

❖ ERE Postgraduate program (PG)

INTRODUCTION

This program is offered by the department of Energy Resources Engineering (ERE), School of Energy, Environment, and Chemicals and Petrochemicals Engineering. Depletion of traditional fuels and the exponential increase in energy demand will make energy resources an important issue worldwide. The interactions between the human activities in the field of energy had become crucial. Excessive consumption of energy requires innovation and development of systems to utilize the available energy resources efficiently. This will ensure the optimal utilization of available resources, preserve the environment, and create new investment opportunities. Tools for addressing such situations include, but not limited to, Renewable Energy Systems, Alternative Fuels with appropriate developments in combustion systems, Fuel Cells Technologies, Energy Storage Systems and Energy Conversions and Management. The program offered by Department of Energy Resources Engineering is a unique direction among Egyptian Universities and will contribute to the understanding of the above subjects and the national income.

VISION

The vision for the Department of Energy Resources Engineering is to be a national and international pioneering and referential offered program in innovation, adaptation, and development of energy conversion technologies through advanced working systems with high efficiency. Graduates of this program will meet the challenges of the growing energy demands without jeopardizing the environment.

MISSION

The mission of the Department of Energy Resources Engineering is to prepare students well acquainted with the basics and the advances in theoretical and practical knowledge, research tools and acquiring professional skills development to tackle the current energy crisis with high efficient systems. This is to build an advanced collaborative system for adapting, developing energy technologies through promoting an effective research and development culture. Moreover, it is to formulate comprehensive and competitive solutions, developing expertise, and high-qualified human resources. This will lead to the support of the national green economy and sustainable development, Renewable Energy Systems, Alternative Fuels with appropriate developments in

combustion systems, Fuel Cells Technologies, Energy Storage Systems and Energy Resources Conversion and Management

OBJECTIVES

1. To prepare graduates able to interact with the community towards more utilization of new and renewable sources of energy with efficient systems.
2. To prepare creative graduates to design, manage, build, operate, and maintain energy converting equipment and energy utilization systems without harm to the environment.
3. To prepare qualified graduates that can apply latest technologies for the improvement of life quality. By considering and addressing energy resources with emphasis on national and international resources with associated problems.
4. To give an equal opportunity for students from any country to enroll into that unique energy resources engineering program.
5. To establish strong and effective co-operation with different national and international research institutes, centers, universities and industries relevant to energy and its applications.
6. To develop an integrated teamwork interacting with other members from different E-JUST programs (Interdisciplinary research work).

PROGRAM COURSES

Course Code	Course Name	Credit Hours
Compulsory Courses		
ERE 501	Energy Resources Engineering	3
ERE 502	Renewable Energy Utilization	3
Level 500 Elective Courses		
ERE 503	Solar Energy Engineering	3
ERE 504	Fuels and Processes	3
ERE 505	Computational Fluid Dynamics	3
ERE 506	Thermal/ Hydraulics in Power Technology	3
ERE 507	Thermal and Cogeneration Systems	3
ERE 508	Advanced thermodynamics	3
ERE 509	Advanced Fluid mechanics	3
ERE 510	Advanced Combustion and air pollution	3
Level 600 Courses		
ERE 601	Sustainable Energy Utilization	3
ERE 602	Advanced Computational Fluid Dynamics	3
ERE 603	Refrigeration and Indoor Environmental Control	3

ERE 604	Turbomachinery	3
ERE 605	Energy Management	3
ERE 606	Energy Systems	3
ERE 607	Advanced Topics in Fuels and Combustion	3
ERE 608	Energy Efficient Buildings	3
ERE 609	Refuse Derived Fuel (RDF)	3
ERE 610	Energy Storage (I)	3
ERE 611	Energy Storage (II)	3
ERE 612	Dynamic Uninterruptible Power Supply System (UPS)	3
ERE 613	Smart Grids	3
ERE 614	Electrical Power Generation	3
ERE 615	Hydrogen and Fuel Cells Systems	3
ERE 616	Advanced Heat and Mass Transfer	3
Project-based learning/Advance Research Seminar Courses		
ERE 701	Project Based Learning on Energy Resources Engineering	3
ERE 702	Advanced Research Seminar on Energy Resources Engineering	3
ERE 703	Research Seminar on Recent Topics in Energy Resources Engineering	3