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Introduction to Environment and Sustainable Development

Proposed Course Syllabus

✓**Course Description:**

This course is designed to introduce the essential concepts of environment and sustainable development to junior-level university students from all faculties and specializations. It examines the complex environmental issues in a multidisciplinary approach. The course will focus on the environment through its many diverse interrelationships with the social and economic aspects of sustainable development, through various modes of delivery, including case studies from the Arab region.

✓**Course Objectives & Learning Outcomes:**

Upon completion of this course, the student is expected to:

- Acquire an awareness of the total environment and its linkages to economic and social issues, and allied problems.
- Better understand challenges facing the environment and means to achieve sustainable development, and the transition to green growth.
- Better understand the services provided by ecosystems to human life.
- Analyze the complex relationships between the socioeconomic systems and the environment.
- Acquire knowledge, skills, social values, and strong concern for the environment and motivations for active participation in its improvement and protection.
- Develop better understanding of natural resources, their distribution, inter-relationships, uses, and the institutional arrangements governing their utilization.
- Identify the human impacts on the ecosystems.
- Appreciate environmental ethics.
- Understand the concept and importance of sustainability and its historical evolution.
- Gain basic skills to conduct academic research, technical writing and presentations in environment-related subjects.

✓**Required Readings & References**

The required readings for the course will be selected from international and local sources. Ultimately, a textbook would be produced, specifically developed to teach the course in Arab universities. Additional readings will be given to students as handouts.

✓**Course topics**

I. Background and Basic Definitions
   1. Environment, ecology, natural resources
   2. Concepts of carrying capacity and pollution
   3. Ecological Footprint
   4. Interactions between socio-economic systems and eco-systems
   5. Human health and the environment

II. Sustainable Development
   1. Sustainable Development (definition, evolution and concepts)
   2. Sustainable Development Goals (SDGs)
   3. Green Growth

III. Biodiversity
   1. Definitions and values of biodiversity (economic, social, ethical, etc.)
   2. Threats to biodiversity

IV. Agriculture and Food Security
1. Water scarcity, irrigation efficiency and crop productivity
2. Land degradation
3. Agrochemicals and their environmental impacts
4. Genetically modified crops and organic food
5. Challenges to food security, including impact of climate change

V. Water Sources and Management
1. Hydrological cycle and water resources- surface, ground, desalination
2. Water pollution
3. Integrated water resources management
4. Usage and efficiency

VI. Energy Resources
1. Fossil fuels (oil, natural gas and coal)
2. Renewable energy (biomass, solar, wind, hydro, geothermal)
3. Nuclear energy
4. Sustainable energy options
5. Energy – water – food nexus and management issues

VII. Air Quality Issues
1. Sources and types of air pollutions
2. Air quality standards and monitoring
3. Strategies/technologies for air quality management

VIII. Waste Management
1. Solid wastes types, sources and management
2. Wastewater types, sources and management
3. Hazardous materials definition, types, sources and management

IX. Land-Use and Urbanization
1. Environmental impacts of land-use
2. Interaction between urban services and economic systems and the environment: waste, water, sanitation, transportation

X. Global Environmental Issues
1. Climate change and its impacts
2. Ozone depletion
3. Desertification
4. Oceans and international waters

XI. Environmental Policy and Governance
1. Institutions
2. Laws and regulations
3. Conventions and treaties on environment and climate change

✓ **Proposed references and reading material:**

1. *G. Tyler Miller and Scott Spoolman (2018) "Living in the Environment", International Edition*
2. *Eldon D. Enger (2016) "Environmental Science: A study of interrelationships"*
3. *Richard T. Wright, Dorothy F. Boorse (2017) Environmental Science: Toward A Sustainable Future, Pearson, 13th Edition*
4. *http://www.ourplanet.com, Accessed May 2019.*
5. *https://www.undp.org/content/undp/en/home/sustainable-development-goals.html, Accessed May 2019.*
6. *www.myfootprint.org Accessed May 2019.*
7. *http://www.globalchange.umich.edu/globalchange1/current/lectures/kling/ecosystem/ecosystem.html, Accessed May 2019.*
8. *Series of AFED reports on Arab Environment (2008-2019) www.afedonline.org*