Course Code	Course Title	C	H	I	E	T
17U6ZMC8	Microbiology and Immunology	5	5	25	75	100

Objectives

- ❖ To learn the importance of microbiology and immunology.
- ❖ To study the role of immune system in animal.
- ❖ To study the growth of microbes and their role in human.

LEARNING OUTCOME

1. Create awareness in microbiology and immunology
2. Helps in identifying the nature of living beings
3. Motivates the students to be placed in research and chemical laboratories

Unit-I

History and Scope of Microbiology, Whittaker's Five Kingdom Concept, Structure of typical bacterium, Virus (T_4phage) and Yeast. Sterilization and disinfection – Autoclave and Laminar air flow, Bacteria - culture, Nutritional requirements, Types, Culture media, growth curve, enumeration and storage.

Unit-II

Dairy Microbiology: Pasteurization, Milk products: Curd and Cheese. Food Microbiology: Food spoilage of meat and fishes. Physico-chemical methods in food preservation, Soil Microbiology: Biological nitrogen fixation - types and mechanism. Water Microbiology: Coli form bacteria, MPN and Estimation of Total Plate Count.

Unit –III

Medical Microbiology: Causative organisms, mode of transmission. pathogenicity, symptoms and their preventive measures of Bacterial diseases (Cholera, Tuberculosis and Typhoid) and Viral diseases (Hepatitis, Polio, Swine flu, Rabies and AIDS).

Unit-IV

Immune System: Types of Immunity – Innate, Acquired Immunity - passive and active; Lymphoid organs - Primary and Secondary Organs (Spleen and Lymphnode); Lymphocytes – T & B Cells; antigens and antibodies – definition, Types of Immunoglobulin, structure, and functions.

Unit-V

Immune Response: Humoral and Cell Mediated Immunity; Complement - Mode of Activation, Classical and Alternate Pathway; Antigen – Antibody reactions. Principles of vaccination and immunization schedule – routes of administration, Immunological techniques: ABO blood testing, Immunoelectrophoresis.

Text books

1. Ananthanarayanan, R & Jayaram Panicker, CK. 1990. Text Book of Microbiology. Orient Longman.
2. Chakravarthy, A. K. 1996. Immunology. Tata Mc Graw, New Delhi.

Reference Books

1. Sharma, P. D. 1998. Microbiology, Rastogi Publications.
2. Pelczer, M. J (2000) Microbiology. McGraw Hill Book Company, Chennai.
3. Meena Kumari, S 2005, Microbial Physiology. M.J.P Publishers, Chennai.
4. Vijaya Ramesh, K. 2005. Environmental Microbiology. MJP Publishers, Chennai.