

## **CODE BSPH-301 MICROBIOLOGY**

### **Course Objective:**

- Familiarize students with fundamental concept of Microbiology
- To know about the applications of the science of microbiology in the different fields of life.
- To enable the students to work with microorganisms.
- To understand the basic techniques of sterilization, culturing and isolation.
- Determining different characteristics of the microorganisms.
- To understand pathogenesis of microorganisms
- To learn basic mechanism of infection and molecular mechanism of
- Pathogenesis.

### **Course Content:**

- Fundamentals of microbiology.
- Microorganisms and their respective place in the living world.
- Differentiation between pro- and eukaryotic cells.
- Microscopy: An outline of the principles and applications of light and electron microscope.
- General methods of studying microorganisms: cultivation, isolation, purification and characterization.
- Microbiology of water and wastewaters.
- Introduction to food and dairy microbiology and Methods of food preservation.
- Differentiation between food intoxication and food-infection.
- Microbiology of air.

### **Practical**

- Laboratory safety: Containment and decontamination.
- An introduction to microscopy.
- Preparation and sterilization of bacteriological media and glassware.
- Inoculation techniques. Study of colony characteristics of microorganisms.

### **Recommended Books:**

1. Tortora, G. J., Funke, B. R. & Case, C. L. (2012). Study Guide for Microbiology: An Introduction. 11<sup>th</sup> edition. Benjamin-Cummings Publishing Company, U.S.A.
2. Talaro, K. P. (2008). Foundations in Microbiology: Basic Principles, McGraw-Hill Companies, N.Y. 3.
3. Tortora, G. J., Funke, B. R. & Case, C. L. (2008). Microbiology: an introduction 9<sup>th</sup> Edition, Pearson Education.
4. Black, J. G. (2005). Microbiology: Principles & Explorations, 6<sup>th</sup> edition John Wiley and Sons, N.Y.2.

5. Cowan, S. T., Steel, K. J., Barrow, G. I and Feltham, R. K. A. 2004. Cowan and Steel's Manual for the Identification of Medical Bacteria, 3rd Edition, Cambridge University Press, U.S.A.
6. Hawkey, P and Lewis, D. 2004. Medical Bacteriology: A Practical Approach. 2nd Edition, Oxford University Press, U.K.
7. Mims, C., Dockrell, H., Goering, R., Roitt, I Wakelin, D. and Zuckerman, M. 2007. Medical Microbiology. 3rd Edition .Mosby Co.,M.O.
8. Murray, P. R., Rosenthal, K. S., Pfaller, M. A. and Rosenthal, K. S. 2005. Medical Microbiology, Elsevier Health Science, N.Y.
9. Murray, Baron, Pfaller, Tenover, Tenover, Tenover, Yolken. 2011. Manual of Clinical Microbiology by 10th Ed . ASM Press USA.
10. Brooks, G., Carroll, K.C., Butel, J., Morse , S., 2013. Jawetz Melnick& Adelbergs Medical Microbiology 26th Edition McGraw-Hill Companies. North America