

## MAGB105 Principles of Crop Production

ECTS Value: 5 ECTS  
Self-Study Hours: 90

Contact Hours: 25  
Assessment Hours: 10

### Overall Objectives and Outcomes

This unit aims to provide an understanding of the scientific principles of crop production and their application in crop management. Crop production, or agronomy, is the science dealing with the cultivation of crops and vegetables at the field scale. This largely depends on the requirements of each crop, the soil and climatic conditions, and on the crop production techniques utilised by the farmers. The latter include the choice of cultivars, planting and harvest time and techniques used, and the management of weeds, pathogens and insect pests

By the end of this module, the learner will be able to:

#### Competences:

- a. identify planting, sowing and harvesting periods of key crops from the Maltese Islands;
- b. describe key agricultural practices for crop growth and health management;
- c. diagnose weed, pest and disease problems and evaluate their economic and biological significance;
- d. develop strategies and implement techniques for pest and disease management;
- e. relate the biology, epidemiology and population dynamics of example weed, pest and disease problems to the occurrence and severity of, and control strategy for, their outbreaks;

#### Knowledge:

- a. identify the factors that impact on crop growth;
- b. describe the major photosynthetic pathways;
- c. describe water and minerals transport in plants;
- d. identify physiological and environmental factors that may cause stress in plants;
- e. describe the environmental factors or treatments required in order for seed germination;
- f. identify the reasons for the choice of sexual and asexual propagation techniques and for the micropropagation of identified crop species;
- g. identify factors associated with increased pest risk.

#### Skills:

- a. apply knowledge of crop physiology to implement agronomical practices favouring crop establishment and growth;

- b. employ good practice for the propagation of arable and permanent crops;
- c. identify and classify key pests and pathogens;
- d. evaluate the options for the management of example weed, pest and disease problems;
- e. choose appropriate control measures for specific pest problems and combine them into integrated pest management systems.

### Assessment Methods

This module will be assessed through: Project-Based Assignments.

### Suggested Readings

#### Core Reading List:

1. Pessaraki, M. (2002) Handbook of plant and crop physiology. 2<sup>nd</sup> Edition. New York: Marcel Dekker, Inc.
2. Taiz, L., Zeiger, E., Moller, I.M., Murphy, A. (2014). Plant Physiology and Development. 6<sup>th</sup> Edition. Sinauer Associates
3. Davies FT, Geneve RL, Wilson SE, Hartmann HT, Kester DE. (2017) Hartmann & Kester's Plant Propagation. London: Pearson Education.
4. Acquaah G. (2011) Horticulture: Principles and Practices. London: Pearson Education.
5. Flint ML (2012) IPM in practice. Second Edition. University of California Agriculture & Natural Resources.
6. Agrios, G.N. (2005) Plant Pathology, London: Academic Press.
7. Elzinga R.J. (2004) Fundamentals of Applied Entomology, 6th Edition, Pearson Education Incorporated

#### Supplementary Reading List:

1. Radcliffe, Hutchison, Cancelado (2009) Integrated Pest Management: Concepts, Tactics, Strategies and Case Studies. Cambridge University Press.
2. Knauft, David.(2007) Principles of Field Crop Production.