

## PLANT PATHOLOGY

Course Code : PLP 201

Course Title : Introductory Plant Pathology

Credit Hours : 3(2 + 1)

Full Mark: 75

Theory: 50

Practical: 25

### OBJECTIVES

Upon completion of this course, the students will be familiar with plant pathogens, their characteristics and principles of management.

### I. SYLLABUS

Introduction, causes, general symptoms of plant diseases; fungal pathogens, their characteristics, classification, major genera of lower fungi, higher fungi and imperfect fungi; characteristics of bacterial pathogens, nematodes, viruses and other pathogens; general principles of plant pathology, survival and defense mechanisms, general principles of plant disease management, chemical and integrated plant disease management.

### II. COURSE OUTLINE

#### A. Lecture

S. N.	Topics	No. of Lecture
1.	Introduction, definition of plant pathology and plant disease	1
2.	Causes, classification and general symptoms of plant diseases	1
3.	Definition, importance and general morphological characters of fungi	1
4.	Asexual and sexual reproduction and types of fruiting bodies in fungi	1
5.	Classification of fungi with their diagnostic characters	1
6.	Myxomycota: Plasmodiophora, Spongospora and Synchytrium	1
7.	Diplomastigomycotina: Pythium and Phytophthora	1
8.	Diplomastigomycotina: Albugo, Sclerospora, Plasmopara and Peronospora	1
9.	Ascomycotina: Taphrina, Protomyces, Erysiphae and Claviceps	1
10.	Basidiomycotina: Puccinia and Melampsora	1
11.	Basidiomycotina: Uromyces, Ustilago and Tilletia	1
12.	Deuteromycotina: Colletotrichum, Alternaria, Cercospora and Fusarium,	1
13.	Deuteromycotina: Helminthosporium, Pyricularia, Sclerotium, Sclerotinia and Rhizoctonia	1
14.	Definition, general morphology of bacterial cell and their functions	1
15.	Classification and characters of Xanthomonas, Pseudomonas, Erwinia, Agrobacterium, Corynebacterium and Streptomyces	1
16.	Virus, Mycoplasma and Spiroplasma: definition and general characters	1

17.	Multiplication and transmission of virus	1
18.	General characteristics, life cycle and reproduction of nematode	1
19.	Characteristics of Anguina, Heterodera, Globodera and Meloidogyne	1
20.	Pathogenicity and Pathogenesis	1
21.	Survival and dissemination of plant pathogens	1
22.	Dissemination of plant pathogens	1
23.	Epidemiology of plant pathogens	1
24.	Pre-exposed defense mechanisms in plants	1
25.	Post-exposed defense mechanisms in plants	1
26.	Physiology of infected plants	1
27.	Enzymes and microbial toxins	1
28.	Disease forecasting	1
29.	Principles of disease management	1
30.	Chemicals and Integrated disease management	1
<b>Total</b>		<b>30</b>

### B. Practical

S.N.	Topics	No. of practical
1.	Acquaintance with laboratory equipments, microscopes and their part	1
2.	Observation of plant disease symptoms in field	1
3.	Identification of lower fungi based on their fruiting bodies	1
4.	Identification of higher fungi based on their spores and fruiting bodies	1
5.	Identification of higher fungi based on their fruiting bodies	1
6.	Identification of Deuteromycetes fungi: Alternaria, Cercospora, Colletotrichum and Fusarium	1
7.	Identification of Deuteromycetes fungi: Helminthosporium, Pyricularia, Rhizoctonia, Sclerotinia and Sclerotium	1
8.	Preparation of general media for fungi	1
9.	Isolation of fungal pathogens	1
10.	Observation of plant disease symptoms in field	1
11.	Extraction and identification of Pathogenic and saprophytic nematodes from seeds and soil	1
12.	Preparation of general media for bacteria	1
13.	Isolation of bacteria from plants	1
14.	Staining and Identification of gram-positive and negative bacteria	1
15.	Identification of important chemicals to control plant diseases	1
<b>Total</b>		<b>15</b>

### REFERENCES

Chaube H.S. and Ramji Singh 2001, Introductory Plant Pathology Int. Book Distributing Co. Lucknow

Singh, R.S. 1999 Introduction to Principles of Plant Pathology. Oxford & IBH.Pub, New Delhi