PAPER I: FUNDAMENTALS OF MICROBIOLOGY
SEMESTER I

UNIT	TOPIC	NUMBER OF LECTURES
I	**INTRODUCTION TO MICROBIOLOGY:** a) Introduction to diversity in microbial world b) History and scope of Microbiology c) Light Microscopy d) Safety in Microbiology	**10** **01** **03** **04** **02**
II	**PROKARYOTIC CELL STRUCTURE:** a) Major features of prokaryotic cell structure. b) Micrometry. c) Comparison with eucaryotic cell structure. d) Introduction to Fungi, Algae and Protozoa.	**10** 4 1 1 4
III	**NUTRITION AND CULTIVATION OF MICROORGANISMS(bacteria and fungi)** a) Nutritional requirements. i. Macronutrients. ii. Micronutrients. iii. Nutritional classification. iv. cultivation of bacteria and Fungi b) Principles underlying cultivation and preservation i. Components of media. ii. Design of the media. iii. Preservation	**10** 1 1 2 2 2 1 1

PRACTICALS
FUNDAMENTALS OF MICROBIOLOGY

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1. Study and care of microscope and use of oil immersion lens.
2. Study of morphology of bacteria using stained slides.
3. Measurement of size of stained bacteria (Micrometry)(use yeast or stained curd whey sample)
4. Study of morphology of fungi using wet mount preparation.
5. Permanent slides of algae and protozoa.
6. Cultivation of microorganisms (bacteria and fungi) in solid and liquid media
7. Study of minimal growth requirements of bacteria.
8. Preservation of cultures by

a. use of soil stock
b. mineral oil overlay
c. stab culture
d. periodic transfer
e. lyophilization(Youtube/video film)

9. Handling and disposal of used cultures and materials.
10. Assignment on contribution of a scientist.