

**PG DMLT Semester II**
**Subject Name: Medical Microbiology (MM)**
**Subject Code: 02ML0201**

**Objective:** To provide deep insights to students regarding basic and applied concepts of identification and management of microbial pathogens.

**Credits Earned:** 4 Credits

**Course Outcomes: After the completion of the course:**

1. Students will be able to distinguish and differentiate the structures of various viruses, their infection mechanisms and treatment.
2. Students will develop deep insights regarding specific and differential tests used for identification of bacterial pathogens in clinical samples.
3. Students will gain knowledge regarding basic fungal classification, etiology of fungal diseases and their treatment.
4. Students will become well versed with the pathogenesis and diagnosis of various parasites.

**Pre-requisite of course:** Basic knowledge of Microbiology.

**Teaching and Examination Scheme**

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Practical/ TW	
4	0	0	4	50	30	20	0	0	100

**Contents:**

Unit	Topics	Contact Hours
1	<b>Viral Pathogens</b> Classification of DNA and RNA Virus, Viroids, Prions, Bacteriophage; Common viral infections: HIV, Hepatitis virus, Poxvirus, Poliovirus, Influenza virus, Dengue virus, Covid-19 virus, Mumps, Measles, Herpes virus, Rubella, Respiratory syncytial, Arbovirus prevalent in India, Cytomegalovirus, Prevention & treatment of viral infections.	15
2	<b>Bacterial Pathogens</b> Notable bacterial pathogens and their pathogenesis: <i>Enterobacteriaceae</i> , <i>Treponema</i> , <i>Brucella</i> , <i>Clostridium</i> , <i>Salmonella</i> . Serodiagnosis of bacterial infections such as Enteric fever – Widal test, Syphilis – STS- VDRL Test, RPR, Treponemal tests-TPHA, TPI, FTA-ABS, Streptococcal infections-ASO Test, Anti DNAase B, Antihyaluronidase test, Brucellosis, Rickettsial fever, Primary atypical pneumonia, Weil Felix test.	15
3	<b>Fungal Pathogens</b> Meaning and definition of fungi - Classification of fungi, Zygomycetes, Basidiomycetes, Ascomycetes, Deuteromycetes, Morphology, characteristics and structure of fungi; Fungal diseases - Classification of fungal diseases, Laboratory diagnosis and treatment, Opportunistic mycoses, Candidiasis, Pneumocystis Pneumonia, Antifungal agents. Skin tests in mycology - Histoplasmin Skin Test, <i>Candida</i> Skin Test, Limitation of Skin Test.	15
4	<b>Parasitic Pathogens</b> Pathogenesis and diagnosis of Protozoa: <i>E. histolytica</i> , <i>Plasmodium spp.</i> Pathogenesis and diagnosis of Helminth: <i>A. lumbricoids</i> , <i>A. deodenali</i> , <i>W. bancrofti</i> , <i>E. vermicularis</i> .	15
	<b>Total Hours</b>	<b>60</b>



**References:**

1. Chernecky, Cynthia C., and Barbara J. Berger. Laboratory Tests and Diagnostic Procedures, 3rd ed. Philadelphia, PA: W.B. Saunders Company, 2001.
2. B. Bauman, R. (2004) Microbiology. Pearson Benjamin Cummings.
3. Medical Microbiology - David green Wood, Slack Pentherer
4. Mackie & Macartney practical medical Microbiology - Colle. Fraser, Marmion, Simmons
5. Text Book of Microbiology: Ananthanarayanan & Jayaram Paniker

**Suggested Theory distribution:**

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
25%	25%	25%	15%	10%	0%

**Instructional Method:**

- a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, etc.
- b. The internal evaluation will be done on the basis of continuous evaluation of students in the class-room in the form of attendance, assignments, verbal interactions etc.
- c. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.