GANPAT UNIVERSITY

Faculty of Agriculture, Allied Sciences & Technology

Programme	B.Sc. (Hons)	Branch/Spec.	Agriculture
Semester	II	Version	1.1.1.1
Effective from Academic Year	2025-26	Effective for the batch Admitted in	July 2025
Subject code	2IIA06FPP	Subject Name	**Fundamentals of Plant Pathology**

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	1	-	3	Theory	40	40	80
Hours	2	0	2	-	4	Practical	20	00	20

Objectives of the course: To acquaint the students with the basic concepts of Plant Pathology and their application in agriculture.

Course outcome:

1. To get acquainted with the role of different microorganisms in the development of plant disease
2. To get general concepts and classification of plant diseases
3. To get knowledge of general characteristics of fungi, bacteria, virus, and other microorganisms causing plant diseases
4. To acquaint the students with reproduction in fungi, and bacteria, causing plant diseases
5. To get acquainted with various plant disease management principles and practicesCO-6. To study the plant pathogens through laboratory approach

Theory Syllabus

Unit	Content	Hrs
1	Introduction to Plant Pathology: Concept of disease in plants; Different terms used in Plant Pathology, History of Plant Pathology with special references to India; Causes of plant disease:	6
2	Inanimate and animate causes; Classification of plant disease; Parasitism and pathogenesis; Development of disease in plants: Disease Triangle, Disease cycle; Fungi and their morphology, reproduction and classification of fungi;	8
3	Bacteria: Morphology, reproduction classification of phytopathogenic bacteria; Other plant pathogens: Mollicutes; Flagellant protozoa; FVB; Green algae and parasitic higher plants; Viruses and viroids, virus transmission;	8
4	Principles of Plant disease management: Disease management with chemicals, Host resistance, cultural and biological method of Integrated Disease Management (IDM).	8

Practical Content

1. Study of the microscope; Acquaintance with laboratory material and equipment;
2. Study of different plant disease symptoms;
3. Microscopic examination of general structure of fungi;
4. Simple staining of bacteria: Direct and indirect staining, Gram staining of bacteria;
5. Microscopic examination of fungal diseased specimen;
6. Microscopic examination of bacterial diseased specimen;
7. Preparation of culture media;

8. Isolation of plant pathogens: Fungi, bacteria and viruses;
9. Purification of plant pathogens;
10. Study on plant disease diagnosis: Koch's Postulates, Characteristics, formulation, methods of application and calculation on fungicides.

Reference book

1. Agrios, G.N. 2010. Plant Pathology. Acad. Press.
2. Alexopoulos, Mims and Blackwel. Introductory Mycology.
3. Dhingra, O.D. and Sinclair, J.B. 1986. Basic Plant Pathology Methods. CRC Press, London, Tokyo.
4. Gibbs, A. and Harrison, B. 1976. Plant Virology - The Principles. Edward Arnold, London
5. Goto, M. 1990. Fundamentals of Plant Bacteriology. Academic Press, New York.
6. Hull R. 2002. Mathew's Plant Virology. 4th edn. Academic Press, New York.
7. Kamat, M. N. Introductory Plant Pathology. Prakash Pub, Jaipur.
8. Mehrotra, R.S. and Aggarwal, A. 2007. Plant Pathology. 7th edn. Tata Mc Graw Hill Publ. Co. Ltd.
9. Nene, Y.L. and Thapliyal, P.N. 1993. Fungicides in Plant Disease Control. 3rd Ed. Oxford & IBH, New Delhi.
10. Pathak, V. N. Essentials of Plant Pathology. Prakash Pub., Jaipur
11. Rajeev, K. and Mukherjee, R.C. 1996. Role of Plant Quarantine in IPM. Aditya Books.