Course Overview

Microbiology

Course code :	LMT305
Course title:	**Microbiology**
Level/semester:	**Third Semester**
PRECEDING COURSES	**Principles of Microbiology**
Credit hours: 4	**Theoretical:** 3
	Practical: 2

Course Title : Medical Microbiology (theory)

UNIT	CONTENTS	HOURS
1	Microbes & Their Impact to Human Health -Pathogenic & non-pathogenic bacteria. -Diversity of pathogenic bacteria. -Impact of pathogenic bacteria on humans.	4
2	Micrococcaceae -Staphylococci. -Stomatococci. -Micrococci	6
3	Streptococci & Related Genera -β-hemolytic streptococci. -α-hemolytic streptococci . -Enterococcus sp.	6
4	Aerobic Gram-Negative Cocci -Neisseria sp. -Moraxella catarrhalis	4
5	Enterobacteriaceae and Related Genera -Salmonella sp. -Shigella sp. -Escherichia coli. -Yersenia sp.	4
6	Non Fermentative Gram-Negative Bacilli	4

	-Pseudomonas spp. -Acinetobacter sp.	
7	Gram-Negative Facultative Anaerobic Bacilli -Brucella. -Haemophilus sp. -Bordetella pertusis. -Yersenia sp	6
8	Vibrionaceae	2
9	Anaerobic & Aerobic Gram-Positive Spore Forming Bacilli -Clostridium sp. -Bacillus sp.	2
10	Aerobic Gram-Positive Non- Spore Forming Bacilli -Corynebacterium sp.	2
11	Spirochetes -Treponema. -Borrelia. -Leptospira.	5

Course Title : Medical Microbiology (Practical)

UNIT	CONTENTS	HOURS
1	Safety Rules and General Instructions	2
2	Use and Preparation of Selective and Differential Media - Mannitol salt agar. - Blood agar. - Chocolate agar. - Sabouraud agar. - MacConkey agar. - Mueller-Hinton agar. - Eosin-methylene blue agar (Levine). - Phenylethyl alcohol agar. - Nutrient agar.	5
3	Collection and Transport of Clinical Samples and Normal Body Flora - Skin. - Ears.	4

	- Upper respiratory tract (nasal swabs and throat swabs). - Lower respiratory tract (sputum). - Alimentary tract (faeces). - Urinary tract (urine).	
4	Bacterial Staining - Simple staining. - Gram stain. - Acid-fast stain (Ziehl-Neelsen method). - Spore stain (Schaeffer-Fulton method). - Capsule stain.	10
5	Biochemical Activities of Microorganisms - Extracellular enzymatic activity (hydrolysis of starch, lipids, casein, and gelatin). - Carbohydrate fermentation (glucose and sucrose broths and triple-sugar-iron agar). - IMViC test (indole production, methyl red, VogusProskauer, and citrate utilization). - Hydrogen sulfide-indole-motility test (SIM agar). - Enzymes (urease, nitrate reductase, catalase, and oxidase). - Litmus milk reactions (lactose fermentation, gas production, litmus reduction, curd formation, proteolysis, and alkaline reaction).	2
6	Genus & Species Identification of Unknown Bacteria - API test. - Unknown bacterial isolate is to be identified by students and results are provided in a report at the end of the semester.	4
7	Antimicrobial Tests - Kirby-Bauer antimicrobial susceptibility test. - Synergistic effect of drug combinations	5