

Inter Disciplinary (IDC) Course

Life Science Group 2

Paper: 1 (IDC) Paper Code: LSC2IDC203 Paper Level: 100

BASIC MICROBIOLOGY

(Paper type: Theory)

(Semester: II)

Lecture Hours: 30 h Marks: 40 Credits:2

Unit 1 History of Development of Microbiology

No. of Hour: 4 h

Development of microbiology as a discipline, Spontaneous generation vs. biogenesis. Contributions of Anton von Leeuwenhoek, Louis Pasteur, Robert Koch, Alexander Fleming

Unit 2 Diversity of Microbial World

No. of Hour: 8 h

Whittaker's five kingdom classification system, General characteristics of different groups: Viruses, Bacteria, Algae, Fungi, Protozoa, Archaeobacteria

Unit 3 Cell organization

No. of Hours: 10 h

Cell size, shape and arrangement, flagella, Cell-wall: Composition and structure of Gram-positive and Gram-negative cell walls, Gram staining mechanisms. Cell Membrane: Structure, function and chemical composition of bacterial cell membranes. Cytoplasm: Ribosomes, nucleoid, plasmids. Endospore: Structure.

Unit 4 Microbial Control

No. of Hours: 5 h

Physical methods of microbial control: heat, low temperature, filtration, desiccation, radiation
Chemical methods of microbial control: disinfectants, types and mode of action

Unit 5 Reproduction in Bacteria

No. of Hours: 3 h

Phases of growth, calculation of generation time and specific growth rate

UG Syllabus for Inter Disciplinary (IDC) Course

Life Science Group 2

Paper: 1 (IDC) Paper Code: LSC2IDC203 Paper Level: 100

BASIC MICROBIOLOGY

(Paper type: Tutorial)

(Semester: II)

Lecture Hours: 15 h Marks: 20 Credits:1

Evaluation of the students will be done as suggested in the FYUGP, NBU regulation 2024-25.

SUGGESTED READINGS

1. Atlas RM. (1997). Principles of Microbiology. 2nd edition. W.M.T. Brown Publishers.
2. Black JG. (2008). Microbiology: Principles and Explorations. 7th edition. Prentice Hall
3. Madigan MT, and Martinko JM. (2014). Brock Biology of Micro-organisms. 14th edition. Parker J. Prentice Hall International, Inc.
4. Pelczar Jr MJ, Chan ECS, and Krieg NR. (2004). Microbiology. 5th edition Tata McGraw Hill.
5. Srivastava S and Srivastava PS. (2003). Understanding Bacteria. Kluwer Academic Publishers, Dordrecht
6. Stanier RY, Ingraham JL, Wheelis ML and Painter PR. (2005). General Microbiology. 5th edition McMillan.
7. Tortora GJ, Funke BR, and Case CL. (2008). Microbiology: An Introduction. 9th edition Pearson Education.
8. Willey JM, Sherwood LM, and Woolverton CJ. (2013). Prescott's Microbiology. 9th edition. McGraw Hill Higher Education.
9. Cappuccino J and Sherman N. (2010). Microbiology: A Laboratory Manual. 9th edition. Pearson Education Limited