

Title of the Course: AGRICULTURE MICROBIOLOGY [P]**Course Code: MIC-526****Number of Credits: 1, Practical****Contact hours: 30****Effective from Academic Year: 2022-23**

Prerequisites	It is assumed that the student have knowledge about the soil properties and microbial interactions with plants.	
Objective:	Assessing the diverse parameters influencing the soil health. Studying the plant growth promoters and plant pathogens.	
Content:		(30)
1.	Isolation of plant growth promoting bacteria from rhizosphere and screening for phosphate/zinc solubilisation, IAA production, K mobilisation, siderophore activity and seedling vigour test.	
2.	Detection of microbial enzymes – amylase, phosphatase, lipase, protease, catalase, urease from various soils such as sandy soil and garden soil.	
3.	Isolation of microbial plant pathogen(s)-bacterial/fungal.	
4.	Preparation of biofertilizer using cyanobacteria	
Pedagogy:	Hands-on experiments in the laboratory, video, online data	
References/ Readings	Agrios G.N. Plant Pathology. Academic Press, San Diego. (2004)	
	Alexander, M., Introduction to Soil Microbiology, Wiley. (1977)	
	Bilgrami K. S. Plant Microbe Interactions, Proceedings of Focal Theme Symposium, Indian Science Congress Association, Narendra Publishing House. (1987)	
	Carr, N. G. and Whitton, B. A., The Biology of Blue-green algae, University of California Press. (1973)	
	Dadarwal, K. R., Biotechnological Approaches in Soil microorganisms for sustainable crop production, Scientific Publishers. (1997)	
	Kumar, H. D., Modern Concepts of Microbiology, Vikas Publishing House Pvt. Ltd. (2004)	
	Madigan, M. T., Martinko, J. M., Bender, K. S., Buckley, D. H. and Stahl, D. A., Brock Biology of Microorganisms, Pearson Education Limited. (2017)	
	Mahanta, K. C., Fundamentals of Agricultural Microbiology, Oxford & IBH Publishers. (1969)	
	Somani, L.L., Biofertilizers in Indian Agriculture, Concept Publishing Company. (1987)	
	Subba Rao, N.S., Biofertilizers in Agriculture and Forestry, International Science Publishers. (2017)	
	Subba Rao, N. S., Advances in Agricultural Microbiology, Oxford & IBH Publishers. (1982)	
	Veeresh, G. K. and Rajagopal, D., Applied Soil Biology and Ecology, Oxford & IBH Publishing Company Pvt. Limited. (1988)	
Course Outcomes	<ul style="list-style-type: none">● Isolate microorganisms for plant growth promotion.● Correlate biochemical processes of microbes to soil ecology.● Formulate biofertilizers for agricultural applications.● Classify microbial diseases of plants.	