



**JYOTI NIVAS COLLEGE AUTONOMOUS BANGALORE – 560 095**  
**DEPARTMENT OF BOTANY**  
**B.Sc. I SEMESTER BOTANY PAPER I SYLLABUS (2024 SEP BATCH)**  
**MICROBIAL DIVERSITY, MYCOLOGY AND PHYCOLOGY**

<b>COURSE TITLE</b>	<b>MICROBIAL DIVERSITY, MYCOLOGY AND PHYCOLOGY</b>
<b>COURSE CODE</b>	<b>24IBO1T</b>
<b>COURSE CREDITS</b>	<b>03</b>
<b>TOTAL CONTACT HOURS</b>	<b>56 Hours</b>
<b>DURATION OF ESE</b>	<b>3 Hours</b>
<b>CONTINUOUS INTERNAL ASSESSMENT (CIA)</b>	<b>20Marks</b>
<b>END SEMESTER EXAMINATION (ESE)</b>	<b>80 Marks</b>

**UNIT I: Microbiology**

**14 hrs**

Introduction and scope of Microbiology.

**Branches of microbiology-** Industrial, Medical, Agricultural and Environmental Microbiology.

Contributions of scientists to the field of Microbiology: Anton Von Leeuwenhoek, Louis Pasteur , Robert Koch, Alexander Fleming and Iwanowsky.

**Microbiology culture techniques:** Culture media, serial dilution and pour plate method.

**Viruses** – Properties, structure of TMV & T4 Bacteriophage. Multiplication (lytic and lysogenic cycle) & Transmission of viruses. Tomato leaf curl disease.

A brief account of Interferons, Prions and Viroids.

## **UNIT II: Bacteriology**

**14 hrs**

Introduction , Classification of Bacteria based on shape ,flagella and nutritional types.

Ultra structure of Bacterial cell with special reference to Gram positive and Gram negative cell wall composition. Endospore - a brief account.

Reproduction: Binary fission and Genetic recombination (Transduction, Transformation, Conjugation).

A brief account on plasmids – definition and properties. Structure and importance of Ti plasmid.

Bacterial disease - Citrus canker disease.

Economic importance –Role of bacteria in Agriculture, Medicine and Industry.

General account of phytoplasma and sandal spike disease.

## **UNIT III: Mycology**

**14 Hrs.**

General characters and reproduction in fungi. A brief account of heterothallism.

Structure reproduction and life cycle of *Albugo*, *Peziza*, *Puccinia*.

Plant diseases: Red rot of Sugarcane, Grain smut of Sorghum, Koleroga of Areca nut and Tikka disease of ground nut.

Economic importance: Role of fungi in Medicine, agriculture and Industry.

Lichens: General account, reproduction, ecological and economic importance.

A brief account of Mycorrhiza and biopesticides and biofertilizers.

## **UNIT IV: Cyanobacteria and Phycology**

**14 Hrs.**

Cyanobacteria: Introduction, general characteristics, reproduction and economic importance.

Type study: *Anabaena* and *Scytonema*..

Algae: General characteristics of algae, occurrence, structure, reproduction life cycle of *Chlamydomonas*, *Hydrodictyon*, *Spirogyra*, *Chara*, *Sargassum*, *Diatoms* and *Polysiphonia*. A brief account of cultivation of microalgae *Spirulina*.

Economic importance of Algae in Industry, Agriculture and Medicine