MMB-305: PLANT-PATHOGEN INTERACTION	
Teaching Scheme Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	**Examination Scheme** Class Test - 12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Prerequisite: - MMB101, MMB-302, Basic concepts of microbiology, plant and the functional role of microorganism, plant pathology.

Course Objectives:

1. To give an overview on disease, disease triad and the plant physiology and microbial Interaction with plants.
2. To give overview of pathogen infecting the plants, interaction and infection and progression.
3. To describe the biochemical basis of plant disease and the pathogen infecting various plant.
4. To explain the genetic basis of plant disease, disease resistance or susceptibility concept and genes and mechanisms in disease controls.
5. To explain approaches for plant protection and the disease forecasting.

Detailed Syllabus

Unit-1 **Concepts and physiology of plant diseases:** What is a disease, its causes, pathogenesis in relation to environment, effect of microbial infections on plant physiology, photosynthesis, respiration, transpiration, and translocation.
Unit-2 **Biochemical basis of plant diseases:** Enzymes and toxins in plant diseases, phytoalexins. **Some important plant diseases and their etiological studies:** Crown gall, symptoms of viral diseases and their control, diseases of some important cereals, vegetables and crops.
Unit-3 **Genetically basis of plant diseases and molecular approach:** Genetics of host-pathogen interactions, resistance mechanism and resistance genes in plants. Molecular diagnosis, its futuristic vision, applications and constraints. Transgenic approach for plant protection.
Unit-4 **Disease control:** Principles of plant disease control, physical and chemical methods of disease control, biocontrol, biocontrol agents - concepts and practices, fungal agents, Trichoderma as biocontrol agent, biocontrol agents – uses and practical constraints.
Unit-5 **Disease forecasting:** History and important milestones in disease control, disease forecasting and its relevance in Indian farming.

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