

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

**DEPARTMENT OF BOTANY
COURSE CURRICULUM**

PART- A: Introduction			
Program: Bachelor in Life Science (Diploma / Degree/Honors)		Semester - IV	Session: 2024-2025
1	Course Code	BOSE- 02 T	
2	Course Title	Microbiology and Phytopathology	
3	Course Type	Discipline specific Elective (DSE)	
4	Pre-requisite (if, any)	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to get > Basic idea of different microbes present in biotic and abiotic environment. > Knowledge of principle concept and methods in the field of Microbiology and Phytopathology > Idea of living, non living and environmental causes of plant diseases. > Knowledge of different technique to isolate microbes study their cultural characteristics., > How disease occurs by microbes, their identification and control measures.	
6	Credit Value	3 Credits	Credit = 15 Hours - learning & Observation
7	Total Marks	Max. Marks: 100	Min Passing Marks: 40
PART -B: Content of the Course			
Total No. of Teaching-learning Periods (01 Hr. per period) - 45 Periods (45 Hours)			
Unit	Topics (Course contents)		No. of Period
I	Microbiology: ❖ General account, distribution and classification of microorganism. ❖ Major microbes of air soil water and food ❖ Isolation and cultivation of microorganism ❖ Important tools and techniques used in microbiological studies.		12
II	Plant pathology: ❖ Nature and concept of diseases in plants, ❖ History and development of plant pathology, contribution of Indian plant pathologist in India and abroad, pathology and trends in 21 st century ❖ Symptom of parasitic and non-parasitic diseases, ❖ Classification of plant diseases. ❖ Important plant diseases caused by different Pathogens ❖ Plant quarantine ❖ HR and hypersensitivity		11
III	Techniques of Studying Plant Diseases: ❖ Field Studies, Collection of samples and its preservation. ❖ Sterilization technique - Standard Methods of sterilization - Physical methods, Chemical methods, Radiation methods, ❖ Isolation technique : Preparation of different media for growth of pathogen by using standard inoculation techniques like- plate streak, serial dilution and pour plate methods to obtain a pure culture. ❖ Staining Technique : Nature and Types of stains, ❖ Preservation : methods of preservation of culture		11
IV	Host Parasite Relation: ❖ Terms and concept ❖ Disease cycle and environmental relations ❖ Plant disease dissemination ❖ Role of enzymes and toxins in pathogenesis and mode of infection, ❖ Inoculums and inoculums potential ❖ Koch's postulates ❖ Defense mechanism in plant against pathogens, ❖ Prevention and control of plant diseases		11
Key words	Microorganism, Disease, Pathogens , Culture		
Signature of Convener & Members (CBoS) :			

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

1. Bridges, P. (1998) Molecular Variability Of Fungal Pathogens. CAB
2. Bilgrami, K. S. and Dubey, H. C. (1985) Plant Pathology, Vikas Publ. House, Sahibabad U.P.
3. Ali, s. s. and Kulshereshta, p. (1986) plant pathology, adeeb educational, Raipur.
4. Singh, R. S. (1980) Plant Pathology, Oxford IBH Publ. Co, New Delhi.
5. Malhotra R. Plant Pathology Publisher: McGraw Hill Education India

Reference Books Recommended-

1. Agrios, G. N. (1997) Plant Pathology, Academic Press, London

Online Resources–

- e-Resources / e-books and e-learning portals
- www.swayam.ac.in
- www.ignou.ac.in
- www.egyankosh.ac.in
- www.iitm.ac.in
- www.eskillindia.org
- www.eshiksha.mp.gov.in
- www.vlab.co.in
- www.internshala.com
- www.ndl.iitkgp.ac.in

Online Resources–

- e-Resources / e-books and e-learning portals
1. <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/plant-pathology#:~:text=Plant%20pathology%20is%20a%20science,parasitic%20microorganism%20that%20cause%20disease.>
 2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4600171/>
 3. <https://bnrc.springeropen.com/articles/10.1186/s42269-021-00627-6>
 4. <https://www.sciencedirect.com/science/article/abs/pii/S0065308X08604339>
 5. <https://www.researchgate.net/publication/371501301> Fundamentals of Plant Pathology

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment (CIA): 30 Marks

End Semester Exam (ESE): 70 Marks

Continuous Internal Assessment (CIA): 30 (By Course Teacher)	Internal Test / Quiz-(2): 20 +20	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks
	Assignment / Seminar - 10	
	Total Marks - 30	

End Semester Exam (ESE): 70	Two section – A & B
	Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts., 1out of 2 from each unit-4x10=40 Marks

Name and Signature of Convener & Members of CBoS:

① R. Prasad
② R. Prasad
③ R. Prasad
④ R. Prasad
⑤ R. Prasad
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