



Alexandria University

Department of Environmental Studies



Academic Programs Guide



INSTITUTE OF GRADUATE STUDIES AND RESEARCH

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Preface

The environmental studies degree program's curriculum provides an integrated foundation of a broad array of scientific disciplines encompassing biological, chemical, physical, health, technological and socioeconomic aspects. The environmental studies department draws its expertise from a range of disciplines that are committed to involving enrolled students fully in the multidisciplinary nature of environmental problems and their solutions.

The department programs are designed to broaden perspectives, enrich awareness, deepen understanding, establish disciplined habits of thought, prepare for meaningful careers and thus develop students who are informed, responsible and productive citizens.

Academic Programs: List of Majors

| Program | Type of degree | Career opportunities |
|--|----------------|--|
| Energy Conservation | Diploma | Most energy conservation diploma graduates can be employed by governmental or private factories, power stations, higher education institutions, utilities, charities, energy partnerships/agencies or environmental affairs department. |
| Environmental Management | Diploma | Career opportunities exist in managerial and policy positions in government, consulting firms and research, and in the private sector as environmental management system managers, auditors and policy analysts. |
| Remote Sensing and Geographic Information Systems | Diploma | GIS and remote sensing diploma graduates are introduced to several employment sectors and other areas dealing with spatial analysis applications, topographic surveying, geospatial database development, cartographic imaging and project planning / management. |
| Environmental Studies | Diploma | Environmental studies diploma qualifies environmental professional graduates that can participate in Governmental positions and Private-sector consulting firms and industry to help understand the environmental problems. |
| Environmental Studies | M.Sc. | Graduates of the environmental studies M.Sc. program will gain the knowledge, intellectual tools, and learning experiences to engage in an increasingly diverse set of career options. They will gain hands-on experience relevant to careers in government agencies, non-government organizations, industry, and academic fields. |
| Green innovation and Entrepreneurship | M.Sc. | A graduate of the green innovation and entrepreneurship master program are well equipped to work in the public or private sector, as well as, developing a career starting and/or managing a small business. The program also prepares students looking to undertake a research or consultancy role, or those looking to develop a career in academia. |
| Environmental Studies | Ph.D. | An environmental studies Ph.D. degree prepares graduates for a host of professions, for graduate work in environmental studies or the environmental sciences, or for a lifetime of environmentally aware citizenship. |

Program Admission Requirements

| Program | Admission requirements |
|------------------------|---|
| Diploma program | <ul style="list-style-type: none"> The candidate should hold a B.Sc. or License degree from one of the Egyptian Universities with at least a general grade of "fair" or "C" granted by a faculty or an institute accredited by The Supreme Council of Universities in Egypt. |
| M.Sc. Program | <ul style="list-style-type: none"> The candidate should hold a B.Sc. or License degree from one of the Egyptian Universities with at least a general grade of "Good" or C⁺ or any equivalent degree granted by a faculty or an institute accredited by The Supreme Council of Universities in Egypt. A candidate holding a B.Sc. or License degree with grade of "Fair" can be enrolled for M.Sc. degree in the institute departments provided that the candidate obtains the academic diploma with a grade of at least C⁺ or pass additional supplementary courses with a grade of at least C⁺. |
| Ph.D. program | <ul style="list-style-type: none"> The candidate should hold a M.Sc. degree in the field of specialization from an Egyptian university, or any equal scientific degree granted by a faculty or an institute accredited by The Supreme Council of Universities in Egypt. A candidate holding a M.Sc. degree in one of the fields outside those specified can be enrolled for Ph.D. degree in the institute departments provided that the candidate successfully passes additional supplementary courses approved by the department board. |

Academic Program Descriptions

Remote Sensing and Geographic Information Systems Diploma

The RS and GIS diploma program aims to provide students with comprehensive background of the principles, applications, trends, and pertinent issues of geographical information systems and sciences, including remote sensing (RS) and to gain knowledge on the applications of environmental remote sensing and GIS which can directly enhance service delivery on land use management, ground water management/prospects, agriculture, forestry, food and water security, disaster management, etc.

Graduate attributes

Graduates of the RS and GIS diploma program will possess qualities, skills and understandings that enable them to:

- Describe the physical basis of remote sensing; these include spectral, temporal, spatial and resolution properties; the spectrum and its radiation and reflectance properties; and image properties.
- Appraise the application of photogram metric methods to topographic mapping, engineering projects and information gathering for geographic information systems.
- Develop ethical behavior during laboratory assignments and projects.
- Think and work in a synergistic approach, whereby documents of different sources are combined.
- Enhance self-study abilities.

Academic Program Descriptions (*continued*)

Energy Conservation Diploma

The aims of this program are, firstly, to develop awareness and skills in the area of energy management and conservation and secondly, to enable students to gain a working knowledge of energy conservation and the skills to provide practical recommendations on efficiency opportunities. The diploma helps the students to focus general insights into various aspects of energy conservation measures.

Graduate attributes

Energy conservation diploma program prepares graduates with the capacities to:

- Provide energy efficiency advice and training.
- Promote energy conservation schemes.
- Develop, implement and monitor energy consumption reduction policies and strategies.
- Analyse data and collect information.
- Write plans and professional reports.
- Undertake energy surveys/site inspections.
- Keep up to date with changes in legislation and initiatives, including EU energy performance directives.
- Promote energy conservation awareness via events such as presentations, workshops and conservation projects.

Academic Program Descriptions (*continued*)

Environmental Management Diploma

The program aims to produce graduates with the capability to constructively engage with the complex environmental concerns that confront contemporary societies. It emphasizes the integration of theory and practice and provides an interdisciplinary grounding in sustainability, environmental management, impact assessment and policy. On completion of the program, the graduate will have a good understanding of the key approaches in environmental management, sustainability and decision-making, and well developed problem solving skills. The diploma of Environmental Management is an introduction to engaging students with contemporary environmental concerns from practical and theoretical perspectives.

Graduate attributes

The program provides graduates with comprehension and skills that enables them to:

- Apply the knowledge and foundations of sustainable development in professional practice.
- Identify the environmental problems in relation to the international regulatory frameworks for climate change & environmental management.
- Show professional skills in applying the appropriate environmental technological means.
- Communicate and work effectively in teams through the professional system.
- Use the available resources efficiently.
- Show the awareness of his role in community sustainable development and natural resource management.
- Reflect the commitment to act with integrity and credibility.
- Gain new knowledge and trends and continually enhance professional skills by self-learning to improve the understanding of the new trends in environmental management issues.

Academic Program Descriptions (*continued*)

Environmental Studies Diploma

The Diploma of Environmental Studies offers a multidisciplinary opportunity to understand the biological, physical, chemical, technological, economical principles governing the environment and the social and cultural aspects that influence human behaviour towards the environment. Students will gain a basic knowledge of the environment through courses with interdisciplinary context. The diploma will equip students with the critical and analytical skills to think through the many complex factors that influence our understanding of the environment.

Graduate attributes

Graduates of the environmental studies diploma will possess qualities, skills and understanding that enables them to:

- Apply the knowledge of the integrated environmental sciences and their related disciplines in his/her professional career.
- Identify the environmental problems and suggest suitable solutions.
- Show professional skills in applying the appropriate environmental technological means.
- Communicate and work effectively in teams through the professional system.
- Demonstrate decision-making capabilities in the light of available information.
- Use the available resources efficiently.
- Show the awareness of his role in community development and preservation of the environment.
- Reflect the commitment to act with integrity and credibility.
- Gain new knowledge and continually enhance professionally skills by self-learning to improve the understanding of the new trends in environmental issues.

Academic Program Descriptions (*continued*)

M.Sc. Program of Environmental Studies

The M.Sc. program of Environmental Studies aims to:

- Provide a large comprehensive background of knowledge, understanding and skills with a multidisciplinary context in the field of environmental studies and related disciplines.
- Enhance research necessary to develop approaches that help preserve, conserve, protect or enhance the environment for future generations.
- Link the industrial sector to the professionally qualified academic environmental scientists to help understand the complex environmental problems facing this sector and to find integrative solutions or mitigation measures to these problems.

Graduate attributes

M.Sc. program prepares high caliber graduates that are capable to:

- Build comprehensive background knowledge and understanding of a broad spectrum of environmental sciences and their related disciplines.
- Apply the knowledge of environmental sciences, their related disciplines, applications and tools to manage/solve environmental problems.
- Consider the detrimental effects of human and non-human activities on the environment and propose sustainable solutions to environmental problems.
- Utilize analytical methods in scientific research and enhance available information to improve the comprehension and manipulation of environmental issues and concerns.
- Posses multidisciplinary and flexible professional skills to take decision related to environmental problems.
- Disseminate the environmental knowledge and experience through effective interaction to enhance the performance of the profession.
- Develop skills of writing and presenting dissertations, research assignments, professional reports and/or academic papers.
- Use general ICT tools effectively.
- Hold professional values that maintain individuality, positive thinking, self-confidence and ethicality.

Academic Program Descriptions (*continued*)

M.Sc. Program in Green Innovation and Entrepreneurship

The program provides students with an opportunity to gain a recognized competence through an institutional framework integrating capabilities and expertise in the cooperating department.

The green innovation and entrepreneurship master program aims at:

- Providing opportunities for students to develop critical awareness of current issues in the field of innovation and entrepreneurship.
- Providing students with opportunities for blended learning using appropriate information and communication technologies.
- Providing students with both multidisciplinary and integrated perspectives that can be employed in the analysis of professional problems in the context of innovation and entrepreneurship.
- Providing an opportunity for students to identify and analyse and analyse the context of the application of their learning.
- Facilitating personal, academic and professional development through a coherent program.

Graduate attributes

M.Sc. program prepares high caliber graduates that are capable to:

- Demonstrate deep discipline knowledge in the context of innovation and entrepreneurship in the wider range of sustainable development.
- Be able to apply theoretical knowledge that will lead to development of new ideas, methods, techniques, practices, products and services in a variety of contexts.
- Exhibit critical thinking and problem solving capacities steeped in research methods and based on empirical evidence and the scientific approach to knowledge development.
- Demonstrate capacity to manage problems and scientific issues from a multidisciplinary perspective.
- Critically analyze, synthesize, interpret and present complex scientific information in the context of innovation and entrepreneurship.

- **Collect, record and analyze data using state of the art techniques and equipment.**
- **Manage his/her own learning and development, including time management and research skills.**
- **Communicate proficiently, in oral, written, presentation and information searching skills.**
- **Be assertive and articulate, be able to negotiate responsibly and persuade others effectively.**
- **Identify and work towards targets for personal, academic and career development.**
- **Display professional responsibility, as well as, ethical, societal and community concerns.**
- **Be capable of self-reflection and a willingness to engage in self-appraisal.**

Ph.D. program of Environmental Studies

The Environmental Studies Ph.D. program engages within an extremely diverse array of environmental disciplines encompassing health, biological, physical, technological and socioeconomic aspects of environmental issues and concerns.

The program aims at:

- Cultivating and enhancing a multidisciplinary research culture that is critical for finding solutions to, or elucidating the root causes of, today's pressing environmental challenges,
- Enhancing the professional skills of the graduate towards the ability to think critically, creatively, and holistically about environmental issues as an active leading researcher or highly-specialized professional in academic, public, private or non profit organizations.

Graduate attributes

The Ph.D. program articulates graduates who are rigorous scholars having the abilities to:

- Agglomerate integrative knowledge from multiple disciplines to address scientific and/or real environmental problems.
- Disclose a thorough understanding of the local, scientific and legal aspects that shape environmental issues.
- Develop conversance with the breadth of environmental problems and possible solutions.
- Hold capacity to think critically, creatively, and holistically about environmental issues.
- Conceive, develop and conduct original research leading to useful applications in environmental sciences.
- Clarify critical gaps in scientific knowledge that impede the resolution of environmental problems and plan and execute original research that will lead to solutions of such problems.
- Show versatility in the topic of research integrity and apply in their work the ethical norms of behavior associated with their field of study.
- Exploit ICT techniques and skills in a manner tailored to the development of their profession.
- Demonstrate a reflective and mature approach to personal development in relation to academic study, professional advancement, and sensitivity to diversity in term of science and technology.

Program Study System

Diploma Programs

1. Remote Sensing and Geographic Information Systems Diploma Program

The following table lists the courses of remote sensing and geographic information system diploma program:

| Course code | Course title | Credit hours |
|---------------------------|--|--------------|
| Compulsory courses | | |
| 2001601 | Remote Sensing | 3 |
| 2001602 | Applications of Remote Sensing and Geographic information Systems | 3 |
| 2001603 | Environmental applications of Geographic information systems | 3 |
| Optional courses | | |
| 2001604 | Applications of remote sensing and geographic information systems in the environment | 3 |
| 2001605 | Environmental systems and physical environment | 3 |
| 2001606 | Satellite image processing and analysis | 3 |
| 2001607 | Environmental risk assessment | 3 |
| 2001608 | Early warning systems and disaster risk reduction | 3 |
| 2001609 | Project | 6 |

For completion of the program, a total of 21 credit hours* are required:

- 15 credit hours for the courses (9 credit hours compulsory courses + 6 credit hours optional courses)
- 6 credit hours for the diploma project (2001609)

* a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

1. Passing 15CH of the courses with a CGPA of at least C⁺.
2. Successfully preparing and orally presenting the project in front of a committee assigned by the board of scientific department.

Program Study System (*continued*)

2. Energy Conservation Diploma Program

The following table lists the courses of energy conservation diploma program:

| Course code | Course title | Credit hours |
|---------------------------|---|--------------|
| Compulsory courses | | |
| 2001631 | Energy resources- heat insulation and heat transfer | 3 |
| 2001632 | Energy conservation technology | 3 |
| 2001633 | Energy utilization technology and science of combustion | 3 |
| Optional courses | | |
| 2001621 | Media and environmental awareness | 3 |
| 2001629 | Applied statistics (1) | 3 |
| 2001634 | Operations research and energy modeling | 3 |
| 2001635 | Energy management and economics | 3 |
| 2001636 | Energy measurement instrumentation | 3 |
| 2001609 | Project | 6 |

For completion of the program, a total of 21 credit hours* are required:

- 15 credit hours for the courses (9 credit hours compulsory courses+ 6 credit hours optional courses)
- 6 credit hours for the diploma project (2001637)

*a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

1. Passing 15CH of the courses with a CGPA of at least C⁺.
2. Successfully preparing and orally presenting the project in front of a committee assigned by the board of scientific department.

Program Study System (*continued*)

3. Environmental management diploma program

The following table lists the courses of environmental management diploma program:

| Course code | Course title | Credit hours |
|---------------------------|---|--------------|
| Compulsory courses | | |
| 2001616 | Environmental management systems | 3 |
| 2001617 | Basics of environmental management | 3 |
| 2001618 | Environmental impact assessment of projects | 3 |
| Optional courses | | |
| 2001619 | Environmental Systems | 3 |
| 2001620 | Environmental Regulations , laws and Policy | 3 |
| 2001621 | Media and Environmental Awareness | 3 |
| 2001622 | Environmental Education | 3 |
| 2001623 | Environmental Economics | 3 |
| 2001624 | Economic assessment of Environmental Projects (1) | 3 |
| 2001625 | Energy Management and Economics | 3 |
| 2001609 | Project | 6 |

For completion of the program, a total of 21 credit hours* are required:

- 15 credit hours for the courses (9 credit hours compulsory courses + 6 credit hours optional courses)
- 6 credit hours for the diploma project (2001626)

* a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

1. Passing 15 credit hours of the courses with a CGPA of at least C⁺.
2. Successfully preparing and orally presenting the project in front of a committee assigned by the board of scientific department.

Program Study System (*continued*)

4. Environmental studies diploma program

The following table lists the courses of environmental studies diploma program:

| Course code | Course title | Credit hours |
|---------------------------|---|--------------|
| Compulsory courses | | |
| 2001604 | Environmental Applications of Geographic Information Systems and Remote Sensing | 3 |
| 2001616 | Environmental management Systems | 3 |
| 2001620 | Environmental Regulations , Laws and Policy | 3 |
| Optional courses | | |
| 2001619 | Environmental Systems | 3 |
| 2001621 | Media and environmental awareness | 3 |
| 2001622 | Environmental Education | 3 |
| 2001627 | Operations Research and Environmental Modeling | 3 |
| 2001628 | Basics of environmental management and economics | 3 |
| 2001629 | Applied statistics (1) | 3 |
| 2001609 | Project | 6 |

For completion of the program, a total of 24 credit hours* are required:

- 18 credit hours for the courses (9 credit hours compulsory courses + 9 credit hours optional courses)
- 6 credit hours for the diploma project (2001630)

* a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

1. Passing 18CH of the courses with a CGPA of at least C⁺.
2. Successfully preparing and orally presenting the project in front of a committee assigned by the board of scientific department.

Program Study System (*continued*)

Environmental Studies M.Sc. Program

The following table lists the courses of environmental studies M.Sc. program:

| Course code | Course title | Credit hours |
|---------------------------|--|--------------|
| Compulsory courses | | |
| 2001701 | Environmental systems and physical environment | 3 |
| 2001702 | Principles of applied ecology | 3 |
| 2001703 | Environmental laws, policy, management and economics | 3 |
| 2001704 | Natural resources | 3 |
| 2001705 | Advanced applied ecology | 3 |
| 2001706 | Environmental management and economics | 3 |
| 2001707 | Introduction to environmental toxicology | 3 |
| 2001708 | Environmental biochemistry | 3 |
| 2001709 | Environmental measurements | 3 |
| 2001710 | Biological health hazards | 3 |
| 2001711 | Technology of urban environment | 3 |
| Optional courses | | |
| 2001712 | Effect of pollution on plants and animals | 3 |
| 2001713 | Methods of environmental measurements | 3 |
| 2001714 | Environmental impact assessment and auditing | 3 |
| 2001715 | Geographic information systems (3) | 3 |
| 2001716 | Remote sensing (3) | 3 |
| 2001717 | Air pollution | 3 |
| 2001718 | Geological and geochemical studies | 3 |
| 2001719 | Atomic radiations (effects and protection) | 3 |
| 2001720 | Operations research and environmental modeling (2) | 3 |
| 2001721 | Applied statistics (2) | 3 |
| 2001722 | Pesticides, environment and human health | 3 |
| 2001723 | Bio-treatment of wastes | 3 |
| 2001724 | Applied microbiology | 3 |
| 2001725 | Environmental biotechnology | 3 |
| 2001726 | Natural protectorates | 3 |
| 2001727 | Biomass and energy | 3 |
| 2001728 | Advanced environmental economics | 3 |
| 2001729 | Economics of natural resources | 3 |
| 2001730 | Environmental economic assessment | 3 |
| 2001731 | Economic tools for environmental management | 3 |
| 2001732 | Economic assessment of environmental projects (2) | 3 |
| 2001733 | Environment and trade liberalization | 3 |
| 2001734 | Environmental awareness | 3 |
| 2001735 | Family and environmental health | 3 |

For completion of the program, a total of 32 credit hours* are required:

- **24 credit hours for the courses (9 credit hours compulsory courses + 15 credit hours optional courses)**
- **8 research credit hours for the thesis.**

* a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

- 1. Passing the 24CH of the courses with a CGPA of at least C⁺.**
- 2. Passing an exam of English language proficiency from a granted center that is approved by the University.**
- 3. Successfully preparing and defending the thesis dissertation.**

Program Study System (*continued*)

Green Innovation and Entrepreneurship Master program

The following table lists the courses of Green Innovation and Entrepreneurship M.Sc. program:

Green Technologies Track

| Course code | Course title | Credit hours |
|---------------------------|--|--------------|
| Compulsory courses | | |
| 2001751 | Sustainable development, climate change and energy | 3 |
| 2001752 | Life cycle assessment | 3 |
| 2001753 | Innovation, management and entrepreneurship | 3 |
| 2001754 | Energy conservation | 3 |
| Optional courses | | |
| 2001755 | Innovation, sectorial applications | 3 |
| 2001713 | Renewable energy resources | 3 |
| 2001723 | Biological treatment of waste | 3 |
| 2001717 | Air pollution | 3 |
| 2001704 | Natural resources | 3 |
| 2001714 | Environmental impact assessment for projects | 3 |
| 2001703 | The environmental laws and policies and management and economics | 3 |
| 2001713 | Environmental measurement and methodology | 3 |
| 2001732 | Economic assessment of environmental project | 3 |
| 2001756 | Technical writing for academic/research purposes | 3 |
| 2001757 | Establishing a new business | 3 |
| | Thesis | |

Green innovation management and entrepreneurship track

| Course code | Course title | Credit hours |
|---------------------------|--|--------------|
| Compulsory courses | | |
| 2001751 | Sustainable development, climate change and energy | 3 |
| 2001752 | Life cycle assessment | 3 |
| 2001753 | Innovation, management and entrepreneurship | 3 |
| 2001754 | Energy conservation | 3 |
| Optional courses | | |
| 2001755 | Innovation, sectorial applications | 3 |
| 2001758 | Financial management | 3 |
| 2001759 | Intellectual property (IP) | 3 |
| 2001760 | Managing the growing business | 3 |
| 2001761 | Project management | 3 |
| 2001762 | Sustainability, risk and corporate responsibility | 3 |
| 2001757 | Establishing a new business | 3 |
| 2001703 | The environmental laws and policies and management and economics | 3 |
| 2001732 | Economic assessment of environmental project | 3 |
| 2001756 | Technical writing for academic/research purposes | 3 |
| | Thesis | |

Sustainable Cities Track

| Course code | Course title | Credit hours |
|---------------------------|--|--------------|
| Compulsory courses | | |
| 2001751 | Sustainable development, climate change and energy | 3 |
| 2001752 | Life cycle assessment | 3 |
| 2001753 | Innovation, management and entrepreneurship | 3 |
| 2001761 | Project management | 3 |
| Optional courses | | |
| 2001716 | Introductory Remote Sensing | 3 |
| 2001763 | Risk Assessment | 3 |
| 2001715 | Geographic information system | 3 |
| 2001764 | Environmental design buildings | 3 |
| 2001765 | Sustainable urban design | 3 |
| 2001766 | Sustainable architecture | 3 |
| 2001767 | Water and environment in landscape | 3 |
| 2001768 | Energy measurement devices | 3 |
| 2001769 | Development of urban environment | 3 |
| 2001703 | The environmental laws and policies and management and economics | 3 |
| 2001732 | Economic assessment of environmental project | 3 |
| 2001756 | Technical writing for academic/research purposes | 3 |
| | Thesis | 3 |

Sustainable Communities Track

| Course code | Course title | Credit hours |
|---------------------------|--|--------------|
| Compulsory courses | | |
| 2001751 | Sustainable development, climate change and energy | 3 |
| 2001752 | Life cycle assessment | 3 |
| 2001753 | Innovation, management and entrepreneurship | 3 |
| 2001770 | Business economics | 3 |
| Optional courses | | |
| 2001771 | Community development | 3 |
| 2001772 | Social policy | 3 |
| 2001773 | Science of industrial society | 3 |
| 2001704 | Community based natural resource management | 3 |
| 2001774 | Cultural sustainability | 3 |
| 2001775 | Environment, culture and community | 3 |
| 2001703 | The environmental laws and policies and management and economics | 3 |
| 2001756 | Technical writing for academic/research purposes | 3 |
| | Thesis | 3 |

For completion of the program, a total of 32 credit hours* are required:

- 24 credit hours for the courses (9 credit hours compulsory courses + 15 credit hours optional courses)
- 8 research credit hours for the thesis.

* a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

4. Passing the 24CH of the courses with a CGPA of at least C⁺.
5. Passing an exam of English language proficiency from a granted center that is approved by the University.

Successfully preparing and defending the thesis dissertation.

Program Study System (*continued*)

Environmental Studies Ph.D. program

The following table lists the courses of environmental studies Ph.D. program:

| Course code | Course title | Credit hours |
|-------------------------|---|--------------|
| Optional courses | | |
| 2001800 | Environmental sciences and policies | 3 |
| 2001801 | Ecotoxicology | 3 |
| 2001802 | Environmental physics | 3 |
| 2001803 | Environmental systems optimization | 3 |
| 2001804 | Toxicology | 3 |
| 2001805 | Occupational health and environmental safety | 3 |
| 2001806 | Health and safety management | 3 |
| 2001807 | Food toxicology | 3 |
| 2001808 | Protein chemistry | 3 |
| 2001809 | Enzymes | 3 |
| 2001810 | Physiology of environmental stress | 3 |
| 2001811 | Recent trends in solid waste management | 3 |
| 2001812 | Environmental disasters management | 3 |
| 2001813 | Microbiology of stressed environments | 3 |
| 2001814 | Genetic control of microorganisms | 3 |
| 2001815 | Solid waste handling and management | 3 |
| 2001816 | Advanced air pollution | 3 |
| 2001817 | Advanced digital image processing and remote sensing | 3 |
| 2001818 | Climatic changes – regional effects and adaptation | 3 |
| 2001819 | Early warning systems and crisis reduction | 3 |
| 2001820 | Environmental risk assessment | 3 |
| 2001821 | Marine pollution (monitoring and control) | 3 |
| 2001822 | Integrated coastal zone management | 3 |
| 2001823 | Soil pollution (modeling and control) | 3 |
| 2001824 | Marine pollution monitoring and control | 3 |
| 2001825 | Environmental geology | 3 |
| 2001826 | Environmental oceanography | 3 |
| 2001827 | Data mining | 3 |
| 2001828 | Recovery processes of hazardous wastes | 3 |
| 2001829 | Industrial pollution control | 3 |
| 2001830 | Oxidants, antioxidants and free radicals | 3 |
| 2001831 | Geographic information systems and environmental applications | 3 |
| 2001832 | Economic assessment of environmental projects (3) | 3 |
| 2001833 | Natural protectorates | 3 |
| 2001834 | Environmental chemistry | 3 |
| 2001835 | Genetic toxicology | 3 |
| 2001836 | Elective course | 3 |
| 2001837 | Food and environmental toxins | 3 |
| 2001838 | Endocrine disruptors, reproductive toxicity and embryonic development | 3 |

| | | |
|----------------|--|---|
| 2001839 | Standard methods for water analysis | 3 |
| 2001840 | Water treatment technology | 3 |
| 2001841 | Recent methods in industrial waste water treatment | 3 |
| 2001842 | Fresh water resources in Egypt | 3 |

For completion of the program, a total of 42 credit hours* are required:

- **18 credit hours for the courses (all are optional courses)**
- **24 research credit hours for the thesis**

* a maximum of 16 credit hours is allowed in the fall or spring semesters whereas a maximum of 9 credit hours is allowed in the summer semester.

The enrolled candidate is offered the degree when;

- 1. Passing the 18CH of the courses with a CGPA of at least C⁺.**
- 2. Passing the comprehensive exam.**
- 3. Successfully preparing and defending the thesis dissertation.**

Contact details

Website: igsr.alexu.edu.eg

Address: 163 El Horreya Avenue, El Shatby, 21526, P.O. box 832 , Alexandria, Egypt

Telephone: 034295007 - 034297942

Fax: 034285972