برنامج جامعة المنصورة للدراسات العليا الطبية والبيولوجية

كلية الطب- جامعة المنصورة

شهادة مهارية متخصصة في الطب التجددي

Mansoura University Program for Postgraduate Medical and Biological Studies

Faculty of Medicine- Mansoura University

Anti Aging and Regenerative Medicine Fellowship (FARM.MU)

Administrative information

1. **Program Director:**
   Name: **Prof. Mohamed Sobh**
   Prof. Ahmed Badawy
2. **Cordinator: dr. Mohamed Salama**
3. **Date of board approval:**
4. **Date of approval of program specification by the faculty council:**

Candidates

- The candidates for this degree will be graduates from Medical schools

Professional information

(1) Programme Aims:

The broad aims of the Program are as follows:

Overview: as an active application of our objectives in training and dissemination of regenerative medicine, the MURMP is offering a new fellowship program in anti aging and regenerative medicine. This course is designed for biology, medicine, biomedical and life sciences graduates, and graduates in related scientific subjects and provides a supportive learning environment within the newly established Transplant Center of Mansoura University.

Within the overall aim, the objectives of the Programme are as follows:

(1) FARM.MU offers interdisciplinary education in the field of stem cells, regeneration biology, tissue engineering, and clinically focused human biology and pathology with the aim to prepare students to perform research that can be applied to regenerative medicine therapies. The students know the scientific fundamentals of stem cell biology and regeneration model organisms as well as recent methods of genomic analysis of stem cells and model organisms, tissue engineering, current and potential applications in clinical diseases and regulatory aspects of developing regenerative therapies. Students are in command of essential methodological skills for presenting their work in oral and written form. This includes writing a term paper or a scientific article, writing a grant proposal and the organization and implementation of a clinical study.

(2) The course will qualify students for life sciences work and approaches. The students will be able to inter-relate elementary knowledge of molecular cell biology and developmental biology with specific theoretical and practical applications with in vitro and in vivo stem cell work which is relevant to regeneration and to human application. Students will be qualified to apply concepts and techniques in stem cell biology and animal models onto new research projects in regenerative biology and medicine. Altogether, the students will be enabled to work independently on academic or industry projects in a problem-oriented and responsible way. The students will have access to a wide range of R & D work fields, particularly in the areas of cell biology, developmental biology, stem cell biology and medicine.

A1: Acquire the specific knowledge appropriate to their chosen discipline;
A2: Understand and explain the chemistry that underlies molecular reactions in cells and the techniques used to investigate them;
A3: Have a knowledge and understanding of cell structure, gene structure, replication, expression, inheritance, evolution and relevant experimental methods of analysis;
A4: Understand molecular genetics and its applications;
A5: Understand the principles that determine the structure of proteins, how this is related to function, activity of enzymes and use relevant experimental methods of analysis;
A6: Demonstrate specific knowledge of the molecular aspects of cell biology, immunity, differentiation and development, and how they can be investigated experimentally;
A7: Have knowledge of molecular pathology of human disease, molecular diagnostics and treatment;
A8: Identify principles of stem cells research and technology

B- Intellectual skills:

Successful students will be able to:

B1: Analyse and solve problems related to molecular biology and genetics;
B2: Understand the ethical implications of their work;
B3: Execute and report a research project in order to develop skills necessary for independent research;
B4: Apply theoretical concepts to the study of the molecular biology and genetics and evaluate the relationships between theory and practice;
B5: Display an awareness of the existence and nature of value judgments;
B6: Demonstrate, at a level appropriate to the award, a critical approach in enquiry and a readiness to test hypotheses, interpret scientific data and evaluate published literature;
B7: Display awareness of the possibilities and limits of stem cells;
B8: Understand the characters differentiating variable types of stem cells and their different capacities.

C- Professional/practical skills:

Successful students will be able to:

C1: Acquire appropriate laboratory skills, including safe working practices where relevant;
C2: Acquire appropriate computer skills;
C3: Perform various steps necessary to isolate, characterize, culture and transdifferentiate stem cells;
C4: Apply different skills to conduct research of regenerative medicine invivo.

D- Communication & Transferable skills

Successful students will be able to:

D1: communicate effectively using a variety of formats;
D2: use effectively a range of information sources;
D3: organise and present intellectual argument commensurate with the level of award;
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: be numerate at a level appropriate to the course chosen;
D6: develop the skills required for continued self-managed professional development;
D7: to appreciate the importance of reflective practice.

(3) Academic standards:

Academic standards for the programme are attached in Appendix I. in which **NARS** issued by the National Authority for Quality Assurance & Accreditation in Education are used being approved by the Faculty council on 14/7/2010. External reference points/Benchmarks are attached in Appendix II.

3.a- External reference points/benchmarks are selected to confirm the appropriateness of the objectives, ILOs and structure of assessment of the programme (approved by the Departments' council on and by the Faculty council on):

Regenerative Biology and Medicine of Biotec (Biotechnology Center of TU Dresden-Germany)
http://www.biotec.tu-dresden.de/fileadmin/teaching/Curriculum_RegBioMed/101217_Curriculum_RegBioMed.pdf

3.b- Comparison of the specification to the selected external reference/ benchmark:

● All programme aims of the Benchmarks are covered by the current programme. Our programme is covering 90% of the bench mark chosen.

(4) Curriculum structure and contents:

4.a- Duration of the programme (in years or months): 24 months

4.b- programme structure:

Structure

FARM.MU is a 24 months programme divided into two parts through 4 semesters (15 weeks each).

Core modules:

Stem cells, development and regeneration
Molecular Biology Research
Microscopy
Genetic and Quantitative Analysis of Stem Cell Biology
Scientific Working Methods and Scientific Conduct

Optional modules:

Model organism research
Cell and organ based research
Clinical Translation and Trials in Practice
Pharmaceutical control of stem cells

Organ Systems and Disease
Materials Science and Tissue Engineering: (Nanotechnology and stem cells)
Trends in Neuroscience
Bioinformatics

Fellowship obtained through finishing: 5 taught Core modules; 2 Designated Option modules.

Modules:
Three types of modules are available:
RMD- BS: Basic Sciences modules
RMD- PS: Professional Skills modules
RMD- RS: Research Skills modules

1- **The programme consists of two parts**; *the first part* [semester I]composed of one course which is the Stem cells and regeneration (5 credit hours). *The second part* [semester II,III and IV]: Semester II [thesis registration] *Plus* two courses [Microscopy (Core)] and one of the two elective courses [Model Organism Research OR Cell and Organ Based Research](6credit hours), semester III 3 courses [genetic and quantitative analysis of stem cells (core), molecular biology research (core) PLUS one of the two elective courses; Clinical translation OR pharmaceutical control of stem cells] (6 credit hours), Semester IV (6 Credit hours), semester IV 3 courses [Scientific working (core)] PLUS one of the two elective courses [Organ systems and disease or Material sciences] PLUS one of the two elective courses [Trends in Neuroscience of Bioinformatics] (6 credit hours).
2- Practical training equals to 14 credit hours
3- Scientific events e.g. conferences , seminars and workshops equals to 2 credit hours

●4.b.1: Number of credit hours :
First part: 5 credit hours.

Second part: three semesters (18 credit hours). Activities included in the log book: 14 +2 credit hours hours (applied skills related to the second part). Thesis: 6 credit hours.

●4.b.2: Teaching hours/week:
First part:
Lectures: 52.5hour. **laboratory/practical:** 22.5 hours. **Total:** 75 hours for 15 weeks (referred to the table below)

Second part:

Lectures: 195 contact hours + **laboratory/practical:** 82.5 hours. **Total:**277.5 for 45 weeks (referred to the table below).

(5) Programme courses:

First part (Semester I)

a- Compulsory courses:

Course Title	Course Code	NO. of credit hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Stem cells and regeneration	RMD- BS1	3.5		1.5		5	5	A 1, 7,8 – B 2,3 5 , 7 , 8- C 3,4- D4,5,6,7.

b- Elective courses: none

Second part (Semester II)

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Microscopy	RMD-PS1	2		1		3	3	A1 B4- C 1,2,3 D2,5,6,7

b- Elective courses:

Course Title	Course Code	NO. of hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					

Model Organism research	RMD-RS1	2		1		3	3	A1.6.7 B2-6 C1,2 D1-7
Cell and organ based research	RMD-RS2	2		1		3	3	A1-6, B1,4, C1,2 D1-7.
Total Credits for semester II							6	
Thesis							6 credit	

(Semester III)

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Genetic and Quantitative analysis of stem cells	RMD-BS2	1.5		0.5		2	2	A1-4, 8 B1,8 C1,3 D1-7
Molecular Biology Research	RMD-RS3	1.5		0.5		2	2	A1-7 B1,4 –C1,2 D1,2,4,5,6,7,

b- Elective courses:

Course Title	Course Code	NO. of hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Clinical Translation	RMD-PS3	1.5		0.5		2	2	A12,15-19 B1-4,10,13,15,16 C3,6 D1-7,10-16

Pharmaceutical control of stem cells	RMD- PS4	1.5		0.5		2	2	A1.7.8, B2,5,7 C1,4. D1-7.
Total Credits for semester III							6	

(Semester IV)

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Scientific working	RMD-PS5	1.5		0.5		2	2	A1, B1-6 C1,2 D1-7,

b- Elective courses:

Course Title	Course Code	NO. of hours per week					Total credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total		
		Lectures	seminars					
Organ Systems and Diseases	RMD-BS3	1.5		0.5		2	2	A1, 7 B2,3,5,6 C1,4 D1,2
Material Sciences – Nanotechnology	RMD- BS4	1.5		0.5		2	2	A1, B 2, 7, C1, D1,2.
Trends in Neuroscience	RMD- RS4	1.5		0.5		2	2	A1, B 2, 7, C1,4 D1,2.
Bioinformatics	RMD- RS5	1.5		0.5		2	2	

Total Credits for semester IV							**6**	

Programme-Courses ILOs Matrix

Programme ILOs are enlisted in the first row of the table (by their code number: a1, a2……etc), then the course titles or codes are enlisted in first column, and an "x" mark is inserted where the respective course contributes to the achievement of the programme ILOs in question.

P.S. All courses` specifications are attached in Appendix IV**.**

Course Title/Code	a1	a2	a3	a4	a5	a6	a7	a8	b1	b2	b3	b4	b5	b6	b7	b8
Stem cells and regeneration	x							x		x	x		x		x	x
Microscopy	x											x				
Model Organism research	x					x	x			x	x	x	x	x		
Cell and organ based research	x	x	x	x	X	x			x			x				
Genetic and Quantitative analysis of stem cells	x	x	x	x				x	x							x
Clinical Translation	x							x		x			x		x	
Pharmaceutical control of stem cells	x						x	x		x			x		x	
Molecular Biology Research	x	x	x	x	X	x	x	x	x				x			
Organ Systems and Diseases	x						x			x	x		x	x		
Material Sciences –	x									x					x	

Nanotechnology																
Scientific working	x								x	x	x	x	x	x		
Trends in Neuroscience	x									x					x	
bioinformatics	x	x	x	x	X				x							

Course Title/Code	c1	c2	c3	c4	d1	d2	d3	d4	d5	d6	d7
Stem cells and regeneration			x	x				x	x	x	x
Microscopy	x	X	x			x			x	x	x
Model Organism research	x	X			x	x	x	x	x	x	x
Cell and organ based research	x	X			x	x	x	x	x	x	x
Genetic and Quantitative analysis of stem cells	x		x		x	x	x	x	x	x	x
Clinical Translation	x			x			x	x			x
Pharmaceutical control of stem cells	x			x	x	x	x	x	x	x	x
Molecular Biology Research	x	X			x	x	x		x	x	x

Organ Systems and Diseases	x			x	x	x					
Material Sciences – Nanotechnology	x				x	x					
Scientific working	x	X			x	x	x	x	x	x	x
Trends in Neuroscience	x			x	x	x					
bioinformatics	x	X			x	x					

(6) Programme admission requirements:

●**General requirements:**

According to the faculty postgraduate bylaws Appendix V**.**

A medical degree is required. The Egyptian candidates should be affiliated to an Egyptian university or research institute, while international students should be affiliated to an equivalent international institute.

(7) Regulations for progression and programme completion:

● Student must complete minimum of 45 credit hours in order to finish the fellowship, which include the courses of first and second parts, and activities of the log book.

● Courses description are included in Appendix IV.

● Registration for the FARM.MU:

Log book fulfillment:

● Student must fulfill a minimum of 16 credit of log book activities.

● Works related to thesis must be documented in the log book and signed by the supervisors.

●Any workshops, conferences and scientific meetings should be included in the log book.

Assessment:

Semesters Exam: following each semester there will be an online MCQ exam, the total 4 semesters exam will form 20% of final mark

Final exam: Final exam consists of MCQ exam (30%), Practical Lab Exam (30%) and Writing a review article for publication (20%)

(8) Evaluation of Program's intended learning outcomes (ILOs):

Evaluator	Tools*	Signature
Internal evaluator **(s)** **Prof.** **Prof.** **Prof.**	**Focus group discussion** **Meetings**	
External Evaluator **(s)** **Prof.**	**Reviewing according to external evaluator checklist report.**	

Senior student **(s)**	**None**	
Alumni	**None**	
Stakeholder **(s)**	**None**	
Others	**None**	

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

We certify that all information required to deliver this program is contained in the above specification and will be implemented. All course specification for this program are in place.	
Program Director: Name: **Prof. Mohamed Sobh** **Prof. Ahmed Badawy**	Signature & date:
Executive director of the quality assurance unit: Name: **Prof. Seham Gad El-Hak**	Signature & date:
Vice dean for graduate studies: Name: **Prof. Ahmed Badawy**	Signature & date:
Dean of Faculty of Medicine: Name: **Prof. El Saied Abdel Hady**	Signature & date: