



Strategic Plan 2008-2014

The Electrical Engineering Department The Petroleum Institute

MISSION:

The mission of the Electrical Engineering Program is to provide a world-class education in electrical engineering with emphasis on power, instrumentation and control systems and automation engineering that prepares graduates for successful professional careers in ADNOC, other allied sponsors, and the broader energy industry, and a life time of learning that will enable them to continue their education throughout their career.

VISION:

The vision of the Electrical Engineering Program at the Petroleum Institute is to be recognized as a premier electrical engineering program that provides a world-class education and research in electrical engineering through focused activities and excellence of its faculty, staff, graduates, and facilities.

VALUES:

Learning and Discovery

To promote excellence in education and discovery in a caring community for our students, faculty, and staff and to expand knowledge and human understanding.

Commitment

To excel in the process of achieving our program's goals and objectives, and to aspire to be recognized as a premier electrical engineering program that provides a world-class education and research in electrical engineering through focused activities and excellence of its faculty, staff, graduates, and facilities.

Diversity

To provide an atmosphere of fairness that promotes, appreciates, and embraces differences among people that reflect our realization of the value of diversity and its importance.

Integrity

To foster trust and be consistent, always taking responsibility for our actions.

Team Work and Collaboration

To work as a team together and with colleagues across disciplines and industry, help each other, and sacrifice for the common good.

Professionalism and Leadership:

To excel with integrity, honesty, modesty, and the spirit that all is possible.

Safety

To promote a concern for safety, particularly in our laboratory-based curriculum.

Focus

To leverage resources for research and undergraduate and graduate teaching, we focus on three major areas — Power engineering, Instrumentation and Control and Automation.

PROGRAM GOALS:

1. **Undergraduate Education:** The program will be recognized for its excellence in undergraduate electrical engineering education.
2. **Graduate Education:** The program will graduate students with advanced degrees who are recognized for their excellence.
3. **Research and Scholarly Activities:** The program will enhance its Research and Scholarly Activities and be known in one or more areas.
4. **Faculty and Staff Professional Development:** The program will assist in providing every opportunity for electrical engineering faculty and staff members to continue to learn and develop their capabilities as teachers and scholars.
5. **Outreach:** The program will outreach to ADNOC OPCOs and National Industry.

Objectives and Strategies:

Goal 1:

The program will be recognized for its excellence in undergraduate electrical engineering education.

Objectives:

- Attract and retain high quality students with higher cumulative GPAs than at present by the end of their freshman year.
- To maintain our electrical engineering program so that it exceeds the UAE Ministry of Higher Education and Scientific Research and the ABET EC2000 accreditation criteria.
- To achieve an average of 100 women and 100 men students in our program.
- To maintain the current graduation rate.

Strategies

- Promote the establishment of an ELEG honors Program as a mechanism to recruit and retain the finest undergraduate students.
- In conjunction with the PI, and separately provide a vigorous undergraduate recruitment to recruit students who have demonstrated excellent scholarship.
- Establish, and seek the advice and assistance of the ELEG Advisory Committee on the program's undergraduate programs and student recruitment.
- Involve students in research and establish an “ELEG undergraduate research scholars program” to promote students’ participation in research and to recognize high quality students.
- Enhance the advising process for ELEG students including preparing a program plan for each and working closely with them.
- Enhance the educational experience that the students gain at the PI by organizing field trips, seminars, and workshops.
- Encourage students’ participation in more than one summer internship so they receive additional and different opportunities for professional practice experience.

- Coordinate our electrical engineering program with the UAE requirements to allow our freshman- and sophomore-level courses to facilitate transfer students earning of a B.S. degree from The Petroleum Institute.
- Participate actively in the PI's Freshman Experience.
- Promote and support the IEEE Student Branch, and encourage students to join and become active.
- Continue to encourage students' participation in IEEE Design and other national/international competitions.
- Start an IEEE Women Affinity Group.
- Through participation in the PI Student Council and other student societies, build on our success in recruiting, retaining, and graduating UAE engineers.
- Maintain and exceed Ministry and ABET accreditation standards through assessment of our program's and Educational-Objectives and Outcomes, and continuous curriculum improvement.
- Map CAMS into the curriculum as much as possible as one way to ensure that Educational Objectives respond to stakeholder and constituency needs.
- Revisit the areas of emphasis and suggest new relevant ones.
- Maintain and enhance the classroom and lab facilities with high quality learning environments that incorporate modern teaching technologies for multi-media.
- Enhance the current laboratories with equipment found routinely in the facilities of the ADNOC OPCOs which will employ our students.
- Equip research and teaching laboratories to enable the faculty and students to produce nationally and internationally recognized research outcomes.
- Organize a seminar series with speakers from ADNOC OPCOS for EE students to enhance the learning experience of our students.

Goal 2

The program will graduate students with advanced degrees who are recognized for their excellence.

Objectives:

- To maintain Postgraduate-Faculty status of all ELEG faculty members.
- To focus program resources on attracting highly qualified graduate students to assist faculty with their research.
- To increase enrollment to reach an average number of MS students per graduate faculty member greater than 1.5, and each faculty member is the advisor of at least one MS student.

Strategies

- Recruit high quality graduate students from the PI, credible UAE and international universities.
- Ensure our M.S. program is of high quality by continuing to meet the Ministry of Higher Education and Scientific Research.
- Develop a plan to launch a Master of Science, and PhD program in ELEG.
- Promote a competitive PI Fellowship program, recruit for it, and urge the establishment of a PI funded graduate assistant program.
- Encourage faculty to attract sufficient externally funded research and award efforts to support graduate students through research assistantships from externally funded research projects.
- Provide students with challenging research opportunities and a professional development experience through the graduate program
- Effectively utilize the opportunities that the PI offers to recruit for post-doctoral positions to boost the level and quality of research in the program.
- Urge graduate students to publish the results of their research in refereed journal publications and conference proceedings.
- Develop and maintain excellent research laboratories and treat the graduate students as professionals and provide them with excellent learning opportunities.
- Promote and initiate an internet-based interactive course offerings within the PI e-learning system.

- Establish a research seminars series to foster research collaboration.
- Obtain feedback of the ELEG Advisory Committee in on graduate-program matters.
- Capitalize on the fact that a large number of the graduate students will be ADNOC employees to focus on research issues of interest to ADNOC.

Goal 3

The program will enhance its Research and Scholarly Activities and be well recognized in one or more areas.

Objectives:

- To focus on a reasonable/manageable areas of research areas. Condition and process monitoring, power systems, automation.
- To achieve research project activity so that at least one-third of the faculty has funded projects by 2014.
- To start supporting research assistants through externally funded research proposals by 2014.
- Achieve an increase of reviewed journal articles and conference papers per faculty member on an annual basis.
- Effectively utilize the opportunities that the PI offers to recruit for postgraduate fellowships and post-doctoral positions to boost the level and quality of research in the program. Recruit postdocs preferably one to work with two-three faculty members on projects of direct interest to ADNOC OPCOs that have high potential of receiving funding.
- Utilize synergy among faculty members within our Program and the PI, to promote interdisciplinary research teams.
- Support research collaborations with credible national, regional, and international universities in the form of co-advising of Master and PhD students or other joint projects.
- Focus on a reasonable/manageable number of research areas. These are Condition and process monitoring, power quality, energy management, automation, signal processing applications in the Petroleum Geosciences area.
- Establish the research infra structure required to support active research programs
- Continue the effort to establish close professional relationships with technical personnel from the ADNOC OPCOs
- Recruit faculty that have the technical background suitable for R&D work of interest to the ADNOC OPCOs.
- Provide support, within available resources, to permit faculty members to focus on fundamental as well as applied research and scholarly activities.
- Establish a research seminars series to foster research collaboration within the PI and with the ADNOC OPCOs.
- Support interdisciplinary research activities/centers to provide additional opportunities for the ELEG faculty members.
- Urge graduate students to publish the results of their research in refereed journal publications and conference proceedings.

Goal 4

The program will assist in providing every opportunity for electrical engineering faculty and staff members to continue to learn and develop their capabilities as teachers and scholars.

Objectives:

- To support faculty members' professional development in teaching, and research and scholarly activities within available program resources.
- To support staff members' professional development within available program resources
- To initiate a mentoring program for younger faculty members to assist in their development and reward mentors.

- To contribute to the UAE national human resource development by recruiting and training qualified faculty and staff who are UAE nationals.
- To increase the number of faculty members, and distinguished/chaired professorships.

Strategies:

- Provide support, within available resources, to permit faculty members to focus on their primary roles of teaching, research, and service.
- Promote active involvement in professional organizations that enhances leadership and improve professional development and career success.
- Recruit additional faculty members and distinguished/chaired professors who would serve as research mentors and would build research teams.
- Recruit and train UAE nationals for faculty and staff positions.
- Encourage and reward senior faculty members who serve as research mentors for younger faculty.
- Provide Sabbatical opportunities for faculty members including at ADNOC sites for extended periods to promote learning.
- Foster excellence and innovation in teaching among all faculty members.
- Expect that faculty members will become regionally and/or internationally recognized scholars recognize their accomplishments and support their future accomplishments.
- Continue to recognize the need of and provide staff with the professional development opportunities.

Goal 5

The program will outreach to ADNOC OPCOs and other industries.

Objectives:

- To produce excellent electrical engineering undergraduate and graduate students of the caliber that is sought by ADNOC and ADNOC group companies.
- To have the quality and size of undergraduate and graduate programs of instruction and research that supports ADNOC group companies.
- To help build the electrotechnology industrial infrastructure of the UAE that would support the energy industry.
- To establish and maintain an active ELEG Advisory Committee.
- To institute program industrial/alumni relationship programs.
- Provide visibility and awareness of the ELEG program's faculty and student activities and accomplishments.

Strategies

- Document and Publicize the faculty expertise and accomplishments.
- Work closely with the PI to identify major potential supporters of the ELEG program within the PI sponsor companies, get to know them, understand their interests, and potentially seek their support for research proposals.
- Seek the advice and assistance of the ELEG Advisory Committee to
 - strengthen the relationship between the Program and OPCOs
 - provide support in identifying potential supporters of research proposals,
 - serve as advocates for the program, and
 - share thoughts on direction and provide feedback.
- Publish the ELEG program's annual report.
- Use the Web to disseminate information.
- Offer ELEG-related short courses and workshops of interest to the sponsors.
- Continue the effort to establish close professional relationships with technical personnel from the ADNOC OPCOs

- Visit oil/gas fields and give technical lectures to inform and educate about the PI and the ELEG program, to form an effective network of supporters for the program, and to identify issues for potential research collaborations.
- Establish a network that involves electrical engineers from the OPCOs to meet with ELEG faculty for technical seminars and discussions of topics/issues of mutual interest.
- Begin to explore research collaborative opportunities with other industries targeting electrical engineering areas of importance to the UAE economic growth and development.