Annual Report for B. Sc. Mechatronic Engineering Program

Academic Year 2023-2024

Institute: **High Institute of Engineering – 6th October City**
Department: **Mechatronic Engineering**

A-Basic Information

(1) Program Title: B. SC Mechatronics Engineering Program
(2) Program Specialty: Mechatronics Engineering
(3) Program duration: 10 semesters (5-Levels)
(4) Program structure: Credit hours system

No. of Credit hours=	180	117 Lectures	165 Tutorial /Labs
No. of Credit hours=	180	163 Compulsory	17 Elective
No. of Credit hours of social science and humanities:			17 hours= 9.44%
No. of Credit hours of mathematics and basic science:			41 hours= 22.78%
No. of Credit hours of basic Engineering science:			39 hours= 21.67%
No. of Credit hours of applied Engineering and design:			38 hours= 21.11%
No. of Credit hours of computer application and ICT:			18 hours= 10%
No. of Credit hours of project and practice:			15 hours= 8.33%
No. of Credit hours of Discretionary courses:			12 hours= 6.67%

	Subject Area	Hours	%	Tolerance
A	Humanities and Social Sciences (Univ. Req.)	17	9.44	9–12 %
B	Mathematics and Basic Sciences	41	22.78	20–26 %
C	Basic Engineering Sciences (Faculty/Spec. Req.)	39	21.67	20–23 %
D	Applied Engineering and Design	38	21.11	20–22 %
E	Computer Applications and ICT	18	10	9–11 %
F	Projects and Practice	15	8.33	8–10 %
	Subtotal	168	93.33	92–94 %
G	Discretionary (Institution character-identifying) subjects	12	6.67	6–8 %
	Total	180	100	100%

(5) External reviewing system of exams: N/A.

(6) Program Evaluator: Prof. Dr. Ahmed Atia, the general manager of quality assurance unit in the faculty of engineering at Shoubra – Benha University, was nominated by the Institute Council as the program external evaluator in the academic year 2023-2024.

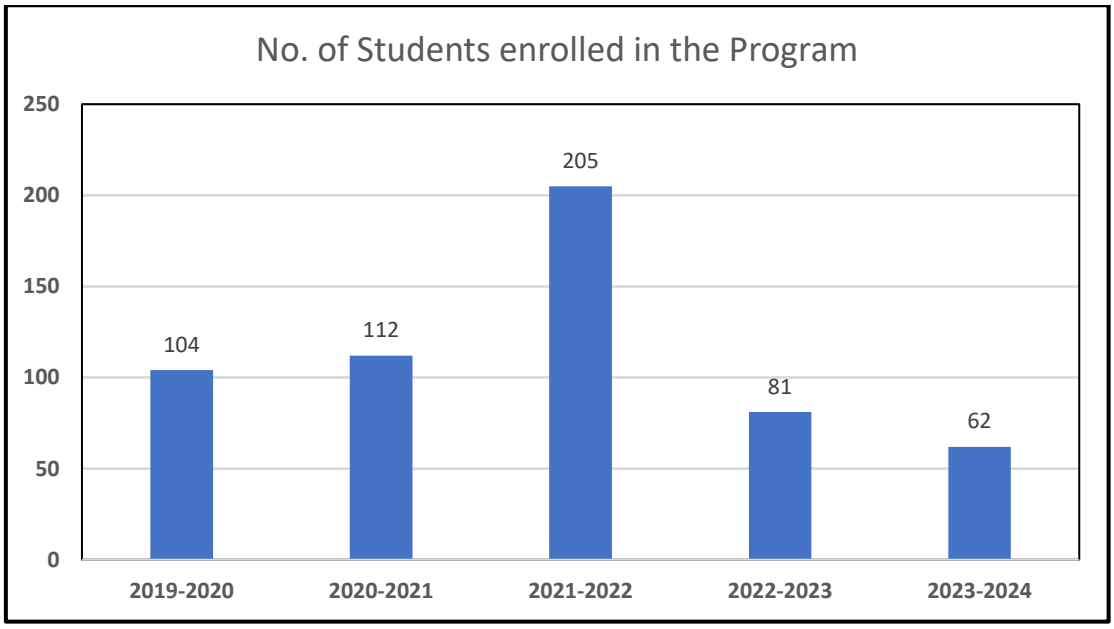
(7) Last date of program specifications approval: 2018

B. Professional Information

Statistics:

1. **No. of students enrolled in the program this year: 62.**
   No. of students enrolled in the program this year to those who enrolled in the previous years is given in the following table and the corresponding figure. A decrease in number of students is noticed.

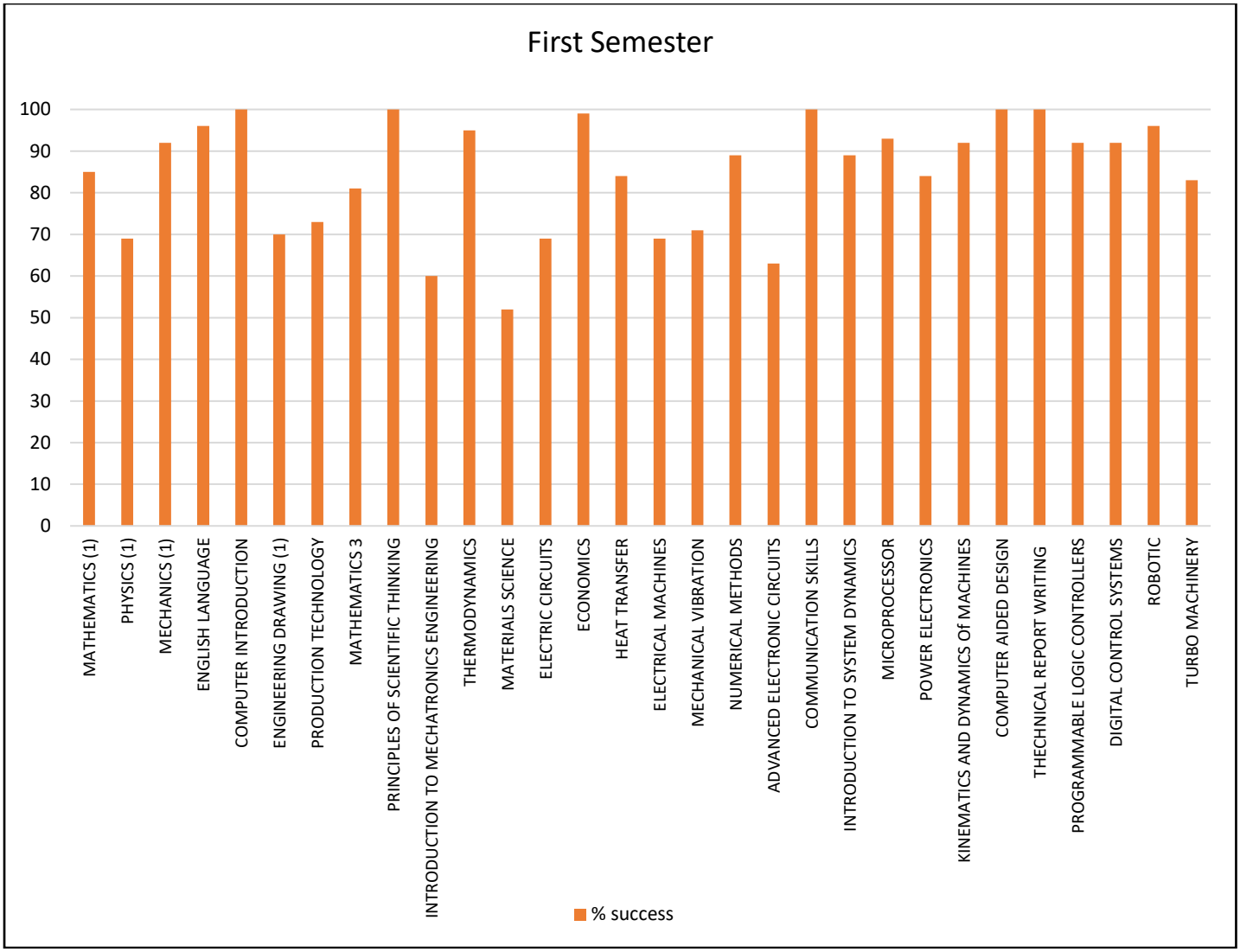
Academic Year	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
No. of Students	104	112	205	81	62



2. **Regarding First Term**:
   Number of students enrolled in the courses that offered in the **First semester** with the percentage of success are given in the following table:

#	evel	Course Name	Grades												No. of Student	Success%
			A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F		
1	000	BAS 001 Mathematics (1)	0	0	3	8	9	11	12	8	6	5	12	14	91	85%
2		BAS 002 Physics (1)	0	2	1	6	7	5	7	11	3	6	15	31	99	69%
3		BAS 003 Mechanics (1)	2	4	10	12	6	17	7	7	9	4	1	8	100	92%
4		HUM 001 English Language	4	11	13	27	2	7	4	0	3	3	4	4	96	96%
5		ICE 001 Computer Introduction	3	18	31	13	8	2	3	4	2	1	2	0	92	100%
6		MTE 001Engineering Drawing (1)	2	5	10	9	4	11	6	9	5	3	11	34	115	70%
7		MTE 003Production Technology	0	0	1	6	1	6	4	13	7	7	13	26	97	73%

#	evel	Course Name	Grades												No. of Student	Success%
			A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F		
8	100	BAS 101Mathematics (3)	0	0	0	3	2	2	1	7	9	10	41	18	93	81%
9		HUM 103 Principles of Scientific Thinking	0	10	17	27	4	10	5	1	0	1	1	0	86	100%
10		MTE 101 Introduction to Mechatronics Engineering	1	1	3	6	5	5	8	5	6	9	7	37	93	60%
11		MTE 102 Thermodynamics	4	13	12	25	0	3	4	2	1	1	4	4	83	95%
12		MTE 103 Materials Science	0	0	1	0	0	2	3	3	5	4	20	39	81	52%
13		ICE 102 Electric Circuits	0	0	2	6	8	5	7	8	4	7	14	30	96	69%
14	200	HUM 205 Economics	0	2	9	32	33	43	23	14	7	0	0	1	165	99%
15		MTE 201 Heat Transfer	4	7	12	25	16	21	13	16	16	12	28	34	207	84%
16		MTE 208 Electrical Machines	0	0	3	12	7	14	15	17	14	8	27	56	178	69%
17		MTE 202 Mechanical Vibration	0	0	8	4	8	15	13	11	17	11	28	49	170	71%
18		MTE 203 Numerical Methods	18	11	28	22	8	9	14	14	9	13	15	21	195	89%
19		ICE 204 Advanced Electronic Circuits	1	7	5	10	4	19	10	9	9	14	20	70	190	63%
20	300	HUM 307 Communication Skills	1	23	23	21	7	12	1	1	0	0	1	0	105	100%
21		MTE 301 Introduction to System Dynamics	0	0	2	5	9	12	15	12	16	12	21	13	120	89%
22		MTE 307 Microprocessor	0	2	2	5	8	23	17	14	9	12	11	8	111	93%
23		MTE 308 Power Electronics	1	2	6	9	2	8	8	6	5	10	20	17	107	84%
24		MTE 302 Kinematics and Dynamics of Machines	5	5	10	12	8	6	7	7	10	6	13	8	97	92%
25		MTE 303 Computer Aided Design	13	23	18	21	3	11	5	1	0	0	0	0	105	100%
26	400	HUM 409 Technical Report Writing	0	9	14	21	26	19	11	10	4	1	2	0	121	100%
27		MTE 402 Programmable Logic Controllers	3	14	23	19	1	17	5	3	7	3	4	9	118	92%
28		MTE 403 Digital Control Systems	4	7	3	18	3	10	13	16	7	8	8	9	116	92%
29		MTE 404 Robotic	0	0	0	6	3	28	18	11	14	5	2	4	111	96%
30		MTE 411 Turbo Machinery	1	8	7	14	7	15	13	2	1	5	12	20	115	83%
Total			**106**	**262**	**415**	**606**	**519**	**532**	**380**	**333**	**309**	**266**	**529**	**854**	**5209**	



Analysis of Significant Results or Variations:

In this section, a list of courses where completion rates, grade distribution, or trends are significantly skewed, high or low results, or departed from policies on grades or assessments. For these courses, the reason for the significant result, and what action has been taken.

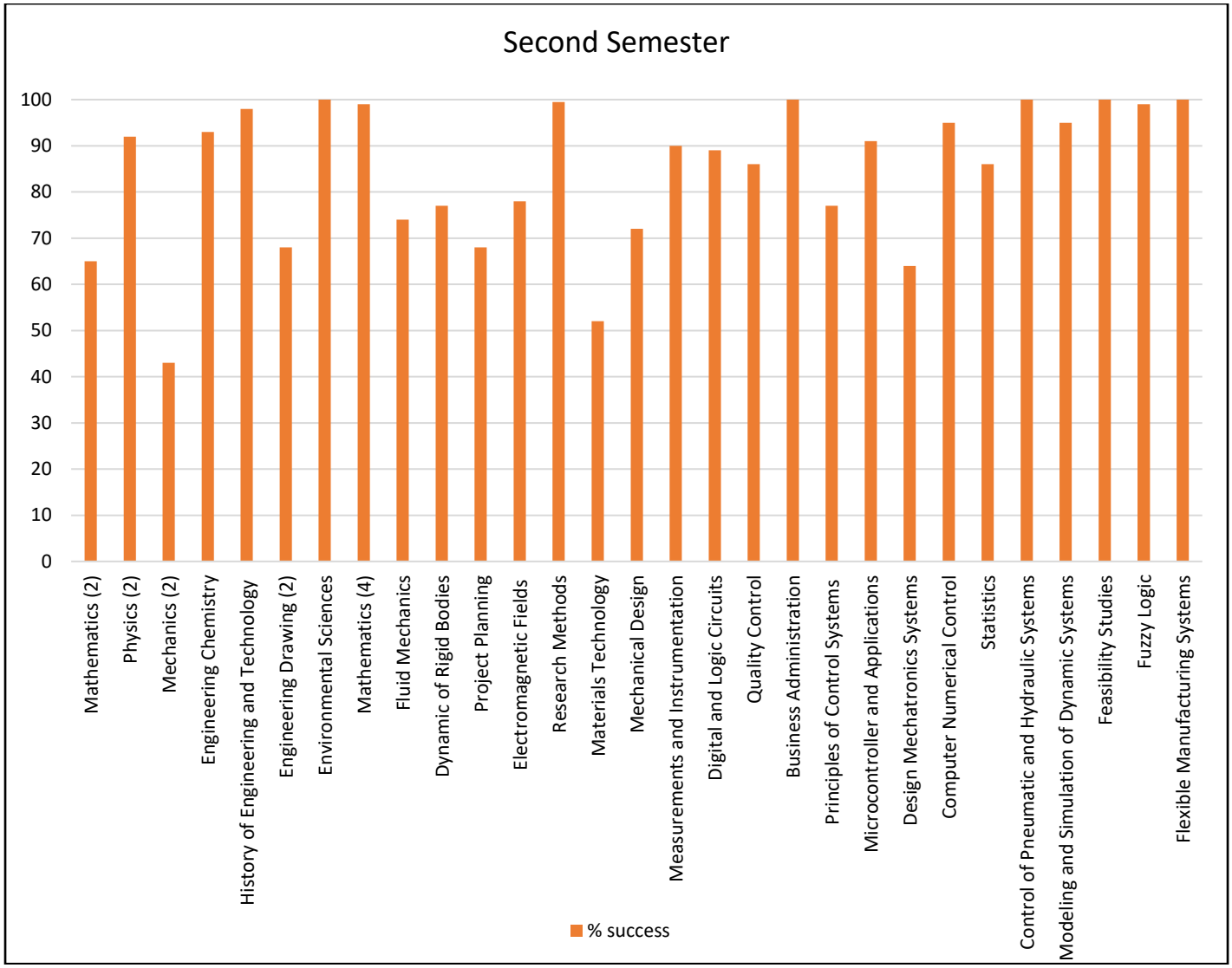
#	Course Name	Significant result or variation	Action taken
1	Introduction to Mechatronics Engineering	60% success	Study the reasons through analysis of course report.
2	Materials Science	52% success	
3	Advanced Electronic Circuits	63% success	
4	Computer introduction	100% success	
5	Principles of scientific thinking	100% success	
6	Communication skills	100% success	
7	Computer aided design	100% success	
8	Technical report writing	100% success	

3. Regarding Second Term:

Number of students enrolled in the courses that offered in the **Second semester** with the percentage of success are given in the following table:

#	Level	Code	Course Name	Grades												No. of Student	Success%
				A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F		
1	000	BAS 006	Mathematics (2)	0	0	0	2	4	5	5	6	6	9	17	29	83	65%
2		BAS 007	Physics (2)	0	0	0	1	8	18	14	14	10	7	11	7	90	92%
3		BAS 008	Mechanics (2)	0	0	0	2	4	3	5	7	5	10	23	89	156	43%
4		BAS 009	Engineering Chemistry	0	0	0	0	0	15	19	34	19	4	8	8	108	93%
5		HUM 002	History of Engineering and Technology	4	12	13	29	10	8	6	2	3	3	1	2	89	98%
6		MTE 002	Engineering Drawing (2)	0	1	8	9	11	7	5	2	9	5	24	39	123	68%
7	100	HUM 105	Environmental Sciences	0	0	0	5	19	24	17	4	5	2	0	0	76	100%
8		BAS 106	Mathematics (4)	0	1	0	5	9	23	15	4	8	7	5	1	78	99%
9		MTE 104	Fluid Mechanics	4	10	3	12	11	5	3	5	3	2	12	25	98	74%
10		MTE 105	Dynamic of Rigid Bodies	0	0	1	8	13	10	5	7	4	7	9	21	90	77%
11		MTE 106	Project Planning	2	5	5	12	13	14	6	4	4	4	6	37	114	68%
12		MTE 107	Electromagnetic Fields	0	1	1	6	8	6	8	19	8	10	17	26	116	78%
13	200	HUM 207	Research Methods	0	2	4	20	25	29	34	19	20	4	3	1	163	99%
14		MTE 204	Materials Technology	1	0	3	6	6	8	7	12	11	4	23	78	162	52%
15		MTE 205	Mechanical Design	0	0	2	5	14	16	12	13	12	11	18	42	150	72%
16		MTE 206	Measurements and Instrumentation	3	8	7	14	17	20	14	18	11	7	12	14	146	90%
17		MTE 209	Digital and Logic Circuits	2	11	11	14	8	12	8	15	12	7	12	14	131	89%
18		MTE 207	Quality Control	1	4	13	23	18	21	11	20	12	10	16	25	178	86%
19	300	HUM 308	Business Administration	22	33	35	16	8	1	2	0	0	0	0	0	119	100%
20		MTE 304	Principles of Control Systems	5	7	4	5	12	8	7	6	7	3	11	23	102	77%
21		MTE 309	Microcontroller and Applications	2	6	6	17	12	11	15	13	5	3	3	9	102	91%
22		MTE 305	Design Mechatronics Systems	0	0	1	4	7	6	8	10	8	8	14	38	107	64%
23		MTE 306	Computer Numerical Control	1	1	5	18	13	21	13	17	9	3	8	5	104	95%
24		BAS 302	Statistics	0	5	6	16	8	8	17	7	5	11	22	17	123	86%

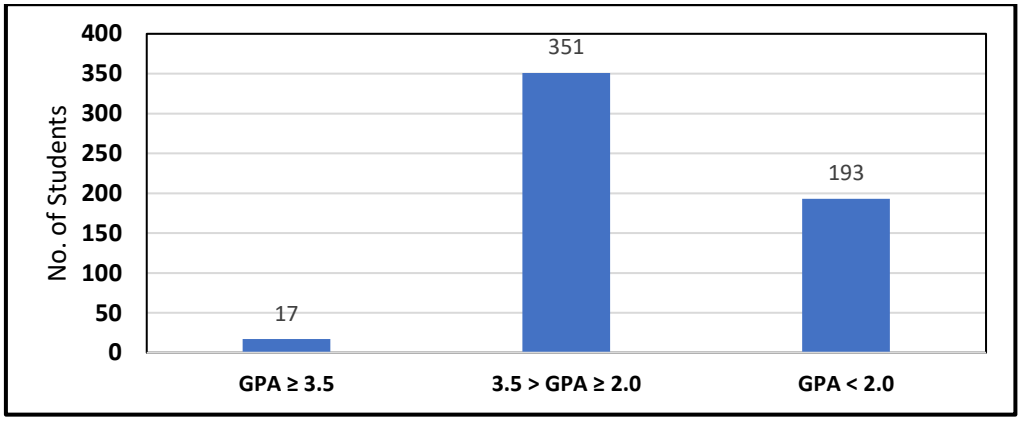
#	Level	Code	Course Name	Grades												No. of Student	Success%
				A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F		
25	400	MTE 406	Control of Pneumatic and Hydraulic Systems	0	6	24	45	20	8	3	2	0	1	1	0	110	100%
26		MTE 407	Modeling and Simulation of Dynamic Systems	2	4	4	6	12	21	17	11	10	8	10	5	110	95%
27		MTE 408	Feasibility Studies	6	13	25	38	11	9	4	0	1	1	1	0	109	100%
28		MTE 423	Fuzzy Logic	0	13	17	18	18	18	7	6	5	4	4	1	111	99%
29		MTE 432	Flexible Manufacturing Systems	6	17	29	27	6	4	2	2	0	0	2	0	95	100%
Total				144	277	325	538	484	516	401	358	307	227	456	793	4917	



Analysis of Significant Results or Variations:
In this section, a list of courses where completion rates, grade distribution, or trends are significantly skewed, high or low results, or departed from policies on grades or assessments. For these courses, the reason for the significant result, and what action has been taken.

#	Course Name	Significant result or variation	Action taken
1	Mathematics (2)	65% success	Study the reasons through analysis of course report.
2	Mechanics (2)	43% success	
3	Engineering Drawing (2)	68% success	
4	Project Planning	68% success	
5	Materials Technology	52% success	
6	Design Mechatronics Systems	64% success	
7	Environmental sciences	100% success	
8	Business administration	100% success	
9	Control of pneumatic and hydraulic systems	100% success	
10	Feasibility study	100% success	
11	Flexible manufacturing systems	100% success	

4. Grade Point Average (GPA) distribution analysis:



5. Student graduated during the academic year 2023-2024:

Number of students graduated during the academic year 2023-2024 is **83** students given in the following table.

Semester	Fall 2023-2024	Spring 2023-2024	Summer 2023-2024	**Total**
No. of Graduates	5	78	Not approved yet	**83**

The following list is a sample of graduate students with their cumulative GPA and project degree.

م	كود الطالب	كود شؤون الطلاب	الحالة	اســـم الطالـــب	عدد الساعات	المعدل التراكمى	التقدير		تقدير المشروع		تربيه عسكري
1	190004	20192187	مستجد	احمد ابراهيم فضل احمد	180	3.54	A	ممتاز	A+	ممتاز مرتفع	اجتاز
2	190005	20190042	مستجد	احمد اسامه ابراهيم ابراهيم محمد	180	2.64	C+	جيد مرتفع	A	ممتاز	اجتاز
3	180019	20180035	مستجد	احمد سعد هندى مسعود	180	2.45	C	جيد	A	ممتاز	اجتاز
4	190015	20190162	مستجد	احمد عادل صبرى عصملى	180	3.33	B+	جيد جدا مرتفع	A+	ممتاز مرتفع	اجتاز
5	190019	20190037	مستجد	احمد عبدالله صفوت عبدالعزيز	180	3.35	B+	جيد جدا مرتفع	A+	ممتاز مرتفع	اجتاز
6	190024	20190282	مستجد	احمد عمرو احمد عواد	180	3.01	B	جيد جدا	A+	ممتاز مرتفع	اجتاز
7	190031	20191840	مستجد	احمد محمد عبدالرحمن محمد	180	3.18	B	جيد جدا	A+	ممتاز مرتفع	اجتاز
8	190227	20193306	مستجد	احمد محمد عبدالمحسن مندور	180	2.81	C+	جيد مرتفع	A+	ممتاز مرتفع	اجتاز
9	190032	20190266	مستجد	احمد محمد محمد يوسف	180	2.95	C+	جيد مرتفع	A+	ممتاز مرتفع	اجتاز
10	180051	20180059	مستجد	اسلام مصطفى حمودة مصطفى الشافعى	180	2.61	C+	جيد مرتفع	A+	ممتاز مرتفع	اجتاز
11	190039	20190143	مستجد	انتونى زكريا فرنسيس بساده	180	2.92	C+	جيد مرتفع	A	ممتاز	اجتاز
12	190040	20192496	مستجد	ايمن طارق احمد محمود	180	2.60	C+	جيد مرتفع	A	ممتاز	اجتاز
13	190206	20193021	مستجد	ايناس كامل ناصف يوسف	180	2.66	C+	جيد مرتفع	A	ممتاز	---
14	180328	20183879	مستجد	ايه كمال السيد مصطفى المغربى	180	2.87	C+	جيد مرتفع	A+	ممتاز مرتفع	---
15	190042	20190116	مستجد	ايهاب جمال نصر عبدالعزيز	180	3.17	B	جيد جدا	A+	ممتاز مرتفع	اجتاز
16	180335	20184959	مستجد	باسل عمرو فكرى شعبان	180	2.39	C	جيد	A+	ممتاز مرتفع	اجتاز
17	190048	20190267	مستجد	جلال صبرى يسر مظلوم	180	2.55	C+	جيد مرتفع	A	ممتاز	اجتاز
18	180078	20180304	مستجد	حذيفة محمود فتحى محمود	180	2.19	C	جيد	A+	ممتاز مرتفع	اجتاز
19	190051	20190018	مستجد	حسام محمد شبانه محمد نيل	180	2.51	C+	جيد مرتفع	A	ممتاز	اجتاز
20	190215	20192990	مستجد	حمدى ناصر فتحى محمد هجرس	180	2.56	C+	جيد مرتفع	A+	ممتاز مرتفع	اجتاز
21	190066	20190122	مستجد	ساره خالد محمد عبدالرحمن	180	3.18	B	جيد جدا	A+	ممتاز مرتفع	---
22	190069	20192345	مستجد	سلمى طارق احمد عبدالنعيم	180	2.81	C+	جيد مرتفع	A+	ممتاز مرتفع	---
23	190071	20190004	مستجد	سميحه رجب بدوى محمد الرفاعى	180	3.27	B+	جيد جدا مرتفع	A+	ممتاز مرتفع	---
24	190074	20190083	مستجد	شادى ايمن فايق ميخائيل	180	3.30	B+	جيد جدا مرتفع	A+	ممتاز مرتفع	اجتاز
25	180105	20182674	مستجد	شموع ايمن محمد محمد غلوش	180	2.39	C	جيد	A+	ممتاز مرتفع	---
26	190075	20190514	مستجد	شهاب محمود مصطفى السيد	180	2.67	C+	جيد مرتفع	A+	ممتاز مرتفع	اجتاز

م	كود الطالب	كود شؤون الطلاب	الحالة	اســـم الطالـــب	عدد الساعات	المعدل التراكمى	التقدير		تقدير المشروع		تربيه عسكري
27	190079	20190234	مستجد	طه عادل امين احمد	180	2.77	جيد مرتفع	C+	ممتاز	A	اجتاز
28	190084	20190066	مستجد	عبدالحميد السيد عبدالرؤوف السيد عليوة	180	2.88	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
29	190086	20190844	مستجد	عبدالرحمن احمد حمزة خليفة حسن	180	2.94	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
30	180113	20183024	مستجد	عبدالرحمن السيد مصطفى سعد	180	2.16	جيد	C	ممتاز	A	اجتاز
31	190088	20191719	مستجد	عبدالرحمن رضا غازى على غازى	180	2.63	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
32	190089	20190032	مستجد	عبدالرحمن عصام الدين عبدالرحمن محمود	180	2.96	جيد مرتفع	C+	ممتاز	A	اجتاز
33	190093	20190163	مستجد	عبدالرحمن محمود احمد احمد	180	2.60	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
34	190094	20190136	مستجد	عبدالعليم جمال عبدالعليم ابوالعنين	180	2.80	جيد مرتفع	C+	ممتاز	A	اجتاز
35	190097	20190088	مستجد	عبدالله محمد احمد حسن احمد	180	2.90	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
36	20A001	20203175	مستجد	عبدالله محمد مغاورى حسن واكب	180	2.77	جيد مرتفع	C+	ممتاز	A	اجتاز
37	180130	20180107	مستجد	عبدالله مخلص محمد عبدالحميد حامد	180	2.36	جيد	C	ممتاز مرتفع	A+	اجتاز
38	20B001	20203182	مستجد	على يحي محمد محمد سليمان	180	2.64	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
39	180333	20180288	مستجد	عمرو احمد عبدالحفيظ محمد	180	2.52	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
40	190107	20192186	مستجد	عمرو اسامه احمد طايع	180	3.15	جيد جدا	B	ممتاز مرتفع	A+	اجتاز
41	190108	20192094	مستجد	فادى عهدى وليم سيدهم	180	2.84	جيد مرتفع	C+	ممتاز منخفض	A-	اجتاز
42	190110	20192415	مستجد	فرانس فيكتور فكرى حبيب	180	2.86	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
43	190112	20190159	مستجد	فيليب عامر ميشيل غبريال	180	3.15	جيد جدا	B	ممتاز مرتفع	A+	اجتاز
44	190120	20190367	مستجد	مازن سيد سالم خليل	180	2.86	جيد مرتفع	C+	ممتاز	A	اجتاز
45	190122	20190086	مستجد	مازن وائل مصطفى ابوالعلا	180	3.29	جيد جدا مرتفع	B+	ممتاز مرتفع	A+	اجتاز
46	190126	20190249	مستجد	محمد احمد حامد السيد	180	3.13	جيد جدا	B	ممتاز	A	اجتاز
47	190127	20190316	مستجد	محمد احمد محمد عبدالله	180	2.72	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
48	190130	20190882	مستجد	محمد اسماعيل سيد اسماعيل	180	2.87	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
49	190134	20192482	مستجد	محمد جمال بدر محمد احمد	180	2.80	جيد مرتفع	C+	ممتاز	A	اجتاز
50	190235	20193641	مستجد	محمد حسين سيد كيلانى	180	3.73	ممتاز	A	ممتاز مرتفع	A+	اجتاز
51	190137	20190035	مستجد	محمد رضا شعبان سيد	180	2.52	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
52	190198	20193031	مستجد	محمد طارق عبداللطيف بدر	180	2.61	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
53	190141	20190002	مستجد	محمد عبدالفتاح سعيد ابو عزيز	180	2.62	جيد مرتفع	C+	ممتاز	A	اجتاز
54	190145	20190293	مستجد	محمد على رويى على	180	3.12	جيد جدا	B	ممتاز مرتفع	A+	اجتاز

م	كود الطالب	كود شؤون الطلاب	الحالة	اســـم الطالـــب	عدد الساعات	المعدل التراكمى	التقدير		تقدير المشروع		تربيه عسكري
55	190239	20193550	مستجد	محمد عويس محمد عبدالمقصود	180	2.52	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
56	20A009	20203239	مستجد	محمد محمود ابورواش احمد	180	2.55	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
57	190152	20190237	مستجد	محمد محمود عبده محمود	180	3.29	جيد جدا مرتفع	B+	ممتاز	A	اجتاز
58	190156	20190039	مستجد	محمد نشأت سعدى توحيد	180	2.99	جيد مرتفع	C+	ممتاز	A	اجتاز
59	190158	20190325	مستجد	محمد يحيى خليل ابو طبل	180	3.55	ممتاز	A	ممتاز مرتفع	A+	اجتاز
60	190164	20190290	مستجد	محمود خالد صديق علامه	180	2.99	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
61	190165	20190065	مستجد	محمود طه سعيد علي	180	3.27	جيد جدا مرتفع	B+	ممتاز مرتفع	A+	اجتاز
62	190168	20191410	مستجد	محمود محمد محمود عزيز	180	2.80	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
63	190170	20190294	مستجد	مروان عصام الدين محمد فتحى	180	2.88	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
64	180235	20180027	مستجد	مصطفى حسين محمد حسين بدوى	180	2.55	جيد مرتفع	C+	ممتاز	A	اجتاز
65	190236	20193637	مستجد	مصطفى عادل محمد كمال توفيق	180	3.53	ممتاز	A	ممتاز مرتفع	A+	اجتاز
66	190175	20190061	مستجد	مصطفى محمد عطيه احمد	180	2.52	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
67	190242	20193485	مستجد	مصطفى محمود سلمى محمد محمود	180	3.29	جيد جدا مرتفع	B+	ممتاز مرتفع	A+	اجتاز
68	190177	20191091	مستجد	مهاب طارق عبدالمرضى علامه	180	2.61	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
69	190178	20190067	مستجد	مهند اكرم محمود عبدالمجيد	180	2.66	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
70	190245	20193744	مستجد	مينا ايمن موريس فرح	180	2.59	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
71	190179	20190007	مستجد	مينا عادل داود سليمان	180	2.71	جيد مرتفع	C+	ممتاز مرتفع	A+	اجتاز
72	190232	20193625	مستجد	هاجر عصام كامل احمد	180	3.73	ممتاز	A	ممتاز مرتفع	A+	---
73	190230	20193582	مستجد	هدير عمر صالح سيد	180	3.11	جيد جدا	B	ممتاز مرتفع	A+	---
74	180266	20182596	مستجد	يوسف ياسر مكاوي محمد	180	2.44	جيد	C	ممتاز	A	اجتاز

6. Academic standards:

a. National Academic Reference Standards of Program:

The High institute of Engineering 6th October City has adopted the National Academic Reference Standard, NARS, Prepared by NAQAAE (National Authority for Quality Assurance and Accreditation of Education), issued 2018 as listed in table below:

1- General Engineering NARS Competencies in 2018	
A.1	Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
A.2	Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
A.3	Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
A.4	Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
A.5	Practice research techniques and methods of investigation as an inherent part of learning.
A.6	Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
A.7	Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.
A.8	Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
A.9	Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
A.10	Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

2- Mechanical Engineering NARS Competencies in 2018	
B.1	Model, analyze and design physical systems applicable to the specific discipline by applying the concepts of Thermodynamics, Heat Transfer, Fluid Mechanics, solid Mechanics, Material Processing, Material Properties, Measurements, Instrumentation, Control Theory and Systems, Mechanical Design and Analysis, Dynamics and Vibrations.
B.2	Plan, manage and carry out designs of mechanical systems and machine elements using appropriate materials both traditional means and computer- aided tools and software contemporary to the mechanical engineering field.
B.3	Select conventional mechanical equipment according to the requiredperformance.
B.4	Adopt suitable national and international standards and codes, integrate legal, economic, and financial aspects to design, build, operate, inspect and maintain mechanical equipment and systems.

3- Mechatronics Engineering ARS	
C.1	Analyzing the performance of mechatronic systems using scientific, mathematical and computer models andassessing their limits for specific cases.
C.2	Defining and classifying the performance of mechatronic systems andcomponents through the use of analytical methods and modeling techniques
C.3	Design mechatronic systems using asystems approach to meet specific specifications and requirements
C.4	Incorporating a wide range of tools,analytical techniques, equipment and software packages for designing and developing mechatronic systems.
C.5	Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
C.6	Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools

b. External References (Benchmark) for Standards:

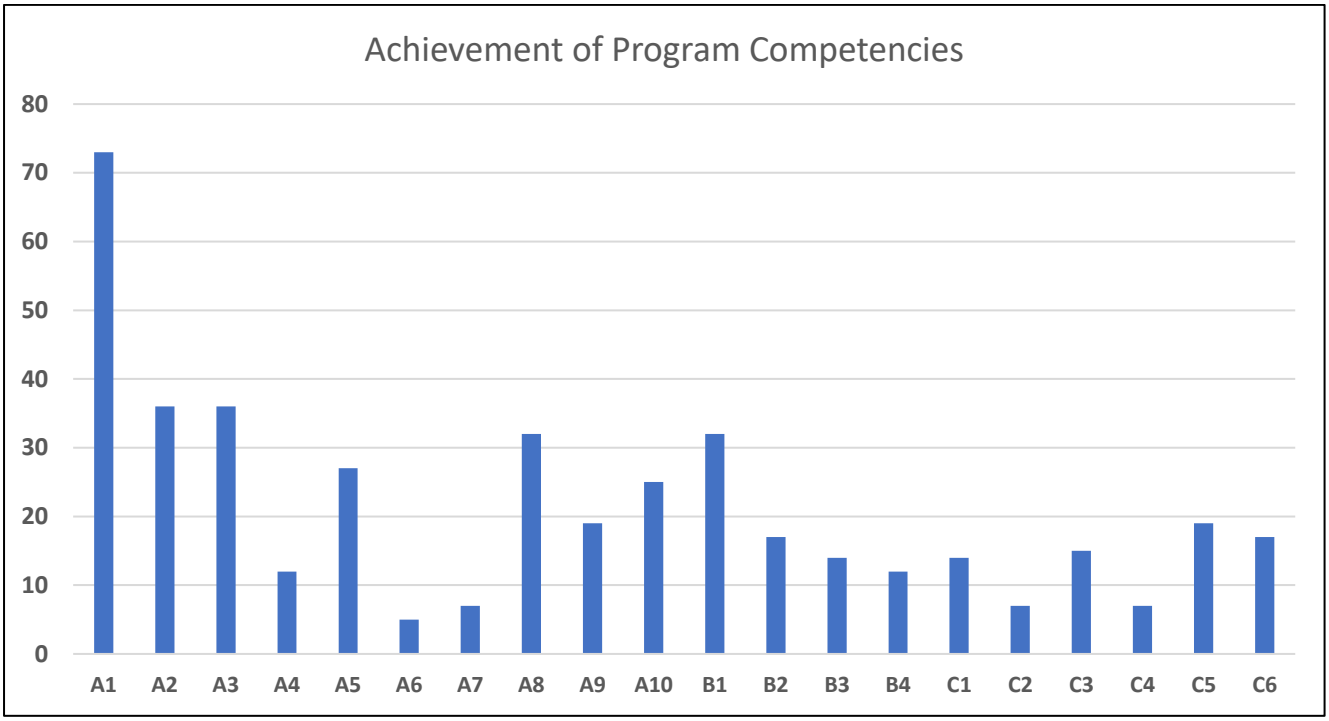
- Higher Supreme Council for Education
- Quality Assurance & Accreditation Project (Education Council for the Egyptian Universities and the Quality Assurance & Accreditation Project)

c. Last date of program NARS approval:
Institute council on 21/01/2023

7. Achievement of program Competencies:

Number of **59** courses according to the new bylaw (2018) are taught through the academic year 2023-2024 and the achievement of program competencies is given in the following table and the corresponding figure. All the learning outcomes of the courses are achieved using lectures, discussions, and tutorials. Some courses have projects in their learning methods.

Competencies	General Engineering Competencies										Mechanical Engineering Competencies				Mechatronic Engineering Competencies					
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6
Achievement in Subjects (Number)	43	21	21	7	16	3	4	19	11	15	19	10	8	7	8	4	9	4	11	10
Achievement (%)	73	36	36	12	27	5	7	32	19	25	32	17	14	12	14	7	15	7	19	17



8. Assessment Methods:

Assessment Method	Competencies
1. Assignments	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
2. Quizzes	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
3. Reports	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
4. Presentations	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
5. Laboratory experimental Exam	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
6. Oral Exam	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
7. Midterm Exam	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.
8. Final Exam	General and Mechanical Engineering NARS Competencies, Mechatronics Engineering ARS Competences.

9. Quality of teaching and learning opportunities:

- Data shows are installed in all lecture halls.
- Lecture halls are well equipped.
- Computer labs are upgrading.
- Some students were provided a workshop regarding Matlab software.
- Feedback from graduates is carried out.

10. Effectiveness of student support systems:

- Regular meetings were provided between students and staff members to report the problems and consultations.
- The academic advisors are available to provide academic support to students. The office hours, e-mail and telephone numbers are communicated to the students.
- Program coordinators provide personal support to the students if needed.

11. Learning resources:

a) **No. of Institute members and their assistants and their ratio to students**
   - No. of Institute members (10) and their assistants (16)
   - Total No. of students – five levels – (562)
   - Ratio of Institute members to students (1 : 56)
   - Ratio of their assistant to students (1 : 35)

b) **Matching of Institute members' specialization to programme needs**
   - Some courses need the support of specialized members.

c) **Availability and adequacy of program handbook**
   - Books are available (hard copy) in library of the institute and in bookstore.

d) **Adequacy of computer facilities**
   - The available laboratories are adequate but need upgrade.

e) **Adequacy of field/practical training resources**
   - Some courses are provided.
   - summer practical training was reported.

f) **Adequacy of any other programme needs.**
   - The need of an exhibition hall for students works and projects.
   - The need of internet coverage for students for research.
   - Increasing the number of teaching assistants and supporting managerial staff

12. Quality management and enhancement:

a) **Availability of regular evaluation and revision system for the program**
   - This is the fifth round for Evaluation and Revision (there was a previous administrative & financial bylaw. And starting from the academic year 2018/2019 an updated administrative & financial bylaw is held).

g) **Effectiveness of the system**
   - The staff members are cooperating effectively in the system.

b) **Effectiveness of Institute laws and regulation for progression**
- Fair.

c) **Effectiveness of programme external evaluation system:**

i. External evaluators
- Through questionnaires – analysis is carried out to deduce conclusions and give recommendations. (Quality Assurance Unit)

ii. Independent Opinion on Quality of the Program after Considering Draft Report of the Self-Study Report SSR (Internal Evaluator/External Evaluator)

d) **Institute response to student and external Evaluations**
- Fair

13. Proposal of program development:

a) **Courses modifications**
- New academic bylaw according to the national framework 2022 is needed.

h) **Requirements for the skill improvement of the staff and assistants**
- Workshop to train the staff and assistants for competencies evaluation,
- Workshop to train the staff and assistants for online LMS system,

14. Progress of previous year's action plan:

Action Identified	Person Responsible	Progress of action	Reasons for non-completion
Equipping the room of staff assistants with computers and air conditioning units	Institute Administration	Not Yet	Financial matter
Follow up the course file submission. Staff member who will not submit his course file on time must be avoided for teaching.	Program Quality Unit / Program Administration	Completed	
The need of regular seminars for program evaluations.	Program staff and Program administration	Not Yet	Time management
Internet access (wired / wireless) in all lecture halls	Institute Administration	Not Yet	Financial matter
Students don't have a suitable and quite space to study or work between classes. This led to a time waste for student. Therefore, a place will be dedicated for this purpose.	Institute Administration	Not Yet	Financial matter
One full time secretary for the program administrative tasks	Institute administration	Not Yet	Financial matter

An external reviewer for the program evaluation is required.	Institute administration	Completed	
Increase the number of institute teaching members.	Institute administration	Not Yet	Financial matter
Increase the number of teaching assistant members.	Institute administration	Not Yet	Financial matter
Providing institute members with more training to quality processes and evaluation.	Institute administration	Completed	

15. Action plan:

Action required	**Person responsible**
Equipping the room of staff assistants with computers and air conditioning units	Institute administration
The need of regular seminars for program evaluations.	Program staff and Program administration
Internet access (wired / wireless) in all lecture halls	Institute Administration
Students don't have a suitable and quite space to study or work between classes. This led to a time waste for student. Therefore, a place will be dedicated for this purpose.	Program / Institute administration
One full time secretary for the program administrative tasks	Institute administration
Increase the number of institute teaching members.	Institute administration
Increase the number of teaching assistant members.	Institute administration
Providing institute members with more training to quality processes and evaluation.	Institute administration

Program Coordinator: Dr. Amer Ahmed

Date 15-09-2024 **Signature**: