Department of Plant Protection

College of Agricultural Engineering Sciences

University of Salahaddin

Subject: Principles of Horticulture

Course Book – *2nd Year*

Lecturer's name: Dr. Asmaa Sayed Ahmed

Academic Year: 2022/2023

Course Book

1. Course name	**Principles of Horticulture**
2. Lecturer in charge	**Dr. Asmaa Sayed Ahmed**
3. Department/ College	**Horticulture/ Agricultural Engineering Sciences**
4. Contact	**e-mail: Asmaa.ahmed@su.edu.krd**
5. Time (in hours) per week	**Theory: 2** **Practical: 3**
6. Office hours	**The student can communicate, inquire and clarify about any part of the course at the following times** **Monday from 8.30 am-2.30pm and Tuesday from 8.30 am to 12pm.**
7. Course code	
8. Teacher's academic profile	• **B.SC**: 2000/ Microbiology, College of Agriculture, Ain Shams University, Cairo, Egypt. • **M.SC**: 2006/ Microbiology, College of Agriculture, Ain Shams University, Cairo, Egypt. • **Ph. D.:** 2017/ Biology / Microbiology, Molecular, College of Education, Salahaddin University, Erbil, Kurdistan region, Iraq. • **Dr. Asmaa S. Ahmed** https://academics.su.edu.krd/asmaa.ahmed • **Mr. Azad H. Yonis** https://academics.su.edu.krd/azad.yonis
9. Keywords	**Horticulture, plant propagation, Nursery, postharvest**

10. Course overview:

This course presents students to concepts and performs used to produce fruit and vegetable crops in Kurdistan region, Iraq and universally. Topics covered contain production regions, crop biology, crop nutrition, types of fruits and vegetables, disease and pest management, postharvest, and marketing. This course includes a hands-on practicum.

11. Course objective:

Upon successful completion of this course, students will be able to:

- Debate growing and growth different kind for fruit and vegetable species.
- Clarify production conditions and practices for fruit and vegetable crops and compare the many cultural arrangements.
- Apply irrigation, fertilization, pruning, transplanting, and harvesting techniques in fruit and vegetable production.
- Generate management plans for soil fertility, irrigation, and pest control in fruit and

vegetable production.

• Assess different promotion strategies for fruit and vegetable crop

12. Student's obligation (Don't give me a fish, but teach me how to fish)

- Commitment to attendance
- Perform the required duties
- Scientific secretariat
- Adhere to the laws and rules of the university campus

13. Forms of teaching

Teaching Methods	**Teaching Media**
1. Lecture method 2. Learn centered method 3. Tutorial method 4. E learning method	1. PowerPoint presentations 2. Texts and teaching materials 3. videos & media

14. Assessment scheme

Exam	Theoretical	practical	total
During semester	**15** 8 scores for midterm exam 2 for pre- quizzes (will be on line throw class room) 5 for (reports, seminars and student activity and behaviors during class)	**35**	**50**
Final exam	**50**	**-**	**50**
Total	**65**	**35**	**100**

15. Student learning outcome:

After completing this course, the student should be able to

1- Familiar of the nature of the growth of horticultural crops and their terms
2- Aware of methods of reproduction of horticultural crops
3- Have information about best way to get the highest yield
4- Able to Link the program with practical reality and market requirements
5- Understanding of the best control methods for diseases affecting these crops
6- Store crops and transfer them scientifically to storing
7- Preserving the environment through the horticultural process available in the region

16. Course Reading List and References:

- Adams, C.R., 2012. Principles of horticulture. Routledge.
- Brown, L., 2007. Applied principles of horticultural science. Routledge.

- Durner, E.F., 2013. Principles of horticultural physiology. CABI.
- Shoemaker, C.A., 2010. Student confidence as a measure of learning in an undergraduate principles of horticultural science course. Hort-Technology, 20(4), pp.683-688.
- A Handbook on Postharvest Management of Fruits & Vegetables, P.Jacob John 2008. Baya publishing House, Delhi. 7
- Postharvest–An Introduction to the Physiology & Handling of Fruits & Vegetables, R.B.H. Wills, W.B.Mc Glassan, D. Graham, T.H. Lee & E.G. Hall. CBS Publishers & Distributors, New Delhi . 8
- Small–scale Postharvest Technology, Kitinoja, L& Kader, A.A. 2002. Research and Information Center, University of California , Davis

17. The Topics:		Lecturer's name
1st week	Introduction and Definition of Horticulture, Branches of Horticulture.	**Dr. Asmaa S. Ahmed** (2 hrs)
2nd week	Plant Anatomy and Morphology, Plant Growth and Development (Juvenility, Flowering and pollination, fruit growth and development).	
3rd week	Nursery and Nursery Management. Planting and Transplanting.	
4th week	Propagation, Methods of propagation and Plant Propagation techniques. Sexual (Seed) propagation.	
5th week	First midterm exam	
6th week	A sexual (Vegetative) propagation Cutting, Budding and grafting. Layering, Propagation of specialized Stems and Roots (Bulb, Corm, Tuber, Rhizome). Tissue culture, Plant hormones.	
7th week	Environment factors, Site Selection and Orchard Establishment	
8th week	Training and Pruning of Plants	
9th week	Basics of Plant Nutrition	
10th week	Second midterm exam	
11th week	Fertilizer and methods of fertilization and organic production, Hydroponics, Aquaponics.	
12th week	Irrigation, methods of irrigation. Harvesting, Packing of Horticultural Products, Horticultural Marketing	
13th week	Seed germination and seed Dormancy	
14th week	The most famous gardening diseases and how to treat them	
18. Practical Topics		
Week 1 Horticulture Science and its Branches. **Week 2** Classification of Fruit trees. **Week 3** Classification of Vegetable crops **Week 4** Classification of Ornamental plants **Week 5** Plant propagation – Seed propagation **Week 6** Vegetative propagation **Week 7** Tools used in nursery and orchard **Week 8** Nursery **Week 9** Plant Identification, Identifying different		Lecturer's name Mr. Azad H. Younis (3 hrs)

19. Examinations:

- **Multiple choice**

1- **What is the process of artificially pollinating plants called?**

A) Deadheading B) Grafting C) Hand pollination D) Pruning

2- **What is the name of the process of cutting back a plant to encourage bushier growth?**

A) Deadheading B) Grafting C) Hand pollination D) Pruning

3-**What is the name of the technique used to propagate plants by rooting a cutting from a parent plant?**

A) Deadheading B) Grafting C) Hand pollination D) Propagation by cuttings

4- **What is the name of the technique used to propagate plants by fusing parts of two different plants together?**

A) Deadheading B) Grafting C) Hand pollination D) Propagation by cuttings

5- **What is the name of the technique used to propagate plants by dividing the roots of a parent plant and replanting the smaller sections?**

A) Deadheading B) Grafting C) Hand pollination D) Propag

- **True or false**

1- Horticulture is the study of cultivating plants for food, medicine, and other uses.
True

2- Hydroponics is a method of growing plants in soil.
False

3- Organic gardening is a method of gardening that relies on the use of synthetic fertilizers and pesticides.
False

4- Horticulturists only work with ornamental plants.
False

5- The pH level of soil has no effect on plant growth.
False

6- Horticulturists only work in greenhouses.
False

7- Horticulturists only work with annual plants.
False

8- The study of plant pathology is not a part of horticulture.
False

- **Here is an example of a matching question**

Match the following plants to their appropriate light level:

A. Ficus benjamina B. Cactus C. African Violet D. Snake Plant E. Philodendron

1. 1.Low light
2. 2.Medium light
3. 3.Bright light
4. 4.Direct sunlight

Answers: A. *Ficus benjamina* - 2. Medium light B. Cactus - 4. Direct sunlight
C. African Violet - 3. Bright light D. Snake Plant - 1. Low light E. Philodendron - 2. Medium light
This question is testing the knowledge of the horticulturist on the light requirements of different plant species.

- **Fill the blank**

The process of ....._ is the natural or artificial process of promoting the growth and development of plants, including the selection and breeding of varieties, the use of fertilizers and other growth-promoting agents, and the control of pests and diseases."
The correct answer to this fill-in-the-blank question would be "cultivation."

This question model is testing the knowledge of the horticulturist on the basic concept of horticulture which is cultivation, and how it is done to promote growth and development of plants.
You can also have more complex fill in the blank question models like:

"The _....._ is the process of training and shaping a plant to grow in a particular form, such as a tree, vine, or hedge."
The correct answer to this fill-in-the-blank question would be "pruning".
This question model tests the knowledge of horticulturist on specific techniques and methods used in horticulture like pruning.

20. Extra notes:

- **Telephone** use is not allowed
- **Chewing gum** is not allowed
- It is not allowed to **interrupt** the lecture except for compelling reasons
- Inquiries are allowed inside or outside the lecture during official working hours
- I welcome your questions and your intervention within the limits of the lesson.