



STUDY GUIDE

INTEGRATED PEST MANAGEMENT

Organised by

Polytechnic Institute of Viseu





1. IDENTIFYING DATA.	
· Course Name.	<i>Integrated pest Management</i>
· Coordinating University.	<i>Polytechnic Institute of Viseu</i>
· Partner Universities Involved.	
· Course Field(s).	Agricultural Engineering, Agroecology
· Related Study Programme.	Agricultural Engineering
· ISCED Code.	
· SDG.	1, 2, 3, 10, 12, 13, 15
· Study Level.	Bachelor (B)

· Number of ECTS credits allocated.	4
· Mode of Delivery.	Online live
· Language of Instruction.	English/Spanish
· Course Dates.	Second semester (spring)
· Schedule of the course.	7 th February to 27 th June 2025 Synchronously on Friday morning (<i>time slots between 10:00-12:00 CET upon teacher and students availability</i>) 1 hour per week <i>10 hours synchronous 15 hours tandem work 35 hours autonomous work (including autonomous field work)</i>
· Key Words.	Pest control, biological control, risk estimate, biodiversity
· Catchy Phrase.	Produce healthy food without pesticides is possible

· Prerequisites and co-requisites.	B2 English Level. EUNICE Students.
· Number of EUNICE students that can attend the Course.	20 (<i>2 representatives of each of the 10 universities</i>)
· Course inscription procedure(s).	EUNICE Application Portal

2. CONTACT DETAILS.	
· Department.	Agriculture School
· Name of Lecturer.	Cristina Amaro da Costa

· E-mail.	amarocosta@esav.ipv.pt
· Other Lecturers.	

3. COURSE CONTENT.

Introduction to integrated pest management. Concepts and terminology. Pests and diseases economic importance. Risk assessment. Pests and diseases monitoring and sampling. Harmfulness factors. Economic thresholds and decision-making process. Pest and diseases control measures. Crop strategies: Key pests and diseases. Harmfulness factors evaluation. Economic thresholds and decision-making rules. Crop protection strategies. Control measures selection

4. LEARNING OUTCOMES.

Know the concepts, principles underlying integrated pest management and its components

Know the available control measures, its advantages and limitations

Perform the risk assessment steps in a well-founded manner and apply the appropriate methodologies and techniques

Develop skills that allow the establishment of the most appropriate strategies to protect crops in sustainable production systems

5. OBJECTIVES.

To provide students with knowledge that enables them to identify the concepts, principles and components underlying the integrated pest management as well as their practical application under sustainable farming systems.

To develop skills necessary to perform the pest risk assessment and to apply the appropriate methodologies and techniques.

To know the available control measures, its advantages and limitations and to be able to define pest management strategies in organic farming based on the population ecology theories.

To develop skills that allow them to establish the most appropriate crop protection strategies in organic and integrated production farms.

6. COURSE ORGANISATION.

UNITS

1.	INTRODUCTION TO INTEGRATED PEST MANAGEMENT
2.	RISK ESTIMATE, ECONOMIC THRESHOLDS AND DECISION MAKING
3.	PEST AND DISEASES CONTROL
4.	INTEGRATED PEST MANAGEMENT. CROP STRATEGIES



LEARNING RESOURCES AND TOOLS.

Crop protection lab, field living lab, zoom platform

PLANNED LEARNING ACTIVITIES AND TEACHING METHODS.

The acquisition of skills and knowledge will be based on the development of an integrated protection project, developed in groups, throughout the semester, including a theoretical component (acquisition of knowledge and understanding of the principles and techniques to be used in crop protection). The presentation and discussion of the concepts will be based on research, information analysis, and general discussion in each module. The practical component includes monitoring the chosen agricultural ecosystem (field and laboratory). Each student will present a seminar. The presentation of the project (written and oral) will be held at the end of the semester in group. The course assessment is continuous.

7. ASSESSMENT METHODS, CRITERIA AND PERIOD.

The assessment (0 to 20 scale, minimum grade 10,0) is based on: CF (Final grade) = 0,40A + 0,40B + 0,10C + 0,10 D (A) Final oral examination (B) IPM Project (C) Seminar (D) Commitment, participation and attendance

OBSERVATIONS.

8. BIBLIOGRAPHY AND TEACHING MATERIALS.

Abrol D (2013) *Integrated pest management: current concepts and ecological perspective*. Academic Press, 576 pp

Costa CA et al. (2023) *Pest Control In Organic Farming*. In: Chandran S, Unni Mr, Thomas S (Eds). *Organic Farming*, Woodhead Publishing: 41-90.

Dyck, V.A., J. Hendrichs, and A.S. Robinson, editors. 2021. *Sterile Insect Technique: Principles and Practice in Area-Wide Integrated Pest Management*. 2nd ed. CRC Press, Boca Raton.

Lasso, E., N. Motisi, J. Avelino, and J. Corrales. 2021. *FramePests: A Comprehensive Framework for Crop Pests Modeling and Forecasting*. IEEE Access. doi: 10.1109/ACCESS.2021.3104537.

Savary, S., L. Willocquet, S.J. Pethybridge, P. Esker, N. McRoberts, et al. 2019. *The global burden of pathogens and pests on major food crops*. *Nat Ecol Evol* 3(3): 430–439. doi: 10.1038/s41559-018-0793-y.

Singh D (Ed.) (2014). *Advances in Plant Biopesticides*. Springer, XV: 401 p.