes.

To obtain feedback on the Program Educational Objectives.

To assess the work environment.

To assess the overall institutional quality.

To establish baseline data.

Key constituencies that participate in reviewing the program PEOs and POs are:

Faculty.

Alumni.

Employers.

Senior Exit Students.

The following steps summarize the input to be obtained from these key constituencies. The Accreditation and Quality Assurance office schedules the process as in Table4.3.

Table (4.3): Assessment Process and Timeline

No.	Constituency	Assessment Tools	Timeline
1,2	Faculty	Faculty Survey Class Evaluation Instructions for Courses Assessment	every year every semester every semester
3	Alumni	Alumni Survey	every year
4	Employers	Employer Survey	every year
5	Students	Senior Exit Survey	every year

1. Faculty Survey

The survey form contains three parts covering different aspects that the College of Engineering consider important for faculty members to assess.

PART I

It has four sections that seek the faculty members' evaluation of students regarding the Program Outcomes, Program Educational Objectives, their opinions about the three most important skills that need more emphasis, and finally an open ended question about what should be done to improve engineering education at Basrah University.

PART II

Also, it has four parts; the first three sections assess the level of satisfaction and the quality of services, facilities, and work environment/benefits at the department, college, and university Levels. The fourth section assesses the time management of activities of the faculty members.

PART III

It is about the assessment of overall institutional quality.

2. Class Evaluation Survey

All instructors at the college should carry out course assessment and submit a course assessment file to their departmental assessment coordinators at the end of the term. For more details see which shows guidelines on how to prepare the required assessment.

3. Instructions for Courses Assessment

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

4. Alumni Survey

Alumni are important constituent group and should be involved in the evaluation process. Survey of the graduates who are pursuing graduate study locally or abroad can be obtained by inviting them to an annual meeting at the college and/or e-mailing them the survey. Selected alumni from the industry could also be consulted.

5. Employers Survey

A survey form could be sent to selective employers for their comments. The results of the employer survey which is distributed every year will be used by including questions about the PEOs and POs for each engineering program at the college. Also, many of our capstone design courses involve student presentations before a panel of professionals who also represent employers. We can plan to survey these professionals when they visit the department.

6. Senior Exit Survey

They are our most important constituent group. The response from students will formally be discussed and addressed with the faculty during their evaluation

process. In general, the students' input is considered during the annual departmental assessment meeting and at regular faculty meeting:

Seminar will be offered on September to inform all students about ABET process and importance of the evaluation of PEOs.

Survey of student forms consists of at least 6 junior and senior students, who maintained a reasonable GPA, selected by faculty advisors, student committee or other means. This could be an initiation of student council for each program.

Survey of graduating students who are taking senior project course.

4.1.1 Evaluating Students' Performance

Students qualification can be evaluated externally through the performance of department's graduates in different governmental and industrial establishments and internally using the following means:

1. Daily, monthly, semester, and final exams.
2. Their laboratories reports.
3. Assignments.
4. Senior year project.
5. Summer industrial training reports.

4.1.2 Advising and Guidance

During the past years, the ME department as well as the college of engineering had an educational advising scheme where one or two advisors were assigned to give advice to one level of study (1st, 2nd, 3rd, or 4th) year.

Starting from this year 2014-2015, the department and the college has the intention to apply a new scheme of advising with the following steps:

1. The chairman of the department distributes the students on the selected faculty members (advisors) such as each advisor is assigned a number of

advisees from the same that the faculty member teaches. Each month the advisor meets her/his assigned advisees according to a pre-scheduled appointments.

2. Each advisor delivers her/his monthly report to the chairman who is responsible of arranging the work of the advisors and gives recommendations of solving any problems that may face both the advisors and the students.
3. These appointments can be classified as:

a) Evaluation meeting: assess the student's readiness and abilities and accordingly determine the best advising approach to follow.

b) Diagnostic meeting: usually is used to make tests and answering questions to reach an accurate diagnosis in order to lay out the work plan of advising.

c) Guidance/Treatment meeting: where the treatment is applied according to the plan set in the previous meeting. This treatment depends a lot on the skills and abilities of the advisor.

4.2 Admission Process & Enrollment

Students acceptance in the department is central and controlled by the Ministry of Higher Education and Scientific Research and depends on student graduation rank, geographical location and the ability of the department to the number of students registered. Economic conditions and distribution of gender not taken into account at the acceptance in the department. There are four channels for acceptance into the department:

1- Graduates of junior high school / science section only

2 - Graduates of technical colleges top 10%

3 - Graduates preparatory of professionalism (industry), only the top 5%

4- Distinguished employees in government departments are Kmalk Graduates institutes already are nominated students to college through the cruise conducted by the ministry of any differentiation on the basis of groups of students or grades by the Electronic Calculator in the ministry. For all these channels above students must be full for the study of the morning exclusively.

After the announcement of the names of accepted students by the Department of acceptance of the central Ministry of Higher Education and Scientific Research is issuing a directive by the Dean of the College to form a Committee for the registration of new students and consists of more than ten members, headed by Associate Dean for Student Affairs that the Commission will complete its work within ten days only. Is the distribution of new students admitted to college, depending on the cruise to grades through the Electronic Calculator on the scientific departments of the College, namely, (petroleum engineering, architecture, computer engineering, civil engineering, electrical engineering, chemical engineering, mechanical engineering and materials engineering). After the distribution of students in scientific departments are issuing an administrative order to form a committee to consider the objections of students to the distribution of scientific departments to audit objections and half the student who is right.

For the mechanical engineering department, the number and the lowest rate acceptable of students admitted through the past five years as shows in table 4.4.

Table (4.4):Records of Admissions Standards applied over the past 5 years

Academic Year	Percentile Rank in Secondary School	Number of New Students Enrolled
	% MIN	
2016-2017	92.5	104
2015-2016	91.57	74
2014-2015	89.98	186
2013-2014	84.71	113
2012-2013	83.28	126

The total number of students in the department is 504, and the number of the department members is 48. Thus, student to staff ratio be 11:1 which showed in Fig. 4.1.

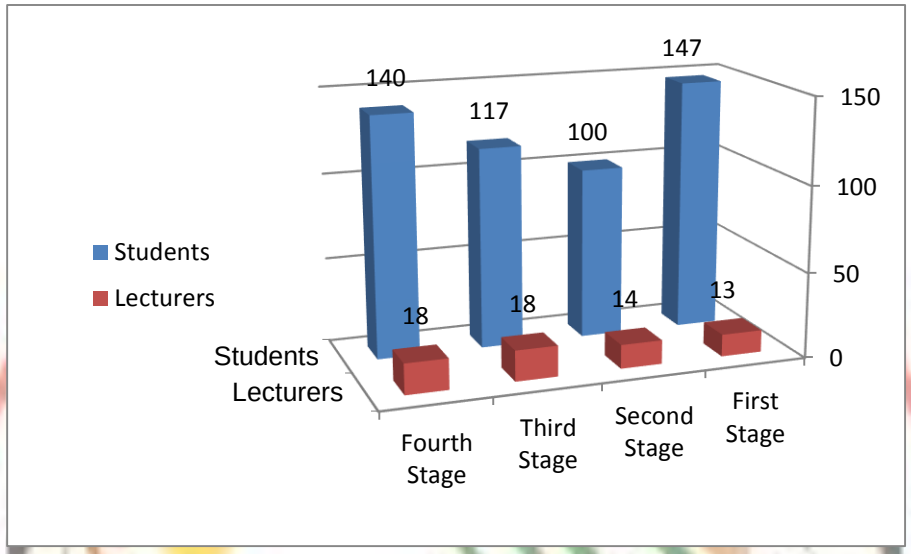


Fig.(4.1) : Ratio of teaching staff to the students

Females to males student ratio for each stage was illustrated in Fig. 4.2.

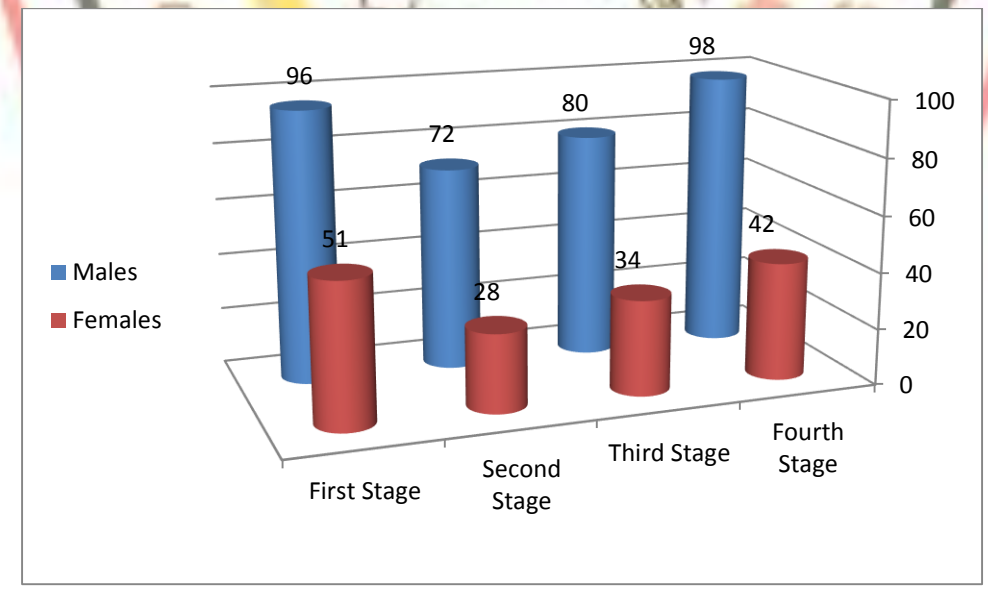


Fig. (4-2): Males to Females Student ratio in each stage

4.3 Graduation Requirement

Table 4.5 shows the records, over the past five academic years, of the total number of full time students enrolled in the program and the corresponding number of graduates each year.

Table (4.5): Total Enrollment and Graduates Tends for Past Five Academic Years

Year	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013
Full Time Students	504	516	420	421	460
Graduates	139	123	112	61	40

Fig. 4.3 is a chart representation of the data tabulated in Table 4.5 which also includes the number of the new students accepted in the department in each year.

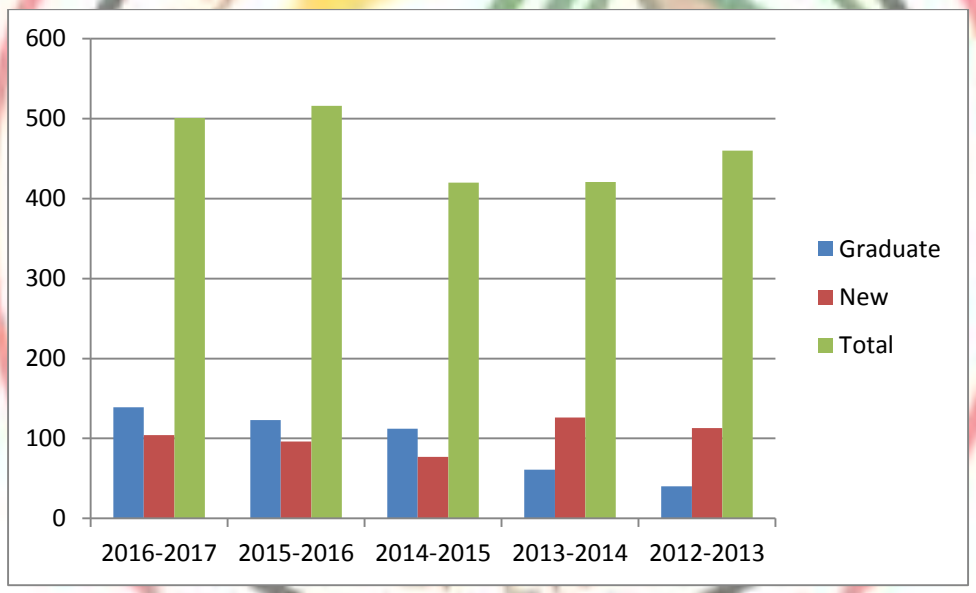


Fig. (4.3): Number of Students: New Students and Graduates

To obtain a bachelor's degree majoring in mechanical engineering, the student must successfully pass the materials distributed to section four years of study, which represents a total of 153 units, distributed as follows:-

1st year:

1. 19/39 credits (48.71%) are of Mechanical Engineering courses requirements.
2. 11/39 credits (28.20%) are of College courses requirements.

3. 9/39 credits (23.07 %) are of university courses requirements.

2nd year:

1. 21/36 credits (58.33%) are of Mechanical Engineering courses requirements.
2. 11/36 credits (30.55%) are of College courses requirements.
3. 4/36 credits (11.11%) are of university courses requirements.

3rd year:

1. 30/37 credits (81.08%) are of Mechanical Engineering courses requirements.
2. 7/37 credits (18.91%) are of College courses requirements.
3. 0/37 credits (0%) are of university courses requirements.

4th year:

1. 37/41 credits (90.24%) are of Mechanical Engineering courses requirements.
2. 4/41 credits (9.75%) are of College courses requirements.
3. 0/41 credits (0%) are of university courses requirements.

Overall percentile during four years:

1. 107/153 credits (69.93%) are of Mechanical Engineering courses requirements.
2. 33/153 credits (21.56%) are of College courses requirements.
3. 13/153 credits (8.49%) are of university courses requirements.

4.4 Transferred Students

Operate the College of Engineering University of Basra according to the mechanism and controls and instructions centralized by the Ministry of Higher Education and Scientific Research / Department of Studies, Planning and Follow-up / acceptance of the central govern the transition of students between colleges and sections corresponding inside Iraq as well as these controls and regulations applied on the students transferred from universities and colleges from outside the country to colleges and the corresponding sections in the Iraqi universities.

The conditions include the transition of successful students to the place of residence and modify the nomination of students for students hereafter and repeaters and the overall implementation of these instructions in detail, as in other colleges and universities through a form distributed by the ministry in addition to all the archives the other without distinction between the students and is the follow-up by the Department of Student Affairs, headed by the University which in turn with the Ministry and the period of transition during the seventh and eighth of each year, i.e. during the summer vacation is finally ordered the issuance of an administrative transfer of the student by his college of origin. The scientific departments, which moved the student to conduct clearing science students transferred to it as assigning this task to the Scientific Committee the department and students are excused from the material in which the similarity of at least 80% in the curriculum depending "on the number of hours of material weekly, and units and demands that the student materials that have not been met in the university and the college was to move them. Table 4.6 shows the number of students transferred to and from the College during the past five years

Table (4.6) The number of students transferred from/to the department over the last five years

Academic Year	Number of Transfer StudentsEnrolled	
	from the Department	to the Department
2016-2017	26	0
2015-2016	28	6
2014-2015	14	4
2013-2014	14	2
2012-2013	14	3

Questions and Answers:

1. How could the department be sure that the used teaching methods reinforce the students' learning? What are your evidences?

   Currently, the department has no tools to check the used teaching methods.

2. What is the proof that the teaching process in the department is of a high quality? Does the department follow a mechanism in getting feedback from students about the teaching process? If yes, then what is the used mechanism? How does the department benefit from the gotten students' responses?

   There is no proof that the teaching process in the department is of a high quality, but currently there is a survey distributed to students asking them about their opinion of each teacher and her/his teaching method.

3. What do the used surveys, assessment criteria, and the students' gotten exams' results offer to the department?

   When they would be used, they would offer a good feedback that helps in the process of updating the curricula and developing the laboratories.

4. Do the examination process's assessment criteria fulfill the wanted teaching results? What are your evidences?

   Yes, evaluation standards followed at exams are evaluated by the specialist committees at the department in terms of the level of examining questions and percentage cover of the scientific material.

5. Do the students be informed about the exams requirements at the beginning of every new academic year?

   Yes they can see the examining questions of the previousyears knowing that the central library on the college contain examining questions of all materials for the past years extend from the eighteenth.

6. Is there an academic support or any other type of help for students to overcome their problems?

   Yes the department appointed one member of teaching staff to each group of every stage who follows their problems with the department.

7. If things go wrong in a course or program how and when would this be known?

   The department took all precautionary concoctions if things go wrong in a course or program and the department archive is stored and what it contain of students degrees and administrative orders saved on a compact disk and putted in a safe place. The department have no measure when this happened.

8. What are the good practices at the department and how to support/encourage them? Give your evidences. Are there proofs that the program is enhanced via the exchanging of these good practices?

   Offering scientific visits for students to factories, companies, and other specialized agencies is a good practice at the department and it certainly enhances the program.

9. Do the department's basic statistics show:

   a. The ratio of faculty members and their qualifications to students?

      Yes.

   b. Admission qualifications and the ratio of girls to boys?

      Yes, in our statistics, we have exactly how many students are admitted to the department, how many of them are males and how many are females.

   c. Number of received applications vs. actual admitted students' number?

      Usually, the two numbers are equal unless some students decide to be transferred to other departments.

   d. Succeeded-students rate and transferred students rate?

      Yes.

10. How does the department consider feedback from external bodies (e.g. Ministry, University, & College)?

    The department responds to all suggestions and views that offered from the external visitors from other universities and also responds to the suggestions offered from postgraduate studies examiners.

Questions 11 through 16 can be answered when the department applies the sought assessment procedures mentioned in section 4.1. Every written answer is a hypothetically based one.

11. What do the student program statistics tell you about the match between intake profile, assessment criteria and student achievement? If they show areas of concern what action has been taken (or will be taken)?
12. Does the assessment criteria demonstrate the achievement of the intended learning outcomes? What evidence is there to support this?
13. How are students informed about assessment requirements, submission deadlines, etc?
14. Are the academic and other supports given to students satisfactory? If so, explain why - if not, what is being done to improve it?
15. What does the department consider to be good practice in its provision? What evidence is there? Is there evidence that the sharing of good practice has enhanced the program?
16. Is the feedback given on formative assessment adequate? Are students happy with it? How does the department know?

Chapter5: Curriculum Development and Review

5.1 Education Objectives of the Program

The Program Educational Objectives (PEOs) clearly reflect the professional expectations from the graduates of the mechanical engineering department and prepare them to meet that challenges. Table5.1 shows the ME department PEOs.

Table (5-1): Mechanical Engineering Program Educational Objectives

No.	Object	Term
1.	*Education them adequate learning of fundamentals of mathematics engineering sciences, engineering technical on aim to use the knowledge in the occupational.*	**PEO – 1**
2.	*Help them in development of tight copula skills in the design process which contains problems formulation, germinal cogitation, active connection, analysis the information and collective work.*	**PEO – 2**
3.	*Help them in understand the impartment of their occupational and morality responsibility.*	**PEO –3**

5.2 Consistency of the PEOs with the College Education Objectives (CEOs)

The PEOs of the mechanical engineering department are coherent and in flow with those of the college of engineering. They are stated in accordance with the College Educational Objectives (**CEOs**); mentioned in **Table 5.2**, while preserving the unique characteristics of the department of mechanical engineering.

Table (5.2): College Education Objectives

CEO1	Prepare globally competent and socially responsible graduates who are specialists in engineering sciences and their applications by providing quality education.
CEO2	Encourage and support the higher degree graduate studies (master and doctorate) in all college departments.
CEO3	Foster research and scholarly endeavors that advance knowledge and help in solving the industrial and social problems.
CEO4	Contribute to the welfare of the country by establishing effective partnerships that can add value and contribute to college programs.
CEO5	Create an enriching supportive working environment for the college community to ensure the achievements of the college objectives.

Table 5.3 establishes the links between the PEOs of the department and the major components of the CEOs of both the college of engineering.

Table (5-3): Mapping Between the PEOs and Major Components of the Missions of the College

Mechanical Engineering Program Educational Objectives				
College of IT Mission		PEO – 1	PEO – 2	PEO – 3
	P – 1	√		
	P – 2	√		
	P – 3	√	√	√
	P – 4		√	√
	P – 5		√	

5.3 Curricula

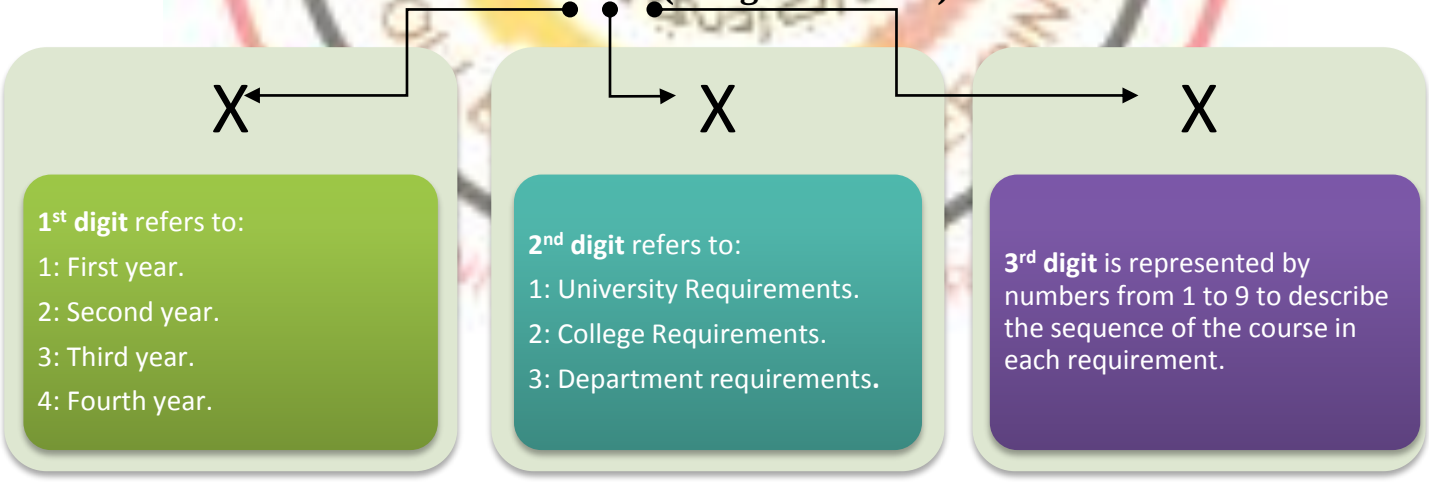
Since its inauguration, the ME department has put its curricula in a way matching those of other ME departments in Iraq. At the beginning of each academic year, the "curricula development" committee meets to revise the put curricula and makes any needed modifications. No external stakeholders (only internal, i.e., faculty members), are specifically involved in this review process.

5.3.1 Curricular/Course Description

In mechanical engineering department, each curricular is described by:

1. Curricular/Course Number and Title: each course is coded as:

Course Number = ME + X XX (3 Digits Number)



For example: **ME437 Industrial Engineering**means that this is a mechanical engineering department course that is given to the **fourth year**; it is the **second course** within the **department requirement** curriculum.

2. Required or elective: whether it is required course for the program or an elective one.
3. Course description: defines what the course is designed for and why it is given to the students.

4. Recommended Textbook(s): what the used textbook(s) or internet articles to teach this course.
5. Prerequisites (if any): these have been established to assure an adequate and uniform background for students in advanced classes.
6. Course Topics: detailed syllabus of the course.
7. Course Outcomes: they are the key points that the students have learned.

5.3.2 Graduation Requirements

To graduate, students have to complete 153 credit hours during her/his four years study.**Tables (5.4)-(5.7)** show the ME curriculum requirements year by year.

Table (5.4): ME Curriculum Requirements

Graduation Requirement	
Requirement	**Credit Hours**
University Requirements	**13**
College Requirements	**33**
Department Requirements	**107**
Total	**153**

Table (5.5): University Requirements

University Requirements: 13 Credit Hours			
Course No.	**Course Title**	**Credit Hours**	**Weekly Hours**
ME118	**Principles of Human Rights**	**4**	**2**
ME113	**Computer Programming I**	**5**	**5**
ME218	**Concepts of Freedom and Democracy**	**4**	**2**
Total		**13**	**9**

Table (5.6): College Requirements

College Requirements: 33 Credit Hours					
Course No.	Course Title	Credit Hours	Weekly Hours		
			Lec.	Tut.	Lab.
ME122	Mathematics I	6	3	1	—
ME125	Engineering Drawing and Descriptive Geometry	5	2	—	3
ME221	Mathematics II	6	3	1	—
ME227	Computer Programming II	5	2	—	3
ME321	Numerical and Engineering Analysis	7	3	1	2
ME418	Engineering Project	4	4	—	—
Total		33	17	3	8

Table (5.7): Department Requirements

Department Requirements: 107 Credit Hours					
Course No.	Course Title	Credit Hours	Weekly Hours		
			Lab.	Tut.	Lab.
ME131	Engineering Mechanics I (Static)	4	2	1	—
ME134	Principle of Production Engineering	5	2	—	3
ME136	Metallurgy	5	2	—	3
ME137	Electrical Engineering I	5	2	1	3
ME232	Thermodynamics	5	2	1	3
ME233	Engineering Mechanical II (Dynamic)	4	2	1	—
ME234	Strength of Materials	5	2	1	3
ME235	Fluid Mechanics I	5	2	1	3
ME236	Mechanical Drawing	2	—	—	3
ME332	Heat Transfer	5	2	1	3

ME333	Theory of Machines	5	2	1	3
ME334	Electrical Engineering II	5	2	—	3
ME335	Internal Combustion Engines	5	2	1	3
ME336	Fluid Mechanics II	5	2	1	3
ME337	Introduction to Manufacture Processes	5	2	—	3
ME431	Design of Machine Elements	7	3	1	3
ME432	Control and Measurements	5	2	1	3
ME433	Air-Conditioning and Refrigeration	7	3	—	3
ME434	Engineering Materials	4	2	—	—
ME435	Mechanical Vibrations	5	2	1	3
ME436	Power Plants	5	2	1	3
ME437	Industrial Engineering	4	2	—	—
Total		107	44	13	54

5.3.3 Program Outcomes

The main objective of the program outcomes and program Educational Objectivesis to measure the level of achievement of the curricular requirement of the departmentin preparing the graduates to meet the challenges presented to them by the fascinating mechanical industry. In other words, mechanical engineering Program outcomesand Program Educational Objectivesare two different, but interrelated mechanisms that were developed in order to measure the level of achievement and success of the program.

The ME department has developed ten Program Outcomes (POs) as an initial set of POs. These outcomes are, ineffect, what the students expected to know and achieve post graduation. Table5.8 shows these program outcomes.

Table (5.8): Mechanical Engineering Program Outcomes

Description	Symbol
PO1: an ability to apply knowledge of mathematics, science, and engineering fundamentals.	a
PO2: an ability to outline and conduct experiments as well as analyze and interpret data.	b
PO3: an ability to design an integrated system and its various components and processes, within realistic economic, environment, social, political, ethical, health andsafety, manufacturability, and sustainability constraints.	c
PO4: an ability to function on multi-disciplinary teams to analyze and solve problems.	d
PO5: an ability to identify, evaluate and solve engineering problems.	e
PO6: an understanding of the responsibility of engineers to practice in a professional and ethical manner at all times.	f
PO7: an ability to communicate effectively using oral, written, and graphic forms.	g
PO8:the broad education necessary to understand the potential impact of engineering solutions on society and the environment.	h
PO9:an understanding of the need for up-to-date engineering tools and other knowledge acquired through life-long learning.	i
PO10:knowledge of contemporary issues related to engineering.	j
PO11:an ability to use modern engineering tools, skills and design techniques necessary for the practice of engineering.	k

5.3.4 Relationship of the Program Outcomes to the PEOs

Mapping between the Program Outcomes and the Program Educational Objectives are shown, below, in Table 5.9.

Table (5-9): Mapping of Program Outcomes to Program Educational Objectives

	POEs		
POs	PEO – 1	PEO – 2	PEO – 3
PO – a	√		
PO – b	√	√	
PO – c	√	√	√
PO – d		√	
PO – e	√	√	
PO – f			√
PO – g		√	

	POEs		
PO – h	√	√	
PO – i	√	√	
PO – j	√	√	
PO – k		√	√

5.3.5 Mapping of Course Learning Outcomes to Program Outcomes

The academic program actualizes with bind curriculum to achieve the eleven outcomes of the program. Also, appraisal any program will be can if study the relationship between the outcomes of the curriculum (i.e. detail of all curriculum which give to every student in year beginning) and the outcomes of the program can be seen in table (5-10).

Table (5-10): Mapping of Mechanical Engineering Core Course to the Program Outcomes Program Outcome Curriculum Map According to ABET Criterion

First Year		a	B	c	d	e	f	g	h	i	j	k
Course No.	Course Title											
ME131	Engineering Mechanics I (Static)	√	√	√	√	√				√	√	√
ME122	Mathematics I	√			√	√						√
ME113	Computer Programming I					√		√		√	√	√
ME134	Principle of Production Engineering	√				√			√	√	√	
ME125	Engineering Drawing and Descriptive Geometry			√		√		√		√		
ME136	Metallurgy	√	√			√			√	√	√	√
ME137	Electrical Engineering I		√			√				√	√	

ME118	Principles of Human Rights						√	√				
	Second Year											
ME221	Mathematics II	√			√	√						√
ME232	Thermodynamics	√	√			√			√	√	√	
ME233	Engineering Mechanics II (Dynamic)	√	√	√	√	√				√	√	√
ME234	Strength of Materials	√	√	√	√	√				√	√	√
ME235	Fluid Mechanics I	√	√	√		√				√	√	
ME236	Mechanical Drawing			√	√	√		√		√		
ME227	Computer Programming II	√				√		√		√	√	√
ME218	Concepts of Freedom and Democracy						√	√				
	Third Year											
ME321	Numerical and Engineering Analysis	√			√	√						√
ME332	Heat Transfer	√	√	√	√	√				√	√	
ME333	Theory of Machines	√	√	√	√	√				√	√	√
ME334	Electrical Engineering II		√			√				√	√	
ME335	Internal Combustion Engines	√	√	√	√	√			√	√	√	
ME336	Fluid Mechanics II	√	√	√		√				√	√	
ME337	Introduction to Manufacture Processes	√	√						√	√	√	√

Fourth Year											
ME431	Design of Machine Elements	√	√	√	√	√				√	√	√
ME432	Control and Measurements	√	√		√	√				√	√	√
ME433	Air-Conditioning and Refrigeration		√	√	√	√			√	√	√	√
ME434	Engineering Materials					√				√	√	√
ME435	Mechanical Vibrations	√	√			√			√	√	√	√
ME436	Power Plants		√	√	√	√			√	√	√	√
ME437	Industrial Engineering	√			√	√	√	√	√	√	√	√
ME418	Engineering Project	√	√	√	√	√	√	√	√	√	√	√

Questions and Answers:

1. Why have the used curriculum been put in this way? Do they enhance the development and progress of students? Do they facilitate the intended program outcomes?

   The curricula in all of the mechanical engineering departments in Iraq have been put by the ministry itself. That's why, there is a 70% to 80% match between these curricula around Iraq. They definitely help in developing students since they are much similar to the most highly prestigious used international curricula.

2. Has the department mapped together the curriculum, learning outcomes, and assessments? Are there any gaps or significant overlaps? If so, what changes are planned and when?

   This is the first time the department uses learning outcomes and assessments. Starting from the next academic year, the department would be able to consider changes and modifications based on what it has realized this year.

3. What evidence does the department have that standards of the program are appropriate?

There is no evidence.

4. Has the department put the curriculum, learning outcomes, and assessment schemes? Are their any pitfalls, breaches, or interferences in them? If so, what are the intended changes and when will they be applied?

   Starting from this year, the department has put the learning outcomes, assessment schemes. Therefore, before seeing the results of the newly used schemes, we'd not be able to decide the breaches in them.

5. Does the department have an official scheme to evaluate, revise, and improve its curriculum?

   Yes, there is a "curricula development" committee in the department that is responsible of updating and refining the curricula.

Chapter6: Management of Quality and Enhancement

6.1 Enhancement

For the main three activities at the department: teaching, learning, and research; there are no available followed mechanism of improvement, rather, the department tries to enhance the three activities whenever it is possible, for example:

- Teaching enhancement:
- Based on the personal motive, each faculty member uses new updated material within the context of the department curriculum.
- Based on the gotten students' exam results, each faculty member tries to improve their own curriculum.
- Learning and Research enhancement:
- Each year, the department buys new stuff and laboratory instruments that help in boosting the students' learning.

6.2 Monitoring

The only thing that the department does to monitor the teaching and learning processes is that the department chair semesterly follows up each curriculum progressive, *i.e.*, what is the percentage of completion for the assigned curriculum? What is the percentage of students who has successfully passed their exams?

The above-mentioned points can be enhanced further if there are quality-training workshops where the department selects some of its faculty and staff to participate in these training programs. By the experience they might get, when they come back, they would be beneficial for the department and help it to build more robust quality-reviewing and monitoring mechanism.

Questions and Answers

1. How are the various quality processes (e.g. reports, course evaluation, staff/student consultative committees, etc) integrated to enhance provision?

   The students' examination results (percentage of those who passed exams) are used to focus on the related curriculum. Hence, the department tries to enhance that curriculum progress.

2. Discuss how good practice is identified and disseminated within the department and identify any particular elements of good practice in teaching and learning within the department?

   When something good is realized, the department council is held and the matter is discussed to see its positive and negative aspects and how it can be adapted to be used in other curricula. For example, a curriculum has the highest percentage of success.

Chapter7: Support Services

7.1 Department Budget Allocation Process

Specialization and the Ministry of Finance of the Republic of Iraq, the annual budget of the Ministry of Higher Education and Scientific Research, along with ministries other as the Ministry of Finance to make the maximum effort in order to formulate and implement fiscal policies right to be allocated and development of available resources and provide development opportunities best of priorities and the privileged sectors. Allocates part of the planned budget of the ministry to the University of Basra, which in turn distributes the budget to various colleges including the College of Engineering.

Doors can be classified on the basis that the disposal of the overall budget as follows:

1. Chapter One: (personnel expenses) and include:

   Salaries wages lectures pensions exceptional a collocations university risk allocations equivalents associate additional work.

2. Chapter II: (required service)

   Delegation celebrations allocations students consolidate the research department clean sports activity (required service) Conference on Banking

3. Chapter III: (commodity items)

   All supplies (medical laboratory school stationery agricultural publications of textbooks and other fuels).

4. Chapter IV: (maintenance of assets)

   All maintenances (buildings, water, electric & Garden Equipment pregnancy books work records).

5. Chapter V: (capital expenditures)

Wooden Furniture Equipment Computer communications equipment areas of cloning machines print books magazines furniture metal furniture machines machine calculator again.

6. Other expenses:

Provisions related to students and is affiliated with bonuses.

7.2 Source of Financial Support

The mechanical engineering department /College of Engineering/ University of Basra and government organizations based in the management of its activities on a number of references :-

1. General governmental funds which represents the greatest portion of the budget.
2. Higher education fund which includes:
   a. Laboratorial tests: 65% of funds for test team, 15% for university, 16% for bonuses, and 4% for maintenance.
   b. Shops rent: 15% for university, 68% for bonuses, and 17% for maintenance.
   c. Continuous learning courses: 65% for course trainers, 15% for university, 16% for bonuses, and 4% for maintenance.
   d. Special courses: 65% for course trainers, 15% for university, 16% for bonuses, and 4% for maintenance.
   e. Industry cooperation: 80% for work team, 10% for university, 8% for bonuses, and 2% for maintenance.
   f. Internet Center: 15% for university, 68% for bonuses, and 17% for maintenance.
   g. Student registration fees: 80% for bonuses and 20% for maintenance.
   h. Exams results objections fees: 80% for bonuses and 20% for maintenance.

i. Self-funding study master and doctorate fees: 50% for students, 25% for lectures, and 25% for other stuff.

j. Water desalination plant: 15% for university, 68% for bonuses, and 17% for maintenance.

7.3 Community Service

The mechanical department participates through the engineering consultation office in the college in giving consultation services in all fields for governmental and private sector agencies inside and outside Basrah.Table (7.1) illustrates some of the engineering consultancy that carried out for some public sector companies and private sectors.

Table (7.1) some of the engineering consultancy services provided to the State through engineering consultancy office in the Faculty of Engineering / University of Basra for the period 2005-2010

No.	Project Name	Start time	End time	The beneficiary
1	Design of faculty of law building	19/02/2004	2005	presidency of the University of Basra
2	Design of Building School of Medicine and the Faculty of Education, University of Theqar	18/12/2004	2005	presidency of the University of Theqar
3	Auditing of tank schemes	15/01/2005	2005	IbnMajid General Company
4	Open of field construction tests laboratory to revive Swaib farm in Basrah	15/01/2005	2005	Directorate-General for the implementation of irrigation and reclamation projects
5	Design of building the province of Maysan	17/04/2005	2005	province of Maysan
6	Check and modify of water tank design in a Fayhaa hospital	19/08/2005	2005	Al -Bara Contracting company
7	Design of three floors building	08/11/2005	2005	Oil Training Institute - Basra
8	Design of the Faculty of	28/02/2006	2006	presidency of the University of

No.	Project Name	Start time	End time	The beneficiary
	Education Library			Basra
9	Design of the Ministry of Planning complex in Basra	09/05/2006	2006	Ministry of Planning and Development Cooperation
10	Check of a shed design	25/04/2006	2006	Southern Gas Company
11	Audit work for the welding tests for the rapid bridge traffic	18/05/2006	2006	IbnMajid General Company
12	Ultrasound examination of the foundations of transformers	04/09/2006	2006	Sanafy company
13	Design of a base for metal tank in Maysan refinery	17/05/2008	2008	South Refineries Company
14	Conducting tests for crane and rail clips	01/07/2008	2008	IbnMajid General Company
15	Design of administrative headquarters building of the Gas Plant in southern region	24/11/2008	2008	Gas Filling Company South Branch
16	Approve the design basis of power plants Electricity Fertilizers	10/03/2009		Baghdad Company for gas units
17	Concrete mix design	05/03/2009	2009	Al-Serafy company
18	Supervision consultant for the power plant project in Alekhala	14/05/2009	2009	Directorate General of the projects of electrical energy production
19	design of 5000m^3 capacity tank	16/08/2009	2009	Directorate General of the projects of electrical energy production
20	Supervision on the mechanical works for power plant project in Alekhala	19/01/2010	2010	Directorate General of the projects of electrical energy production
21	Approval of mechanical and civil schemes for the tank of fire system / power station Alekhala	24/01/2010	2010	Directorate General of the projects of electrical energy production
22	Approval of mechanical and civil schemes for the fire	24/01/2010	2010	Directorate General of the projects of electrical energy production

No.	Project Name	Start time	End time	The beneficiary
	system tank / Alekhala power station			
23	Supervising the Hospital of the digestive system	07/04/2010	2010	Department of Health Basra
24	Laboratory tests	18/07/2010	2010	Basra Diamond company
25	Check out the bridge cranes	09/12/2010	2010	Al- Hareeth company

As the unit of continuing education in the Faculty of Engineering / University of Basra planning to give many of the developmental courses for engineers public sector companies in the province. Table (7.2) shows a list of courses and dates of implementation and the names who have implemented in addition to the number of participants.

Table(7.2): Mechanical Department Participation in the Continuous Learning Courses in 2010-2011

No.	Title	Period and Date	Number of Participants	Instructor
1	**AUTO CAD -2D**	**2 Weeks/ 17-07-2011**	**11**	**MuhammedKhair Allah**
2	**Introduction to Diesel Engine**	**2 Weeks/ 28-11-2010**	**6**	**Muhammed B. Muhsen**
3	**Polyethelene Pipes Inspections**	**One Week/ 12-12-2010**	**4**	**MuhammedKhair Allah**
4	**AUTO-CAD - 3D**	**2 Weeks / 26-12-2010**	**9**	**Muhammed B. Muhsen**
5	**AUTO- CAD – 3D**	**2 Weeks/ 01-05-2011**	**4**	**Muhammed B. Muhsen**

7.4 Faculty Professional Development Support

Contribute to the presidency of the University of Basra in the development of the College of Engineering through the different departments related to led the university, such as the Department Assistant President for Scientific Affairs,

Department Assistant President for Administrative Affairs, Department of Planning and follow-up, Department of Cultural Relations by sending lecturers with a master degree to foreign universities to complete their studies and their a PhD. As well as sending faculty and PhD students in scientific departments at various foreign universities research fellowship for six months.

Questions and Answers:

1. Are program resources poor, enough, or more than good? How does the department secure their availability? Can they be enriched?

   The used department resources are enough; they are annually assigned to the department from the budget of the college ← university ← ministry.

2. How far do the teaching, learning, and research be affected by the availability of resources and the ministry/university support?

   Of course, the university/ministry support affects the whole process of teaching and learning in the department, but for researches, it affects the must since there is no specific budget for them.

3. Are there any arrangements to train faculty members and students in foreign workshops or via exchange programs? There are a very rare opportunities for training.

4. Is there any participation from outside the department in the process of putting the curriculum and the improvement of teaching and scientific research?

   No, currently, there is not. However, according to the newly put scheme, there might be some participation from the department graduate alumni and their employers.

Chapter8: External Relations

The office of chancellor's assistant for scientific affairs, office of chancellor's assistant for management affairs, department of planning and continuation, and the cultural affairs office in the University of Basrah participate in developing the college of engineering by offering short and long term scholarships for its master and doctorate students. The mechanical engineering department external relations limited to individual research scholarships only for some few PhD students, table 8.1 illustrate the names of the PhD students who get a research and full scholarships with the universities name.

Table (8.1): PhD Students Scholarships

No.	Faculty Name	Joining Date	University Name	Scholarship Type
1	Mohamed Baker	Feb -2012	Cambridge-UK	Research

Questions and Answers:

1. Are there satisfactory arrangements for participation by staff and students in external training and visit programs with international universities?

   No, there are not such arrangements.
2. Are there satisfactory arrangements for monitoring placements?

   Placements at the department are not done by the department itself, rather they are done by the college.
3. If appropriate, do international advisors have an input to curriculum development?

   No, they do not have.

Chapter9: SWOT Analysis Summary & Recommendations for Improvement

9.1 Strengths

- The good rules that the chairman of the department and his active wise administration fellow who allow the education grow up smoothly.
- The good relation among the department chairman, assists and the teaching staff which make orders done smoothly.
- The good relation of the department with other departments from other colleges.
- The curricula that are taught to students which give the engineering principals in addition to latest engineering science.
- The professional employed department members, technicians, and other staff members.
- 23.1% of the faculty members currently are completing their PhD studies.
- Students admitted in the department have high rates and acceptable grade.
- Many aspects are used in evaluating students.
- The number of the graduates are big.
- Many of the faculty members have a good relation with students and this facilities interactions with staff and students.
- Student to faculty ratio is 9:1 which is considered optimal.

9.2 Weaknesses

- The weak correlation between the department and the Basrah creator to fellow the citizen developments.
- Absence of sessions for the teaching staff outside the country and this may deprived the staff from getting experiences from other universal universities and this reflected on their performance.
- The rules of scientific promotion are difficult and take too long period.
- Absence of visitors from worldwide universities to our college which limit transferring of experts in different teaching and learning techniques.
- Only two faculty members are of academic title professor.
- Absence of financial allocations from the state finical balance for education.
- Poor physical facilities to support the department research, teaching and learning activities.
- The department library has no subscribe to periodicals and scientific journals world.

- The number of graduates from institutes and industry school admission in the department according to the Ministry's instructions.
- Admission a number of students from the other adjacent cities.
- The number of students admitted are more than the capacity of the department.
- There are number of students lack of commitment with instructions Clothing uniforms.

9.3 Opportunities

- 30% of the faculty members have the intention to pursue their PhD degree.
- The "Basrah Center of Excellence and Innovation" center has promised to provide the department with an optic link internet connection and new laboratory.
- By continuously updating the PEO and PO, all the present threats would be vanished.
- The newly adopted advising and guidance method will help the department in diagnosing the students' performance.
- Number of students who were trained by oil companies, investment.

9.4 Threats

- The inability to employ new faculty members because of the laws and rules of the ministry.
- One of the faculty members is approached the age of retirement.
- The gotten summer training reports from the companies do not give us a robust feedback including what students had learned; whether they were active or not; what their flaws and strengths are.
- Lack of financial resources for students.