



المعهد البترول

THE PETROLEUM INSTITUTE

جامعة و مركز ابحاث University and Research Center

THE GRADUATE SCHOOL

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WELCOME TO THE GRADUATE SCHOOL AT THE PETROLEUM INSTITUTE



The PI is committed to provide world-class education in engineering and applied sciences in order to support and advance the petroleum and energy industries in UAE and beyond. Graduate education is a major part of this commitment and significant effort is put on it. Initiated in 2007, the PI offers today graduate programs that lead to Master of Engineering (M.Eng.) in Chemical Engineering, Electrical Engineering, Mechanical Engineering, Petroleum Engineering, and Health Safety & Environmental Engineering and to Master of Science (M.Sc.) in Applied Chemistry, Chemical Engineering, Electrical Engineering, Mechanical Engineering, Petroleum Engineering and Petroleum Geosciences. The M.Eng. programs give more emphasis to applied aspects of the various engineering disciplines while the M.Sc. programs emphasize fundamentals and engineering research. Scholarships in the form of Teaching / Research Assistantships are available to graduate students with excellent academic record.

All programs consist of core and a wide variety of elective courses in order to fulfill all requests and interests of our students. Graduate courses are taught by PI and visiting faculty with significant experience in graduate education and research worldwide. In the second part of their studies, graduate students are engaged in on-going exciting research projects under the supervision of a PI faculty. PI is working towards the initiation of its own Ph.D. program which is expected to be launched in the near future.

Our graduate program aims to educate engineers and scientists for an outstanding professional career in industry, academia, government or services worldwide. The international and multicultural intellectual environment built by PI faculty, staff and students provides the basis for our graduates to excel in their professional life.

I hope you will take the time to learn more about The Graduate School and discover how we can help you achieve your goals. If you have questions about the Graduate School or any of its programs, please feel free to contact us! We are always looking for motivated and qualified students who want to make a difference.

A handwritten signature in blue ink, appearing to read 'Ioannis G. Economou', with a long horizontal stroke extending to the right.

Dr. Ioannis G. Economou

Associate Provost for Graduate Studies



THE GRADUATE SCHOOL

The Petroleum Institute (PI) was created in 2001 with the goal of establishing itself as a world-class institution in engineering education and research in areas of significance to the oil and gas and the broader energy industries. The PI's sponsors and partners include Abu Dhabi National Oil Company (ADNOC) and four major international oil companies, such as BP, JODCO, Shell, and Total.

The Graduate School was established in 2011 with the mission to manage and direct Graduate Studies at PI in order to provide quality services that contribute to the achievement of PI's strategic objectives.

The Graduate School is responsible for the day-to-day management of the PI graduate programs, development of new graduate programs, coordination of the recruitment of new graduate students, collaboration with ADNOC and its operating companies to ensure that the graduate programs are in-line with their needs for highly skilled engineers, and enhancement of the collaboration of the Institute with partner universities in the USA, Europe and China.

The Graduate School advises and supports PI undergraduate students regarding their plans for graduate studies at PI and abroad while it coordinates recruiting of the graduating Master students by ADNOC and its operating companies.

MASTER OF ENGINEERING DEGREES ARE OFFERED IN THE FOLLOWING AREAS:

- Chemical Engineering
- Electrical Engineering
- Health, Safety & Environmental Engineering
- Mechanical Engineering
- Petroleum Engineering

MASTER OF SCIENCE DEGREES ARE OFFERED IN THE FOLLOWING AREAS:

- Applied Chemistry
- Chemical Engineering
- Electrical Engineering
- Mechanical Engineering
- Petroleum Engineering
- Petroleum Geosciences



THE ADVANTAGE

WHY PURSUE A GRADUATE DEGREE IN ENGINEERING?

- Professional recognition
- Highly qualified engineers are needed by top companies worldwide
- Wider and better career opportunities
- Technological advances generate new challenges for highly educated engineers

WHY CHOOSE PI FOR YOUR GRADUATE STUDIES?

- Internationally recognized faculty
- Fellowships available
- Classrooms equipped with state-of-the art educational facilities
- Small classes
- On-campus housing facilities
- International environment
- Exciting interdisciplinary research projects available
- Top research institution in the country
- Collaboration with world class Universities in USA, Europe and Asia
- Opportunity to work to ADNOC group of companies upon graduation
- Outstanding graduate students can continue for a PhD in a partner University



FELLOWSHIP PROGRAMS

A unique opportunity to be involved in cutting edge research related to Oil and Energy Technologies

The PI offers financial support for highly qualified graduate students for the following three categories:

FELLOWSHIP GRADUATE RESEARCH/TEACHING ASSISTANTSHIP (FGR/TA):

The FGR/TA is awarded to highly qualified students. PI Graduate Fellowship holders are expected to maintain a minimum GPA of 3.5 during the fellowship period.

GRADUATE RESEARCH/TEACHING ASSISTANTSHIP (GR/TA):

These students satisfy the criteria for employment as Graduate Assistants but do not meet the highly selective criteria set for the FGR/TA. Students assigned to GR/TA positions are required to have a minimum GPA of 3.25. Highly qualified GR/TA students may transfer to FGR/TA.

VISITING GRADUATE RESEARCH/TEACHING ASSISTANTSHIP (VGR/TA)

The VGR/TA is a visiting student who is studying at other institutions and co-advised by the PI faculty. He/She is expected to work on his/her research project at PI.

ADNOC FELLOWSHIP PI MASTER PROGRAM (4+1) -ONLY FOR PI UNDERGRADUATE STUDENTS

The ADNOC Fellowship PI Master Program allows outperforming PI undergraduate students to take graduate courses during their senior year so that they can complete their Master degree within a year from completion of their B.Sc. degree.



APPLIED CHEMISTRY

MISSION

To provide a high quality education in applied chemistry, and to produce research chemists with an engineering background who are capable of fulfilling some of the key research and technical needs of the petroleum industry. The program is specifically tailored for the petroleum industry and will help graduates to prepare for successful careers, and meet the needs and expectations of PI sponsors from the oil and gas, and broader energy sectors.

EXCITING RESEARCH IN APPLIED CHEMISTRY

- Polymers and Nanomaterials Chemistry
- Petroleum Production & Process Chemistry
- Industrial Catalysis
- Fuels and Alternative Energy Sources
- Corrosion Science & Physical Chemistry
- Environmental Science & Water Technology
- Computational Chemistry
- Organometallics / Applied Inorganic Chemistry
- Modern Instrumentation and Applied Organic Chemistry
- Spectrochemical Studies

GRADUATE PROGRAM

- Master of Science (33 credits)



CHEMICAL ENGINEERING

MISSION

To provide a world-class education in chemical engineering science and practice, and to produce graduates and future leaders who are capable of meeting or exceeding the needs and expectations of PI sponsors from oil and gas, and broader energy industry. In addition, graduates will engage in life-long learning that will enable them to keep abreast of and effectively contribute to their advancement in the profession.

EXCITING RESEARCH IN CHEMICAL ENGINEERING

- Heterogeneous catalysis and reaction engineering
- Process simulation and optimization
- Gas processing and treatment
- Alternative energy resources
- Asphaltene studies and modeling
- Desalination of sea water through gas hydrates
- Ionic liquids and applications
- Thermodynamics and phase equilibria
- Nanotechnology and its applications
- Oil spill cleanup and recovery
- Wastewater treatment
- Polymer science
- Polymer composites: synthesis and characterization and applications
- Rheology of polyolens-graphene composites

GRADUATE PROGRAM

- Master of Science (33 credits)
- Master of Engineering (33 credits)



ELECTRICAL ENGINEERING

MISSION

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

EXCITING RESEARCH IN ELECTRICAL ENGINEERING

- Real Time Digital Simulation
- Stability Improvement with Grid connected Solar Form/Hybrid System
- Different MPPT Techniques for Photovoltaic System and Designing Improved MPPT Techniques Considering Cost and Efficiency
- Control Strategy for Hybrid Power System – Perspective Isolated Networks and Remote areas
- Enhanced Oil Recovery Using Electrical Methods
- Smart Grid Applications

GRADUATE PROGRAM

- Master of Science (33 credits)
- Master of Engineering (36 credits)



HSE ENGINEERING

MISSION

To produce engineers from a variety of disciplines, with sufficient scientific, engineering and management breadth in the field of Health, Safety & Environment (HSE), to achieve the goal of Health, Safety & Environment (HSE) through Design, by managing risk as they design and implement optimal and cost-effective engineering and operational solutions, within the constraints of regulatory mandate and best practice, to improve productivity and profitability.

M.ENG. IN HSE PROGRAM COURSES INCLUDE

- Industrial Hygiene Engineering
- System Safety Engineering and Risk Management
- Ergonomics and Human Factors Engineering
- Hazard Control in Production Systems
- Fire Protection Engineering
- HSE Program Management
- Environmental Regulatory Compliance
- Hazardous Waste Management
- Analysis and Design of Air Pollution Control Systems
- Analysis and Design of Water Pollution Control Systems
- Industrial Security and Disaster Preparedness
- Industrial Noise Assessment and Control
- Construction Safety Management
- Environmental Regulatory Compliance
- Research Methods in HSE

GRADUATE PROGRAM

- Master of Engineering (32 credits)



MECHANICAL ENGINEERING

MISSION

To support the advancement of the petroleum and energy industries in the United Arab Emirates through excellence in education and research in the field of mechanical engineering.

EXCITING RESEARCH IN MECHANICAL ENGINEERING

- Computational transport phenomena
- Dynamic system and control
- Flow in fluid handling facilities
- Machining of polymer composites
- Waste heat utilization and heat exchangers
- Mechanics of advanced materials and design
- Fuel cell technology
- System safety and ergonomics
- Mechatronics and Field Robotics
- Nanotechnology and its applications
- Multiphase flow
- Energy: solar cell, heat exchange etc.
- Thermofluids
- Computer aided design
- Virtual prototyping

GRADUATE PROGRAM

- Master of Science (33 credits)
- Master of Engineering (33 credits)



PETROLEUM ENGINEERING

MISSION

To become a leading international center of excellence in education, training, research and professional service dedicated to serving the competence, training and technology development needs of the petroleum industry, in general, and ADNOC and other allied sponsors, in particular. Our mission is to provide a platform for life-long learning while also emphasizing the importance of interdisciplinary approach, ethical conduct, and health, safety & environmental issues.

EXCITING RESEARCH IN PETROLEUM ENGINEERING

- Prevention of micro-annulus formation & improving mechanical properties and numerical simulation
- Analysis and selection procedure of drilling bits
- Downhole flow assurance through electromagnetic method
- Water production control in fractured formation
- Development of corrosion inhibition for sub-sea environment
- Development of threshold polymeric scale inhibitors
- Use of gas lift system to inject scale and corrosion inhibiting chemicals
- Borehole collapse and hollow cylinder tests on rock samples
- Borehole stability analysis
- Managing scale deposition, prevention, inhibition and dissolution
- Asphaltene, paraffin and wax deposition challenges in mature oil & gas fields

GRADUATE PROGRAM

- Master of Science (33 credits)
- Master of Engineering (33 credits)



PETROLEUM GEOSCIENCES

MISSION

To provide a high-quality education in petroleum geology and geophysics and to produce graduates for successful and socially and ethically responsible careers in the petroleum industry that meet or exceed the needs and expectations of ADNOC and other industry sponsors.

EXCITING RESEARCH IN PETROLEUM GEOSCIENCES

- Carbon and Strontium isotope Chemostratigraphy
- Multi-component seismic data analysis
- Passive Microseismic and Advanced Gravimetric Monitoring of Reservoirs
- The structure and evolution of the UAE mountains and foreland basins
- Rock properties, sedimentological and diagenetic characteristics of carbonate rocks
- Seismic and EM properties correlation
- Processing of seismic lab data
- Stochastic and deterministic inversion of a 4D-seismic carbonate survey
- Fracture diagenesis of carbonate reservoirs
- Reservoir characterization
- The impact of hydrothermal dolomitization on reservoirs evolution
- Linking diagenesis to sequence stratigraphy
- Geostatistical prediction of seismic changes due to roduction (4D-seismic geostatistical model)
- Evaluation of fluid substitution models in carbonate rocks
- Chronostratigraphically constrained geological modelling

GRADUATE PROGRAM

- Master of Science (31 credits)



ADMISSION REQUIREMENTS

ADMISSIONS

Admission to the Master of Science (M.Sc) and Master of Engineering (M.Eng) Full Time Program is open to all qualified UAE national and International students. Outstanding graduates with excellent academic credentials, who are highly motivated to undertake a challenging and rigorous graduate program of study and research in one of the PI programs, are invited to apply. They will be expected to have at least a B.S. degree from a well-recognized university.

ADMISSION REQUIREMENTS

The following general criteria apply to all applicants:

- A minimum GPA of 3.0 (on a 4.0 point scale or its established equivalent) from a reputable B.Sc. Program; applicants must submit an academic transcript attested by the UAE Ministry of Higher Education and Scientific Research.
- Recently certified TOEFL score of 550 or higher on Paper-Based, 213 on the Computer-Based, or 79 on the Internet-Based test, or an IELTS score of 6.0.

CONTACTS

The Graduate School

P.O. Box 2533 | Abu Dhabi | United Arab Emirates

Phone: +971 2 6075936 | Fax: +971 2 6075200 | Email: ALLgs@pi.ac.ae

Web site: <http://www.pi.ac.ae/graduatestudies>



THE PI EXPERIENCE



"PI is a leader in engineering. It has all of the resources for excellent engineering programs"

Khalfan Mohamed Khalfan Al Marzouqi | Chemical Engineering | United Arab Emirates

"Strong community of faculty and graduate students within Engineering Education"

Manal Abdul Aziz Al Badawi | Petroleum Engineering | Jordan



"Very passionate faculty groups, extremely supporting staff teams, very diversified graduate students"

Adeel Butt | Chemical Engineering | Pakistan

"Excellent faculty who are leaders in engineering education research and practice"

Maria Teresa Mota Martinez | Chemical Engineering | Spain



"The top three qualities of PI's Graduate School are the support from faculty, the resources available, and the name recognition that goes with a top university such as PI"

Xiaoliang Qu | Mechanical Engineering | China

"Research opportunities in engineering research are enormous"

Farzana Islam | Electrical Engineering | Bangladesh



"PI's Graduate School has been a great place for me. I have been involved in innovative ventures in Petroleum Geosciences "

Alberto Jose Bernaez Pulgar | Petroleum Geosciences | Venezuela

The Petroleum Institute
P.O. Box 2533 | Abu Dhabi | United Arab Emirates
Phone: +971 2 6075936
Fax: +971 2 6075200
<http://www.pi.ac.ae>