



**PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**

Autonomous

Siddhartha Nagar, Vijayawada-520010

Re-accredited at 'A+' by the NAAC

23BOMAP122: Origin of Life and Diversity of Microbes

Offered to: BSc. Honours (Botany)

Course Type: Major 3 (P)

Year of Introduction: 2023-24

Semester: II

Credits: 3

30Hrs

Max.Marks: 50(15+35)

Course Prerequisites: Knowledge of Origin of Life and Diversity of Microbes studied in intermediate.

Course Description: This course will provide one with a basic and comprehensive understanding of Origin of life and Viruses. Enable the student with depth of topics and helps them to gain an appreciation in the special groups of Bacteria. On the other hand, importance of understanding soil microbes and their interactions provides an extensive knowledge to the student.

Course Objectives:

1. Knowledge of awareness on origin and evolution of life.
2. The study of understanding the diversity of microbial organisms.
3. The study of general characters of special groups of bacteria.
4. Study of biology of eubacteria .
5. Knowledge of awareness on importance of microbes in nature and agriculture.

Course Outcomes: At the end of this course, students should be able to:

CO1: Illustrate diversity of viruses, multiplication and economic value.

CO2: Discuss the general characteristics, classification and economic importance of special groups of bacteria.

CO3: Explain the structure, nutrition, reproduction and significance of eubacteria.

CO4: Evaluate the interactions among soil microbes.

CO5: Compile the value and applications of microbes in agriculture.

CO-PO MATRIX							
CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1						M	
CO2					L		
CO3						M	
CO4					M		
CO5					H		

Syllabus

Course Details

Laboratory/Field exercises:

1. Microbiology good laboratory practices and biosafety.

2. Study the principle and applications of important instruments (autoclave, hot air oven, incubator, Inoculation loop, Inoculation needle, membrane filter, laminar air flow system, colony counter, biological safety cabinets, BOD incubator, pH meter) used in the microbiology laboratory.
3. Study of Viruses (Gemini and TMV) using electron micrographs/ models.
4. Gram staining technique of Bacteria.
5. Microscopic study of Cyanobacteria using temporary/permanent slides.
6. Microscopic study of Eubacteria using temporary/permanent slides.
7. Study of Archaeobacteria and Actinomycetes using permanent slides/ electron micrographs/diagrams.

Semester End Examination Model Paper

1. Perform the given experiment "A" (Grams staining technique of Bacteria). 10M.
 2. Preparation of culture media for cultivation of fungi. (Demonstration minor experiment).
"B" 8M
 3. Identify the following with specific reasons 4x3=12M
- C. Instruments
 - D. Virus/Bacteria
 - E. Cyanobacteria
 - F. Actinomycetes/Archaeobacteria
5. Record+Viva-voce 5M