PROGRAMME SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme Title & Code	- Programme for Postgraduate master degree of Medical Microbiology and Immunology - **Code: MIC500**
(2) Final award/degree	Master degree of Microbiology & Medical immunology
(3) Department (s)	Medical Microbiology and Immunology
(4) Coordinator	Dr. **Heba El Degla** **Dr Ghada Barakat**
(5) External evaluator (s)	**Dr. Mohammed Saleh**
(6) Date of approval by the Department`s council	7/8/2016
(7) Date of last approval of programme specification by Faculty council	9/8/2016

(B) Professional information

(1) Programme Aims:

The broad aims of the Programme are as follows:

The overall aim of the program is

1. **To provide our candidate with** basic knowledge and practical skills for preventive medicine, basic biochemistry , parasitic infections and environmental medicine
2. To prepare our candidate to acquire rationale of disease development and their relation to infectious agents
3. To prepare our candidate to acquire basic and advanced understanding of immune system in health and disease
4. To gain knowledge and understanding of basics and advanced genetics
5. To prepare our candidate to acquire competencies, practical skills and application relevant to microbiology, molecular biology and immunology
6. To prepare our candidate to acquire information and be ready to practice infection control in hospitals

(2) Intended Learning Outcomes (ILOs):

Intended learning outcomes (ILOs); Are four main categories: knowledge & understanding to be gained, intellectual qualities, professional/practical and transferable skills.

On successful completion of the programme, the candidate will be able to:

A- Knowledge and Understanding

A1- Recognize microbiology of soil, water, air, food and sewage and the microorganisms involved in nutrient cycling.

A.2- Describe how hospital environment services provided .

A3- Describe the morphological characteristics, life cycles, clinical presentation and diagnosis of medically important Helminths, Protozoa and Arthropods.

A4 - Explain host-parasite interaction, antiparasitic and preventive measures

A 5- recognize Carbohydrate and protein metabolism

A6- Recognize the basic structure of nucleic acids, mechanism of DNA replication and protein synthesis

Knowledge and Understanding (continued….)

A7- Describe the epidemiolgy and determinants of communicable and non communicable life threatening illnesses affecting the body, presenting throughout the age spectrum and their control .

A8- Recognize the principles of disease surveillance and screening

A9 - Describe the general features of bacteria, classification antigenic structure, metabolism, their virulence factors and pathogenesis and diagnosis and antibacterial agents mechanisms of action, and mechanisms of antimicrobial drug resistance

A10- Recognize the types of mutation, DNA repair mechanisms and the methods of gene transfer among bacteria.

A11-Recognize the immune response mechanisms include adaptive and innate immune mechanisms and altered immune mechanisms.

A12- Outline the general properties, pathogenesis and clinical manifestation of opportunistic and pathogenic fungi and important antifungal agents, their classes and modes of action

A 13- Recognize the principles of hospital acquired infection and different policies applied for prevention.

A 14- Describe the structure, classification, replication cycle, pathogenesis, diagnosis of viruses and antivirals against them.

A15- list the diseases caused by scaffold viruses.

A 16-Point up the viral virulence factors and horizontal gene transfer and viral vaccine.

A 17 -Recognize Fungi causing invasive fungal infection and hematogenous disseminated fungal infection.

A18 - Recognize fungal mycotoxines.

A19- Discuss antibiotic stewardship and sterilization and disinfection policies in hospital and microbiology laboratory.

A20- Describe the pre and post-employment management.

A 21- recognize the basics of viral and fungal genetics.

A 22-outline the different PCR varieties, blotting techniques : their advances and applications

A 23- Outline new solutions for the end of era of antibiotics

A24- Recognize new emerging and reemerging pathogens human microbiota and bacteria used as bioterrorism agents .

A25 To describe the apoptosis, its mechanisms and its role in health and disease.

A 26 To recognize the mucosal immune system, its components and their vaccines

C- Professional/practical skill

C1- perform tests required for water, food, milk and air examination.
C2- perform required microbiological examinations of food handlers to ensure being free of infections with proper reporting.

C 3- Identify parasites, their different stages or their body parts and write efficient report .
C4- Identify laboratory reagents and instruments used in biochemistry laboratory with evaluation of the released report.
C5- Test of some blood parametars and Urine analysis

C6- Adopt suitable measures for prevention and control of communicable and non-communicable diseases.
C7- Utilize communication skills and health education messages in caring of patients and apply appropriate infection prevention practices/ universal precautions
C8- Practice laboratory techniques that ensure proper diagnosis of infectious agents and detection of specific antimicrobial.
C9- Operate laboratory equipments and their Quality control
C10- Collect specimens for Microbiological investigations such as blood, urine, throat swab, rectal swab, stool, pus
C11- Test the efficiency of disinfectants with appropriate report.
C12- Perform immunodiagnostic techniques eg. . serological tests, immunofluorescence
C13-perform plasmid, DNA extraction and PCR technique .
C14- Culture and identify pathogenic yeasts and moulds and recognize common laboratory contaminants
C15- Collaborate on immunization and develop screening programs for health care workers
C16- Participate in antimicrobial monitoring and evaluation.
C17- Apply clinical and microbiological parameters for identification of hospital acquired infections and report.
C18- Perform surveillance studies using risk stratification
C19- Initiate and discontinue isolation precautions when indicated.
C20-Implement evidence based IC guidelines for specific patient care settings, risky procedures, and common hospital acquired infections.
C 21- Prepare glassware for tissue culture(washing, sterilization) and culture of clinical specimens for isolation of viruses

D- Communication & Transferable skills

D1- Effectively utilize the library and computer resources to access and search for information.

D2- Develop effective teaching skills by teaching junior colleagues and students as well as through conference presentations.

D3- Search midline data base for other diagnostic approaches in microbiology.

D4- Work in a team in the laboratory

D5- Utilize problem solving skills in practical situations.

D6- Report the facts using printable sheets in the field of microbiology

D7- Supervise collection, safe handling and processing of all routine specimens received in the laboratory

D8- Develop a sense of the continuity of identification of specimens from collection, through culture and further testing to the issuing of a final report.

D9- Participate in multidisciplinary quality/performance improvement strategies.

D10- Use information and communication technology effectively in self learning

D 11- Work in a multidisciplinary team to solve community parasite problems.

D12- communicate with health authorities and who as regards exotic and newly emergent parasitic diseases or outbreaks caused by parasites.

D13- Able to react positively with the national campaigns which are conducted to combat parasitic infections

D14- Retrieve, manage, and manipulate information by all means, including electronic means

D 15 To respect the role of staff and co-staff members regardless of degree or occupation.

D16- Present information related to public health problems clearly in written, electronic and oral forms.

D17- Communicate ideas and arguments effectively.

D 18- Review the scientific literatures on a research topic.

D19- Analyze and use numerical data including the use of simple statistical methods and evaluate indicators of health and disease.

D20- Work effectively within a team, respect patients, their relatives, senior and other colleagues involved in his teaching and subsequently in his future practice.

D21- Provide education to physicians and other hospital staff about infectious diseases in seminars, lectures ward rounds

D22- Follow the ethical regulations of sample collection and delivery of results, showing respect to the patie privacy

3) Academic standards:

A table of comparison between ARS, NARS and program ILOs is attached in appendix 1

3.a- External reference points/benchmarks are attached in appendix 2 which are used as the program ARS .

(4)Curriculum structure and contents:

4.a- Duration of the programme (in years or months):… 4 semesters

4.b- programme structure:

●4.b.1: Number of credit hours (minimum) : 45 hours

●4.b.2: Teaching hours/week:

First part : 8 credit hours

Second part 15 credit hours

Log book 10 Credit hours

Other activities 2 credit hours

(3) Programme courses:

First part

a- Compulsory courses:

Course	المقررات	Course Cod	Credit		Total hours / Week		Total teaching hours
			Theoretical	Practical	Theoretical	Practical	
	Environmental Microbiology	MIC507EM	4	2	4	2	60 lecture + 60 practic

b- Optional courses:

Course Title	المقررات	Course Co	Credit		Total hours / Week		Total teaching hours
			Theoretical	Practical	Theoretical	Practical	
	Biochemistry	**MIC 504**	**1**	**1**	**1**	**1**	15 lectures 30 practical
	Epidemiology &Public health	**MIC 518**	**1**	1	**1**	**1**	15 lectures 30 practical
	Parasitology	**MIC 508**	1.5	0.5	**1.5**	**0.5**	22.5 lectures 15 practical

Second part

a- Compulsory courses:

Course Title	المقررات	Course				Total hours / Week			Total teaching hours
			Theoretical	Practical	Field Study	Theoretical	Practical	Field Study	
	Medical Microbiolo Immunolog	**MIC 507**	**14**	**7**	**3**	**14**	**7**	**3**	210 lecture + 210 practic 180 Field st

b- Optional courses:

Course Title	المقررات	Course Co	Credit	Total hours / Week	Total teaching hours
	Advanced medical bacteriology	**MIC 507AB**	**1**	1	15
	Advanced medical immunology	**MIC 507AI**	1	1	15
	Advanced medical genetics	**MIC 507AG**	1	1	15
	Advanced medical mycology	**MIC 507AM**	1	1	15
	Advanced medical virology	**MIC 507AV**	1	1	15
	Advanced hospital infections	**MIC 507AHI**	1	1	15

Course Title/Code	Programme ILOs (Knowledge)																									
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26
Environmental Microbiology	■	■																								
Parasitology			■	■																						
Biochemistry					■	■																				
Epidemiology &Public health							■	■																		
Medical Microbiology & Immunology									■	■	■	■	■	■												
Advanced Medical Virology															■	■										
Advanced Medical Mycology																	■	■								
Advanced Hospital Infections																			■	■						
Advanced Microbial Genetics																					■	■				
Advanced medical bacteriology																							■	■		
Advanced Medical Immunology																									■	■

Course Title/Code	Programme ILOs (Intellectual skills)																							
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21			
Environmental Microbiology	■	■																						
Parasitology			■																					
Biochemistry				■																				
Epidemiology &Public health					■	■																		
Medical Microbiology & Immunology							■	■	■	■	■	■	■	■										
Advanced Medical Virology															■									
Advanced Medical Mycology																■								
Advanced Hospital Infections																	■							
Advanced Microbial Genetics																		■						
Advanced medical bacteriology																			■	■				
Advanced Medical Immunology																					■			

Course Title/Code	Programme ILOs (Professional/practical skills)																								
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25
Environmental Microbiology	■	■																							
Parasitology			■																						
Biochemistry				■	■																				
Epidemiology &Public health						■	■																		
Medical Microbiology & Immunology								■	■	■	■	■	■	■	■	■	■	■	■	■	■				
Advanced Medical Virology																									
Advanced Medical Mycology																									
Advanced Hospital Infections																									
Advanced Microbial Genetics																									
Advanced medical bacteriology																									
Advanced Medical Immunology																									

Course Title/Code	Programme ILOs (Communication & Transferable skills)																							
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23	
Environmental Microbiology	■	■	■	■	■	■	■	■	■	■														
Parasitology										■	■	■	■											
Biochemitry				■						■				■	■									
Epidemiology &Public health										■				■		■	■	■	■	■				
Medical Microbiology & Immunology	■	■	■	■	■	■	■	■	■	■											■	■		
Advanced Medical Virology																								
Advanced Medical Mycology																								
Advanced Hospital Infections																								
Advanced Microbial Genetics																								
Advanced medical bacteriology																								
Advanced Medical Immunology																								

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26
Objective 1	■	■	■	■	■	■	■	■																		
Objective 2									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Objective 3											■														■	■
Objective 4						■				■											■	■				
Objective 5																										
Objective 6								■					■						■	■						

	Programme ILOs (Intellectual skills)																							
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21			
Objective 1	■	■	■	■	■	■																		
Objective 2							■	■	■			■		■	■	■			■	■				
Objective 3											■										■			
Objective 4										■								■						
Objective 5																								
Objective 6					■								■				■							

	Programme ILOs (Professional/practical skills)																								
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25
Objective 1	■	■	■	■	■	■	■											■							
Objective 2																									
Objective 3																									
Objective 4																									
Objective 5								■	■	■	■	■	■	■	■	■					■				
Objective 6							■	■	■		■						■	■	■	■					

(4) Programme admission requirements:

- **General requirements:**

Accoding to the faculty postgraduate by laws Appendix IV .

- **Specific requirements (if applicable):**

1- Fulfillment of at least 75 % of logbook activities.

Attendance of lectures, clinical training, laboratory work and field training according to the master programme specification.

(5) Regulations for progression and programme completion:

Log book fulfillment:

Final exam:

(6) Evaluation of Programme's intended learning outcomes (ILOs):

Evaluator	Tools*	Sample size
Internal evaluator (s)	Focus group discussion Meetings	
External Evaluator (s)	Reviewing according to External evaluator Checklist report.	
Senior student (s)		
Alumni		
Stakeholder (s)		
Others		

* TOOLS= QUESTIONNAIRE, INTERVIEW, WORKSHOP, COMMUNICATION, E_MAIL

Final exam:

1st part

المقرر	الاختبار	الدرجة				اجمالي
		تحريرى	MCQs	شفهى	عملي	
ميكروبيولوجيا البيئة	اختبار تحريرى مدته ثلاث ساعات+ اختبار شفهى+ اختبار عملي	144	36	60	60	300
المقرر الذي تم اختياره	اختبار تحريرى مدته ثلاث ساعات+ اختبار شفهى+ اختبار عملي	36	6	15	15	75
اجمالي الدرجة						375

2nd part:

المقرر	الاختبار	الدرجة				اجمالى
		تحريرى	MCQs	شفهى	عملى	
الميكروبيولوجيا والمناعة الطبية	اختباران تحريريان مدة كل منهما ثلاث ساعات + اختبار شفهى + اختبار عملى	120 + 120	30 + 30	150	150	600
المقرر الاختيارى	اختبار تحريرى مدته ساعة	40	10			50
اجمالي الدرجة						650

We certify that all information required to deliver this programme is contained in the above specification and will be implemented. All course specification for this programme are in place.	
Dr. **Heba El Degla** **Dr Ghada Barakat**	Signature & date:
Head of department : Name: **prof. Dr. Mohammad Abou El ela**	Signature & date: