



Arab Academy for Science and Technology
and Maritime Transport

College of
Engineering & Technology
Strive for Distinctiveness

Strategic Plan
2016 - 2021

DOCUMENT ACCEPTANCE and RELEASE NOTICE

DATE	
SUBJECT	UPDATE THE STRATIGIC PLAN FOR THE COLLEGE OF ENGINEERING and TECHNOLOGY

This is release number (1.0) of the **College Strategic Plan 2016 – 2021**.

This document is authorized for release after all signatures have been obtained.

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DATE:

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ACCEPTED:

DATE:

(for release) Prof. Ismail Abdel Ghafar,
President, Arab Academy for Science, Technology & Maritime Transport

College Message

It gives me the greatest pleasure to present the new College of Engineering and Technology Strategic Plan. This plan is the result of many months of information gathering, analysis, and careful thought by scores of fellow community members across all disciplines and functions. Their service to the college is deeply appreciated.

Our intent in publishing this plan is to provide clear direction for how the College of Engineering and Technology will continue to advance strategically and with unity of purpose from our current position of strength to even greater national and international prominence. We will do this by focusing our efforts and investments on the areas where we can most clearly differentiate ourselves and where we can have the greatest impact.

The plan takes into account that we are constantly recreating the College of Engineering and Technology. This is consistent with our pioneering spirit and reputation for innovation. Rather than rest on our record of accomplishment, we are committed to taking even greater responsibility for achieving more together in the future.

Appropriately, our strategic plan focuses on how we, as community members, can connect our endeavors to the University's overarching mission—discovering new knowledge and educating students to put what they learn here to good use. Just as the Academy creates an environment where our students define themselves, the plan sets the stage for all of us to work collectively to define our future.

Prof. Amr Ali Hassan

Dean, College of Engineering and Technology

AbuKir Campus, Alexandria, Egypt

College Council

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1 HISTORICAL BACKGROUND

The Arab Academy for Science and Technology and Maritime Transport has been providing educational and training services in a wide range of disciplines, sciences, and technologies related to the Maritime sector since its foundation in 1972, as one of the Arab League affiliations.

Bachelor degree programs in both, Maritime Transport and Marine Engineering, together with courses leading to certificates of competency for deck officers, marine engineers, and radio officers, have been mastered by the Academy and constantly delivered serving a multinational body of students over the past forty four years (1972 – 2016).

Through a strategic vision correlating the Academy's mission to the local, regional, and international ever-changing demands, the Academy broadened its scope to the provision of Bachelor Degree Programs in Engineering and Management. Along the engineering dimension, programs are offered in Electronics and Communications; Computer; Mechanical; Marine; Industrial and Management; Electrical and Control; Construction and Building; and Architectural Engineering and Environmental Design.

On the management side, Bachelor Degree Programs are offered in Business Administration and in Tourism and Hotel Management. Programs leading to Master Degrees in various related disciplines are also offered.

In response to the requirements for diversification, implied by departments in the external environment, the Academy established the Sea Training Institute; Productivity and Quality Institute, Advanced Management Institute; and Port Training Institute. These entities have developed strong connections with various sectors of industry in terms of postgraduate studies; training; and consultancy services.

Programs offered by the Academy are accredited by the Supreme Council of Egyptian Universities (SCU) according to the decree number 135 dated on August 27, 1996 and renewed according to the decrees number 3 dated on February, 5, 2002 and number 118 dated on July, 10, 2007. On the other hand, the Academy is a fully accredited member of both the Association of Arab Universities and the International Association Universities.

The Academy has also established and currently hosts a number of professional and scientific societies among which are the Arab Institute of Navigation; the Egyptian Marine Engineering Institute; United Nations Development Program (UNDP), Japan International Cooperation Agency (JICA), Computer Scientific Society (CSS), and is a host of other organizations; institutions; colleges; and universities, in order to:

- Provide an excellent opportunity to interact with senior specialists and faculty members on modern issues and concepts in the emerging new areas of research and development in varieties of managerial, maritime, scientific, engineering and technological fields.
- Provide a wide spread of advanced knowledge in different topics, fields and disciplines based on the Creative and Critical Thinking skills.
- Enhance the students' thinking and research capabilities in the chosen major fields of study using the most recent advances in scientific and engineering methodologies and techniques.
- Provide the chance for each participant to prove his own developed capabilities by submitting a written thesis in a specific topic of interest.
- Assist the participants in career development.

The Academy provides various educational facilities like advanced audiovisual classroom facilities, laboratories, workshops, simulators... etc.

A substantial amount of financial resources had been properly invested in establishing and updating these facilities since the Academy's inception in 1972. Donations from Arab countries and some countries like Japan and USA as well as from international agencies such as IMO and UNDP totalling about US\$8 million were invested in the late seventies and early eighties in order to produce the required equipment for education and training on Academy's campus. This investment is continuously advanced through the annual budgetary revenues of the Academy.

Stressing the Academy's concern about providing the latest techniques and simulators, the college of management and technology was equipped with advanced educational laboratories. In addition, the college of maritime transport and technology acquired the integrated simulators complex, which is used in training on different forms of ships manoeuvring and

protecting of marine environment from pollution. Also the college of engineering and technology is equipped with more than 40 laboratories in different engineering domains.

In September 1999, the Academy has followed formal quality assurance procedures to maintain the educational quality level received by students and, as a result it has been awarded the ISO 9001:2000 certificate for its educational processes.

1.1 EVOLUTION OF COLLEGE OF ENGINEERING AND TECHNOLOGY

The AASTMT administration has realized the importance of educational innovation and development, since the early days of its establishment in 1972. Before the inauguration of the College of Engineering and Technology in 1990, the opportunity of engineering education was offered to students of engineering who were accepted for enrolment and registration at the Department of Trade and Commerce, College of Maritime Transport and Technology, in September 1972.

In further attempt to develop its educational system, AASTMT took the initiative of granting Bachelor's degrees in Engineering to its students upon successfully taking a four-and-half-year academic program, instead of the six-year program that was originally offered in accordance with a ministerial decree 215 of 1974, after which they are granted a Certificate of Second Marine Engineer.

In 1975, AASTMT adopted the Credit-Hour System. The efforts of specialized committees resulted in designing new curricula for the students who were admitted in October 1977.

The Bachelor of Science programs were soon put into effect after the implementation of the Credit Hour System. These programs were prepared in collaboration with the Faculty of Engineering, Alexandria University, and the members of Engineering Sector Committee, at the Supreme Council of Universities.

The Supreme Council of Universities issued two decrees (numbered 4 of 1984 and 11 of 1985) stating that the Bachelor's degrees granted by AASTMT are equivalent to those granted by other Egyptian State Universities in similar specialties. AASTMT started granting the following Bachelor's degrees in Engineering:

- Bachelor of Marine Engineering Technology
- Bachelor of Marine Electronic Engineering Technology
- Bachelor of Maritime Transport (Commercial)

Attempting to keep up with the accelerating pace of technological progress, AASTMT administration held a series of seminars under the title of ‘ACAD 2000’ during the period from 1986 to 1988. These seminars emphasized that AASTMT must start to seriously consider the revision of its academic goals. It also presented a number of suggested recommendations for the improvement of teaching curricula and teaching methods.

In order to meet the challenges of its growing institutional needs, AASTMT started to implement the suggested recommendations by establishing the College of Engineering and Technology in 1990, where all the different engineering programs and related preparatory interdisciplinary courses were taught, under the auspices of one institution with standardized courses and a decentralized and developed infrastructure, comprising four different departments specialized in four engineering areas:

- Marine Engineering
- Electronics and Computer Engineering
- Electrical and Control Engineering
- Basic and Applied Science

The teaching of the different engineering programs was launched to offer the following university degrees and certificates:

- Bachelor of Marine Engineering Technology
- Bachelor of Marine Machinery Technology
- Bachelor of Electronics and Computer Engineering Technology
- Bachelor of Electronic Systems Technology
- General Certificate of Radio and Communication
- Certificate of Radio Officer
- Certificate of 3rd, 2nd, and Chief Marine Engineer

Since its inauguration in 1990, College of Engineering and Technology started to develop its teaching programs according to two basic principles. First, that the student body,

staff members and administrators are the main driving force of the educational process and its source of creativity and innovation. Second, that the educational activities should challenge students intellectual abilities and stimulate discussion and new ideas, whether these educational activities are carried out in university lecture rooms, laboratories or workshops.

In 1990, the programs and courses in the Electronics and Computer Engineering Department were updated to meet the rapid progress in this field of engineering science. The department, therefore, started teaching curricula for three undergraduate divisions:

- The Electronics Section
- The Communications Section
- The Computer Section

In 1993, Bachelor's degrees in the following branches of Mechanical engineering were offered:

- Mechanical Engineering (Power)
- Mechanical Engineering (Refrigeration and Air Conditioning)

Similarly, the inauguration of another program of Marine Engineering necessitated the opening of a branch that offers a Bachelor's degree in Offshore Structures by the Marine Engineering Department in order to meet the growing developments in the field. It is worth noting that this new Bachelor's degree in Offshore Structures accepted students who wished to earn a Bachelor's degree in Marine Engineering. In 1994, several new departments were established to offer Bachelor's degrees in the following fields of engineering:

- Electrical and Computer Control Engineering: Electrical Power
- Electrical and Computer Control Engineering: Automatic Control
- Construction and Building Engineering
- Industrial and Management Engineering

In October 1997, the Architectural Engineering and Environmental Design program was initiated followed by the Computer Science program in October 1999.

Engineering education is a major driving force that affects the progress of humanity at large. It does not only influence academic and technological progress, but also the economic

and social development of any given country. Hence, AASTMT has found it essential, as one of its first priorities, to standardize the teaching programs and courses it offers to the different sectors of its student body. This is meticulously carried out following a framework in accordance with international criteria recognized by the American Accreditation Board for Engineering Technology (ABET) and the Committee of the Engineering Sector at the Supreme Council of Universities (SCU), which issued the decree No. 135 of 1996 stating that AASTMT Bachelor's degrees in the different branches of Engineering are equivalent to those offered by the State Egyptian universities in the same specialties.

In April 1997, the College acquired accreditation from the International Institute of Marine Engineering in London, stating that its Bachelor's degrees in the following areas meet the European standards as recognized by the British Engineering Council:

- Marine Engineering
- Electronics and Communications
- Mechanical Engineering
- Electrical Engineering
- Power Control

This gave AASTMT graduates opportunities to work and study in the countries of the European Union without having to go through any further examinations or accreditations. On January 1, 2001, the Bachelor's Degree in Mechanical Engineering has similarly been accredited by the British Engineering Authority and the Institute of British Engineers in London.

In September 1999, the College of Engineering obtained the ISO-9000 certification in education attesting the high quality control of its teaching programs, courses, academic staff, administration and educational resources, which were all up to internationally set criteria.

On 4 April 2001, the Supreme Council of Universities issued the decree No. 26 of 2001 stating that AASTMT Bachelor's Degree in Architecture Engineering and Environmental Design is equivalent to that offered by the State Egyptian universities.

The Committee of Computer and Information Sector, at the Supreme Council of Universities, paid the College a preliminary visit on 25 February 2001, in order to prepare for

the Bachelor's Degree in Computer Science equivalence process with that of the counterpart degrees offered by State Egyptian Universities.

In August 2001, the Committee of the Engineering Sector at the Supreme Council of Universities paid AASTMT another visit to accredit its Bachelor's degrees and to support the decision taken by the Computer and Information Committee. The Engineering Committee also stated that all AASTMT Bachelor's degrees are equivalent to those offered by State Egyptian Universities.

Undergraduate Programs offered by the College of Engineering and Technology were then renewed according to the decrees number 3 dated on February 5, 2002, number 118 dated on July 10, 2007, number 36 dated February 24, 2011, and number 284 dated on December 10, 2012. Renewal of the B.Sc. in Architectural Engineering and Environmental Design was according to the decree number 123 dated May 8, 2013.

Graduate studies leading to Master's degrees in different engineering disciplines started in September 1994. On 9 November 2000, the Committee of the Engineering Sector at the Supreme Council of Universities paid the College a visit to evaluate the graduate programs, and collected data on laboratories, libraries and other College facilities. It also asked for data describing the performance of staff members and researchers on overseas scholarships.

On 28 April 2001, the Supreme Council of Universities issued the decree No. 30 of 2001 stating that the Master's degrees offered by AASTMT in (1) Electronics and Communications Engineering, (2) Computer Engineering, (3) Electrical Engineering and Control, (4) Mechanical Engineering, (5) Marine Engineering, (6) Engineering Management, and (7) Construction and Building Engineering are all equivalent for 5 years to those offered by State Egyptian Universities.

In February 2005, the Royal Institute of British Architects (RIBA) at the UK validated the program of B.Sc. in Architectural Engineering and Environmental Design. In June 2005, the Degree Accreditation Board for Chartered Engineers (DABCE) at the UK accredited all the other engineering programs.

On 19 June 2006, the Supreme Council of Universities (SCU) issued the decree No. 70 of 2006 stating that the Master's degree offered by AASTMT in Architectural Engineering

and Environmental Design is equivalent for 3 years to that offered by the state Egyptian universities.

On 19 June 2006, SCU issued the decree No. 79 of 2006 to pursue the decree No. 30 of 2001 and to renew for 3 years the equivalence of the Master's degrees offered by AASTMT at Alexandria in (1) Electronics and Communications Engineering, (2) Computer Engineering, (3) Electrical Engineering and Control, (4) Mechanical Engineering, (5) Marine Engineering, and (6) Construction and Building Engineering to those offered by the State Egyptian Universities.

On 24 July 2006, SCU issued the decree No. 97 of 2006 to pursue the decree No. 30 of 2001 and to renew for 3 years the equivalence of the Master's degree in Industrial and Management Engineering offered by AASTMT at Alexandria in the divisions of (1) Industrial Engineering, and (2) Engineering Management to those offered by the State Egyptian Universities.

On 22 April 2014, SCU issued the decree No. 105 to renew the equivalence of the Master's degree in Industrial and Management Engineering offered by AASTMT at Alexandria in the divisions of (1) Industrial Engineering, and (2) Engineering Management to those offered by the State Egyptian Universities. Also, decree No. 106 to renew the equivalence of the Master's degree in Architectural Engineering and Environmental Design and decree No. 107 to renew the equivalence of the Master's degree in (1) Electronics and Communications Engineering, (2) Computer Engineering, (3) Electrical Engineering and Control, (4) Mechanical Engineering, (5) Marine Engineering, and (6) Construction and Building Engineering.

Recently, through its current eight departments, the College of Engineering and Technology offers Bachelor's degrees that take a minimum of 10 semesters (5 academic years) to complete. Also, through the graduate studies department, the College offers Master's degrees that take a minimum of 4 semesters (2 academic years) to complete. The degrees offered are in the areas of:

- Marine Engineering.
- Mechanical Engineering.
- Electronics and Communications Engineering.

- Computer Engineering.
- Electrical and Control Engineering.
- Construction and Buildings Engineering.
- Industrial and Management Engineering.
- Architectural Engineering and Environmental Design.

The College maintains sound relationships with a number of universities in USA, UK, Canada, Malaysia, Turkey, Germany, Spain, France, Ireland and Egypt for joint supervision of undergraduate and postgraduate programs, field training courses and research fields as well. Agreements are based on major activities such as: the twinning of programs of study, and jointly taught Master's Program, programs of research leading to PhD degree and regular visits by academic staff.

The College of Engineering and Technology maintains an array of characterized laboratories, workshops and computer labs to secure the practical aspects and hands-on experience of the technology education in many areas. These areas include diesel and steam power plants, automation, measurements, heat transfer, hydraulics, electric machines, electric marine installation auxiliaries, radar, electronics, telecommunications, microprocessors, microcomputers, computer applications, marine pollution, surveying, construction materials, metrology, computer integrated manufacturing, electronic design automation, antennas and microwaves, work analysis, internal combustion engines, and refrigeration and air conditioning.

The engineering curriculum is thus served by well-equipped labs for the various engineering disciplines in addition to general purpose and specialized up to date computer laboratories.

The AASTMT library collection fully supports the engineering program and ranges from recently published text books, references and current issues of relevant journals as well as an enormous electronic collection on campus.

Postgraduate Studies

Graduate studies leading to Master's degrees in different engineering disciplines started in September 1994. On 9 November 2000, the Committee of the Engineering Sector at the Supreme Council of Universities paid the College of Engineering and Technology a visit to evaluate the Departments' graduate programs. The committee has checked for all required criteria necessary for the Programs Master degrees' accreditation represented to fulfill both aspects of institutional capabilities and educational efficiency.

On April 28th, 2001, the Supreme Council of Universities, SCU, issued the decree No. 30 of 2001 stating that the Master's degrees offered by AASTMT in the following disciplines:

1. Electronics and Communications Engineering
2. Computer Engineering
3. Electrical Engineering and Control
4. Mechanical Engineering
5. Marine Engineering
6. Engineering Management
7. Construction and Building Engineering

Are all equivalent for those offered by State Egyptian Universities.

On June 19th, 2006, the SCU issued the decree No. 70 of 2006 stating that the Master's degree offered by CET, AASTMT, in Architectural Engineering and Environmental Design is equivalent for 3 years to that offered by the state Egyptian universities. The SCU also issued the decree No. 79 of 2006 renewing the equivalence of the Master's degrees offered by CET, AASTMT, at Alexandria to those offered by the State Egyptian Universities.

On July 24th, 2006, the SCU issued the decree No. 97 of 2006 to renew, for another 3 years, the equivalence of the Master's degree in Industrial and Management Engineering offered by AASTMT at Alexandria in the divisions of (1) Industrial Engineering, and (2) Engineering Management to those offered by the State Egyptian Universities.

On April 22nd, 2014, the SCU issued the decree No. 105 to renew the license of equivalence for the Master's degree in Industrial and Management Engineering offered by AASTMT at Alexandria in the divisions of (1) Industrial Engineering, and (2) Engineering Management to those offered by the State Egyptian Universities. Also, decree No. 106 to

renew the license of equivalence for the Master's degree in Architectural Engineering and Environmental Design and decree No. 107 to renew the license of equivalence for the Master's degree in the following disciplines:

1. Electronics and Communications Engineering
2. Computer Engineering
3. Electrical Engineering and Control
4. Mechanical Engineering
5. Marine Engineering
6. Construction and Building Engineering.

Through its current eight departments, the College of Engineering and Technology offers Bachelor's degrees that take a minimum of 10 semesters (5 academic years) to complete. Also, through the graduate studies department, the College offers Master's degrees that take a minimum of 4 semesters (2 academic years) to complete. The degrees offered in both under and post graduate studies are related to the following majors:

- Marine Engineering.
- Mechanical Engineering.
- Electronics and Communications Engineering.
- Computer Engineering.
- Electrical and Control Engineering.
- Construction and Buildings Engineering.
- Industrial and Management Engineering.
- Architectural Engineering and Environmental Design.

Finally, the Supreme Council of Egyptian Universities, SCU, has accredited the new M.Eng. Degree for the programs proposed by the CET in 10 different advanced scientific fields shown below and shall be launched at the upcoming semester 2017.

1. Architectural Engineering and Environmental Design.
2. Construction Project Management.
3. Environmental Engineering
4. Computer Engineering.
5. Electronics and Communications Engineering.
6. Electrical and Control Engineering.

7. Engineering Management.
8. Mechanical Engineering.
9. Marine Engineering.
10. Renewable Energy and Environment Engineering.

The College maintains sound relationships with a number of universities in USA, UK, Canada, Malaysia, Turkey, Germany, Spain, France, Ireland and Egypt for joint supervision of undergraduate and postgraduate studies and research work. Agreements are based on major activities such as: dual programs protocols and joint Masters' Programs, programs of research leading to PhD degree, and finally, faculty visits to foreign colleges.

1.2 COLLEGE CURRENT STATUS

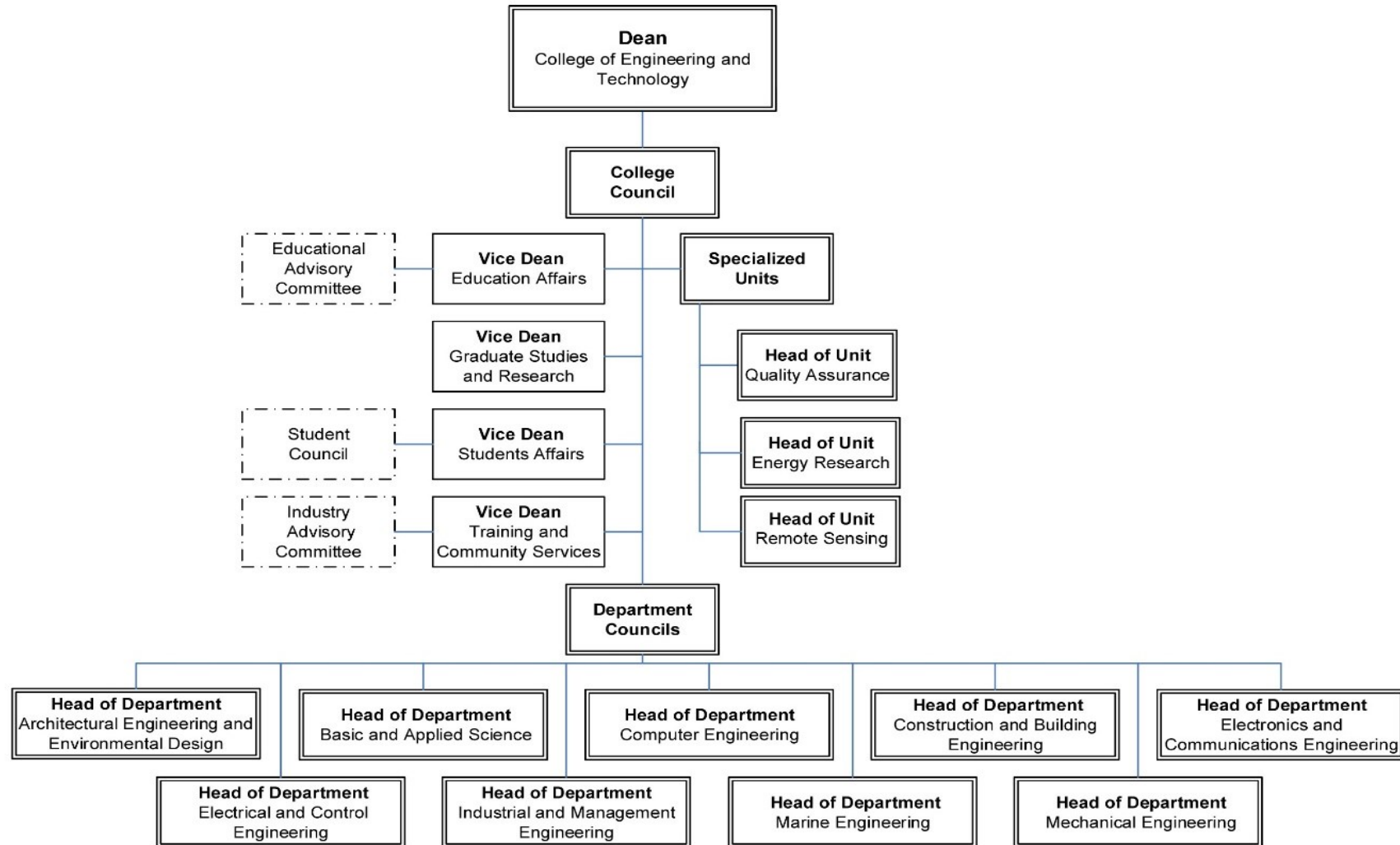
The College of Engineering and Technology, CET, has achieved the maturity level after being accredited on both local and international levels. The college accreditation situation led the college to reach stability position which is reflected upon its academic structure. The CET has adopted the democratic style in decision making. This style is managed and achieved throughout the official college council which is held once a month. The structure of this council is also approved by the HR system applied in the Arab Academy for Science and Technology and Maritime Transport, AASTMT, and is as follows:

1. College Dean
2. Vice Dean for Education Affairs.
3. Vice Dean for Student Affairs.
4. Vice Dean for Training Affairs and Community Services.
5. Vice Dean for Post Graduate Studies and Research.
6. Head of Basic and Applied Sciences Department.
7. Head of Architectural Engineering and Environmental Design Department.
8. Head of Computer Engineering Department.
9. Head of Construction and Building Engineering Department.
10. Head of Electrical and Control Engineering Department.
11. Head of Electronics and Communications Engineering Department.
12. Head of Industrial and Management Engineering Department.

13. Head of Marine Engineering Department.
14. Head of Mechanical Engineering Department.
15. Head of Quality Assurance Unit.
16. Head of Energy Research Unit.
17. Head of Remote Sensing Unit.

The chart below shows the CET organizational chart, council.

1.3 COLLEGE ORGANIZATIONAL CHART



2 STRONG FOUNDATIONS: THE 2010-2015 STRATEGIC PLAN

2.1 INTRODUCTION

In 2010 the CET has adopted the first strategic plan and identified five strategic goals to be accomplished within the period 2010-2015. The strategic planning process built upon earlier foundational work and engaged the college in an intensive, rigorous, and data-driven competitive analysis and bold visioning process. Faculty, staff, students, stakeholders and community as well as the Steering Committee conducted a careful, competitive analysis of our internal environment which included distinctive institutional strengths and weaknesses, as well as an assessment of external environment that covered significant threats and opportunities. This was done throughout the SWOT analysis technicalities. Finally, this process had developed a clear mission and vision statements and outlined action steps that would enable the CET to make significant progress in five strategic areas. The college strategic goals during the period 2010-2015 were presented as follows:

- FACULTY AND ACADEMIC STAFF
- UNDERGRADUATE PROGRAMS
- RESEARCH AND GRADUATE PROGRAMS
- ACADEMIC COOPERATION
- COMMUNITY SERVICE

Despite economic and competitive challenges over the last five years, the CET maintained focus and took significant steps to actualize the vision shaped through the 2010 strategic planning process. Our accomplishments over the last five years are a testament to the integrity and strength of the 2010 strategic plan and to the dedication of our faculty and staff who remain committed to the mission, vision, and goals that emerged. After approval of the CET Strategic Plan in 2010, Dean, Vice Deans, Departments and other major units had taken their roles in the execution of the college's plan strategic goals. Deanery, Vice Deans, and department-level action plans contributed to the richness of the college dialogue about the Strategic Plan. Finally, the action plan containing the objectives, policies, responsibilities and metrics applied to each strategic goal was set and the rate of accomplishment of every objective had been investigated and registered in an annual report.

The following is a representation for the achievement of every strategic goal elements during 2010-2015.

2.1.1 Strategic Goal 1: Increase the Number of full time faculty with diversified and outstanding competencies

Actions taken:

1. Recruit And Retain The Finest Faculty and Staff.
2. Enhance Faculty Teaching Potentials.
3. Boost Faculty Capacity To Perform Quality Based Research.
4. Maintain An Academic And Administrative Structure And Sustain Its Effectiveness.

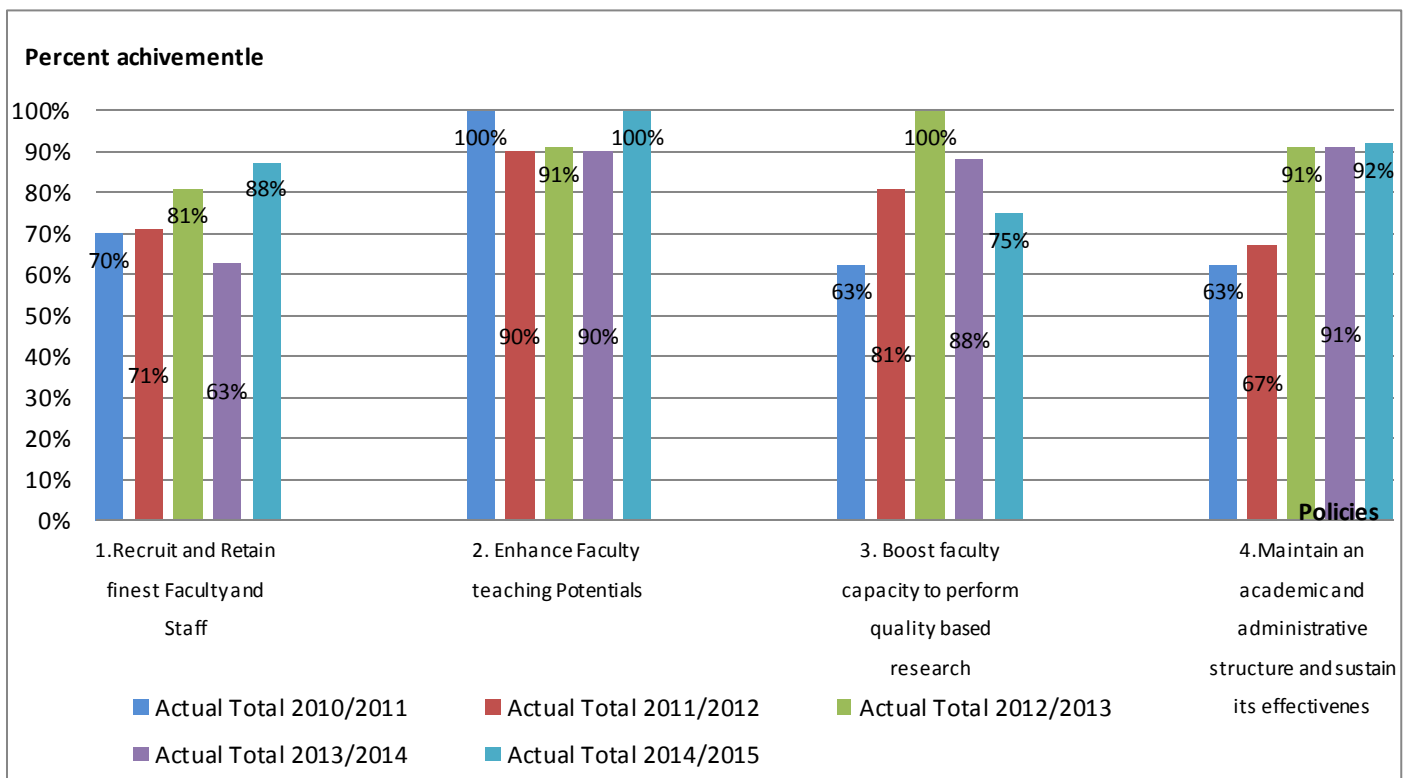


Figure 1: Policies Achievement Percentages

(Strategic Goal 1: Increase the Number of full time faculty with diversified and outstanding competencies)

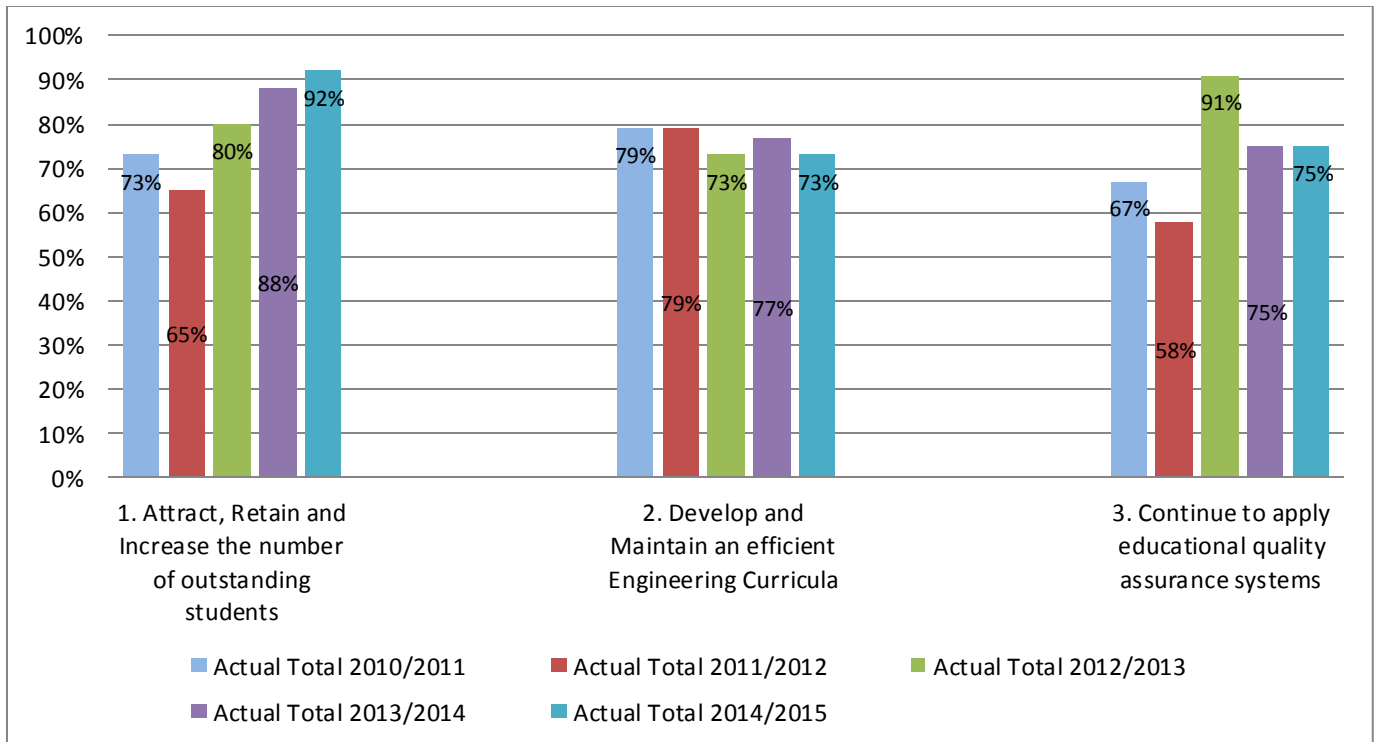
Impacts

- Increased faculty participation in professional development.
- Increased faculty scholarship.
- Increased external grant support for high priority research initiatives.
- Increased faculty contributions on excellence in teaching and learning.
- Supported the identification and development of future academic leaders on campus.

2.1.2 Strategic Goal 2: Enhance the Quality of the College Undergraduate Programs

Actions taken:

1. Attract, Retain and Increase the number of high quality students.
2. Develop and maintain efficient Engineering Curricula.
3. Continue to apply educational quality assurance systems.



**Figure 2: Strategic Goal 2- Policies Achievement Percentages
(Strategic Goal 2: Enhance the Quality of the College Undergraduate Programs)**

Impacts

- *Enrolled more diverse student body.*
- *Advanced assessment of learning outcomes.*
- *Increased faculty-student collaborations on research and creative work.*
- *Enhanced intellectual life of campus.*
- *Increased -infrastructure and resources for the visual and performing programs*
- *Expanded academic, student life, and professional development programming to support students' diversity.*
- *Strengthened academic support programming for student athletes*
- *CET web sites to ensure access for diverse ranges of students and stakeholders.*
- *Balanced student enrollment-graduated in all undergraduate programs.*
- *Garnered increased national recognition for high quality undergraduate and graduate education.*
- *Strengthened CET identity and reputation at local, regional, and international levels.*
- *Increased student retention and satisfaction*

2.1.3 Strategic Goal 3: Strengthen Research Multiplicity, Innovation with Prospective Capabilities and Graduate Programs

Actions taken:

1. Pledge a sustained growth in college eminent publications.
2. Develop Joint, multidisciplinary research, and sponsored projects.
3. Improve the graduate programs and the quality of students in higher studies.

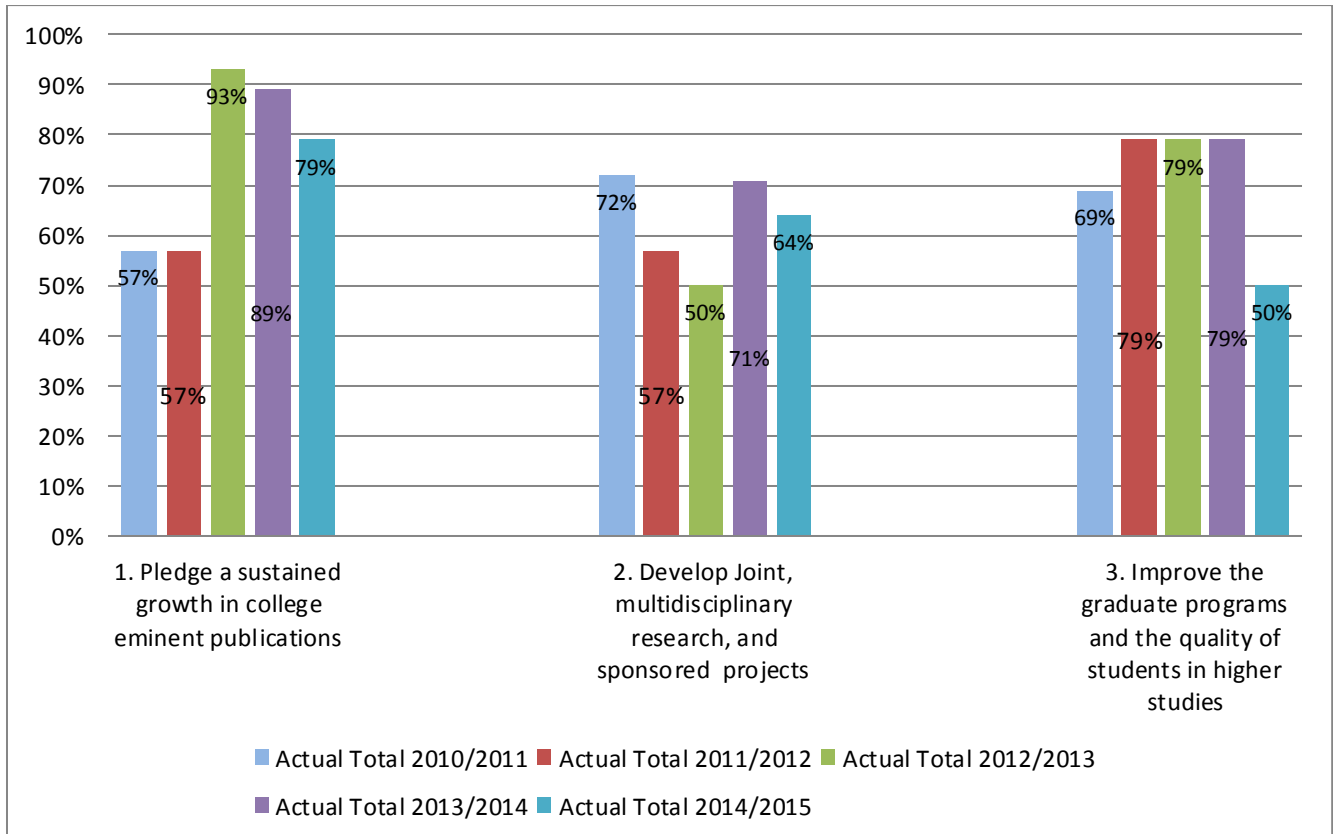


Figure 3: Strategic Goal 3- Policies Achievement Percentages (Strategic Goal 3: Strengthen Research Multiplicity, Innovation with Prospective Capabilities and Graduate Programs)

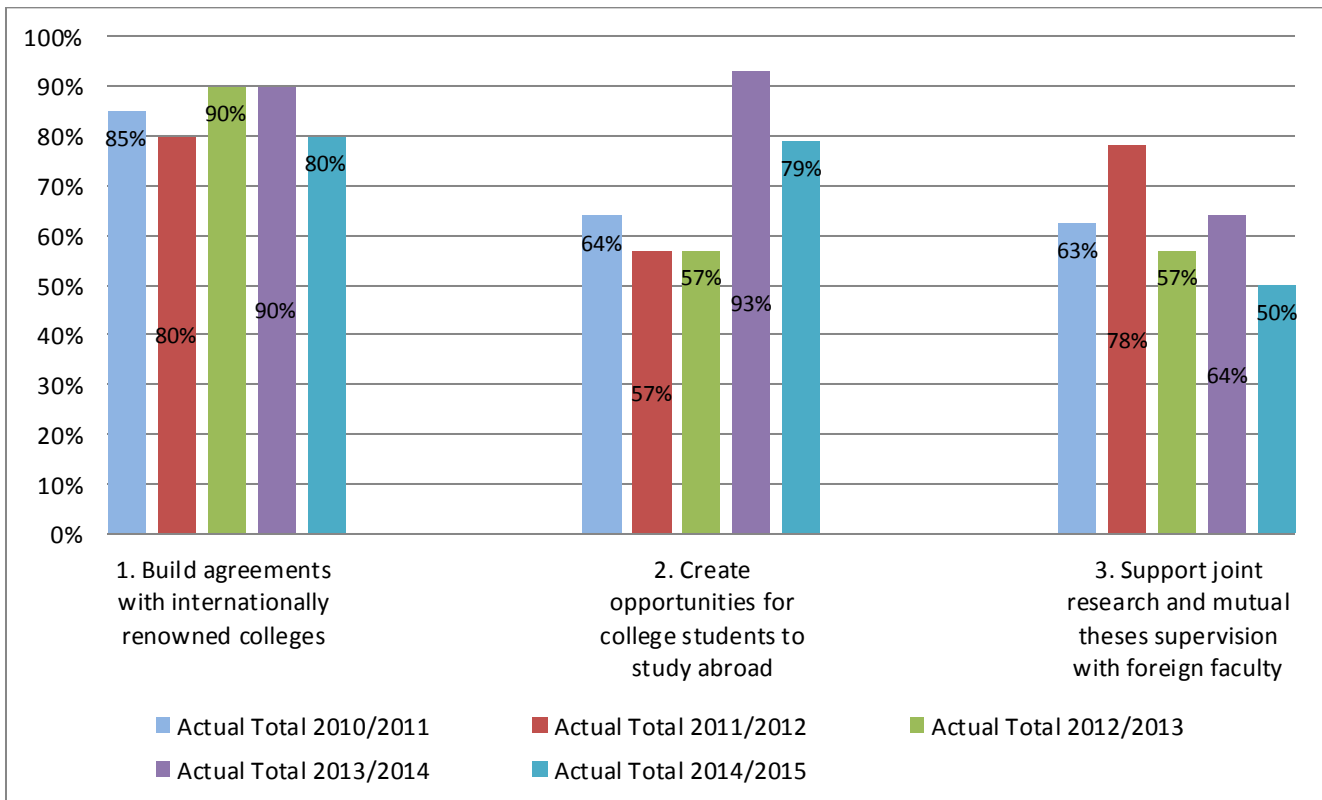
Impacts

- Increased student and faculty participation in opportunities for international education and research.
- Increased student and faculty engagement in public service and applied research endeavors.
- Enriched educational quality and strengthened preparation of students for life in a global society.
- Increased visibility of high quality education and research.
- Increased faculty-student collaborations on research and creative work.

2.1.4 Strategic Goal 4: Develop and Maintain Strong and Long-Lasting Academic Cooperation

Actions taken:

1. Build agreements with internationally renowned colleges around the globe.
2. Create opportunities for college students to study and get trained abroad.
3. Support joint research and mutual theses supervision with foreign faculties.



**Figure 4: Policies Achievement Percentages
(Strategic Goal 4- Develop and Maintain Strong and Long-Lasting Academic Cooperation)**

Impacts

- Teaching / research environment was modernized
- New labs are established, and others were upgraded.
- New content and structures were developed.
- New fields of study and research were introduced.
- External evaluation and accreditation systems were continued.
- Internal quality assurance mechanisms and procedures system was established.
- Quality of teaching, research, and management skills are improved.
- Funding possibilities were increased.
- Foreign language was improved due to international field training.
- International relations were strengthened.

2.1.5 Strategic Goal 5: Serve the Community Efficiently and Resourcefully

Actions taken:

1. Maintain effective links with industrial and business community.
2. Develop cooperation with government and public enterprises.
3. Sustain serving the surrounding community and the environment.

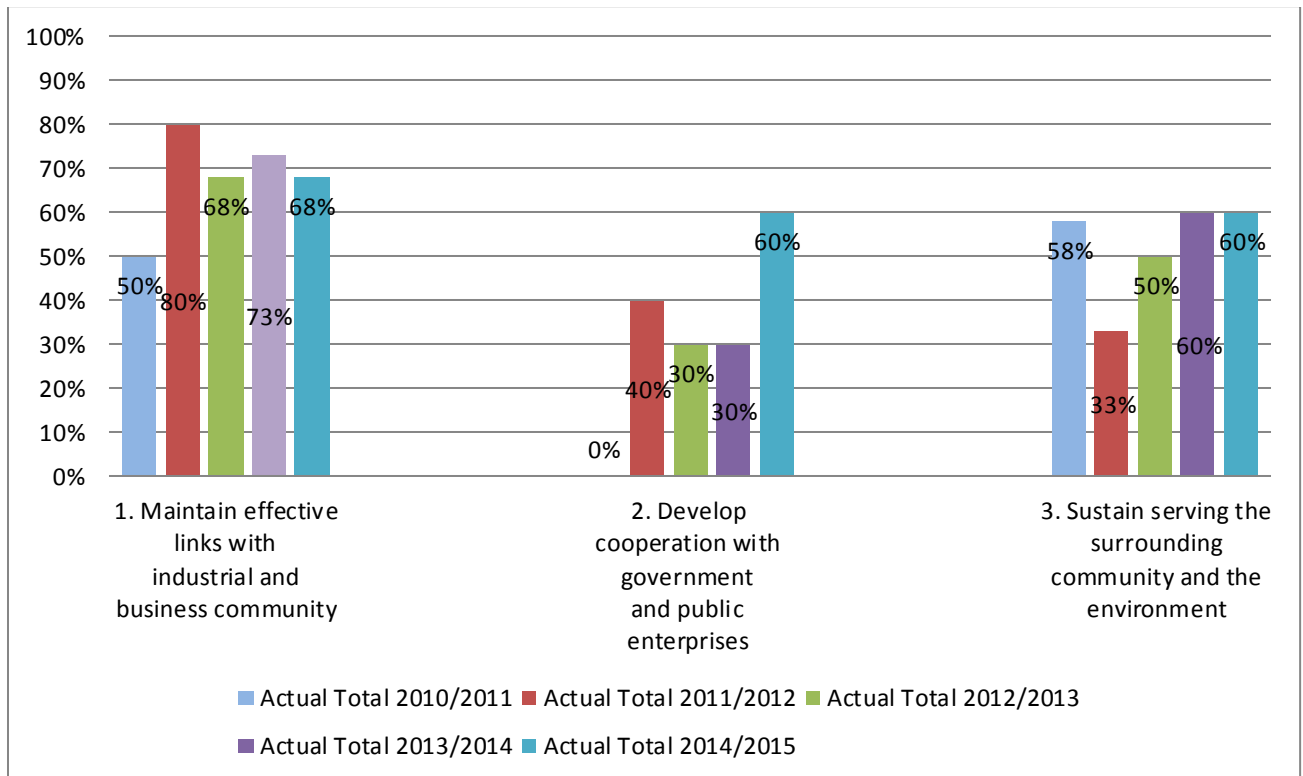


Figure 5: Policies Achievement Percentages

(Strategic Goal 5- Serve the Community Efficiently and Resourcefully)

Impacts

- Increased awareness of and participation in environmental preservation and sustainability efforts
- Increased collaborations between CET and external constituencies
- Increased community attendance at CET events
- Received positive feedback from internal and external constituencies
- Enhanced awareness of CET as an important steward of place.

By the end of 2011, 2012, 2013, 2014 and 2015 a comprehensive report was delivered to check for the rate of achievement of every objective within the plan (appendix I).

2.2 PROGRESS IN A CONTEXT OF CHANGE AND CHALLENGE

The college community can take pride in **the progress toward realizing the goals set in 2010**. Core initiatives in the general education curriculum have been adopted, graduate studies have been addressed. Undergraduate and graduate programs have become more rigorous and selective, attracting an increasingly talented and diverse student body. Retention and graduation rates continued to improve. Experiential and blended learning environments have become a major focus of educational improvements campus-wide. Expanded active learning and interdisciplinary opportunities now enhance our students' education and success.

Regarding the college's research portfolio reveals the growth and diversity observed in this direction. This is maintained by the efforts of CET's outstanding faculty and through major new relationships with corporate and international partners. These partnerships allowed the CET to leverage our location and extend the reach and impact of our programs. Research expenditures and grants reached an all-time high budget constraints and increased national competition for limited funding. In cooperation with local, governorate and foreigner officials, CET has made significant advances in the students' local and foreign training and safety programs.

The following is a summary of significant actions and impacts that illustrate CET progress to date within the five overarching goals of the CET Strategic Plan 2010-2015

Item Achieved	Records in 2010	Records in 2015	Percentage Change
Full Time Faculty Members	269	336	Increasing by 24.9%
Part Time Faculty Members	274	541	Increasing by 97.5 %
Research in Ranked Journals	10	51	Increasing by 410%
No. of Under Graduate Students	3623	5352	Increasing by 47.7%
Students to Faculty Ratio	13.4	16	Increasing by 19%
Post Graduate Students enrolled	476	406	Decreasing by 14.7%
Master's Degree Students	44	43	Decreased by 2.2%
Local Practical Training	700	4094	Increased by 480%
International Practical Training	56	236	Increased by 420%
Accreditations	ISO, ABET, RIBA	ISO, ABET, RIBA NAQAAE	NAQAAE

Throughout experiencing a remarkable rise in accomplishments and reputation, new opportunities now promise even greater attainments.

3 STRATEGIC PLAN UPDATE 2016-2021

3.1 INTRODUCTION

“**Becoming one of the Best: 2016 Strategic Plan Update**” capitalizes on this momentum and builds on the 5-year plan, 2010-2015, that was adopted by the college. Updating the College of Engineering and Technology, CET, strategic plan beyond 2015 was part of the activities performed throughout the whole Academy to achieve the Arab Academy for Science, Technology and Maritime Transport, AASTMT, master strategic plan 2016 - 2021.

The CET Deanery founded a Specialized Strategic Plan Council SPC, to develop the new Strategic plan 2016 –2021. The structure of this council included characterized members from among the whole college faculty family. Moreover, the council is honored to be directed by his Excellency Prof. Yousry Saber Elgamal, the Ex minister of Education and the Advisor of the Arab Academy President. Also, highly experienced members in higher education and different academic disciplinary are presented in this council.

The SPC started to conduct continuous discussions to align the College’s strategic goals with the AASTMT master plan and also to investigate the extent that the College’s trends and main Strategic goals are consistent and under the umbrella of the AASTMT’s main Strategic Goals. The results of the overall discussion underwent among the council structure finally revealed a matrix showing the common goals and objective insuring the concord between the two strategies (appendix II).

Continuing on The Path of Progress inspires the CET soul to keep prepared to face non-stop fiscal and paradigmatic challenges in the years to come. It will be necessary to contain costs, to allocate resources effectively to maintain quality, and to invest wisely in transformational initiatives that will advance the college. The CET planning procedure affirms core components of the 2010 Strategic Plan and identifies the strategic priorities that will guide actions and enable continuing progress over the next five years. This means that many elements of that CET strategic plan remained relevant. The college’s **mission**, as stated in the 2010, plan to foster the education through characterized academic programs and keep

long term partnerships with Arab institutions and internationally acknowledged bodies has not changed. The **core values** of the college, as stated in the 2010 plan, still underlie all college activities:

- Valuing our Employees and Students.
- Embrace Creativity and Innovation.
- Obligated to Strong ties with Community.
- Dedication and Commitment, Ethical Engineering Profession.
- Respect and Integrity, Openness to Internationalization.
- Arab Identity.
- Quality Teaching and Learning Environment.
- Free Learning Environment, Decentralization and Authority Delegation.
- Student Activities and Participation.
- Accountability and Responsibility and Teamwork and Cooperation.

The **Action principles** identified in 2010 still apply:

- To build an inclusive community.
- Embrace the power of technology.
- Act with entrepreneurial spirit.
- Partner with others locally and globally.
- Foster transformational change.
- Enhance contributions to society.
- Elevate our rank among world-class universities.
- Attract the best faculty, staff and students.
- Become an international center of excellence.
- Create a vibrant surrounding community.

Moreover, the SPC has reviewed the following topic throughout its meetings:

- I. SWOT analysis survey Review
- II. Identify which should stay and/or be revised;

The SPC discussed and compiled measures at its periodical meetings followed by system wide dialogue and then finally, approval by both the CET council and the Arab Academy's President.

I. SWOT Analysis Survey Review

SWOT analysis review upon the last indicators is performed in the form of a questionnaire and is distributed over a wide space diverse of different partners and stakeholders. This diverse covers faculty members, Industrial Advisory Committee, Staff, ..

etc. The results revealed that most of the factors mentioned on the pre SWOT analysis identified in 2010 are still valid as follows:

The **Strengths** identified in 2010- Positive Academic Environment. Qualified and Distinguished Staff. Reputation and Recognition of Academic Programs. Integrated University Campus. Faculty / Students Ratio. Availability for Financial Support. Library system tracking the latest global systems and a wide diverse of reference books. Distinct Teaching methods. Laboratories and workshops. High Quality and Stable Administrative and Educational Systems. Wi-Fi. Distinct Medical Care for Staff and Students. Electronic Documentation and Registration System. Adoption of Quality System. Diverse agreements with International Universities for Joint Auspices. Student Activities Support.

The Opportunities are the umbrella of the Arab League Organization; The presence of industrial community in Alexandria; Members of the faculty abroad; local and Global conferences. Parents with high positions and financial level; Faculty relationships with the heads of company boards; weak Proliferation of private universities; Global and local competitions. Agreements at the Arab and international levels

The Weaknesses identified in 2010 remain. More Refined Rules for Students Admission. Scientific Research. Mechanism - Support - Plan. The proportion of faculty members recruited to the part time and staff. Association of graduates and post-graduation plans. Development of skills and capabilities of employees. Lack of health care for families. Financial support for practical training for students and projects. Parking for cars. The difficulty of access to campus. Community Service. Salaries Compared to other similar organizations. Number of students admissions. College budget mainly depend on tuition fees.

The Threats are summarized within the increasing problem of traffic. Proliferation of private universities and distinctive programs in public universities. Rapid progress in global development. Weakness of pre-university education. Existence of research centers with private sector companies.

However, some factors were added to highlight the current condition as follows:

- Regarding both College's Vision and Mission We found that a percentage ranging between 85%-87% agrees to continue with both of them for the next five years with

continuous improvements undertaken throughout the action plans philosophy. In the same time 8%-12% don't know, and finally 3%-5% disagree to continue with these Vision and Mission.

- Regarding the **Strength** Factors, it is found that 70% of the whole questionnaires agreed about those factors to still as the factors of strengths, while 20% don't know, and only 10% of the whole specimens don't agree about such factors to lie within the college's strength area.
- Considering the **Weak** factors, the statistical results showed that about 59% of the specimen populations adopted such factors, while 23% do not know and 18% disagree that such factors are still factors of weakness.
- As for the **Opportunity** elements found that about 65% of the specimen agreed for such factors to be opportunities for the CET, 23.5% don't know, and 11.5% disagree about such factors to be of opportunities.
- Finally, the **Threat** factors it was found out that about 63% of the population agree, while 21% don't know, and 16% disagree for such factors to be of threat shades.

II. Identify Which Should Stay and/or be Revised

The SWOT revise survey introduced some points to be considered within the next five years plan as points of interest to be stressed on like:

- Development of faculty and staff skills
- Improve Research finance & Labs facilities
- Research fields related to the community
- Improving the code of Ethics
- Actual International Agreements
- Affiliation and belonging bonds to the academy among all academy members.
- Attractive environment for full time faculty members.
- Alumni strong relevant system
- College Ranking
- Introducing new undergraduate and postgraduate programs
- Introducing intellectual_training courses for the community

Also, from the advisory board:

- Suggestion with providing both college and department councils with two outsider members from industry and/or educational and research institutions.
- Upgrade social responsibilities.

3.2 AFFIRMING OUR FOUNDATIONS: MISSION, VISION, & GOALS

Thus, as prelude to outlining priorities and action steps for the next five years, we begin by reiterating core components of the Strategic Plan:

- Our inspirational **Vision** for the CET is to excel as one of the best engineering colleges locally and regionally and to maintain internationally recognized programs with an advanced academic rank. Moreover, to provide the highest quality educational programs, research, and community services and to play a leading role in, all engineering activities, as a foremost engineering school in the Arab world.
- Also, our **Mission** is to keep efficient integration for all of our facilities, and resources to proactively provide competitive, intellectual, and market-driven academic programs, research, and community services and pledges strong collaboration between our faculty, staff members, students, researchers, alumni, and industrial and business leaders. To maintain and develop long term and lasting partnerships with Arab institutions, and internationally acknowledged bodies.

Our Vision is grounded in a **distinctive combination of four core attributes**: we offer a teaching-focused academic experience; an abundance of opportunities for faculty, staff, and students to collaborate in the service of educational goals; a “right-sized” supportive community.

We have established an **institutional reputation** that is consistent with these strengths as well as our strategic goals. A reputation that honors past and present by acknowledging the spirit of innovation in education and public affairs that has characterized CET since its inception. It is also a very fitting reputation for a college located in Alexandria, Egypt, the heart of the Arab Nation.

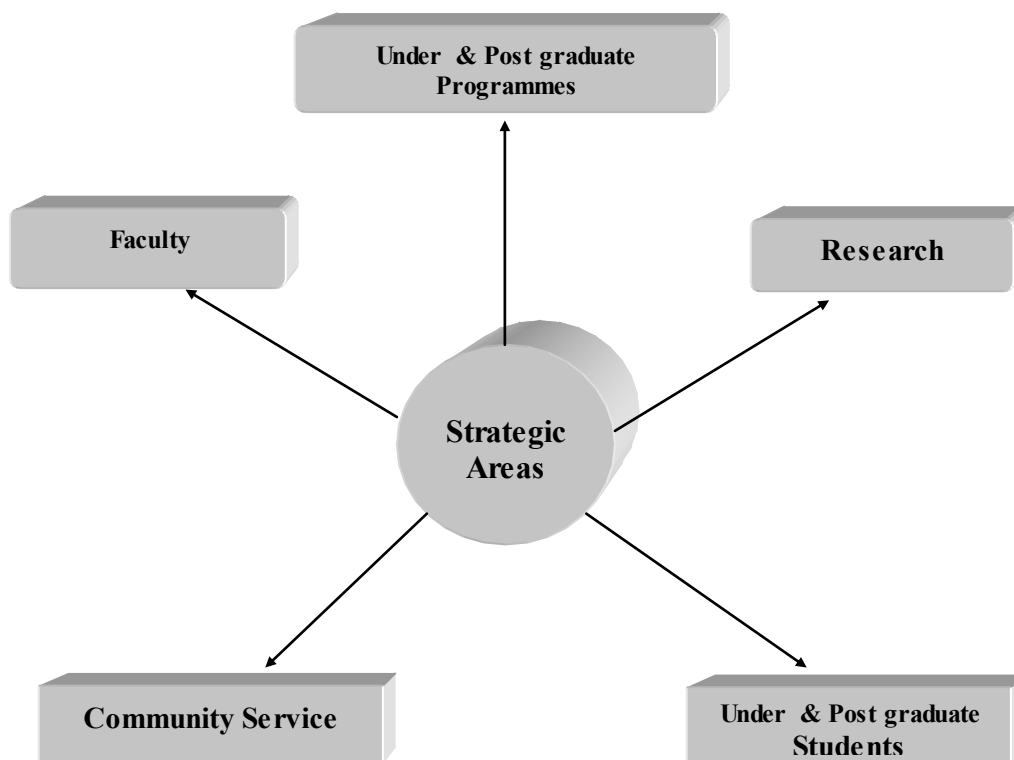
Regarding our vision mentioned above, we appreciate a deep commitment regarding our students to be critical thinkers, lifelong learners, and engaged citizens. We also bring distinctive strengths in delivering outstanding professional and graduate programs. We are and will continue believes related to the concept of student-centered campus, offering the opportunity for educational achievement and community engagement for the sake of better life.

4 COLLEGE’S NEW STRATEGIC GOALS 2016-2021

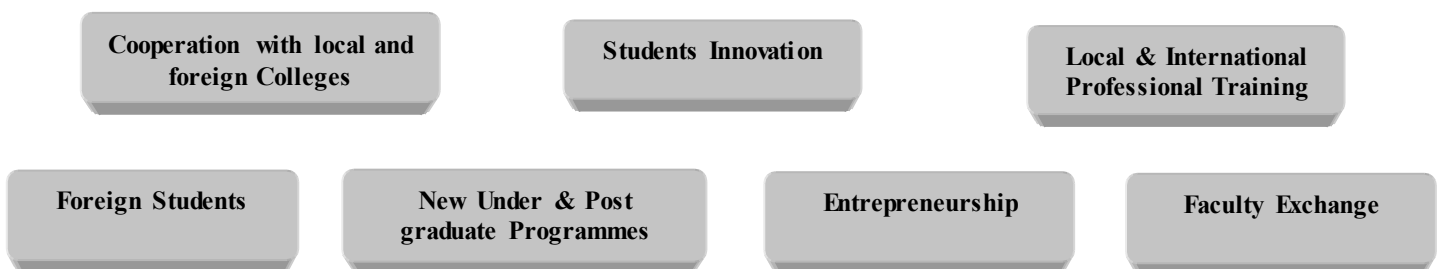
An overall strategic goal has been evolved representing a roadmap for the college of Engineering and Technology, CET, in the near term future, as follows:

“To be nationally, regionally and internationally acknowledged as one of the top ranked institutions that endorse excellence in education, research and community services throughout talented students, caliber faculty and superior facilities”.

Consequently and based on the overall strategic goal of the college, the following subordinate strategic goals are derived:



Accordingly, giving great attention to the following subareas during the new Strategic Plan 2016 -2021.



5 STRATEGIC GOAL 1: FACULTY & STAFF

The most important asset for the college is the human resource, represented by faculty, technical and administrative staff. A preeminent performance of faculty and staff leads to full achievement of the college vision and mission. Accordingly, a core strategic focal point is the development of the college faculty and Staff. Further, in order to keep the college's programs in pace with developing technologies, it is essential to seek innovative methods to recruit, hire, develop, and retain high caliber, talented faculty and staff.

The college Goal related to the faculty and staff is:

Goal (1):

Enhance The Number of Full Time Faculty with Diversified and Outstanding Competencies.

5.1 OBJECTIVES

5.1.1 Objective (1): Recruit and Retain the Finest Faculty and Staff Policies

1. Convey the message of the college related to valuing its people and its strive for excellence.
2. Maintain contemporary recruitment, hiring practices and retention strategies that attract eligible faculty to join the college.
3. Recognize innovative and creative young faculty.
4. Continue to develop current fringe benefits to faculty with same quality.
5. Maintain upgrading the level of take-home pay.
6. Encourage brilliance in teaching initiatives.
7. Expand the base of qualified graduate teaching assistants (GTA's) and teaching assistants (TA'S)
8. Adopt an efficient and reliable faculty promotion system.

5.1.2 Objective (2): Enhance Faculty Teaching Potentials

Policies

1. Facilitate internships and co-op programs that enhance faculty capabilities.
2. Seek collaborations with corporate partners to expose faculty to new ideas in teaching
3. Carry on periodic seminars, workshops, and other means of exchanging views and thoughts.
4. Extend mentoring mechanisms for junior faculty to enhance teaching methods.

5.1.3 Objective (3): Boost the Faculty Capacity to Perform Quality Based Research

Policies

1. Continue to support faculty innovative research ($IP \geq 2.5$).
2. Build a committed scheme of research awards for reputable and ranked publications.
3. Encourage participation in strategic and multidisciplinary research collaborations.
4. Develop plan(s) for upgrading and updating of research facilities.
5. Keep consulting business and industrial communities in common fields of interest.
6. Encourage international, regional, local funding for sound research projects and proposals.

5.1.4 Objective (4): Maintain an Academic and Administrative Structure and Sustain its Effectiveness

Policies

1. Preserve the college organizational structure with clear authorities and responsibilities.
2. Take necessary actions to sustain decentralization and delegation in decision making.
3. Expand internship and career development to administrative and technical staff.
4. Schedule periodic meetings between college administration, faculty, GTA's, and staff.
5. Strengthen the role of the college and departments councils showing decentralization and delegation in decision making.

GOAL (1): Enhance the Number of Full Time Faculty with Diversified and Outstanding Competencies.

Objective	Sr.	Polices	Responsibility	Date	Metric	Status
1.Recruit And Retain The Finest Faculty And Staff	1	Convey the message of the college related to valuing its people and its strive for excellence.	Dean	Yearly	Organize 1 conference	
			VD for Student Affairs	Yearly	Organize a Workshop	
			Department Chairs	Yearly	Invite 2 key note speakers	
				Monthly	Update college site	
	2	Maintain contemporary recruitment, hiring and retention strategies that attract eligible faculty to join the college.	Dean	Yearly	Ratio of student to faculty is from 12 to 15	
			VD for Education Affairs			
			Department Chairs			
	3	Recognize innovative and creative young faculty.	Dean	Yearly	1 Young Faculty Award	
			Department Chairs			
				Yearly	1 Creativity Award	
	4	Continue to develop current fringe benefits to faculty with same quality.		2016	Form a permanent committee for faculty affairs to study Faculty fringe benefits	
	5	Maintain upgrading the level of take-home pay .	College Council	Yearly	Review salary increase policies	
				Yearly	Review of faculty hourly rate	
	6	Encourage brilliance in teaching initiatives.	Department Chairs	Yearly	Grant 3 awards to faculty with highest Lecturer's evaluation	
7	Expand the base of qualified graduate teaching assistants (GTA's) and assistant lecturers (TA's).	Dean	Yearly	(8) GTA's assignments		
		Department Chairs	Yearly	(8) Assistant lecturers		
			Yearly	(4) Sponsored Ph.D.'(s)		
8	Adopt an efficient and reliable faculty promotion system.	Department Chairs	Yearly	(4) faculty promotions		
			Yearly	(3) faculty applications to the State Prizes		

GOAL (1): Enhance the Number of Full Time Faculty with Diversified and Outstanding Competencies.						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
2. Enhance Faculty Teaching Potentials	1	Facilitate internships and co-op programs that enhance faculty capabilities.	VD for Student Affairs	Yearly	Invite (6) lecturers and distinguished	
			Department Chairs	Yearly	Dispatch (6) faculty to attend	
				Yearly	Organize weekly seminars	
	2	Seek collaborations with corporate partners to expose faculty to new ideas in teaching.	VD for Training and Community Service	Yearly	(4) MOU's with Foreign colleges	
	3	Carry on periodic seminars, workshops, and other means of exchanging views and thoughts.	Department Chairs	Yearly	(20) Seminars	
				Yearly	(3) Workshops	
	4	Extend mentoring mechanisms for junior faculty to enhance teaching methods.	Department Chairs	Yearly	Assign (1) senior faculty to coordinate	
				Yearly	(2) Teaching review reports	
				Yearly	Assign (1) external reviewer for each	
3. Boost Faculty Capacity To Perform Quality Based Research	1	Continue to support faculty innovative research (IP \geq 2.5)	College Council	Yearly	(10%) increase in supported faculty innovative research	
	2	Build a committed scheme of research awards for reputable and ranked publications.	Dean	Yearly	(6) awards to faculty with publications in reputable, ranked journals of high impact factor	
	3	Encourage participation in strategic and multidisciplinary research collaborations.	Department Chairs	Yearly	(3) Research collaborations	
			VD for Graduate Studies and Research			
4	Develop plan(s) for upgrading and updating of research facilities.	Department Chairs	2016	Departmental two years Plan		
		VD for Educational Affairs	2017	Integrated College two years Plan		
6	Keep Consulting business and industrial communities in common fields of interest.	VD for Training and Community Service	Yearly	(2) Questionnaires and (2) reports		

GOAL (1): Enhance the Number of Full Time Faculty with Diversified and Outstanding Competencies.						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
4.Maintain An Academic And Administrative Structure And Sustain Its Effectiveness	7	Encourage international, regional, local funding for sound research projects and proposals.	Department Chairs	Yearly	(9) Proposals for funded research projects to be submitted to local, regional & international bodies	
	1	Preserve the college organizational structure with clear authorities and responsibilities.	VD for Educational Affairs	Yearly	(1) Review report about the current organization structure with suggestions for the current and future post authorities and responsibilities.	
	2	Expand internship and career development to administrative and technical staff.	Department Chairs	Yearly	(2) Career developments workshop or internship opportunity/staff member	
	3	Schedule periodic meetings between college administration, faculty, GTA's, and staff.	Dean	Yearly	(2) Students meetings	
			VD for Student Affairs	Yearly	(2) Staff meetings	
			VD for Educational	Yearly	(2) Faculty meetings	
			Department Chairs	Yearly	(2) GTA's meetings	
4	Strengthen the role of the college and departments councils showing decentralization and delegation in decision making.	Dean	Monthly	(1) College council meeting		
		Department Chairs				
			Monthly	(1) Department council meeting		

6 STRATEGIC GOAL 2: UNDERGRADUATE PROGRAMS

The college will continue to seek a rigid standard of excellence in its educational system including: teaching, and learning. We insist to adopt the highest quality assurance systems in all our academic entities. A major part of in this connection is to attract high quality students. The college background is a typical plus, supported by the commitment, proficiency and awareness of faculty, assistants, and staff. Such a strive for quality is of prime importance.

The college Goal related to the undergraduate program and learning is:

Goal (2):

Enhance the Quality of the College Undergraduate Programs

6.1 OBJECTIVES

6.1.1 Objective (1): Attract, Retain and Increase the Number of High Quality Students

Policies

1. Target students in eminent secondary schools to publicize the college as a superior choice.
2. Keep refining the admission standards to allow highly qualified students.
3. Apply student probation procedures for students with low GPA's.
4. Upgrade transfer requirements to college to permit only competent students.
5. Develop marketing brochures targeted to the high school students, and Organize and schedule secondary schools day visits to college.
6. Maintain national and international norms adopted by Academic Boards (e.g. class size, student to faculty ratio).
7. Adopt marketing polices to attract Regional and International students.

6.1.2 Objective (2): Develop, Maintain and Enhance Efficient Engineering Curricula

Policies

1. Increase the level of practical implementation in applied engineering courses.
2. Allow flexibility by expanding pools of elective courses from multiple departments.
3. Promote curricula referring to national and international benchmarks in engineering education.
4. Promote courses addressing soft and communicational ethical skills of students.
5. Promote both design and creativity features in course offerings.
6. Implement continuous assessment in student courses and program evaluation.
7. Enhance methods of student evaluation in the graduation project.
8. Involve students in research groups and innovative work.
9. Create Student's Innovation Center.
10. Study the possibility of proposing new disciplines.

6.1.3 Objective (3): Continue to Apply Educational Quality Assurance Systems

Policies

1. Enhance the role of the external educational advisory board.
2. Sustain the Accreditation Board for Engineering and Technology (ABET) Renovation.
3. Continue to revalidate the accreditation from RIBA1, RIBA2
4. Enhance (NAQAAE) procedures.
5. Adapt Internal Audit committee referred to Quality Assurance unit.

6.1.4 Objective (4): Enhance Career Preparation Services For Under Graduate Students

Policies

1. Strengthen the student advising schemes and personnel.
2. Enhance local and international training opportunities to all students.
3. Encourage student participation in different aspects of college life.

4. Prepare students to be more adaptable to the ever-changing work environment.

GOAL (2): Enhance the Quality of the College Undergraduate Programs							
Objective	Sr.	Polices	Responsibility	Date	Metric	Status	
1. Attract, Retain and Increase the number of high quality students	1	Target students in eminent secondary schools to publicize the college as a superior choice.	VD for Student Affairs	Yearly	5 School Visits		
	2	Keep refining the admission standards to allow highly qualified students.	Department Chairs	Yearly	Report on student admission requirements based on the actual resources & capacity		
	3	Apply student probation procedures for students with low GPA's.	Department Chairs	Yearly	Report on the progress of students under probation by the end of each semester		
	4	Upgrade transfer requirements to college to permit only competent students.	VD for Educational Affairs	Yearly	Report on current transfer requirements to college		
	5	Develop marketing brochures targeted to the high school students, and Organize and schedule secondary schools day visits to college.	VD for Educational Affairs	Yearly	(1) Marketing brochure (5) Invitations to visit college by secondary schools students College site development		
	6	Maintain National and International norms adopted by Academics Boards (e.g. class size, student to faculty ratio.....etc.)	VD for Educational Affairs	Yearly	(25) Students per class in all course offerings		
			VD for Student Affairs	Yearly	12-15 : 1 student to faculty ratio		
	7	Adopt marketing procedures to attract Regional and International students.	Dean	Yearly	10 % increase in number of foreign students		
	2. Develop, Maintain and Enhance an Efficient Engineering Curricula	1	Increase the level of practical implementation in applied engineering courses.	Department Chairs	Yearly	(1) Revision of case studies supplied with courses	
				VD for Training and Community Service	Yearly	Provide departments by practical case studies from industrial and business community	

GOAL (2): Enhance the Quality of the College Undergraduate Programs						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
	2	Allow flexibility by expanding pools of elective courses from multiple departments.	Department Chairs	Yearly	(1) Revision of list of elective courses per semester	
	3	Promote curricula referring to national and international benchmarks in engineering education.	Dean	Yearly	(3) Academic references	
			Department Chairs	2 years	(1) Revision of curricula based on benchmarks	
				2 years	Approve the revision	
	4	Promote courses addressing soft and communicational ethical skills of students.	Department Chairs	2years	Review report on the degree of inclusion of soft and communications skills in course offering	
	5	Promote both design and creativity features in course offerings.	Department Chairs	2 years	Review report on the degree of inclusion of design and creativity in course offering	
	6	Implement continuous assessment in student courses and program evaluation.	Dean	Yearly	(1) Report of course exams by external examiners for each department /semester	
			Department Chairs	Yearly	Distribute and discuss reports in department meetings	
	7	Enhance methods of student evaluation in the graduation project.	Department Chairs	Yearly	Review the evaluation procedures to reflect project learning outcomes	
	8	Involve students in research groups and innovative work.	VD for Student Affairs	Yearly	Form and follow up (6) groups	
9	Create Student's Innovation Center.	Dean	2016	2 projects / year		
10	Study the possibility of proposing new disciplines.	Department Chairs	5 years	Report on each proposed discipline		

GOAL (2): Enhance the Quality of the College Undergraduate Programs						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
3. Continue to apply educational quality assurance systems	1	Enhance the role of the external educational advisory board.	Dean	2016	Form the educational advisory board	
			VD for Educational Affairs	Yearly	Call for (2) meetings	
				Yearly	Arrange for meetings and report recommendations	
	2	Sustain the Accreditation Board for Engineering and Technology (ABET) Renovation	Department Chairs	2016	Prepare Self study reports	
			ABET Group	2016	Prepare for Mock Visit	
				2016	Prepare for Real Visit	
	3	Continue to revalidate the accreditation from RIBA1, RIBA2.	Architectural Eng. Department	Yearly	Arrange for team periodic visits and take necessary actions with department chairs accordingly	
			VD for Educational Affairs			
	4	Enhance the (NAQAAE) procedures.	Head of Quality Assurance Unit	Yearly	Prepare college self study report in coordination with department chairs	
	5	Adapt Internal Audit committee referred to Quality Assurance Unit.	Quality Assurance Unit	Yearly	Report on each department internal audit	
	4. Enhance Career Preparation Services for under graduate students	1	Strengthen the student advising schemes and personnel.	Department Chairs	Yearly	Assign a senior experienced faculty as a department academic advisor
2		Enhancement of local and international training opportunities to all students.	VD for Training and Community Service	Yearly	(5%) increase in local and international training opportunities	
3		Encourage student participation in different aspects of college life.	VD for Student Affairs	Yearly	(3) Art exhibitions	
				Yearly	(4) Sports Activities	
				Yearly	Organize Engineering day	

GOAL (2): Enhance the Quality of the College Undergraduate Programs						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
	4	Prepare students to be more adaptable to the ever-changing work environment.	Dean	Yearly	(4) Invitations to business and industrial entrepreneurs to lecture students	
			VD for Student Affairs	Yearly	Arrange for and Publicize lectures among students	

7 STRATEGIC GOAL 3: RESEARCH AND GRADUATE PROGRAMS

The college will foster its research profile and innovation, based on its current and planned resources including faculty, researchers and infrastructure. By promoting an extensive array of scientific themes, we can expand technological and scientific applications beyond the boundaries of traditional disciplines.

The current trend in scientific research is more oriented towards integrated, multi facets, and entities. Such an issue is widely encouraged by the college. Research groups between faculty members from different departments, specializations, and from other colleges are formed to deal with and tackle collaborative research projects. New areas of multidisciplinary research will experience targeted growth. A summary of the college strategic areas is presented in Appendix (1).

The goal related to Research diversity and Innovation is:

Goal (3):

Strengthen Research Multiplicity, Innovation with Prospective Capabilities and Graduate Programs.

7.1 OBJECTIVES

7.1.1 Objective (1): Pledge a Sustained Growth in College Eminent Publications

Policies

1. Augment the quality and quantity of publications in ranked journals and conferences.
2. Appraise faculty research contribution based on citation indices of papers, and funding. Grant awards of excellence to faculty with outstanding publications.
3. Encourage faculty participation in national and international awards.
4. Update and upgrade the existing lab facility dedicated to research.
5. Follow up the College Strategic Research Plan.

7.1.2 Objective (2): Develop Joint, Multidisciplinary Research, and Sponsored Projects

Policies

1. Establish multidisciplinary research projects and incubators.
2. Seek local, regional and international funding initiatives for projects seed grants.
3. Encourage participation in multidisciplinary research efforts with other colleges.
4. Publicize and disseminate the college research strategy potential among interested groups.

7.1.3 Objective (3): Develop the Graduate Programs and Improve the Quality of Students in Higher Studies

Policies

1. Publicize the College graduate programs using different means.
2. Align research points with the college strategic research themes.
3. Increase the current level of hourly rate of faculty involved in postgraduate studies.
4. Develop partnership with industry to generate valid research points and allow joint research supervision.
5. Publicize scholarships and grants offered to support excellent graduate students.
6. Revise graduate programs curricula to reflect relevant and up-to-date innovations.
7. Emphasize offering professional diplomas in several engineering domains.
8. Finalize the process of MEng. programme in different disciplines.
9. Emphasize offering PhD programmes in cooperation with other institutions.
10. Study the potential of establishing the Engineering Post Graduate studies College.
11. Offer MSc. in Basic Sciences.

GOAL (3): Strengthen Research Multiplicity, Innovation with Prospective Capabilities and Graduate Programs						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
1. Pledge a sustained growth in college eminent publications	1	Augment the quality and quantity of publications in ranked journals and conferences.	VD for Graduate Studies and Research	Yearly	(10%) growth in college total publications	
	2	Appraise faculty research contribution based on citation indices of papers, and funding, Grant awards of excellence to faculty with outstanding publications record.	Department Chairs	Yearly	(5%) growth in cited publications with high impact factor	
	3	Encourage faculty participation in national and international awards.	VD for Graduate Studies and Research	Yearly	At least (2) faculty applications for national awards	
				Yearly	At least (1) faculty application for international awards	
	4	Update and upgrade the existing resources dedicated to research.	Department Chairs	2016	Report on current status & future lab facility requirements	
				yearly	Follow up report on the facilities upgrade and update	
	5	Follow up the College Strategic Research Plan.	VD for Graduate Studies and Research	Yearly	A report on the covered topics in Strategic Research Plan	
2. Develop Joint, multidisciplinary research, and sponsored projects	1	Establish multidisciplinary research projects and incubators.	Dean	2016	Eco Architecture center	
			Department Chairs	2016	Energy research center	
				2016	Materials research center	
				2016	Acoustic Emission center	
	2	Seek local, regional and international funding initiatives for projects seed grants.	Dean	Yearly	(6) proposals for Conferences and workshops	
			Department Chairs	Yearly	Report on proposals	

GOAL (3): Strengthen Research Multiplicity, Innovation with Prospective Capabilities and Graduate Programs						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
	3	Encourage participation in multidisciplinary research efforts with other colleges.	Dean	Yearly	3 joint research project proposals with other colleges in AASTMT or other outside entities	
			Department Chairs			
	4	Publicize and disseminate the college research strategy potential among interested groups	VD for Graduate Studies and Research	Yearly	A report on college research outcomes, publications, & projects	
3. Develop the graduate programs and improve the quality of students in higher studies	1	Publicize the College graduate programs using different means.	VD for Graduate Studies and Research	½ Yearly	Advertisement in local news papers	
				½ Yearly	Update the college site	
				½ Yearly	Posters	
				½ Yearly	An open day to graduates before semesters	
	2	Align research points with the college strategic research areas.	Department Chairs VD for Graduate Studies and Research	Monthly	Research points submitted to college council should be maintained explicitly within the college research themes	
				Yearly	A progress report about research and higher studies	
	3	Increase the current level of hourly rate of faculty involved in postgraduate studies.	Dean	2016	Submit a proposal to increase the hourly rate	
4	Develop partnership with industry to generate valid research points and allow joint research supervision.	Department Chairs	Yearly	3 research points		
5	Publicize scholarships and grants	Dean	Yearly	A list of proposed grants and scholarships		

GOAL (3): Strengthen Research Multiplicity, Innovation with Prospective Capabilities and Graduate Programs						
Objective	Sr.	Polices	Responsibility	Date	Metric	Status
		offered to support excellent graduate students.	Department Chairs	Yearly	Approve the list and get approval for at least (5) grants	
	6	Revise graduate programs curricula to reflect relevant and up-to-date innovations.	Dean	Every 2years	Revised program curricula report	
			VD for Graduate Studies and Research		Comprehensive college report	
			Department Chairs		Approve the report	
	7	Emphasize offering professional diplomas in several engineering domains.	Department Chairs	Yearly	(2) professional diploma offerings	
			VD for Graduate Studies and Research			
	8	Finalize the process of MEng. programme in different disciplines.	Department Chairs	2016	Submit a report	
	9	Emphasize offering PhD programmes in cooperation with other institutions.	Dean	2017	Submit a report	
			Department Chairs			
10	Study the potential of establishing the Engineering Post Graduate Studies College.	Dean	2017	Submit a report		
11	Offer MSC in Basic Sciences.	VD for Graduate Studies and Research	2016	Submit a report		

8 STRATEGIC GOAL 4: ACADEMIC COOPERATION

The process of globalization dictates that a prominent college is the one that excel among other colleges in the world's stage. As an active part of that process, and based on a self confidence behavior, we are open to international cooperation with reputed, and top tanked academic institutions all over the globe, as long as it's beneficial to our students, faculty, the college and AASTMT. The college of Engineering will develop exceptional effort to establish strong international ties. A number of MOU's have been already developed with high-profile foreign institutions, which could grant a strong base for long lasting cooperative endeavors. Areas of collaboration are in three main directions; students exchange, faculty exchange, and joint research projects whether in degree-based or no degrees projects. The college will continue these efforts during the next period, since it is a landmark for our competitiveness.

The college goal related to academic cooperation and openness to internationalization is

Goal (4):

Develop and Maintain Strong and Long-Lasting Academic Cooperation

8.1 OBJECTIVES

8.1.1 Objective (1): Build Agreements with Internationally Renowned Colleges

Policies

1. Build on the faculty collaboration with foreign universities around the globe.
2. Review and upgrade the current agreements and MOU's with top ranked colleges.
3. Develop new agreements with prominent International Colleges.
4. Strengthen the ties with leading National Engineering Colleges.
5. Conduct college departments course mapping with departments abroad.
6. Publicize the outcomes of the college international collaboration.
7. Encourage mutual visits between college faculty members and those in foreign colleges.

8.1.2 Objective (2): Create Opportunities for College Students to Study Abroad and Get Trained Abroad.

Policies

1. Expand external training for students.
2. Follow up agreements with global firms to provide internship possibilities to students.
3. Enhance the student awareness for safety in working environment.
4. Review the current procedure of dispatching college graduate students to study abroad.

8.1.3 Objective (3): Support Joint Research and Mutual Theses Supervision with Foreign Faculties

Policies

1. Invite international experts and faculty members to lecture in college.
2. Increase the number of faculty participation in international cooperative projects.
3. Endorse faculty contribution in universal projects for college lab facility enhancement.
4. Improve the number of joint theses supervision with foreign colleges.
5. Carry on short-term visits for the college faculty members to foremost foreign colleges.
6. Maintain the support of faculty participation in prominent conferences around the world.
7. Strengthen the current college infrastructure for video conference.

GOAL (4): Develop and Maintain Strong and Long-Lasting Academic Cooperation

Objective	Sr.	Polices	Responsibility	Date	Metric	Status
1. Build agreements with internationally renowned colleges	1	Build on the faculty collaboration with foreign universities around the globe.	Dean	Yearly	Report on current agreements and MOUs	
				Yearly	Approve the proposals	
	2	Review and upgrade the current agreements and MOU's with top ranked colleges.	Dean	Yearly	One revision	
				Yearly	Approve the proposals	
	3	Develop new agreements with prominent International Colleges.	Dean	Yearly	(1) agreement	
				Yearly	Approve the proposals	
	4	Strengthen the ties with leading National engineering colleges.	Dean	Yearly	Review Report	
				Yearly	Approve the proposals	
	5	Conduct college departments course mapping with departments abroad.	Department Chairs	Yearly	2 senior course(s) mappings	
				Yearly	Review the mapping process	
	6	Publicize the outcomes of the college international collaboration.	Dean	½Yearly	(1) College site update	
				Yearly	Report to college council	
				Yearly	Report sent to Colleges	
	7	Encourage mutual visits between college faculty members and those in foreign colleges.	Department Chairs	Yearly	(2) Mutual faculty exchange visits in college	
Dean			Yearly	Approve the proposals		
2. Create opportunities for college students to study and get trained abroad	1	Expand external training for students.	Department Chairs	Yearly	(10) External training opportunities	
	2	Follow up agreements with global firms to provide internship possibilities to students.	VD for Training and Community Service	Yearly	(2) MOU's that includes students internship	

	3	Enhance the student awareness for safety in working environment.	Department Chairs	½Yearly	(1) Training Course	
	4	Review the current procedure of dispatching college students to study abroad.	Dean	Yearly	Review Reports	
3. Support joint research and mutual theses supervision with foreign faculties	1	Invite international experts and faculty members to lecture in college.	Department Chairs	Yearly	(10) Invited faculty or industrial experts	
	2	Increase the number of faculty participation in international cooperative projects .	Department Chairs	Yearly	(1) Cooperation Projects per department	
	3	Endorse faculty contribution in universal projects for college lab facility enhancement.	Department Chairs	Yearly	(1) Application for Projects per department	
	4	Improve the number of joint theses supervision with foreign colleges .	Department Chairs	Yearly	(2) Theses joint Supervisions per department	
	5	Carry on short-term visits for the college faculty members to foremost foreign colleges .	Dean	Yearly	(3) Visits	
	6	Maintain the support of faculty participation in prominent conferences around the world.	Dean VD for Graduate Studies and Research Department Chairs	Yearly	(15) Conferences Participation	
	7	Strengthen the current college infrastructure for video conference.	Dean	2016	(2) Video conference facilities	

9 STRATEGIC GOAL 5: COMMUNITY SERVICE

The College is totally devoted to serve its surrounding society through its involvement in several community development efforts. Earlier, we have developed, for instance, a master strategic plan for Abukir district motivated by our responsibilities and core values. The college intends to widen and extend its role in community services by introducing its facilities, technical, human and other resources for that purpose. Such trends align also with other strategic goals related to enhancing its faculty, educational and research impacts.

The college goal related to community services and cooperation is

Goal (5):

Serve the Community Efficiently and Resourcefully

9.1 OBJECTIVES

9.1.1 Objective (1): Maintain Effective Links with Industrial and Business Community

Policies

1. Preserve organizing the assembly of the college industrial advisory committee.
2. Share technical expertise and research findings with the industrial sector.
3. Invite industrial leaders and business entrepreneurs to lecture in college.
4. Maintain the number of industrial experts participating in senior project supervision.
5. Enhance training opportunities available to students in industrial firms.
6. Increase faculty-business mutual visits activities.
7. Encourage Business firms to provide future jobs for college graduates.
8. Distribute marketing materials (printed and electronic) to different constituents.
9. Coordinate the improvement of the college and the department's web pages.

9.1.2 Objectives (2): Develop Cooperation with Government and Public Enterprises

Policies

1. Involve the faculty with governmental agencies in applied engineering projects.
2. Enhance the engineering center (ECCRCS) to provide efficient consultation services.
3. Sustain and progress the partnership with Alexandria governorate in different fields.
4. Enhance Energy Research Center to serve the Community.
5. Renovate labs and other required facilities to provide competent consultation service.

9.1.3 Objectives (3): Sustain Serving the Surrounding Community and the Environment

Policies

1. Hold an Engineering and community periodic gathering to discuss common interests.
2. Encourage focused research in environmental design, green architecture and sustainability.
3. Invite local industrial corporations to participate in community development initiatives.

GOAL (5): Serve the Community Efficiently and Resourcefully

Objective	Sr.	Polices	Responsibility	Date	Metric	Status
1. Maintain effective links with industrial and business community	1	Preserve organizing the assembly of the college industrial advisory committee.	Dean	Yearly	Call for (2) assemblies	
				Yearly	Organize (2) assemblies	
	2	Share technical expertise and research findings with the industrial sector.	Dean Department Chairs	Yearly	(1)Summary report to be distributed to the industrial and business firms	
	3	Invite industrial leaders and business entrepreneurs to lecture in college.	VD for Student Affairs Department Chairs	Yearly	(5) Invited Lecturers in college weekly seminars	
				Yearly	(2) Invited lecturers in department courses	
	4	Maintain the number of industrial experts participating in senior project supervision.	Department Chairs	Yearly	(10%) growth rate in number of industrial experts	
	5	Enhance the training opportunities available to students in industrial firms.	VD for Training and Community Service	Yearly	(3%) annual growth rate on training opportunities provided by college	
				Yearly	(3%) increase in the number of industrial firms	
	6	Increase faculty-business mutual visits activities.	Dean Department Chairs	Yearly	(8) Mutual group visits	
	7	Encourage Business firms to provide future jobs for college graduates.	VD for Industrial Relations	Yearly	Job fair in college	
				Yearly	(50) job opportunities made available to graduates	
	8	Distribute marketing materials (printed and electronic) to different constituents.	Department Chairs Chair, Computer Engineering Dept. VD for Educational Affairs	Yearly	Compile Depts. reports	
				Yearly	(2) Biannual report	
				Yearly	(1) College annual report	
	9	Coordinate the improvement of the college and the department's web pages.	Dean Department Chairs	2016	Update the college web page every week	
2016				Update the department web pages every week		

			Chair, Computer Engineering Dept.	2016	Compile the update the web pages every week	
2. Develop cooperation with government and public enterprises	1	Involve the faculty with governmental agencies in applied engineering projects.	VD for Training and Community Service	Yearly	(5) Proposals for applied engineering projects	
	2	Enhance the engineering center (ECCRCS) to provide efficient services.	Dean	2016	Establish legal status for ECCRCS center	
				2016	Enhance ECCRCS organization structure	
	3	Sustain and progress the partnership with Alexandria governorate in different fields.	Dean	Yearly	(2) Jointly funded projects	
			VD for Training and Community Service	Yearly	(2) Invitations to districts officials to visit campus	
	4	Enhance Energy research center to serve the Community.	Dean	2016	(1) Research Centre	
			Related Departments	2016	Allocate adequate personnel	
	5	Renovate labs and other required facilities to provide competent consultation service.	VD for Educational Affairs	Yearly	Report on Department labs upgrading	
			Department Chairs			
	3. Sustain serving the surrounding community and the environment	1	Hold an Engineering and community periodic gathering to discuss common interests.	Dean	Yearly	(1) Invitation to a group of local community
VD for Training and Community Service						
2		Encourage focused research in environmental design and green architecture and Sustainability.	VD for Graduate Studies and Research	Yearly	(2) Master Theses	
			Department Chairs			
3	Invite local industrial corporations to participate in community development initiatives.	VD for Training and Community Service		(2) Meetings of the Industrial advisory committee with the community initiatives as the main theme		

APPENDIX (1): ANNUAL ACTION PLAN REPORT (2010-2015)

**APPENDIX (II): MATRIX SHOWING AASTMT
STRATEGIC PLAN ALLINING WITH CET STRATEGIC
PLAN**

APPENDIX (III): STRATEGIC RESEARCH AREAS

Despite the growth which has been achieved so far in total college research throughout the last years, more focused efforts are needed to establish research trends, schools and colours.

One way to do this is by determining the major axes of the college research directions. Such axes are primarily aligned with the nation's major research themes, in addition to local and regional demand.

Meanwhile, Inter, cross and multidisciplinary type of collaborations between departments and faculty are essential via an active college structure and knowledge.

Further, those axes coincide with the college capabilities, competitive advantage and capacity building initiatives. The research areas are by no means related to specific departments or entity within the college organization structure, but it should be considered as a collective effort for the entire college.

Finally, the following figure shows continuous increase in the number of Researches in Ranked Journals during the past 8 years.

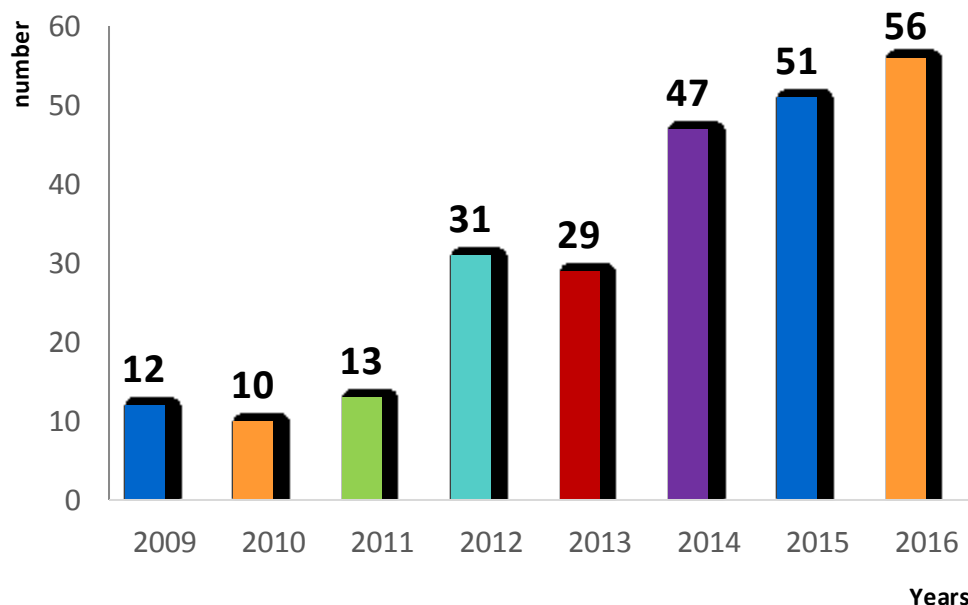


Figure 6: Researches in Ranked Journals

Strategic Research Areas 2016 -2021

Transportation Engineering and Planning

1. Roads and Highways
2. Railways, Ports and Airports
3. Infrastructure Networks
4. Service Structures (Bridges, Tunnels, Towers)
5. Urban Transit Planning
6. Travel Demand Analysis
7. Intelligent Transportation Systems (ITS)

Construction Management

8. Project Management
9. Contracting and Specifications

Green Buildings

10. Green Building Materials and Structures
11. Environmental Friendly Irrigation Systems
12. Energy Savings in Buildings

Construction Engineering

13. ICT in Construction
14. Optimization of Construction Site Layout Planning
15. Building Information Modeling (BIM) in Construction Projects

Structural Engineering

16. Advanced Composite Materials
17. New Techniques for Non-Destructive Tests (NDT)
18. Finite Element Modeling (FEM)
19. Structural Health Monitoring (SHM)
20. Nano-Fibers in Structures

Coastal Zone Management and Water Management

21. Integrated Water Resources Management and Sustainability
22. Coastal Resilience and Integrated Coastal Zone Management
23. Impact of Climate Change and Sea Level Rise on Coastal Zones

Geotechnical Engineering

24. Soil Stabilization and Remediation
25. Numerical Modeling of Soil Behavior
26. Physical Modeling of Deep Foundations
27. Soil Dynamics and Liquefaction

Automation and Control

28. Automated Systems Modeling and Control
29. Motion Control of Wheeled Platforms
30. Fault Tolerance Control
31. Dynamic Safety Margins on Process Control

Electrical Machine Drives

32. Harmonic Distortion Improvement for Electrical Drives
33. Power Electronics Applications on Special Machines
34. Electrical Machine Design
35. Uninterruptible Power Supplies

Electrical Power Engineering

36. Power Quality Improvement Using AI Techniques
37. Power Systems Protections and Operation
38. Wind and Solar Energy Resource Management
39. Voltage Regulation on Electrical Transmission Lines
40. Flexible AC Transmission Systems (FACTS) and High Voltage DC

Marine Engineering

41. Ship Design (Hydrodynamic, Stability, Powering)
42. Computational Fluid Dynamics (CFD) in Marine Applications
43. Advanced Marine Vehicles (Hydrofoils, WIG's, SES, ...)
44. Fluid-Structure-Interaction (Marine Applications)
45. Ship Production Technologies
46. Marine Turbines and Energy Extractors
47. Computational Methods in Harbor Engineering
48. Marine Propulsion Systems
49. Dynamic Positioning
50. Marine Renewable Energy
51. Marine Environment

Offshore Engineering

52. Offshore Technology (Floating Platforms, Anchoring and Mooring Computations)
53. Offshore Wind Energy
54. Pipeline and Riser Technology (Design, Analysis, Installation, Pipe Soil Interaction, Flexible Pipes)
55. Drilling, Production, Construction, Oil and Gas Reservoir Engineering
56. Modeling and Analysis for Offshore Structures
57. Conventional and Unconventional Offshore Gas Production Facilities: Floating LNG, CNG, Gas Hydrates
58. Subsea Production & Piping Systems

Computer Engineering

59. Cloud Computing and Software Engineering
60. Data Communication and Network Security
61. Embedded Systems, Reconfigurable Computing & Computer Arch.
62. Intelligent Systems, Data Mining and Machine Learning
63. Bioinformatics
64. Cryptography
65. Cryptographic Engineering

Manufacturing Systems and Processes

66. Rapid Prototyping Applications
67. Product Development Systems
68. Lean Manufacturing Systems

Modeling and Simulation

69. Component Based Modeling of Industrial Systems
70. Optimization of Industrial Facilities Design
71. Meta-Heuristic Optimization

Materials Engineering

72. Materials Microstructure in Nano-Engineering
73. Use of Materials in Renewable Energy Applications
74. Industrial Materials Waste Treatment

Human Factors Engineering

75. Occupational Health and Safety
76. Ergonomically Designed Products
77. Risk Assessment, Analysis, and Management
78. Robust and Reliability-Based Engineering

National Urban Planning

79. Urban Distribution and Dispersal
80. Airports and Railway Stations
81. Marine Transportation

Regional Urban Planning

82. Country's Regions
83. Regional Road Networks
84. Regional Urban Development

City Planning

85. Master Plan of Alexandria
86. Land Use, Urban Fabric, Housing and Utilities

87. City Gateways and Axes
88. Water Surfaces and Corridors
89. Ring Roads, Green Back and Green Belt

Architectural Design

90. Informal Housing
91. Conservation Methods for Heritage Buildings
92. Modern Housing and New Approaches in Architecture

Thermal Engineering

93. Air-Conditioning Systems Using Solar Energy
94. Natural Gas Refrigeration Systems
95. LPG Production from Natural Gas
96. Liquefaction of N.G. System

Hydraulic Systems

97. Reduction of Friction Losses in Pipelines
98. Pump Performance Analysis
99. Nano-Actuators in Hydraulic Circuit Valves
100. Fluid Simulation of Two-Phase Flow

Automotive Engineering

101. Car Pollution Control
102. Hybrid Car Systems

Renewable Energy

103. Energy Generation From Renewable Energy Sources
104. Water Desalination Using Solar Energy
105. Heater Using Solar Thermal Collectors
106. Power Generation in Remote Isolated Areas
107. Efficiency of Photo-Voltaic Cells
108. Wind Energy for Power Generation
109. Energy Storage Systems

Electronics and Communications Department

110. Sensors Applications and Fabrications
111. Wireless Sensor Network
112. Measurements and Instrumentations Techniques
113. Photonic Devices (Optoelectronics)
114. Genetic Algorithms and Swarm Intelligence
115. Neural Network Applications
116. Fuzzy Systems Applications

Electronics Devices and Circuits

117. Integrated Circuit Fabrication
118. VLSI Circuits (Analog & Digital)
119. Low-Power Design
120. RF Integrated Circuits
121. Photovoltaic Devices and Systems

122. Process and Device Modeling

Digital Signal Processing

- 123. Pattern Recognition
- 124. Image and Video Processing
- 125. Computer Vision
- 126. Biomedical Applications
- 127. Biometrics
- 128. Signal Processing Applications
- 129. Watermarking

Digital and Mobile Communications

- 130. Mobile Communications
- 131. Wireless Communications
- 132. Cognitive Radio
- 133. Optical Communications

Microwave Technology

- 134. Smart Antennas
- 135. Micro-Strip Antennas
- 136. Electromagnetic Scattering Problems
- 137. Computational Electromagnetic
- 138. Nano-Analysis Microwaves Filter

Nanotechnology

- 139. Single electron transistor
- 140. Ballistic transistor
- 141. Nano-gold particles for medical treatment

Engineering Mathematics

- 142. Mathematical models of hydrodynamic, aerodynamics
- 143. Mechanics of materials and elastic bodies
- 144. Computational techniques and stochastic models
- 145. Mathematical & statistical models in finance & economics

Engineering Physics

- 146. Radiological effect on environment
- 147. Environmental indicators and climatic change

Applied Chemistry

- 148. Corrosion engineering and protection
- 149. Mass transfer and electrochemical reactors
- 150. Large scale storage batteries
- 151. Wastewater treatment

Design, Vibration, and Control

- 152. Modeling and simulation of dynamic systems
- 153. Vibration isolation
- 154. Dynamics and control of robotic systems
- 155. Control of mechanical and mechatronics systems

156. Smart materials

Heat Transfer

157. CFD applications

158. Heat and mass transfer

APPENDIX (IV): FINANCING THE STRATEGY

Funding our plan for the ambitious accreditation procedures, new facilities, new faculty, Ph.D. fellowships, and research shall be derived mostly from AASTMT resources. Some funding is expected to come from multi facets international projects like Tempus and Arab funding bodies (e.g. Qatar research Foundation). The engineering center for consultation, research and community services (ECCRCS) will play a role in supporting renovation of some lab facilities specially those for Construction Engineering and Materials. Two of the most exciting growth areas in the College are the emerging, highly visible and highly cross-disciplinary research strengths in Electrical Engineering, and in Energy and Environmental Sustainability, and Architectural engineering

The strategy will require investments from the College of Engineering, from the central administration, from new revenue streams, and from fund-raising from alumni and business community. The plan anticipates resources for recruiting and retaining faculty, creation and maintenance of high-quality research and educational resources, establishing stable funding for our graduate students seeking Ph.D. from local and international universities, funding for major building projects related to student-faculty space.

Major Areas of Expenditures

1. Faculty recruitments and retention
2. New buildings and capital projects
3. ABET Accreditation Requirements
4. NAQAAE Accreditation Requirements
5. Conferences and workshops
6. Research and lab Facilities
7. Graduate education and PH.D. students support
8. Instructional and educational facilities Enhancements
9. New labs
10. Lab renovations and maintenance
11. Student life enrichments
12. Technical Staff
13. Administrative staff
14. Field training

