COURSE SPECIFICATION

(Medical Biochemistry & Molecular Biology)

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Postgraduate Master degree of Medical Parasitology
(2) Department offering the programme:	Medical Parasitology Department
(3) Department responsible for teaching the course:	Medical biochemistery & Molecular biology Department
(4) Part of the programme:	first part
(5) Date of approval by the Department`s council	**9-5-2016**
(6) Date of last approval of programme specification by Faculty council	9-8-2016
(7) Course title:	Biochemistry
(8) Course code:	**(PAR 504)**
(9) Total teaching hours:	45 hours lectures 30 hours practical
(10) Credits hours	3 lectures 1 practical

(B) Professional information

(1) Program Aims:

Provide candidate with:

1- A basic knowledge of molecular biology and protein synthesis necessary for understanding sciences at molecular level.

2- Basic training on the principles of biochemistry and molecular biology techniques.

(2) Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding

A1. Describe biochemical, clinical and laboratory importance and deficiency manifestations of minerals.

A2. Recognize enzyme nature, mechanism of action, specificity, classification, co enzymes,

A3. Describe enzyme units, enzyme kinetics, factors affecting rate of enzyme action, enzyme inhibition, regulation of enzyme activity, plasma enzymes.

A4. Describe structure of DNA, chromatin and chromosomes, mitochondrial DNA, and types of RNA.

A5. Explain DNA replication and repair.

A6. Discuss transcription (RNA synthesis), processing of RNA, and regulation of gene expression.

A7. Describe Protein synthesis (translation): synthesis of polypeptide chain post-translation processing.

A8. Identifies recombinant DNA bio-techniques.

A9. Explain different DNA amplification techniques and their applications.

A10. Principles of gene therapy.

A11. Point out pathological aspects of carbohydrates metabolism and their clinical importance.

A12. Explain metabolic disorders in diabetes mellitus.

A13. Describe the Biochemistry of insulin.

B- Intellectual skills: the course enables students to:

B1. Interpret results of urin analysis and molecular tests.

B2. Predict the clinical significances of some enzymatic reactions and kinetics.

B3. Predict the applications of molecular biology in basic and clinical sciences.

B4. Analyze clinical significance of determination of plasma levels of glucose and some enzymes.

C- Professional/practical skills:

By the end of the course, student should be able to:

C1 Identify the physical and chemical characters of normal urine.

- Perform chemical tests to detect abnormal constituents of urine.

C2. Estimate serum levels of glucose by colorimetric methods.

C3. Do extraction of deoxyribonucleic acid (DNA)

C4. Demonstrate Agarose gel electrophoresis for the extracted DNA.

D- Communication & Transferable skills

The Postgraduate Degree provides the opportunity to demonstrate the following transferable skills:

D1. Establish a concise scientific activity according to standard scientific thinking and integrity.

- Review literature on a research topic.
- Retrieve recent data from web sites
- Manage time efficiently.

D2. Work productively in a team.

- Communicate effectively and respectively with colleagues, supervisors and staff members

D3. Able to react positively with health care professionals, the national campaigns and health authorities which are conducted to infection control practice.

(4)Curriculum structure and contents:

Subjects	Lectures/week 3	Clinical	Laboratory/week 2
Minerals -Major elements (Ca-P-Mg-Na-K-Cl-S) -Trace elements (Fe-Cu-Mn-Co-Cr-I)	10	----------	
Enzymes -Nature -Classification -Kinetics -Regulation	10		
Molecular Biology **•Nucleic acids** -Structure -Replication -Repair **•Protein synthesis** **•Molecular Biotechnology** -Gene therapy	20		
Diabetes Mellitus	5		
Total teaching Hours	45		

Practical skills (30 hours)

Skill	Objective	Teaching hours
DNA extraction	Application of diagnostic molecular methods	5
Agarose gel electrophoi of extracted DNA	Application of diagnostic molecular methods	10
Colometric assessment of blood glucose	Diagnosis of Diabetes me	10
Urine analysis	Detection of abnormal chemical constituents	5

4-Teaching methods:

4.1: Lectures

4.2: Power point presentation

4.3: Essay discussion

4.4: Seminar one hour duration done every 4 weeks about the recent advances in this field

4.5 lab classes

(2) Assessment methods:

Written exam for assessment of knowledge and intellectual ILOs

MCQ for assessment of knowledge and intellectual ILOs

Oral for assessment of knowledge , intellectual and transferable ILOs

OSPE for assessment of knowledge , intellectual , practical and transferable ILOs

Percentage of each Assessment to the total mark:

Other assessment without marks: seminars as described above included in the log book.

Assessment tool:

Tools	Marks	Percentage of the total mark
Written exam	72	60%
MCQ	18	
Structured Oral exam	30	20%
OSPE Practical exam	30	20%
Total	150	

(6): Reference Book: Harper's illustrated Biochemistry, lst edition.

Course coordinator: Dr. Manar Sobh Azab

Head of the department: Dr. **Hala Ahmed El Nahas**

Date: /6/2016