1. Medical Bacteriology II

Department	**Department of Medical Laboratory Sciences**						
Course Title /Code	**Medical bacteriology II (MeLS3162)**						
Program/Target Group	BSc Degree in Medical Laboratory Sciences Year: __III___ Semester: _II_____						
Module Title (Code)	Medical Microbiology (MeLSM3169)						
Module Coordinator	Name						
Course EtCTS	7 EtCTS						
Course Information	Academic Year: 2007 Meeting Day _____ Meeting Time_____ Meeting Location: Class Room_____ Lab Room _____						
Instructor's Name	_____ _____						
Instructor's Contact Information	Office No._____ Phone No._____ (phone calls shall be during the working hours) E-mail _____ Office Hour _____						
EtCTS	7 CP/ 189 Hrs.						
Student Work Load	Lecture	Lab Practice	Tutorial	Independent Study	Assignment	Assessment	Total
	48Hrs.	45Hrs.	8Hrs.	70 Hrs.	08hrs	10 Hrs.	189 Hrs.
Course Description	This course describes methods of collection, transportation and processing of clinical samples and examination of medically important pathogenic bacteria (Gram positive cocci; gram positive rods, Gram negative cocci; Gram negative coccobacilli; Enterobacteriace, other gram negative rods; Spirochates; Chlamydiae; Mycobacterium; Rickettsiae; Mycoplasma and other miscellaneous bacteria). It illustrates srategies in laboratory diagnosis of infective syndromes (the investigation of gastrointestinal infections, Urinary tract infections, wound infections, respiratory infections, Sexually transmitted diseases, meningitis and miscellaneous infections) and Quality Assurance in Bacteriology laboratory.						

Course Objectives	**General Objective:** • At the end of this course, students will be able to discuss medically important bacteria (general characteristics, virulence factors, clinical manifestations, laboratory diagnosis, prevention and control); perform clinical specimen collection, processing and examination; identify bacterial pathogens; report laboratory results and ensure its quality and maintain laboratory safety throughout diagnosis and follow up of patients**.** **Instructional Objectives** **Knowledge** • Describe types of specimens used for bacteriological analysis • List the medically-important species of bacteria • Identify diseases caused by medically important bacterial species • Describe the virulent factors of pathogenic species • Discuss the common pathogenic bacteria species(pathogenicity, clinical manifestations, laboratory diagnosis, prevention & controlling methods) **Skill** • Perform collection, transportation, & storage of clinical specimen; • Perform clinical specimens processing, examination and identify bacterial pathogens • Follow safety rules and standard operational procedures in order to ensure quality in bacteriology laboratory **Attitude** • Develop the habit of working together in bacteriology laboratory practices. • Punctual and honest to the his team mates, team player
Pre-requisite(s)	**Medical Bacteriology I (MeLS3161)**
Course Status	Core
Mode of Delivery	Block
Schedule	

Days	Contact Hour	Topics and Sub Topics	References (Number)
Day 1	4 Hr.	**Lecture:** 1. **Introduction** 1.1. Types of specimen for bacterial analysis Specimen collection 1.2. Transportation 1.3. Storage 1.4. examination of clinical specimens	**1&7**
	4hr	**Lab:** Preparation of materials for specimen collection	
	4hr	**Independent study**:	
Day 2	4 hr	**Lecture** **2. Medically important bacteria** 2.1. General characteristics 2.2. Virulent factors 2.3. Pathogenecity and clinical manifestations 2.4. Lab diagnosis Prevention & control	**2,8&3**
	4hr	**Lab:** specimen collection, transportation and storage	
	4hr	**Independent study :**	
Day 3	4hr	**Lecture** **3. Pathogenic gram Positive cocci** 3.1. staphylococci 3.2. Streptococci 3.3. micrococci 3.4. Enterococci	**2&5**
	3hr	**Lab:** media preparation and inoculation gram positive cocci	
	1hr	**Assessment:** Exam one	
	4hr	**Independent study:**	

Day 4	4hr	**Lecture** **4. Gram-positive rods** 4.1. Bacillus 4.2. Clostridium 4.3. Listeria 4.4. Corynebacteria	**9&10**
	4hr	Lab: • **Identification of gram positive cocci** • **Media preparation and inoculation of gram positive rods**	
	4hr	**Independent study:**	
Day 5	4 hr	**Lecture** **5. Pathogenic gram negative cocci** 5.1. Neisseria 5.2. Moraxella	**5**
		Assignment to be given *	
	3hr	Lab: • **Identification of gram positive rods** • **media preparation and inoculation of gram negative cocci**	
	2hr	**Assessment:** Exam two	
	3 hr	**Independent study:**	
Day 6	4hr	**Lecture:** **6. Pathogenic gram negative coccobacilli** 6.1. Haemophilus 6.2. Brucella 6.3. Bordetella	**5&10**
	3hr	Lab: • **Identification of gram negative cocci**	
	3hr	**Independent study:**	

Day 7	4hr	**7. Gram negative rods** 7.1. **Enterobacteriaceae** 7.1.1. characteristics of enterobacteriaceae 7.1.2. Escherichia coli 7.1.3. Klebsiella	**2,5**
	4hr	Lab: • **Media preparation and inoculation of gram negative rods *(E. coli,* Shigella, salmonella etc)**	
	3hr	**Independent study:**	
Day 8	4hr	**Lecture** 7.1.4. Citrobacter 7.1.5. Entrobacter 7.1.6. Proteus 7.1.7. Serratia 7.1.8. Yersinia	**2&5**
	3hr	Lab: • **Colony characteristics and biochemical inoculation gram negative rods**	
	3hr	**Independent study:**	
Day 9	3hr	**Lecture** 7.1.9. Salmonella 7.1.10. Shigella	**2&5**
	4hr	Lab: **identification and AST of gram negative rods**	
	3hr	**Independent study:**	
Day 10	3hr	**Lecture** **8. Other gram-negative rods** 8.1. The Pseudomonas 8.2. Vibrio species 8.3. Campylobacter	**2&3**

		8.4. Helicobacter	
	4hr	Lab: • **AST reading and reporting of gram positive rods**	
	2hr	**Independent study:**	
	2hr	**Assessment** :Exam three	
Day 11	3hrs	**Lecture:** **9. Mycobacterium** 9.1. M. tuberculosis complex 9.2. M leprae	**10**
	3hr	Lab: **AFS of sputum** **Inoculation of wound specimen**	
	4hr	**Independent study:**	
Day 12	4hrs	**Lecture** **10. Miscellaneous** 10.1. Chlamydia 10.2. Mycoplasma 10.3. Legionella 10.4. Rickettsia	
	-	**Assignment submission**	
	3hr	**Lab:** • Colony characteristics and biochemical test	
	5hr	**Independent study:**	
Day 13	3hrs	**Lecture** **11. Quality Assurance in Bacteriology** 11.1. Pre-analytical quality assurance 11.2. Analytical quality assurance 11.3. Post-analytical quality assurance	**3&9**
	3hr	**Lab:**	

		• Identification and AST	
	6hr	**Independent study:**	
Day 14	8hrs	Tutorial (practical and theory)	
	4hr	**Independent study**	
Day 15	12	**Independent study**	
Day 16	7 hrs	**Independent study**	
	(2+3) hr	**Final exam (practical + theory)**	

Teaching and Learning Methods

- Lecture/Classroom contact
- Presentation and group discussion
- Computer assisted instruction
- Laboratory practical

Assessment	**Type and Weight (Percentage)** Exam I ……10% Exam II……10% Assignment …… 10% Exam III……...10% Lab. Report……...…..10% Final Examination (theory 40% and practical 10%)	**Competence to be assessed** • Identify appropriate specimen • Proper storage of specimen • Maintain the quality of specimen • Describe the pathogenesis and clinical manifestation of pathogenic bacteria • Technical skill in the Lab diagnosis of bacteria • Isolate pathogenic bacteria. • Practice under safety and quality principles
Course Policy	• Refer the modularized medical laboratory sciences curriculum on page _____	
Reference (s)	**Required texts:** 1. Cheesbrough, M. (1998) District Laboratory Practice in Tropical Countries. Part 2 Cambridge University Press. 2. B. Patrick Murray, Ken S. Rosenthal, Michael A. Pfaller. (2005) Medical Microbiology 5th edition	

	3. Baron S (2000) Medical Microbiology 4th edition. 4. Abilo T., Meseret A. Medical Bacteriology Lecture note for Medical Laboratory Technology Students (2006). 5. Jawetz, Melnick, & Adelberg's Medical Microbiology, 24th Edition 6. WHO, Basic laboratory procedures in clinical bacteriology 2003 7. Mackie Mackartney , Practical Medical microbiology 5th ed. 8. Green wood , medical microbiology , 20Th ed 9. Champ's medical microbiology 10. Sheris' Medical microbiology
Approval Section	Name of Module Coordinator/Course team leader: _____ Signature _____Date:_____ Name of School/Department head_____ Signature _____Date:_____