

## Module (Course Syllabus) Catalogue

2022-2023

<b>College/ Institute</b>	Khabat Technical Institute	
<b>Department</b>	Food Security	
<b>Module Name</b>	Agroecology	
<b>Module Code</b>	KHTI-AGE403	
<b>Degree</b>	Technical Diploma <input checked="" type="checkbox"/> Bachler <input type="checkbox"/> High Diploma <input type="checkbox"/> Master <input type="checkbox"/> PhD <input type="checkbox"/>	
<b>Semester</b>	4	
<b>Qualification</b>	PhD	
<b>Scientific Title</b>	Assistant Professor	
<b>ECTS (Credits)</b>	7	
<b>Module type</b>	Prerequisite <input type="checkbox"/> Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>	
<b>Weekly hours</b>	3	
<b>Weekly hours (Practical)</b>	(2) hr Class	(36) Total hrs Workload
<b>Number of Weeks</b>	12	
<b>Lecturer (Theory)</b>	Mr. Dawod Rasooli	
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<b>Lecturer (Practical)</b>	Mrs. Nahla Jawhar	
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## Course Book

<b>Course Description</b>	Application of ecological concepts to management of horticultural, agronomic and biofuel cropping systems. Examination of plant physiological ecology, population ecology, community ecology, and ecosystem ecology within the context of agroecosystems; discussion of current research in agroecology; assessment of sustainability of cropping systems from environmental, economic, and social perspectives.
<b>Course objectives</b>	Upon completion of this course, students will be able to: 1. Describe environmental factors that influence agroecosystem management. 2. Describe how groups of organisms interact within agroecosystems at population, community, and ecosystem levels. 3. Describe how ecological concepts of diversity, stability, disturbance, succession, and energy flow are relevant to sustainable management of cropping systems. 4. Evaluate cropping systems and food systems for sustainability from ecological, economic, and social perspectives.
<b>Student's obligation</b>	1- Attendance of students in classes is necessary, as non-attendance has negative effect on student's perception. 2- Writing reports particularly in practical lessons as well as to scientific excursion.
<b>Assessment scheme</b>	16% Mid Term (Practical) 4% Quiz 40% Assignment (report, paper, homework, seminar...) 40% Final Practical
<b>Required Learning Materials</b>	Computer and MS Office software, Data show
<b>Specific learning outcome:</b>	The programme aims to provide students with a comprehensive overview of agroecology and sustainable food systems. It presents: - The different definitions of agroecology across the world (movement, science, practices) - The different agroecological practices and their implementation in today's agriculture - The stakes and challenges of the implementation of agroecological practices in various contexts and on various territories (large scale field crops, areas of dairy production, mountains area...) - The different conditions (agronomic, zootechnical and socio economic) necessary to achieve good agroecological performance in the production systems and the consequent multidisciplinary approach needed to make production systems enter into an agroecological transition.
<b>Course References:</b>	1. Altieri, M.A. 1995. Agroecology—The Science of Sustainable Agriculture 2. Gliessman, S.R. 2007. Agroecology – The Ecology of Sustainable Food Systems (2nd edition). CRC Press, Boca Raton, FL. 3. Jackson, L.E. (ed.) 1997. Ecology in Agriculture. Academic Press, San Diego, CA. 4. Gurevitch, J. et al. 2006. The Ecology of Plants. Sinauer Associates, Sunderland, MA. 5. Agroecology: Ecological Processes in Sustainable Agriculture by Stephen R. Gliessman, Eric Engles, Robin Krieger. 6. Agroecology: Key Concepts, Principles and Practices. Third World Network: Jalan Macalister & Penang Malaysia

Theoretical Topics	Week	Learning Outcome
What is the agroecology? The Crisis of Industrial Agriculture	1	
Concepts and Principles of Agroecology	2	
Agroecological practices and systems	3	
Agroecology and traditional farmers' knowledge	4	
Agroecology and rural social movements	5	
The Role of Biodiversity in Ecological Agriculture	6	
Plant Biodiversity for Ecological Pest Management	7	
Crop rotations and Crop diversity	8	
Enhancing soil health	9	
Indicators of sustainability	10	
Agroecology and Food Sovereignty	11	
Agroecology and the Design of Resilient Farming Systems	12	

Practical Topics	Week	Learning Outcome
Ecological Mapping	1	
Zonation in Ecology	2	
Organic farming (Survey with farmers)	3	
Climatic parameters	4	
Scientific trip to Khabat weather station	5	
Poster activity	6	
Water budget (Evapotranspiration)	7	
Biological pest control (field experiment)	8	
Scientific trip to Halgurd-Sakran National Park	9	
Biofertilizer and compost preparation	10	
Solar options in agriculture	11	
Marketing study of organic agriculture (Survey)	12	

## Questions Example Design

### 1. Fill in the blanks. (10 Marks)

Basic ecological principles for how to study, ..... and manage agroecosystems that are both productive and natural resource ....., and that are also culturally sensitive, socially just and ..... viable.

### 2. True or false? (10 Marks)

- agroecosystems can be manipulated to improve production*
- Agroecological design is to destroyed biodiversity*
- Objective of Agroecology is to provide unbalanced environments*
- Agriculture + ecosystem = Agroecosystem*

### 3. Describe the biodiversification and agroecology? (10 Marks)

### 4. List difference between manipulated agroecology and natural ecology. (10 Marks)

### 5. Define SUSTAINABLE AGRICULTURE. (10 Marks)

### Practical

1. What is the difference between Maps and Globes? (10 Marks)

2. Describe the Physical map. (10 Marks)

3. What is the function of each of these devices in the meteorological station? (25 Marks)

- a. Thermometer                      b. Rain gauge                      c. Wind sock

4. What is Zonation? And mention two agroecological zone in Kurdistan region. (20 Marks)

## External Evaluator

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