

# ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

Time: 4 Hrs/Week

MICROBIOLOGY

Max. Marks: 100

**OBJECTIVES:** To enable students to:

- know about the microbes in the environment, their general characteristics and classification
- have information about a few common infectious diseases

**COURSE:**

**UNIT – I: Beneficial and harmful activities of micro organisms.**

General Classification and characteristics of bacteria, moulds, yeasts and viruses- morphology, nutrition, reproduction.

**UNIT – II: Chemical products of Bacteria –** Enzymes, pigments, toxins and antibiotics. Micro-organisms in fermentation and decay.

**UNIT – III: Microbiology of Environment-** Study of microbes in Water, Air, and Sewage. Sterilization and Disinfections – physical and chemical methods.

**UNIT – IV: Microbiology Pathogenicity:**

Microorganisms and Health – Sources of infection – Disease transmission – Immunity – Types of immunity – Active and passive.

**UNIT – V: Bacterial Diseases** An elementary knowledge of the signs and symptoms, sources of infection, mode of transmission, and prevention of bacterial diseases.

- I. Bacterial diseases – Staphylococcal infections, Pneumonia Meningitis, Diphtheria, Leprosy, Tetanus, Botulism, Gastro intestinal infections and Diseases.
- II. Sexually Transmitted Diseases.
- III. Viral diseases – Chickenpox, Encephalitis, German measles, Mumps, Poliomyelitis, Rabies, Measles, influenza and common cold, Hepatitis.
- IV. Chemotherapy & antibiotics.

**SUGGESTED REFERENCES:**

1. Fundamental principles of Bacteriology (1974) A.J.Salle.Mc.Graw Hill Publications, New Delhi.
2. Bacteriology (1961) – R.E.Buchanna and E.D.Buchanan. Mac Millan Publishers, New Delhi.
3. Fair brother's Text book of Bacteriology – (1964) Ed.R.L.Vollum, D.G.Jamieson and C.S.Cummins William Heinemann, New York.
4. Microbiology (2000) – A.K.Joshua. Popular Book Depot, Chennai.
5. Food Microbiology (1995) – W.G.Frazier, McGraw Hill Publications, New Delhi.
6. Food Microbiology (2005) – R. Ananthanarayan and C.K.Jayaram Orient Longmans, Hyderabad.
7. Microbiology – M.J.Pelczar, R.D Reid and Scham (1993) TATA McGraw Hill Publications, New Delhi.

**ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM**

**Time: 2 Hrs/Week**

**MICROBIOLOGY  
PRACTICALS**

**Max. Marks: 50**

**OBJECTIVES:** To enable students to:

- Learn the use of Microscope
- Acquire the skill of staining microorganisms to study them better
- Culture bacteria
- Appreciate and become aware of the extensive microbial population in the environment

**COURSE:**

**UNIT – I:** a. Use and care of Microscope.  
b. Microscopic examination of bacteria yeasts and moulds.

**UNIT – II:** Hanging drop preparation to observe motility of microorganisms.

**UNIT – III:** Staining Techniques –  
i. Simple stains  
ii. Grams staining  
iii. Ziehl Neelson's staining

**UNIT – IV:** a. Bacterial cultivation – preparation, distribution and sterilization of media – Nutrient Broth, Nutrient Agar.  
b. Bacteriological examination of water, milk, curds, soil and utensils.

**UNIT – V:** Visits to dairy farm, Water works and other intuitions of related interest.

**SUGGESTED REFERENCES:**

1. Microbes in Action - Seeley and Vandemark
2. Microbiology - A.K.Joshua
3. Food Microbiology - W.G.Frazier

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