



**RAFFLES
UNIVERSITY**

TEACHING PLAN: Diseases of Field & Horticultural Crops & their Management-II

SCHOOL: (SOAS) SCHOOL OF Agricultural Science		B.Sc. (Agri) VI Sem		FOR STUDENTS' BATCH: 2021-2025		
		ACADEMIC SESSION: 2023 – 2024				
1	Course Code.	APP-301/APP-P-301				
2	Course Title	Diseases of Field & Horticultural Crops & their Management-II				
3	Credits	3 (_2+1)				
4	Learning Hours		Contact Hours	24		
			Assessment			
			Guided Study			
			Total hours	100		
5	Course Objective	1. To study living, non-living, and environmental causes of diseases or disorders of the plants. 2. To study the mechanism of plant disease development. 3. To study the interaction between the host/susceptible and the pathogens. 4. To develop systems of management of plant diseases and reduce losses caused by them. 5. To study enhanced ability through proper monitoring of the field for the detection and diagnosis of plant diseases 6. To study the identification of causal organisms and management of plant disease. 7. Provide an overview of the basic principles of plant disease Management.				
6	Course Outcomes	1. By the end of this course students studied symptoms, involved pathogens, disease cycle, the best possible management practices available, and the ability to resolve the problem of yield reduction in crops. 2. In this course students will be able to prepare culture, identify and understand the biology of pathogens in the laboratory. 3. Students will be able to understand the best possible management of field crops. 4. In this course students apply different fungicides and antibiotics (mode of action and formulations) based on the Nature of the pathogen, managing crop disease corresponding to the involved pathogen, and examining loss in quality and yield. 5. By the end of this course students develop skills in the detection and diagnosis of plant diseases and the application of pesticides.				
7	Outline syllabus:					
7.01	Paper Code	Units	Syllabus		Page Number s ¹	Lectures
7.02	APP-301/AP P-P-301	Unit -I Field Crops:	Introduction: Symptoms, etiology, disease cycle and management of the following diseases:			
		Wheat	Rust, loose smut, karnal bunt, powdery mildew, alternaria blight, and ear cockle;			
		Sugarcane	Red rot, smut, wilt, grassy shoot, ratoon stunting and Pokkah Boeng;			
		Sunflower	Sclerotinia stem rot and Alternaria blight;			

		Mustard	Alternaria blight, white rust, downy mildew and Sclerotinia stem rot;		
		Gram	wilt, grey mould and Ascochyta blight; Lentil: rust		
		Cotton	Anthrachnose, vascular wilt, and black arm		
		Pea	Downy mildew, powdery mildew and rust.		
7.03		Unit -II Horticultural Crops:	Introduction: Symptoms, etiology, disease cycle and management of following diseases:		
		Mango	Anthrachnose, malformation, bacterial blight and powdery mildew.		
		Citrus	Canker and gummosis.		
		Grape vine	Downy mildew, Powdery mildew and anthracnose.		
		Peach	leaf curl		
		Apple	Scab, powdery mildew, fire blight and crown gall.		
		7.04	Unit -III (Practical)	Topic to be taught	
		Identification and histopathological studies of selected diseases of field and horticultural crops covered in theory			
Field visit for the diagnosis of field problems					
Collection and preservation of plant diseased specimens for herbarium.					
Note: Students should submit 50 pressed and well-mounted specimens.					
8	Course Evaluation				
8.1	CA: 30%				
8.11	Attendance				
8.12	Homework	4 Assignments, 10%			
8.13	Quizzes	4 Quizzes, 80%			
8.14	Projects	1 Project, 5%			
8.15	Presentation	1 Presentation, 5%			
8.16	Any other	--			
8.2	MTE	20%			
8.3	End-term examination: 50%				
9	Text Books & References				
9.1	Text book	1. Diseases of crop plants in India. G. Rangaswami and A. Mahadevan., PHI Learning Private limited, Delhi-110092-2018. 2. Diseases of field and horticultural crops and their management-I., Dr. Manoj Kumar kalita, kalyani Publishers.			

		3. Diseases of vegetables., R. S. Singh., Oxford & IBH Publishing Co Pvt.Ltd 4. Diseases of fruits. R. S. Singh., Oxford & IBH Publishing Co Pvt.Ltd. 5. References 1. Diseases of Fruit Crops – Pathak V.N. 1980 Oxford & IBH Publishing Co. Pvt. Ltd. 6. Diseases of Tropical and Subtropical Field, Fiber and oil plants – Cook AA 1981 Mac Millan Publishing Co. New York. 7. Diseases of Crop Plants in India – Rangaswamy G 1988 Prentice Hall of India Pvt. Ltd. New Delhi. 8. Diseases of Ornamental Plants in India – Sohi H S 1992 ICAR, New Delhi. 9. Diseases of Vegetable crops – Singh R S 1994 Oxford & IBM Publishing Co. Pvt. Ltd. New Delhi. 10. Plant Diseases – Singh R S 1996 Oxford & IBM Publishing Co. Pvt. Ltd. New Delhi
9.2	Journal and magazine References	1. Phytopathology, 2. Physiological and Molecular Plant Pathology 3. Plant Pathology 4. Plant Pathology Journal 5. Tropical Plant Pathology 6. Indian farming 7. Times of Agriculture 8. Indian farmer digest 9. Gyan Ganga
9.3	Video References	https://www.youtube.com/watch?v=6bBFhiyatdM https://www.youtube.com/watch?v=dDdNFYislZg https://www.youtube.com/watch?v=gRU4WZvIRrM https://www.youtube.com/watch?v=V4ezE2ZQQso https://www.youtube.com/watch?v=yv6oavt5s-E https://www.youtube.com/watch?v=GvO2BIuOdmg https://www.youtube.com/watch?v=dj051d21K1M https://www.youtube.com/watch?v=IMvWsly-Pg8 https://www.youtube.com/watch?v=gkTQtZoEGU0 https://www.youtube.com/watch?v=gnlzMIrjsrQ
9.4	For Video lectures	Subscribe the channel. Dr. Agriculturist (https://bit.ly/3d5Cf6A)

Mapping of Outcomes v. Topics

Outcome no. → Syllabus topic↓	1	2	3	4	5
Paper Code.Unit I (a)	✓				
Paper Code. Unit I (b)		✓			
Paper Code. Unit I (c)			✓		
Paper Code.Unit II (a)				✓	
Paper Code. Unit II(b)				✓	
Paper Code. Unit II(c)				✓	
Paper Code.Unit III (a)				✓	

Paper Code. Unit III(b)				✓	
Paper Code. Unit III(c)				✓	
Paper Code. Unit IV (a)				✓	
Paper Code. Unit IV(b)				✓	
Paper Code. Unit IV(c)				✓	
Paper Code. Unit V (a)				✓	
Paper Code. Unit V(b)				✓	
Paper Code. Unit V(c)					✓

QUESTION BANK

A. Fill in the blanks

- The causal organism of yellow rust of wheat is
- i. causes red rot of sugarcane iii. White rust of mustard is caused by
-causes karnal bunt of wheat.
- The causal organism of rust of pea is
- Anthracoise of mango producesas asexual fruiting body
- causes white mold of sunflower
- Stag head inflorescence is formed in disease
- Wilt of gram is caused by
-causes rust of lentil.
- is the causal organism of black rust of wheat.
-is the causal organism of downymildew of cucurbites.
-is the causal organism of powdery mildew of cucurbites.
- . Dieback of rose caused due to.....
- Botrytis blight of marigold caused due to.....

B. Write short notes on

- Grey mould of gram
- Ear cockle of wheat
- Why sclerotinia stem rot is known as white mold
- Alternaria leaf spot of mustard
- Smut of sugarcane
- Peach leaf curl
- Stem gall of coriander
- Botrytis blight of marigold
- Dieback of rose
- Strawberry leaf spot
- Symptoms of powdery mildew disease
- Management of wilt disease
- Symptoms of anthracnose in chili crop
- Symptoms of red rot in sugarcane crop

15. Chemical control measures
 16. Cultural practices
 17. Differentiate b/w Early & late blight
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3. Long Answer

1. Write down the symptoms, etiology, and disease management of rust of wheat.
2. Write about ascochyta blight of gram
3. Write the symptoms, etiology, epidemiology, and management of ratoon stunting of sugarcane
4. Write down the symptoms, etiology, and disease cycle, and disease management of loose smut of wheat.
5. Write down the symptoms, etiology, disease cycle, and disease management of Chilli Anthracnose
6. Write down the symptoms, etiology, disease cycle, and disease management of Apple scab
7. Write the symptoms, etiology, epidemiology, and management of Mango bacterial blight
8. Write the symptoms, etiology, epidemiology, disease cycle, and management of late blight of potato
9. Write the symptoms, etiology, epidemiology, disease cycle, and management of Angular leaf spot/ Black arm of cotton
10. Write the symptoms, etiology, epidemiology, disease cycle, and management of White rust of mustard

Projects / Assignments (To be given to a group of students)

1. **Note:** Each group of Students should submit 50 pressed and well-mounted specimens.