

**DEPARTMENT OF MICROBIOLOGY
CROSS FACULTY COURSE
SYLLABUS
2019-2020**

**SEMESTER IV
INFECTIOUS DISEASES: STAYING AHEAD**

**COURSE: SPC0401
45 LECTURES**

LEARNING OBJECTIVES:

- Understand the basic principles and practices involved in the study of Infectious Diseases
- Understand the fundamental mechanisms underlying protective immunity, vaccines and chemotherapy

UNIT 1: INTRODUCTION TO INFECTIOUS DISEASES - 15 lectures

- History of infectious diseases
- Introduction to the microscopic world
Bacteria, Fungi, Protozoa, Viruses
Cultivation of bacteria and viruses
Gram stain
- Infectious disease cycle- an overview
The causative agent, source or reservoir of the pathogen, modes of transmission, portals of entry, infectious dose, adherence and portals of exit

UNIT 2: INNATE IMMUNITY, VACCINES AND CHEMOTHERAPY -15 lectures

- Host defenses –overview and nonspecific defenses
Innate and adaptive immunity
First line of defense
Second line of defense
- Vaccines
Passive and active immunization
Principles and effects of vaccination
- Antimicrobial Chemotherapy
Principles of antimicrobial therapy
Mechanisms of drug action
Drug resistance and its significance

UNIT 3: STUDY OF INFECTIOUS DISEASES -15 lectures

- Classifying Infectious Diseases
 - Occurrence- sporadic, endemic, epidemic, pandemic
 - Severity or duration of disease- acute, chronic, sub acute, latent
 - Extent of host involvement-local infection, systemic infection, focal infection etc
- Development of Disease
 - Stages of Disease- incubation period, prodromal period, period of illness, period of decline, period of convalescence
- Germ theory of disease –Koch's postulates
- Microbial mechanisms of pathogenicity- penetration of host defenses, damage to host cells.
- Study of some infectious diseases- Influenza/Covid-19, TB
- Emerging and re-emerging infections -
- Nosocomial infections

References: -

1. Foundations in Microbiology, Kathleen Park Talaro, 7th edition, McGraw Hill
2. Prescott, Harley, Klein's Microbiology, Wiley, Sherwood, Woolverton, 7th edition, McGraw Hill
3. Microbiology, an Introduction, Tortora, Funke, Case, 10th edition, Pearson Education