

FST-103, General Microbiology 3(3-0)

Educational Objectives

- To enable the students to work with microorganisms.
- To understand the basic techniques of sterilization, culturing and isolation.
- Determining different characteristics of the microorganisms.

Course Contents

- Fundamentals of microbiology.
- Microorganisms and their respective place in the living world.
- Differentiation between pro- and eukaryotic cells.
- Historical development of Microbiology and its scope.
- Microscopy: An outline of the principles and applications of light and electron microscope.
- Morphology, arrangement and detailed anatomy of bacterial cell.
- Bacterial taxonomy and nomenclature, basis of classification of bacteria.
- Growth, nutrition (physical and nutritional requirement and nutritional types; sources of energy, C, N, H, O, S, P, H₂O, trace elements, growth factors) and reproduction.
- General methods of studying microorganisms: cultivation, isolation, purification and characterization.
- Control of microorganisms by physical and chemical methods.
- Chemotherapeutic agents and antibiotics. Modes of action of antibiotics on microorganisms.
- Basic properties of fungi, protozoa and algae

Recommended Books

1. Baker , S., Khan , N., Nicklin, J. and Killington, R., 2006. Instant Notes in Microbiology, 3rd Ed edition, Taylor and Francis.
2. Black, J. G. 2005. Microbiology: Principles & Explorations, 6th edition, John Wiley and Sons, N.Y.
3. Talaro, K. P. 2008. Foundations in Microbiology: Basic Principles, McGraw-Hill Companies, N.Y.
4. Tortora, G. J., Funke, B. R. and Case, C. L. 2012. Microbiology: An Introduction, Benjamin-Cummings Publishing Company, U.S.A.
5. Tortora, G. J., Funke, B. R. and Case, C. L. 2012. Study Guide for Microbiology: An Introduction. 11th edition. Benjamin-Cummings Publishing Company, U.S.A.