COURSE SPECIFICATION

(Molecular Biology- first part)

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Programme for Postgraduate MD degree of Medical Microbiology and Immunology
(2) Department offering the programme:	Medical Microbiology and Immunology
(3) Department responsible for teaching the course:	Medical Microbiology and Immunology dept.
(4) Part of the programme	First part
(5) Date of approval by the Department`s council	7/8/2016
(6) Date of last approval of programme specification by Faculty council	9/8/2016
(7) Course title:	Molecular Biology
(8) Course code:	MIC607 MB
(9) Credit hours	5 credit hours
(10) Total teaching hours:	75h lectures

(B) Professional information

(1) Course Aims:

The broad aims of the course are as follows: (either to be written in items or as a paragraph)

1- To provide the candidate with the update knowledge of molecular biology concepts and principles.
2- To educate the candidate how to do a molecular research in practice.

(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 course, the candidate will be able to:

A- Knowledge and Understanding

A 1 recognize the DNA fingerprinting and applications of DNA analysis.
A 2 discuss the idea of Epigenetics and metagenomics.
A 3 recognize the idea of histocompatibility testing by molecular biologic methods.
A 4 describe the engineered antibodies.
A 5 identify the Gene therapy and the immune system.
A 6 name the Molecular genetic techniques widely used to evaluate the immune system.
A7 explain the Molecular mechanisms of HCV resistance to INF antiviral therapy.
A8 outline the molecular diagnostic methods and their applications (PCR and DNA probe).
A9 Discuss Genome coding strategies.
A10 outline the idea of Transforming genes (oncogenes), Transposons and retrotransposons.
A11 discuss the Retroviruses and reverse transcription.
A12 discuss the molecular techniques used in diagnosis of bacterial infections, taxonomy of bacteria and preparation of bacterial vaccines
A13 discuss the molecular diagnosis of bacterial resistance.
A14 discuss the molecular techniques used in diagnosis of fungal infections.
A15 Recognize Molecular diagnosis of fungal infections.
A16 outilne the emerging resistance to antifungal agents.
A17 Describe the control of cell cycle

B- Intellectual skills:

B1 Interpret the results of molecular diagnostic techniques.
B2 Assess the advantages of individual methods of molecular diagnosis of infections.
B3 Analyze and explain the pitfalls encountered in PCR results.

(3) Course content:

Subjects	Lectures (75 h)	Laboratory	Field
Genetic control of bacterial metabolism	5 hours		
DNA structure, analogue and superhelicity	5 hour		
DNA fingerprinting and application of DNA analysis	5 hours		
Histocomptapility testing by genetic techniques	5 hours		
Cloning strategies	5 hour		
Epigenetics	5 hour		
Gene insulators	5 hours		
DNA analysis; principle, techniques and applications	5 hour		
Human genome project diversity	5 hour		
Genome coding strategy	5hours		
Molecular genetic techniques widely used to evaluate imm	5hours		
Metagenomic	5 hours		
Gene therapy and immune system	5hours		
molecular techniques for preparation of bacterial vaccines	5hours		
molecular diagnosis of bacterial resistance.	5hours		
Genetic control of cell cycle	5hours		
molecular techniques used in diagnosis of fungal infections.	5hours		

(4) Teaching methods:

4.1: Lectures.

4.2: Seminars.

4.3 Observation of, assisting and discussion with senior medical staff.

(5) Assessment methods:

5.1: Written exam: for assessment of ILOs number; A1-17, B1-3

5.2 MCQ for assessment of ILOs number; A1-17, B1-3

Assessment schedule:

Percentage of each Assessment to the total mark (total microbiology course assessment):

Written exam:… 80 marks,

MCQ 20 marks

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Other types of assessment: None.

Other assessment without marks:

1-Candidate Logbook which should be fulfilled and signed by Head of the department.

1- Attendance Criteria: Minimum acceptance attendance is 75%

(6) References of the course:

6.1: Hand books: Department theoretical books & handouts given by lecturers

6.2: Text books:

1. Topley and Wilson's Microbiology and Microbial infections. Volume 8, 2005,10th edition

2. Zinsser Microbiology-2001.

3- Fundamental Bacterial Genetics : Nancy Trun and Janin Trempy -2004

6.3: Journals:

1. Clinical Microbiology Reviews
2. Journal of Clinical Microbiology
3. Journal of Medical Microbiology
4. Journal of Microbiological Methods
5. Journal of Applied Genetics.

6.1: Websites: Nature Reviews:

http://www.nature.com/nrg/focus/microgen/index.html

1. **Facilities and resources mandatory for course completion:**
   1. Lecture halls.
   2. Data shows and computer assistance.
   3. Molecular biology laboratory.
   4. Thermal cycler device.
   5. UV illuminator.
   6. Tray for gel electrophoresis.
   7. Chemicals for genetic techniques.

Course coordinator: Dr.

Head of the department: Prof. Dr. Mohammad Abou El ela

Date:

P.S. This specification must be done for each course.