UNIVERSITI TEKNOLOGI MARA

AGR454: INTRODUCTION TO CROP PROTECTION

Course Name (English)	INTRODUCTION TO CROP PROTECTION APPROVED
Course Code	AGR454
MQF Credit	3
Course Description	This course will discusses about the theoretical and practical of pest management including crop insects pest , crop diseases as well as their impact to the agricultural activities . Students will be taught about pest-damage symptoms, plant disease symptoms in tropical plants, their causes, and their control measures. This course also involve laboratory and field studies .
Transferable Skills	Knowledge of crop protection for plantation crops and horticultural crops
Teaching Methodologies	Lectures, Practical Classes, Presentation
CLO	CLO1 State , write and explain the basic principles of crop protection with emphasis on roles of arthropods and some basic concepts in plant disease development CLO2 Verify, assess and employ the concept, theories in entomology and pathology for identification of major and minor pests; and major diseases in agriculture as well as mehtods for controlling them CLO3 Communicate and collaborate to peers verbally and to the facilitator in writing the scientific investigations, monitoring, identification and justification in areas of classification of insects and diseases, major pests and diseases of major crops.
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction of crop protection 1.1) 1.1 History of crop protection and its relationship with other disciplines 1.2) 1.2 Scope and status of Crop Protection in Malaysia 1.3) 1.3 Definition of term in crop protection
2. Entomology 2.1) 2.1 Insects as pest or beneficial insect in agriculture 2.2) 2.2 Binomial classification of insect 2.3) 2.3 Introduction to major order of pest 2.4) 2.4 General characteristic of different in insect orders 2.5) 2.5 Introduction to internal and external anatomy 2.6) 2.6 Respiratory, circulation and digestion system 2.7) 2.7 Types of mouth , wing and antenna
3. Major pest in agriculture 3.1) 3.1 Diagnostic characteristics of major pests in agriculture 3.2) 3.2 General characters of important families of the above insect order affecting plantation, commercial , vegetable and fruit crops in Malaysia 3.3) 3.3 Major pests of five major crops in Malaysia
4. Control of Insect Pests 4.1) 4.1 Definition of terms: economic damage, economic injury level, economy threshold, pest equilibrium position and principles of pest control 4.2) 4.2 Methods used in control: 4.3) 4.2.1 Traditional - Destruction of crop residue and crop 4.4) rotation 4.5) 4.2.2 Chemical - Commercial and botanical insecticides 4.6) 4.2.3 Biological - Use of pesticides , predators , fungi, bacteria 4.7) and virus 4.8) 4.2.4 Genetic - Use of resistant varieties 4.9) 4.2.5 Integrated Pest Management - Combination of different

4.10) methods in pest control 4.11) 4.3 Pest management in important plantation and field crops
5. Introduction of Plant Pathology 5.1) 5.1 Definition of plant disease 5.2) 5.2 Concept of plant disease 5.3) 5.3 Plant disease infection and development
6. Important groups of plant pathogen and crops disease 6.1) 6.1 Groups of plant pathogen 6.2) 6.1.1 Pathogenic fungi 6.3) 6.1.2 pathogenic bacteria 6.4) 6.1.3 Parasitic nematodes 6.5) 6.1.4 Parasitic viruses and viroids 6.6) 6.2 Common diseases in 6.7) 6.2.1 Plantation crops 6.8) 6.2.2 Horticultural crops
7. Crop disease management 7.1) 7.1 Exclusion (Disease diagnosis, quarantine) 7.2) 7.2 Eradication (Cultural practices) 7.3) 7.3 Protection (Physical , chemical and biological controls) 7.4) 7.4 Resistance 7.5) 7.5 Integrated disease management

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Written Assignment	20%	CLO1
Individual Project	Project Report	20%	CLO2
Test	Problem Sheet	20%	CLO1

Reading List

Recommended Text

- **Borrer, D.J., Triplehorn, C.A., and Johnson, N.F. 1989, *An Introduction to the Study of Insects*, Saunders College Publishing Philadelphia**
- **Burn, A.J., Coaker, T.H. and Jepson, P.C. 1987, *Integrated Pest Management*, Academic Press San Diego, California.**
- **Trigiano, R.N, Windham, M.T and Windham, A.S 2004, *Plant pathology: concepts and laboratory exercises*, CRC Press**
- **Agrios, G.N., 2004, *Plant Pathology*, 5 Ed., Academic Press**

Reference Book Resources

- **Reuvent, R., *Novel Approaches to Integrated Pest Management*, Lewis Publishers Boca Raton, Florida**
- **Stoll, G. 1988, *AGRECOL Natural Crop Protection in the Tropics*, Verlag Jose Weikersheim, Germany**
- **Introduction to Integrated Pest Management 1981, *Flint, M.L. and van den Boch,R.*, Plenum Press New York**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources