**UNIVERSITY OF SARGODHA**

**DEPARTMENT OF PLANT PATHOLOGY**

COURSE OUTLINE Spring 2020

Course Title: Soil-borne plant pathogens and their management

Course Code: PP-404

Credit Hours: 3(2-1)

Instructor: Dr. Yasir Iftikhar

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DESCRIPTION AND OBJECTIVES

Objectives:

To acquaint students with basic concepts of soil-borne plant pathogens and their management.

Theory:

Importance of soil borne diseases; Introduction to soil borne and plant pathogenic fungi, bacteria, nematode and viruses; Survival mechanism of soil borne plant pathogens; Interaction between soil borne plant pathogens; Effect of soil edaphic factors on soil borne pathogens; Interaction of soil borne pathogens with saprophytic soil microorganisms; Management of soil borne pathogens through chemicals, bio-control agents, plastic mulching and other cultural methods.

Practical:

Techniques for isolation and identification of soil borne pathogens; In vitro evaluation of chemical, physical and biological methods for the management of soil borne pathogens; Demonstration of different methods for management of soil borne pathogens.

INTENDED LEARNING OUTCOMES

This course will be helpful in understanding the relationship between soil composition and microbial activity to cause or suppress the plant diseases.

COURSE CONTENTS

THEORY:

1. Introduction to soil microorganisms
2. Distribution of soil borne plant pathogens
3. Role of soil micro-fauna
4. Identification of plant diseases
5. Nematode pests of plants
6. Symptoms produced by soil borne plant pathogens
7. Soil borne plant diseases caused by fungi
8. Vegetable diseases caused by soil borne pathogens
9. Graft-Transmissible diseases
10. Bio control of soil borne plant diseases
11. Soil management for disease prevention
12. Protecting plantation from diseases
13. Bio intensive pest management
14. Fumigation for soil pest control

PRACTICAL:

1. Symptoms of soil borne plant diseases
2. Collection of diseased samples
3. Isolation and purification of soil borne pathogens
4. Preparation of slides
5. In vitro management of soil borne plant pathogens

READINGS

1. Bruehl, G.W. 1987. Soil borne Plant Pathogens. Free Press.
2. Hillocks, R.J. and J.M. Waller. 1997. Soil borne Diseases of Tropical Crops. CABI, UK.
3. Jenkins, R. and C.K. Jain. 2010. Advances In Soil-borne Plant Diseases. Oxford Book. Co., India.
4. Naik, M.K. anf G.S. Devikarani. 2008. Advances in Soil-borne Plant Diseases. New India Publishing Agency Dehli India.

 COURSE SCHEDULE

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| Week  | Topics and Readings | Books with Page No. |
| 1 | Introduction to soil microorganisms | Advances in soil borne plant diseases, (1-14) |
| 2 | Distribution of soil borne plant pathogens  | Advances in soil borne plant diseases, (15-26) |
| 3 | Role of soil micro-fauna  | Advances in soil borne plant diseases, (27-48) |
| 4 | Identification of plant diseases  | Advances in soil borne plant diseases, (49-60) |
| 5 | Nematode pests of plants  | Advances in soil borne plant diseases, (61-90) |
| 6 | Symptoms produced by soil borne plant pathogens | Handouts |
| 7 | Soil borne plant diseases caused by fungi  | Plant Pathology (5th Ed.), (501-546&593-602) |
| 8 | Mid Term |  |
| 9 | Vegetable diseases caused by soil borne pathogens | Handouts |
| 10 | Graft-Transmissible diseases  | Advances in soil borne plant diseases, (91-120) |
| 11 | Bio control of soil borne plant diseases | Advances in soil borne plant diseases, (121-140) |
| 12 | Soil management for disease prevention | Advances in soil borne plant diseases, (141-176) |
| 13 | Protecting plantation from diseases | Advances in soil borne plant diseases, (177-188) |
| 14 | Bio intensive pest management | Advances in soil borne plant diseases, (201-222) |
| 15 | Fumigation for soil pest control | Advances in soil borne plant diseases, (223-252) |
| 16 | Final Term |  |

RESEARCH PROJECT /PRACTICALS/LABS/ASSIGNMENTS

Lab assignments to the students will be assigned during the semester. Practical will be conducted during the week in respective classes according to the manual in the Department of Plant Pathology, College of Agriculture, UOS.

ASSESSMENT CRITERIA

Sessional: 20% (Participation, Presentation, Assignment)

Project: -

Presentation: -

Participation: -

Mid Exam: 30%

Final Exam (including practical): 50%