Code: 1377 **Integrated Pest Management Strategies**
Degree: 2nd cycle – Agriculture; Landscape Architecture
Stream: Agriculture (Plant Protection)
Curricular Year: 2nd (Agr) **1st** (AP) **Semester Course: 1st**
Credits: 6 ECTS **Compulsory (**Agriculture)
Language: Portuguese/English **Optional** (Landscape Architecture)
Responsible: António Maria Marques Mexia
Other lecturer(s): Elisabete Tavares Lacerda de Figueiredo Oliveira, José Carlos Franco Santos Silva and Maria José Antão Pais de Almeida Cerejeira
Web Site: http://www.isa.utl.pt/home/node/3762

1. Contact hours:
Lectures 35 **Lecture/Practicals** 35 **Others** 14 **Total** 84

2. Objectives:

To provide students skills and knowledge-based competences related with crop production systems allowing them to develop sound based IPM strategies for relevant crops and pest problems

3. Programme:

Risk assessment for pests: risk periods, attack intensity levels, nocivity factors;
Pest management decision-making: economic injury level and economic threshold; other models (e.g. analytic models, simulation modelling, forecasting models, expert systems)
Selection of control measures of pest control: preventives and therapeutic measures; chemical, biological, biotechnical, genetic, cultural and physical methods, technological advances, types of pest management strategies; integration of different measures; case studies (e.g. microbiological control, weed biological control, ecological infrastructures, soil pathogens)
Legislation and certification: general legislation, IPM and Integrated Production rules; certification systems and related public and private entities
Integrated pest management project on different agroecosystems; seminar

4. Bibliography:

Main Bibliography

Amaro P (2003) A protecção integrada. ISAPress, Liboa
Boller EF, Avilla J, Joerg E, Malavolta C, Wijnands FG & Esbjerg P (eds) (2004) Guidelines for Integrated production: principles and technical guidelines. Bull OILB srop 27(2): 1-12
Boller EF, Häni F & Poehling H-M (eds) (2004) Ecological Infrastructures.. Verlag & Bezug, Lindau,
Norton GA & Mumford JD (eds) (1993) Decision tools in pest management. CAB Int, Wallingford
Pedigo LP & GD Buntin (eds) (1994) Handbook of sampling methods for arthropods in agriculture. CRC Press, Boca Raton
Stern VM, Smith RF, Bosch R van der & Hagen KS (1959) The integrated control concept. Hilgardia 29:81-101
Zadoks JC (ed) (1993) Modern crop protection: developments and perspectives. Wageningen Press, Wageningen

Other Bibliography

Amaro P & Baggiolini M (eds) (1982) Introdução à protecção integrada. FAO/DGPPA, Lisboa
Burn AJ, Coaker TH & Jepson PC (eds) (1987) Integrated pest management. Academic Press, London
Carson R (1962) Silent spring. Fawcett, Greenwich
Dent D (1991) Insect pest management. CAB Int, Wallingford
Direcção Geral de Protecção das Culturas (2004) Fitossanidade: Protecção e Produção Integradas. http://www.dgpc.min-agricultura.pt/fitossanidade.htm
Hall R (ed) (1996) Principles and practice of managing soilborne plant pathogens. APS Press, St. Paul Minnesota.
Howarth FG (1991) Environmental impacts of classical biological control. Annu Rev Entomol 36:485-509
Metcalf RL & Luckmann WH (eds) Introduction to insect pest management. John Wiley & Sons, New York
Mumford JD & Norton GA (1984) Economics of decision making in pest management. Annu Rev Entomol 29:157-174

Pedigo LP (1996) Entomology & pest management. Prentice-Hall, Upper Saddle River
Pedigo LP, Hutchins SH & Higley LG (1986) Economic injury levels in theory and practice. Annu Rev Entomol 31:341-368
Pimentel D & Lehman H (eds) (1993) The pesticide question: environment, economics, and ethics. Chapman & Hall, New York
Radcliffe EB & Hutchison WD (eds) (2003) Radcliffe's IPM World Textbook, URL: http://ipmworld.umn.edu,
Titi A El, Boller EF & Gendrier JP (eds) (1993) Integrated production: principles and technical guidelines. Bull OILB srop 16(1):13-38
Wearing CH (1988) Evaluating the IPM implementation process. Annu Rev Entomol 33:17-38.

5. Assessment:

I. Frequency: presence in 75% of the classes
II Grading
a. Lecture exams: 50%:
Project (25%)
Seminar (20%)
Active participation in classes: (5%)
b. Final Exam: students must have frequency to apply
III Final grade: students with a minimal grade of 10 (in 20) will be approved; it is obligatory to obtain a minimal grade of 10 (in 20) in the Lecture exams

6. Estimated Workload:	168	Hours
7. Last Update:	14/7/2010	