

Basic Information

Course Code	
Course Title	Plant disease and pest control
Academic Year	2022/2023
Academic Program	New Professional Diploma in Plant Clinic and Phytosanitary Technologies
Hours/week semester	Lectures: 2 Practical: 2 Total: 3

Course Description: This course introduces students to list and discuss common disease and pest control methods including mode of action, types of diseases. To explore new control practices. Upon completion, students will be able to find, interpret, and use scientific literature on plant diseases and pest control and discuss a range of control strategies suitable for both traditional and organic growers in sustainable way for different types of agricultural operations of the important agricultural and horticultural crops in Egypt.

1. Course Aims

- 1.1- To list common disease and pest control methods
- 1.2- To know the mode of types, action of control methods diseases
- 1.2- To explore new control practices.
- 1.3- To construct disease control strategies for common crops in Egypt.
- 1.4- Determine the basic principles of Integrated Pest Management (IPM)
- 1.5- Describe the type of damage caused by plant-damaging diseases
- 1.6- Detect the infestation with pathogen and insects in different crops.
- 1.7- Manage the orchards or field against these pests before their outbreaks
- 1.8- Review different approaches to control and minimize their impact on yield
- 1.9- Determine the basic principles of Integrated Pest Management (IPM)

2. Intended Learning Outcomes

2.1. Knowledge and Understanding

On successful completion of this course, the student should be able to

- 2.1.1- Mention the different control methods
- 2.1.2- Understand the development and different control strategies
- 2.1.3- Know the different pesticides and mode of action
- 2.1.4- Recognize the economic control thresholds
- 2.1.5- Recognize societal and environmental constraints
- 2.1.5- Lists the different methods used to manage these pests

2.2. Intellectual Skills

By the end of this course, the student should be able to

- 2.2.1- Conclude the factors affecting the control method selected
- 2.2.2- Evaluate the appreciate strategy for plant disease or pest control
- 2.2.3- Employs the information on pesticides, life cycles of these pests to combat it
- 2.2.4- Assess the using of integrated pest control program

2.3. Practical and Professional Skills

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- By the end of this course, the student should be able to
- 2.3.1- Distinguish between pesticides labels, mode of action and application
 - 2.3.2- Determine the proper strategy for each pest and plant disease
 - 2.3.3- Utilize standard laboratory and field procedures and techniques in experimental application for pest and disease management
 - 2.3.4- Plans programs to manage pests on agricultural crops
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2.4. General and Transferable Skills

- By the end of this course, the student should be able to
- 2.4.1- Writes and presents specialized reports to explain different phenomena
 - 2.4.2- Think independently, and solve problems on scientific basis
 - 2.4.3- Communicates with colleagues and works in a research team
 - 2.4.4- Identify roles, tasks, and set clear guidelines and performance indicators
 - 2.4.5- Demonstrates self-learning and continuous capabilities to develop professional skills
 - 2.4.6- Address the community linked problems with considerable attention to the community ethics and traditions
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Course content

Topics	Total (hr)	Lectures (hr)	Practical (hr)
The principles of plant disease and pest control.	3	2	2
Crop loss evaluation; economic thresholds; economics of disease control; societal constraints	3	2	2
Time permitting: Creating effective strategies for the control of specific types of diseases.	3	2	2
Implications of epidemiological concepts for disease management and disease forecasting	3	2	2
Major groups of disease control chemicals: fungicides. Pesticide pesticides labels Mode of action of disease control chemicals	3	2	2
Safety; application methods; calibration; Residential vs. Commercial sprayers; managing drift	3	2	2
The use of a genetic modification of plants to control diseases	3	2	2
Management of pesticide resistance	3	2	2
Cultural and physical disease management strategies	3	2	2
The use of biological agents for disease and pest control.	3	2	2
Basic principles of integrated pest management	3	2	2
Precision agriculture and its role in disease management	3	2	2

Practical exams	<ul style="list-style-type: none"> • Slideshow exams • Practical case studies • Exams on plants of the faculty farm
Oral exams	<ul style="list-style-type: none"> • The exam committee involves at least 3 examiners • Each evaluates the student by giving a separate score • The scores are then averaged • The student randomly selects question cards
Student activities	<ul style="list-style-type: none"> • Self-learning activities are evaluated throughout the semester

6.3. Assessment Schedule		6.4. Weighing of Assessments
Exams and activities	Week (in each semester)	Total (%)
Semester work exam	4 th , 8 th and 12 th	10
Student activities	Throughout the semester	10
Final written exam	15 th	50
Final Practical exam	15 th	20
Final oral exam	15 th	10
Total		100

7. List of References

1. Agrios, G. N. 2005. *Plant Pathology. Fifth Edition*. Elsevier Academic Press, Burlington, MA. 922 pp.
2. Fry, W.E. 1982. *Principles of Plant Disease Management*. Academic Press, New York. 378 pp.
3. Horowitz, A. R., & Ishaaya, I. (2004). *Insect pest management: field and protected crops*. Springer Science & Business Media.
4. Latin, R. 2011. *A Practical Guide to Turfgrass Fungicides*. APS Press, St. Paul. 270 pp.
5. Lucas, G.B., Campbell, C.L., and Lucas, L.T. 1992. *Introduction to Plant Diseases: Identification and Management. Second Edition*. Van Nostrand Reinhold, New York. 364 pp.
6. Malloy, O.C. 1993. *Plant Disease Control: Principles and Practice*. John Wiley & Sons, New York. 346 pp.
7. Matthews, G.A. 2006. *Pesticides: Health, Safety and the Environment*. Blackwell Publishing, Oxford. 235 pp.
8. Walters, D. (ed.). 2009. *Disease Control in Crops. Biological and Environmentally Friendly Approaches*. Wiley-Blackwell, Chichester, West Sussex, U.K. 266 pp.
9. Zadoks, J.C., and Schein, R.D. 1979. *Epidemiology and Plant Disease Management*. Oxford University Press, New York. 427 pp.

Course coordinator:

Prof. Dr. -----

Head of Department:

Prof. Dr.