COURSE SPECIFICATION

(Molecular Biology Research)

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Programme offering the course:	Postgraduate PhD degree of Regenerative Medicine/ RMD
(2) Department offering the programme:	Inter-departmental (Faculty of Medicine)
(3) Department responsible for teaching the course:	**Medical Biochemistry**
(4) Part of the programme:	Second part (Semester IV)
(5) Date of approval by Faculty council	9/8/2016
(6) Date of last approval of programme specification by Faculty council	9/8/2016
(7) Course title:	**Molecular Biology Research**
(8) Course code:	**RMD604BS3**
(9) Total credit hours:	4 Theoretical + 1.5 Laboratory/Practical

(B) Professional information

(1) Course Aims:

The broad aims of the course are as follows:

1- This course provides students with advanced theoretical knowledge in molecular biology as related to stem and tissue cell research. This instruction includes state-of-the-art knowledge on the most recent techniques used in molecular biology.
2- Second, the students receive direct instruction on how to design and perform experiments in molecular biology to generate reagents and to analyze stem cells and tissues.
3- Third, they gain extensive practical laboratory experience on experimental protocols in molecular biology.

(2) Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding:

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

A1: Explain the chemistry that underlies molecular reactions in cells and the techniques used to investigate them.

A2: Describe the cell structure, gene structure, replication, expression, inheritance, evolution and relevant experimental methods of analysis;

A3: Illustrate the principles and recent advances in molecular genetics and its applications.

A4: Point out the principles that determine the structure of proteins, its relation to function, activity of enzymes and using relevant experimental methods of analysis.

A5: Demonstrate the molecular aspects of cell biology, immunity, differentiation and development, and how they can be investigated experimentally.

A6: Explain molecular pathology of human disease, molecular diagnostics and treatment;

B- Intellectual skills:

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

B1: Analyze and solve problems related to molecular biology and genetics.

B4: Apply theoretical concepts to the study of the molecular biology and genetics and evaluate the relationships between theory and practice.

C- Professional/practical skills:

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

C1: Practice appropriate laboratory skills, including safe working practices where relevant.

C2: Practice appropriate computer skills.

D- Communication & Transferable skills:

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

D1: Communicate effectively using a variety of formats.

D2: Use effectively a range of information sources.

D4: Work effectively both alone (e.g. on assignments or during the project) and as part of a team (e.g. in group work, during group discussions and workshops).

D5: Demonstrate key skills in the retrieval, preparation, analysis and interpretation of information from different sources.

D6: Acquire continued self-managed professional development.

D7: Apply the principle of reflective practice.

(3) Course content:

Subjects	Lectures	Clinical	Laboratory	Field	Total Hours
Molecular Biology Research / RMD604BS3			**15W**		
1. Introduction to Biology 2. Biochemistry 1 3. Genetics 1 4. Genetics 2 5. Gene Regulation 6. Protein Localization 7. Recombinant DNA 1 8. Recombinant DNA 2 9. Cell Cycle/Signaling 10. Cancer 1 11. Cancer 2 12. Cancer 3 13. Genomics 14. Nervous System 15. Molecular Medicine	4		1.5		**5.5 hours**

(4) Teaching methods:

4.1: Lectures

4.2: Practical lab work

(5) Assessment methods:

5.1: Exam Description

The final exam is composed of:

Two written exams (200 marks) 3 hours (Short Essay questions 2 hours 160 marks + MCQ 1 hour 40 marks)

Final Practical exam (OSPE) (100 marks): five stations exam.

Final oral exam (OSCE) (100 marks): five stations exam.

Percentage of each Assessment to the total mark:

Written exam: 50% Practical exam: 25% Oral exam: 25%

Other assessment without marks: seminars and log book activities.

5.2: Marks

Course/ code	Marks					
	Written Exam			Practical Exam	Oral Exam	Total
	Short Essay questions	MCQ	total			
Molecular Biology Research/ RMD604BS3	**160**	**40**	**200**	**100**	**100**	**400**

(6) References of the course:

Text books: Molecular biology and technology, 4th Ed.

(7) Facilities and resources mandatory for course completion:

Lecture halls and data show and MERC labs

Course coordinator: Dr. Mohamed Salama

Programme Director: Prof.Mohamed Sobh

Date: