



RAICHUR UNIVERSITY, RAICHUR

Under Graduate Curriculum for Degree of Bachelor of Science (B.Sc) in

Botany (I & II Semester)

**As per Revised NEP 2024
With Effect from the Academic year from
2024-25 and onwards**

BSc I Semester

Course Title : Microbial diversity and Thallophytes

Unit	Content	Hours
I	Viruses: General Characteristics, Structure and Reproduction of TMV, Bacteriophage T4. Economic Importance. General account on Virioids and Prions. Bacteria: General Characteristics, Classification Based on Morphology and Flagella, Ultrastructure, Reproduction, Economic Importance. Cyanobacteria: General Characteristics, Type study of Anabaena, Spirulina, Scytonema. Economic Importance.	14
II	Algae: General Characteristics, Classification(F.F. Fritsch), Type study Oedogonium, Volvax, Vacheria, Chara, Diatoms, Sargassum and Polysiphonia, Economic Importance. General account of algal blooms and toxins.	14
III	Fungi: General Characteristics, Classification (Alexopoulos), Type study of Albugo, Rhizopus, Penicillium, Agaricus, Cercospora, Aspergillus. Economic importance of fungi. Economic Importance Mycorrhiza: Introduction, Ectomycorrhiza, Endomycorrhiza and significance, Economic Importance. Lichens: Occurrence, Classification (Crustose, Foliose, Fruticose), Internal Structure of Thallus, Structure of apothecium, Economic importance.	14
IV	Plant Pathology :Terminologies, Disease triangle, Kochs Postulates Causal organism, Symptoms, Etiology and Control Measures of Following Diseases: Leaf Curl OF Papaya, Bunchy Top of Banana, CitrusCanker, Angular Leaf spot of Cotton, Downy Mildew of Bajra, Grain Smut of Sorghum, Stem Rust of Wheat, Tikka Disease of Groundnut, Wilt of Pigeon Pea, Red Rot of Sugarcane, Sandal Spike disease of Mycoplasma.	14

Text Books

1. **Ananthanarayana R and Panikar JCK 1986. Text book of Microbiology. Orient Longman Ltd, New Delhi**
2. **Arora DR. 2004. Text Book of Microbiology, CBS, New Delhi**
3. **William CG. 1989. Understanding Microbes. A Laboratory Text Book for Microbiology.W.H. Freeman and Company, New Delhi.**
4. **Dubey RC and Maheshwari DK, 2007. A textbook of Microbiology, S. Chand and Company, New Delhi**
5. **Dubey RC and Maheshwari DK, 2002. A Textbook of Microbiology, S.C.Chand and Company, LTD. Ramanagar, New Delhi**
6. **Sharma R. 2006. Text Book of Microbiology. Mittal Publications, New Delhi.**
7. **Sharma PD. 1999. Microbiology and Plant Pathology. Rastogi Publications. Meerut, India.**
8. **Vasanthkumari R. 2007. A Textbook of Microbiology. BI Publications Pvt.Ltd. New Delhi.**

References

1. **Alexopoulos CJ and Mims CW. 1989. Introductory Mycology, Wiley Eastern Ltd., New Delhi**
2. **Book TD, Smith DW and Madigan MT.1984. Biology of Microorganisms, 4th Ed.Eaglewood Cliffts, N.J. Prentice-Hall, New Delhi.**
3. **Burnell JH and Trinci APJ, 1979. Fungal walls and hyphal growth, Cambridge University Press, Cambridge.**
4. **Jayaraman J., 1985.Laboratory Manual of Biochemistry, Wiley Eastern Limited, New Delhi.**
5. **Michel J, Peleazar Jr. EC and Krieg CR 2005. Microbiology, Mc.Graw-Hill, New Delhi.**
6. **Reddy S and Ram 2007. Microbial Physiology. Scientific Publishers, Jodhpur.**
7. **Sullia SB and Shantharam S. 1998. General Microbiology, Vol-I and Vol-II Himalaya Publishing House, Bombay.**
8. **Pawar CB and Dagainawala, 1991. General Microbiology, Vol. I and II Himalaya Publishing house, Bangalore.**
9. **Roger S, Ingrahan Y, Wheelis JL, Mark L. And Page PR. 1990. Microbial world 5th edition. Prentice-Hall India, Pvt, Ltd. New Delhi**
10. **Sullia SB and Shantharam S. 2005. General Microbiology, Oxford and IBH, New Delhi**

List of Practical's/Experiments to be conducted

Sl. No	Experiments
1	Gram Staining of Bacteria: Study of Lactobacillus bacteria from butter milk
2	Study of Bacterial Disease in Plants: Citrus Canker, Angular Leaf Spot of Cotton.
3	Study of Viral Diseases in Plants : Papaya leaf curl disease and Bunchy Top of Banana Disease
4	Study of Fungal Diseases in Plants : , Downy Mildew of Bajra, Grain Smut of Sorghum, Stem Rust of Wheat, Wilt of Pigeon Pea, Red rot of Sugarcane, Tikka Disease of Groundnut. Study of morphological features of Aspergillus, Penicillium, Rhizopus.
5	Study of Cyanobacteria : Anabaena, Oscillatoria, Scytonema, Spirulina
6	Study of Algae : Oedogonium, Volvox, Vacheria, Chara, Diatoms, Sargassum, Polysiphonia.
7	Field visit