

17.4.1 Educational Programs Related to Sustainability (Alexandria University, Egypt):

Alexandria University embeds sustainability, SDG-aligned learning, and environmental education across undergraduate and postgraduate programs, offering wide multidisciplinary courses on climate change, water resources, energy, biodiversity, pollution, agriculture, and sustainable development.

Through specialized curricula in environmental sciences, engineering, agriculture, marine sciences, health, and social sciences, students gain applied skills in climate adaptation, mitigation, renewable energy, ecosystems, urban sustainability, green economy, GIS/remote sensing, and sustainable resource management.

With more than 1,496 sustainability-related courses ($\approx 11.1\%$ of total programs), the University delivers comprehensive training, research, and capacity building that support national and global SDGs, promote sustainable communities, and prepare graduates to address real-world environmental challenges.

The following is a list of courses for undergraduate students, followed by a summary table.

Courses Targeting Sustainable Development Goals Faculty of Agriculture (Saba Pasha)

Course	Relevant SDG
Soil-water-plant interrelationships	SDG 6, 15
Soil desertification	SDG 15
Organic farming	SDG 2
Methods of studying soil microbes	SDG 15
Organic farming	SDG 15
Soilless agriculture	SDG 1,2
Soil and water pollution	SDG 6
Introduction to remote sensing	SDG 14, 15
Environmental pollution	SDG13
Micro- irrigation systems	SDG13
Engineering systems for farm management	SDG2, 15
Energy from and to Agriculture	SDG 7
Applied solar energy in agriculture	SDG 7
Principles of artificial intelligence	SDG 4
Social anthropology	SDG 16
Key rural sociological problems and public policies	SDG 16
Soilless production of Vegetables	SDG 2
Bioreactors and plant tissue culture	SDG15
Environment and plant geography	SDG 4
Ecological genetics	SDG 13,14,15
Radiation genetics	SDG 4
Evolutionary genetics and environmental stresses	SDG 15
Biodiversity	SDG 14,15
Environment and efficiency of pesticides	SDG 2, 13
Pesticides and environmental pollution	SDG 2, 13
Pesticides and pest resistance phenomenon	SDG 2, 13
Biodégradation of environmental pollutants	SDG 2, 13

Courses of the department of Environmental; Sciences'

- Man and Environment
- Living resources and taxonomy
- Economic botany and biofuel
- Plant biotechnology and species conservation
- Water treatment and water analysis
- Plant propagation and tissue culture
- Algal Biotechnology
- Taxonomy of flowering plants
- Plant anatomy and ecology
- Quality criteria for biological applications
- Biology of Microorganisms
- Microbial diversity
- Research project
- Field study
- Environmental geology
- Marine plankton
- Marine chemistry
- Fish biology and fisheries
- Marine benthos
- Marine ecology

- Marine pollution
- Coastal zone management
- Aquatic aquaculture
- Effect of climate changes on marine ecosystem
- Marine microbiology
- Marine biodiversity
- Regional oceanography
- Conservation and sustainable development of natural resources
- Environmental bioremediation
- Physicochemical Processes in Environmental Engineering
- Sustainable Built Environment
- Sustainable Water Resources Development
- Environmental Sampling and Analysis
- Unit Operation for Environmental Engineers
- Thermodynamics for Environmental Engineers
- Environmental Microbiology
- Environmental Aquatic Chemistry
- Environmental Organic Chemistry
- Climate Change
- The Nile; Environments, Limnology & Human Use
- Site Assessment and Remediation
- Climate Systems
- Advanced Environmental Engineering
- Integrated Environmental Assessment
- Environmental Impacts of Power Generation
- Environmental Sensor Informatics
- Cities and the Challenge of Sustainable Development
- Green Entrepreneurship and Agribusiness
- Sustainable Energy Resources and Management
- Sustainable Management of Marginal Drylands
- Sustainable Farming Systems: Hydro and Aquaponics
- Sustainable Development
- Environmental Hydrology
- Projects Management
- Fundamentals of environmental sciences
- Sustainable development
- Climate dynamics
- Climate change mitigation, vulnerability and adaptation
- Environmental economics and management
- Statistical analysis in climate research
- Economic valuation and climate change
- Green economy
- Geographical information systems applications in climate change
- Remote sensing and environmental change
- Environmental risk assessment and management
- Community engagement and sustainable development
- Climate change, biodiversity and ecosystems functions
- Climate change and health
- Urban environment
- Geopolitics of climate change
- Scientific research skills
- Introduction to Climate Change
- Meteorology and Climate Observation
- Marine Resources and sustainability
- Environment Risk Assessment and Management

- Climate Change Management
- Numerical Modelling and tools
- GIS and Remote Sensing
- Research Methodology and Ethics
- Climate and Ocean Modelling
- Climate Smart Agriculture
- Nanotechnology and Climate Change
- Sustainable Blue Economy
- Coral Reefs and Climate Change
- Energy Efficiency Management in Maritime Industry
- Environmental Impact Assessment
- Integrated Coastal Zone Management
- Climate Change and Biodiversity
- Global Environmental Governance
- Strategic Planning and Project Management
- Quality and Safety Management Systems
- Climate Change effects on Coastal Dynamics
- Adaptation Strategies to Climate Change for Hydraulic Risk Prevention in Coastal Areas
- Climate Change Policy of the EU
- Adaptation and Mitigation to Climate Change in Spatial Planning
- Master of WasteWater Engineering Practice
- Master of Drinking Water Engineering Practice
- Master of Radiation Physics Practice
- Master of Petrochemicals and Hydrocarbon Processing Practice
- M.Eng. Water Recourse
- M.Eng. in Irrigation Structures
- M.Eng. in Environmental Engineering
- M.Eng. in Thermal Engineering
- M.Eng. in Combustion Engines
- M.Eng. in Electrical Energy Systems and Control
- M.Sc./Ph.D in Electrical Engineering (Electrical Power and Machines)
- Master of Climate Change and Sustainable Development
- International Master of Smart Environmental Management of Climate Change
- International Master of Natural Resources Sustainability for Land Development
- International Master of Sustainable Management of Fisheries and Aquaculture Science
- Environmental silviculture and tree – resources management
- Pest control & environment protection from cides pollution.
- Soil and water sciences
- Pesticides chemistry and technology
- Sustainable management of water resources
- Sustainable management of land resources
- Occupational Hygiene and Air Pollution
- Environmental Health
- Food Hygiene and Control
- Environmental Health
- Occupational Hygiene and Air Pollution
- Food Hygiene and Control
- Environmental Studies - Biological Science
- Climatic Change and Sustainable Development
- Environment and Energy
- Sustainable Cities
- Sustainable Communities
- Soil and Water

Example of Programs and Courses/Subjects Related to Sustainability (Alexandria University, Egypt)

Above is a list of examples of programs and courses which aims to embed sustainability that are offered by the University. The total number of courses related to the environment and sustainability in the various sectors of the university, running in the academic year 2023 – 2024, according to the data received from the colleges and specified in previous detailed table, is **1496**, which represents approximately **11.1 percent** of the total number of courses for the undergraduate and graduate levels, in 25 Faculties and Institutes at the University.

In this context, the table below shows the total number of courses related to the environment and sustainability according to the specializations of the university's various faculties and institutes:

Sectors	Number of courses related to environment and sustainability		Total number of courses Offered during the academic year 2023/2024	Percentage of the number of courses related to environment and sustainability
	Undergraduate studies	postgraduate studies	Undergraduate and postgraduate studies	
Medical sector (dental-pharmacy-nursing-veterinary medicine- - Medical Research Institute)	136	463	13520	11.1%
Basic sciences sector (Engineering - Agriculture - Saba Pasha Agriculture - Science - Fine Arts - Specific Education - Graduate Institute)	237	313		
Humanities sector (Commerce - Arts - Tourism and Hotels - Education - Law - Physical Education for Boys - Physical Education for Girls - Early Childhood Education)	223	124		
Total numbers	596	900		