

1. Medical Mycology

Department	Department of Medical Laboratory Sciences						
Course Title /Code	Medical Mycology (MeLS3163)						
Program/Target Group	BSc Degree in Medical Laboratory Sciences Year: III Semester: II						
Module Title (Code)	Medical Microbiology (MeLSM3169)						
Module Coordinator	Name						
Course EtCTS	5 EtCTS						
Course Information	Academic Year _____ 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	5 CP/ 135 Hrs.						
Student Work Load	Lecture	Lab Practice	Tutorial	Independent Study	Assignment	Assessment	Total
	32 Hrs.	48 Hrs.	4 Hrs.	32 Hrs.	9 Hrs.	10 Hrs.	135Hrs.
Pre-requisite(s)	None						
Course Status	Core						
Mode of delivery	Block						

Course Description	<p>The course will encompass introduction to medical mycology; Classification of fungi; morphological features of fungi (mycelium, spores, yeasts, etc); superficial mycoses; cutaneous mycoses; subcutaneous and systemic mycoses ; opportunistic fungal infections; microscopic, cultural, biochemical and serological tests used in the isolation of fungal pathogens in clinical specimens, antifungal agents and quality Assurance in Medical Mycology.</p>
Course Objective	<p>General Objective</p> <p>Upon completion of the course, students will be able to describe characteristics of fungi, laboratory diagnosis, fungal disease and antifungal agent and perform laboratory diagnosis of fungal infection.</p> <p>Instructional Objectives</p> <p>At the end of this course, students will be able to:</p> <p>Knowledge</p> <ul style="list-style-type: none"> • define Medical mycology • describe the general characteristics of fungi • explain the morphology of fungus • discuss classification of fungi • describe ecology of fungi • list the diseases and their predisposing factors of fungi • discuss collection, transportation and processing of fungal specimens • describe laboratory diagnosis of fungal infection • explain the etiological agents, epidemiology, mode of transmission, pathogenesis clinical picture and laboratory diagnosis of mycoses • describe the commonly used antifungal agents and their mode of actions • discuss Quality Assurance in mycology laboratory • describe safety in mycology laboratory <p>Skill</p> <ul style="list-style-type: none"> • perform KOH examination of skin, hair, or nail scrapings • perform Indian ink examination for fungi

	<ul style="list-style-type: none"> • prepare fungal culture media • practice inoculation, incubation, reading and interpretation of fungal culture media • perform biochemical tests for identification of fungi based on SOPs • perform Slide culture technique based on SOPs • perform germ tube test based on SOPs <p>Attitude</p> <ul style="list-style-type: none"> • comply with laboratory quality control in mycology laboratory
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Schedule

Days	Contact hours	Topics and sub topics	Reference (Number)
Day 1	3 hrs	<ul style="list-style-type: none"> • Introduction <ul style="list-style-type: none"> .1 Introduction to Medical mycology .2 General characteristics of fungi .3 Morphology of fungi (Mold, Yeast and dimorphism). .4 Classification of fungi .5 Ecology of fungi .6 overview of fungal diseases .7 predisposing factor 	1 & 5
	4 hrs	Laboratory: <ul style="list-style-type: none"> • Demonstration of lab. materials and equipment 	
	3 hrs	Assignment I (presentation etc)	
	2 hrs	Independent study	

Day 2	3 hrs	<ul style="list-style-type: none"> Laboratory Diagnosis of Fungal Infection <ol style="list-style-type: none"> 1 Mycological specimen 2 Collection, transportation & processing of mycological specimens 3 Examination methods (biochemical, serological) and Lab safety 	1, 4 & 5
	4 hrs	Laboratory: <ul style="list-style-type: none"> • Specimen collection and transportation 	
	3 hrs	Independent study	
Day 3	3 hrs	<ul style="list-style-type: none"> Superficial mycoses <ol style="list-style-type: none"> 1 Tinea versicolor 2 Tinea nigra 3 Piedra 	2 & 3
	4 hrs	Laboratory: <ul style="list-style-type: none"> • Perform saline wet mount 	
	1 hrs	Assessment (Exam I, lab. report)	
	3 hrs	Independent study	
Day 4	3 hrs	<ul style="list-style-type: none"> Cutaneous mycoses: <ol style="list-style-type: none"> 1 Tinea capitis 2 Tinea pedis 3 Tinea corporis 4 Tinea cruris 5 Tinea barbae 6 Tinea unguium 7 Tinea favosa 	2 & 3

	4 hrs	Laboratory: <ul style="list-style-type: none"> Perform KOH and Indian ink preparation 	
	3 hrs	Assignment II	
	2 hrs	Independent study	
Day 5	3 hrs	<ul style="list-style-type: none"> Subcutaneous mycoses: <ol style="list-style-type: none"> Sporotrichosis Mucormycosis Phaeohyphomycosis 	2, 3 & 4
	4 hrs	Laboratory: Perform gram stain and giemsa stain	
	3 hrs	Independent study	
Day 6	3 hrs	Subcutaneous mycoses cont'd.. <ol style="list-style-type: none"> Chromoblastomycosis Rhinosporidiosis 	3 & 4
	4 hrs	Laboratory <ul style="list-style-type: none"> Preparation of Media used for fungal agents 	
	2 hrs	Assessment (lab. report, Exam II)	
	3 hrs	Independent study	
Day 7	3 hrs	<ul style="list-style-type: none"> Systemic mycoses <ol style="list-style-type: none"> Histoplasmosis Blastomycosis 	3 & 5
	4 hrs	Laboratory: <ul style="list-style-type: none"> Practice inoculation, incubation, reading and interpretation of fungal culture media 	
	1 hrs	Assessment (lab. report)	
	3 hrs	Assignment III	

	1 hrs	Independent study	
Day 8	3 hrs	Systemic mycoses cont'd.. .3 Coccidioidomycosis .4 Paracoccidioidomycosis	2 & 4
	6 hrs	Laboratory: Perform biochemical tests for identification of fungi based on SOPs	
	1 hr	Assessment (Exam III)	
	2 hrs	Independent study	
Day 9	3 hrs	• Opportunistic Mycoses .1 Candidiasis .2 Cryptococcosis	3 & 4
	4 hrs	Laboratory Perform germ tube test based on SOPs Perform Indian ink preparation	
	3 hrs	Independent study	
Day 10	3 hrs	Opportunistic mycosis cont.... .3 Pneumocystis carinii, .4 Zygomycosis .5 Aspergillosis	4 & 5
	4 hrs	Laboratory: • Perform Slide culture technique and germ tube test based on SOPs	
	1 hrs	Assessment (lab. report)	
	2 hrs	Independent study	
Day 11	3 hrs	• Antifungal Agents & Quality Assurance in Medical Mycology	3 & 5
	4 hrs	Laboratory • Perform slide culture and germ tube test	
	3 hrs	Independent study	

Day 12	4 hrs	Tutorial	
	6 hrs	Independent study	
Day 13	6 hrs	Final Exam (theoretical and practical exam)	
Teaching and learning methods			
<div><div>Interactive lecture</div><div>Case study</div><div>Brain storming</div><div>Demonstration</div><div>Group discussion</div><div>Laboratory practice</div><div>Video / animation</div><div>Presentation</div></div>			
Assessment method	Type and Weight (Percentage) <ul style="list-style-type: none">Exam one 10%Exam two 10%Exam three 10%Assignment 5% Laboratory report 15%		Competence to be assessed: <ul style="list-style-type: none">General characteristics of fungiCollection, transportation and processing of fungal specimensLaboratory diagnosis of fungal infectionDescription of the different etiological agents of fungal diseases (mycosis) (superficial, cutaneous, subcutaneous, systemic and opportunistic) and their laboratory diagnosisUsage of antifungal agents, drug resistance and their mode of actionsQuality assurance and safety of mycology laboratory

Course Policy	<ul style="list-style-type: none"> • Refer the national modular curriculum on page No _____
	<p>Learning Materials</p> <ul style="list-style-type: none"> • Printed Materials (Textbooks, hand out, Manual, Checklist) • Chalk & Board • LCD, Laptop, Flip chart • Microscope • Different staining regents and culture medias • Different size Petridishs <p>Reference books:</p> <ol style="list-style-type: none"> 1. Evans and et al.1985.Essentionls of medical Mycology 2. Lennet et al. 1985.Manual of Clinical Microbiology 3. Dismukes, Pappus and Sobel. 2003. Clinical Mycology. 4. Jawetz, Melnick, & Adelberg's Medical Microbiology, 24th ed. 5. Nigussie D. mycology lecture note
Approval Section	<p>Name of Module Coordinator/Course team leader: _____</p> <p>Signature _____ Date:_____</p> <p>Name of School/Department head_____</p> <p>Signature _____ Date:_____</p>