

GUJARAT UNIVERSITY
Syllabus for First Year B. Sc. Semester-1
FROM THE FOLLOWING TWO COURSES ANY ONE HAS TO BE
OFFERED TO THE STUDENTS

Subject: Microbiology (Skill Enhancement Course)

Effective from June-2023

Paper code: SEC-ICM-116

Paper name: Introduction to Compound Microscopy

Credit 2

Learning outcome:

1. Provides basic knowledge of operation and handling of light microscope.
 2. Help to study structure and morphology of cells of microorganisms, fungi, protozoa, algae, plants and animals.
 3. Provides knowledge helpful to work in field of education, forensic science, blood banking, surgical field, medical technology, agriculture, tissue analysis, pollution control, water analysis, soil testing, study of ecosystem, genetic studies, food and dairy technologies.
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Unit:1 Principle, working knowledge and application of compound microscopy (10 hrs)

- A. Introduction to compound microscopy: Structure and function of component parts of compound light microscope.
- B. Fundamental principles of compound light microscopy: magnification, resolving power, numerical aperture, limit of resolution,
- C. Principle, working knowledge, operation and applications of bright-field microscopy and dark-field microscopy

Unit:2 Practical

1. Microscopic examination of curd by wet mounting.
2. Microscopic examination of bacteria: Staphylococci, Bacilli, Spirochetes and Actinomycetes.
3. Microscopic examination of fungi: Yeast and Mucor.
4. Microscopic examination of Algae: Diatoms and Spirogyra.
5. Microscopic examination of Protozoa: Amoeba and Paramecium.

REFERENCE BOOKS:

1. **Microbiology**, Pelczar Jr, M J, Chan, E C S, Krieg N R, (2011) 3rd Reprint, Tata McGraw Hill Education Private Limited, New Delhi, India.
2. **Introduction to Microbiology**, Ingraham, J L, and Ingraham, C L, (2000) 2nd edition, Brooks/Cole, Singapore.
3. **Microbiology: An Introduction**, G. J. Tortola, B. R. Funke, C. L. Case, (2016) 11th edition (Indian edition), Pearson India Education Services Pvt. Ltd., Noida (UP), India.
4. **Principles of Microbiology**, R. M. Atlas, (2015) 2nd Edition (Indian Edition), McGraw Hill.

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Subject: Microbiology (Skill Enhancement Course)
Effective from June-2023
Paper code: SEC-MPHH-116

Paper name: Microbial perspective of health and hygiene

CREDIT: 02

Learning Outcome:

- Provide wider perspective of modern healthcare system and associated health facilities
 - Content of the syllabus covers up Para-medical, Microbiology, social and occupational health aspects
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UNIT: 1 HEALTH STANDARD, HYGIENE AND COMMUNITY HEALTH CONCEPTS (10 Hours)

- A. WHO (World Health Organization) and CDC (Centre for disease control and prevention): Objectives and Role, Overview of healthcare system in India
- B. Epidemiology: Measures for prevention and control of outbreak, Types of vaccines, Immunization Schedule in India, Family planning: Sexuality Education of safe sex, contraceptives and pregnancy risk
- C. Primary, Secondary and Tertiary healthcare: Hand-Washing, Waste water treatment methods and Hospital Acquired immunity & hospital intervention

UNIT: 2 Practical

1. Collection and interpretation of local data on disease prevalence
2. Case study on recent disease outbreak
3. Measurement of body temperature, Heart-beats, pulse rates and blood pressure
4. Microscopic examination of skin flora and air flora and fungi
5. 7 steps of hand washing (according to CDC)

References

1. Gordon Edlin and Eric Golanty (2010) Health & wellness (10th Edition) Jones &Barlett Publisher.
2. Mary-jane Schneider (2014) Introduction to public health (4th Edition) Jones &Barlett Publisher.
3. Skolnik Richard (2012) Global Health 101 (2nd Edition, Riegelman Richard edition) Jones &Barlett Publisher.
4. Prescott, Harley, and Klein's MICROBIOLOGY, Joanne M.Willey, Linda M.Sherwood, ChristopherJ. Woolverton, McGraw-Hill Publication (Ninth Edition)