

Table: Sample of Courses/Subjects Related to Sustainability Offered

Course name	Description
Drinking water quality	This course is designed to introduce students to the main aspects of drinking water supply and quality as different water standards are explained theoretically in class. The laboratory analysis related to each parameter is then carried out. The course begins with an extensive review related to aqueous chemistry. Elements, radicals, and compounds present in or interacting with water and gas solubility in water. The course also discusses types and sources of pollution, changes in water quality, and water quality standards. Students also learn about water treatment such as mixing, flocculating, sedimentation, turbidity removal, filtration, softening, taste and odor control, and iron and manganese removal. All the common chemical indicators and analyzes of water such as conductivity, chloride, alkalinity and turbidity, sulfate, phosphorous, nitrate, iron and manganese removal and determination of dissolved material content and removal are presented in class and then students carry out experiments in the water laboratory under the supervision of the course instructor and safety procedures in the laboratory are well applied. Students are distributed into groups to carry out water experiments. After each lecture in the laboratory, the students must submit a report of the implemented experiment to the instructor for evaluation
Food Safety	Introduction to the concept of food hygiene and its importance. Food –borne infections and intoxication and the problem of residues in foods. Hygienic requirements in food production and harvesting areas and in food establishments with emphasis on hygienic food handling, processing, and storage. Personal hygiene and health requirements, cleaning and disinfecting and pest control as well as the application of hazard analysis critical control point (HACCP) system in food establishments, and workplace safety standards.
Climate Change and Sustainable Development	This course covers several aspects of defining climate change, its causes and effects on environmental and economic resources, and its connection to sustainable development and food security. This course covers the concepts of ecological sensitivity, climate models, and the

	prevailing pattern in Jordan. Methods of benefiting from cerebral information and how to obtain and process it are among the most important axes of this course. The role of geographic information systems and the mechanism of harnessing this technology to study this phenomenon and benefit from the environmental and climatic simulation will be addressed to solve problems related to drought, desertification, water scarcity, and pollution in Jordan
Ecology and Sustainable Production	This course deals with main principles of sustainable agriculture, as well as, with farming production systems that aim to enhance the health of the environment, natural resources and improve horticultural farm income. This course will also, provide a base of knowledge of the principles of alternative horticulture farming systems including soil biological processes (compost, humus, fertility and pest management.
Health, Safety, and Professional Environment	The overall aim of this course is explaining the work environment and outlining the methods of protecting people and others at work. It provides examining the most commonly known dangers of distinguishing dangers of chemical and biological materials, falling from high floors, physical dangers, fire, electricity, other types of dangers, and how they influence health, work safety, controlling dangers and risks, in order to reduce the potential damage in case of any accident. The course also explains the hierarchy of dangers control processes, methods and techniques of personal safety, first aid methods in case of human causalities, and knowing the Jordanian legal requirements and national codes for protecting workers and employees.
Waste Management and Composting	Integrated sustainable waste management; Organic waste generation and characterization; Organic waste collection and transport; Organic waste treatment technologies; Science of composting; Composting technologies, compost quality, and its economic feasibility; Operating the composting technologies; Vermicomposting; Compost uses and global compost market; Case study composting; Governance of organic waste management; Impact of organic waste management on the environment.
Smart Lighting and Electrical Installations	Study and design of electrical wiring networks in the building by calculating the loads and the amount of lighting needed to illuminate the various facilities in it according to the standard specifications, components of household electrical wiring of one and three phase, electrical measurements,

	drawing and reading electrical diagrams, grounding, wireless electrical installations and smart home systems.
Renewable Energy Technologies	Introduction to renewable energy and the concept of energy generation and conversion, types of renewable energy, benefits of renewable energy, solar energy, wind energy, and smart electric grids.
Heating, Air Conditioning and Cooling Technologies	Acquiring heating and cooling skills, calculating thermal loads and cooling loads for buildings, the principles of psychrometric and its use in air conditioning calculations in buildings, places of equipment placement and drawing plans, control systems for air conditioning and heating devices, and the use of renewable energy in heating and cooling.
Meteorology and Air Pollution	Structure of the atmosphere and its thermodynamics; water and its transformations; cloud formation; precipitation... etc. Current climate issues such as global warming. Fundamentals of air pollution, major pollutants, their sources and their effects (environmental, economic and health), air pollution from mobile/stationary sources and indoor air quality. Pollutant sampling and measurement devices, pollutant distributions and dispersal modes as well as available methods to control the pollutants. Relevant Jordanian air quality policies and standards and presents relevant case studies.
Hydrochemistry and Water Quality	Origin of water, properties, influence of soil and aquifer materials on groundwater quality. Classification and assessment of groundwater quality. Changes in drinking water quality and quality criteria, water pollution and physiochemical treatment.
Wastewater Treatment and Reuse:	Composition and characterization of wastewater and sludge, Wastewater microbiology, Municipal wastewater treatment systems including physical unit operations (physical treatment) and biological unit processes (biochemical treatment), treatment and disposal of sludge, and wastewater reuse.
Soil, Water, and Plant Relationships:	Basic relationships between soil, plant, and water that make it possible to better manage and conserve irrigation water. Review physical laws of solutions: vapor pressure, solution potential, and latent heat. Soil water terminology. Physical characteristics of soil, soil and water interactions, available soil water, and how plants use water to determine what crops to plant and when to irrigate. Review irrigation

	scheduling that determines when and how much water needs to be added to a crop's root zone to promote optimum yields.
Pests and Diseases of Honeybees	This course is designed to contribute to the enjoyment and profitability of honeybees by giving you the knowledge and skills to recognize and manage their pests and diseases.
Organic Farming	Method of preparation and fermentation of organic materials, factors affecting its fermentation, effect of microorganisms, effect of organic materials, on the soil and its content of nutrient elements, its effect on production and quality of fruits, methods and time of applications.
Biological Control	Biological pest control concepts, environmental aspects, ecology, and strategies. Conservation and augmentation of natural enemies. Importation and colonization of natural enemies from abroad. Examples of successful utilization of parasitoids, predators and microbial agents. Biological control ecology.
Organic Chemistry	Study the chemical properties of the compounds is cyclic, clarify the nature of inter-linkages in the molecules, the study of public reactions and the stereochemistry of these compounds. Includes the study of alcohol and aromatic compounds, chemical reactions, substitution reactions of various types, some of these mechanical interactions, methods of analysis of different kinds of class to determine the composition of the binary compounds.
Principles of Psychology	Learn about the basic principles in psychology and the experimental origins on which psychological knowledge is based, a presentation of the concept of psychology, its origin, development and branches, with a focus on psychology schools of learning, motivation, personality, memory, psychological disorders and intelligence.

Communication skills	Definition of communication, its nature, types and components, its models and characteristics, the efficiency of communication, studying some misconceptions about communication, mental perception and self-concept, the relationship between verbal communication and non-verbal communication, and writing a CV and interview.
Principles of plant protection.	The course is designed to familiarize students with the principles of plant protection including plant pathology, entomology, pesticides and weeds and their control. It will focus on the basic aspects of entomology and plant diseases, identify the pesticides and their main groups. In addition its focus on the weeds morphology and taxonomy, the bad effects and their control.
Agriculture in Jordan	This course covers topics related to the development and development of agriculture and its global, Arab and local importance, agricultural climate, elements of plant production in rainy and irrigated areas, animal production, marketing of agricultural products, water sources and their uses. Agricultural operations used. Agricultural pests and methods of combating them, agricultural mechanization, food industries. Institutions and bodies working in the agricultural service in Jordan.
Environment and society	The proposed course provides a general and comprehensive description of the environment: its definition, evolution, and the benefits that can be achieved through preserving environmental resources. In addition to addressing the relationship between society and environmental resources. The course also discusses topics known as the environmental reality in Jordan in terms of the nature and types of ecosystems, the most important environmental problems facing Jordan and their implications for society in general, not only from an environmental aspect, but also from a health, social, economic and developmental aspect.

General entomology	Phylum Arthropoda and its main classes. External anatomy including head, thorax, abdomen, and their appendages. Internal anatomy including digestive, endocrine, respiratory, circulatory, nervous, and reproductive systems. Development, metamorphosis, and insect taxonomy are also covered.
Principles of Microeconomics	This course is an introductory course that covers fundamentals of Microeconomics with major emphasis on the theory of the market system. The course introduces economic concepts and analysis, demand and supply analysis, elasticity concepts, theories of the individual and the firm behavior mainly consumer and producer choice and how they interact to determine prices, output and resource allocations. The course also covers market structure in particular competition, monopoly, monopolistic competition and oligopoly.
Economic Feasibility Studies and Projects Evaluation	This course provides an introduction to the theory and practice of cost-benefit analysis and its link to basic economic and financial theory. Topics include: discounting and the valuation of benefits and costs, projects' appraisal phases including; economic, market and financial study, risk analysis, time value of money, and criteria for projects evaluation. Students will analyze and investigate contemporary cases from areas in economics and finance that are related to public policy issues and private projects.
Environmental Resources Management	Basic principles of environmental management; Environmental and sustainable development objectives; Nature's ecosystem services; Global environmental trends and issues Complexity; Managing biodiversity; pest and weed management; Soil, sediment, air and water – environmental degradation; Overview of environmental resources management assessment; Production, consumption, urbanization and extractive industries; The ecosystem approach and adaptive management; Strategic Management and SWOT Analysis.