E-JUST
EGYPT-JAPAN UNIVERSITY OF SCIENCE & TECHNOLOGY
エジプト日本科学技術大学

Egypt-Japan University of Science and Technology

School of Energy Resources, Environment, Chemical and Petrochemical Engineering

Postgraduate Program

جامعة بحثية مصرية ... ذات شراكة يابانية

EGYPTIAN RESEARCH-ORIENTED UNIVERSITY
WITH JAPANESE PARTNERSHIP

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Environmental Engineering :

M.SC. PROGRAM

M.Sc. students must complete at least 36 credit hours, within the following guidelines:

•Course-work of 18 credit hours, including core courses of six credit hours, elective courses of 9 credit hours and a Project-Based Learning course of three credit hours.

• Thesis work is 18 credit hours.

Core courses

The six credit hours core courses are listed below. Each course is worth three credit hours.

- ENV 501- Environmental Management System (EMS)
- ENV 502- Principles of Environmental Engineering

Elective courses

Each course is worth three credit hours. Students select the 6-credit elective courses from the elective courses with the aid of their academic advisors. Students can also select, with the approval of their academic advisors, elective courses from other interdisciplinary graduate programs.

ENV 503- Water Quality and Treatment
ENV 504- Advanced Water supply Engineering
ENV 505- Ground Water Engineering and Management
ENV 506- Advanced Wastewater Treatment
ENV 507- Air Pollution and Control Technology
ENV 508- Environmental Pollution and Control Engineering
ENV 509- Solid Waste Management
ENV 510- Global Environment
ENV 511- Water Resources Management
ENV 512- Transport Phenomena

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Project-Based Learning Courses:

Master of Science students in Environmental Engineering have to participate in a teamwork project, which is based on self-learning. Students have to present innovative concepts and competitive solutions. The total credits of the course are three.

* ENV 701- Project Based Learning on Environmental Engineering

M.Sc. Thesis:

The M.Sc. candidate should prepare and defend a thesis based on a high-valued research work in one research topic in the fields of Environmental Engineering.

* ENV 801 M. Sc. Thesis

PH.D. PROGRAM

Ph.D. students must complete at least 48 credit hours, within the following guidelines:

• Course-work of 18 credit hours, including elective courses of 12 credit hours, and research seminar courses of six credit hours. Each course is worth three credit hours. Students can also select, with the aid of their academic advisors, elective courses from other interdisciplinary graduate programs.

• Thesis-work of 30 credit hours

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Elective courses

- ENV 601- Seawater and Brackish Water Desalination
- ENV 602- Environmental Economics
- ENV 603- Hazardous Waste Management
- ENV 604- Environmental Processes and Systems
- ENV 605- Life Cycle Assessment
- ENV 606- Risk and Hazard Management in Environment and Energy
- ENV 607- Environmental Performance Measures and Indices
- ENV 608- Industrial Waste Treatment

Seminars:

Ph.D. students have to participate in two seminars activities that are based on self-learning and presentations of new advanced topics in her/his discipline. The total credit hours of the seminar are six. The seminar ENV 702 will be conducted by distinguished Japanese and/or Egyptian Professors, while seminar ENV 703 will be conducted by students through presentations of recent Journals and papersin the student research field. As well as students shall present the progress in their research projects.

ENV 702- Advanced Research Seminar on Environmental Engineering
ENV 703- Research Seminar on Recent Topics Environmental Engineering

Ph.D. Dissertation:

The Ph.D. candidate should prepare and defend a dissertation based on a high-valued research work in one research topic in the fields of Energy Resources and Environmental Engineering. The dissertation should present a new contribution(s) in the respective field of research.

ENV 802 Ph.D. Dissertation

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Energy Resources Engineering

M.SC. PROGRAM

The Master of Science degree in Energy Resources Engineering program requires at least 36 credit hours within the following guidelines:
Course-work of 18 credit hours, including core courses of 6 credit hours, elective courses of 9 credit hours and a Project-Based Learning course of 3 credit hours.
Thesis work is of 18 credit hours.
M.Sc. students have to pass successfully six courses with three credit hours each

Core courses

- ERE 501- Energy Resources Engineering
- ERE 502-Renewable Energy Utilization

Elective courses

Each course is worth 3 credit hours. Students select the 9-credithours elective courses from the sets of the elective courses with the aid of their academic advisors. Students can also select, with the approval of their academic advisors, elective courses from other interdisciplinary graduate programs.
ERE 503- Solar Energy Engineering
ERE 504- Fuels and Processes
ERE 505- Computational Fluid Dynamics
ERE 506- Thermal/ Hydraulics in Power Technology
ERE 507- Thermal and Cogeneration Systems
ERE 508- Hydrogen and Fuel Cells Systems
ERE 509- Advanced Heat and Mass Transfer
ERE 510- Advanced Thermodynamics
ERE 511- Advanced Fluid Mechanics
ERE 512- Advanced Combustion and Air Pollution

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Project-Based Learning Courses:

Master of Science students in Energy Resources Engineering program have to participate in a teamwork project, which is based on self-learning. Students have to present innovative concepts and competitive solutions to energy problems. The total credits of the course are three.

* ERE 701- Project Based Learning on Energy Resources Engineering

M.Sc. Thesis:

The M.Sc. candidate should prepare and defend a Thesis based on a high-value research work in one research topic in the fields of Energy Resources Engineering.

* ERE 801 – M. Sc. Thesis

PH.D. PROGRAM

The Ph.D. degree in Energy Resources Engineering program requires at least 48 credit hours within the following guidelines:

Course-work of 18 credit hours, including elective courses of 12 credit hours, selected from the sets of Energy Resources Engineering elective courses and two research seminar courses of 6 credit hours. All courses are 3 credit hours. Students can also select only one, with the approval of their academic advisors, elective course from other interdisciplinary graduate programs. Thesis -work of 30 credit hours. Ph.D. students have to pass successfully six courses with three credit hours each.

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Elective courses

- ERE 601- Sustainable Energy Utilization
- ERE 602- Advanced Computational Fluid Dynamics
- ERE603- Refrigeration and Indoor Environmental Control
- ERE 604-Turbomachinery
- ERE 605- Energy Management
- ERE 606- Energy Systems
- ERE 607- Advanced Topics in Fuels and Combustion
- ERE 608- Energy Efficient Buildings
- ERE 609-Refuse Derived Fuel (RDF)
- ERE 610-Energy Storage (I)
- ERE 611-Energy Storage (II)
- ERE 612-Dynamic Uninterruptible Power Supply System (UPS)
- ERE 613- Smart Grids
- ERE 614- Electrical Power Generation

Advanced Research Seminars Courses:

Ph.D. students have to participate in two seminars activities, which are based on self-learning, and presentations of new advanced topics in her/his discipline. The total credit hours of the seminar are six. The seminar ERE 702 will be conducted by distinguished Japanese and/or Egyptian Professors, while seminar ERE 703 will be conducted by students through presentations of recent Journals and papers in the student research field (state of the art). In addition, the students shall present the progress in their research projects.

ERE 702- Advanced Research Seminar on Energy Resources Engineering
ERE 703- Research Seminar on Recent Topics in Energy Resources Engineering

Ph.D. Thesis:

The Ph.D. candidate should prepare and defend a Thesis based on a high-value research work in one research topic in the field of Energy Resources Engineering. The Thesis should present a new contribution(s) to the subject in the respective field of research..

ERE 802 – Ph.D. Thesis

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Chemical and Petrochemical Engineering:

M.SC. PROGRAM

M.Sc. students must complete a total of at least 36 credit hours, within the following guidelines:

– Course work of 18 credit hours, including 6 credit hours core courses, 9 credit hours elective courses, and 3 credit hours Project-Based Learning course.

– Thesis work 18 credit hours.

M.Sc. students have to pass successfully six courses with three credit hours each

Core courses

- CPE 501 Transport Phenomena
- CPE 502 Advanced Unit Operations

Elective courses

The student has to select three courses from the following group or from any other graduate program/s, according to the recommendations of the principal supervisor.

CPE 503- Modeling and Simulation of Chemical and Petrochemical Processes
CPE 504- Electrochemical Methods in Chemical and Petrochemical Industries.
CPE 505- Advanced Separation Technologies
CPE 506- Advanced Process Control
CPE 507- Nanotechnology in Chemical and Petrochemical Industries
CPE 508- Gas handling& Processing Engineering
CPE 509- Analytical Instrumentation
CPE 510- Petrochemical Industries
MTH 501- Advanced Mathematics and Statistics I

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Project-Based Learning Courses:

M.Sc. students have to participate in the following team work projects which is based on self-learning. Students have to present innovative concepts and competitive solutions. The total credits of the course are three hours.

*CPE 701 – Project Based Learning on Chemical and Petrochemicals Engineering.

M.Sc. Thesis:

The M.Sc. candidate should prepare and defend a Thesis based on a high-valued research work in one research topic in the fields of Chemical and Petrochemical Engineering.

* CPE 801- M. Sc. Thesis

Complementary Courses:

In addition to students holding a bachelor degree in Chemical and/or Petrochemicals Engineering, students holding bachelor degrees in relevant engineering specializations can be admitted in the program. These specializations include:

– Mechanical Engineering
– Material Science and Engineering
– Metallurgy

The students should pass successfully complementary courses of up to 18 credit hours, as determined by the Department Council and approved by the Department Council, before registration in the program. The credit hours of the complementary courses are not accounted in the course-work requirements.

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The complementary courses are listed below; each course is worth 3 credit hours:

- CPE 450- Process Plant Design
- CPE 451- Chemical Processes Principles
- ERE 451- Heat and Mass Transfer
- MSE 450 -Materials Properties and Testing
- CPE 452- Instrumental Analysis
- CPE 453- Organic Chemistry
- CPE 454- Physical Chemistry
- CPE 455- Thermodynamics (1)
- CPE 456- Thermodynamics (2)

Ph.D. Program :

Ph.D. students must complete a total of at least 48 credit hours, within the following guidelines:

– Course-work of 18 credit hours, including elective courses of 12 credit hours, selected from the sets of the chemical and petrochemicals courses, and research seminar courses of 6 credit hours. Students can also select, with the aid of their academic advisors, elective courses from other interdisciplinary graduate programs.

– Thesis -work of 30 credit hours.

Ph.D. students have to pass successfully six courses with three credit hours each.

The student has to select four courses (3 credit hours each) from the following group or from any other graduate program, according to the recommendations of the main supervisor.

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Elective courses

- CPE 601- Advanced Chemical Reactions and Reactor Design
- CPE 602- Advanced Polymerization Engineering
- CPE 603- Catalysis Engineering and Design
- CPE 604- Process Optimization
- CPE 605- Particle Science and Handling Engineering
- CPE 606- Biochemical Engineering
- CPE 607- Pollution Control in Chemical and Petrochemical Industries
- CPE 608- Micro-Chemistry and Micro-chemical Engineering
- MTH 601- Advanced Mathematics and Statistics II

Advanced Research Seminars Courses:

Ph.D. students select two of the following 3 credit hours research seminar courses:

CPE 702 – Seminars on Advanced Catalysis Applications in Petrochemical Industries
CPE 703 – Seminars on Advanced Nanotechnology Chemical/Petrochemical Processes
CPE 704 – Seminars on Applied Recycling Technologies in Petrochemical Industries
CPE 705 – Seminars on Polymer Processing Processes
CPE 706 – Seminars on Electrochemistry Applications in Industry

Ph.D. Thesis:

The Ph.D. candidate should prepare and defend a Thesis based on a high-valued research work in one research topic in the fields of Chemical and Petrochemical Engineering. The Thesis should present a new contribution (s) in the respective field of research...

CPE 802- Ph.D. Thesis