COURSE SPECIFICATION

(Stem Cells, Development and Regeneration)

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:	Clinical Pathology Department
(4) Part of the programme:	First part Semester I
(5) Date of approval by by Faculty council	9/8/2016
(6) Date of last approval of programme specification by Faculty council	9/8/2016
(7) Course title:	**Stem Cells, Development and Regeneration**
(8) Course code:	RMB630BS1
(9) Total credit hours:	5 Theoretical + 1 Laboratory/Practical

(B) Professional information

(1) Course Aims:

The broad aims of the course are as follows:

This course is designed to provide students with fundamental definitions and concepts of the major stem cell systems, theoretical and practical aspects of somatic stem cell biology and the fundamental principles and molecular mechanisms that underlie the development of vertebrates, organogenesis and regeneration.

(2) Intended Learning Outcomes (ILOs):

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

A- Knowledge and Understanding

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

A7: Mention principles of stem cells research and technology.

B- Intellectual skills:

Successful students will be able to:

B2: Identify the ethical implications of the work in the field of regenerative medicine.

B3: Execute and report a research project in order to develop skills necessary for independent research.

B5: Display an awareness of the existence and nature of value judgments.

B7: Display awareness of the possibilities and limits of stem cells.

B8: Identify different types of stem cells and their different capacities.

C- Professional/practical skills:

Successful students will be able to:

C3: Isolate, characterize, culture and transdifferentiate stem cells.

C4: Conduct research of regenerative medicine in vivo.

D-Communication & Transferable skills

Successful students will be able to:

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
Stem Cells, Development and Regeneration/RMB630BS1	**15 weeks**				
1. Integration of comics Data in Stem Cell Research 2. Embryos and Embryonic Stem Cells 3. Epigenetics and RNAs 4. Reprogramming to Pluripotency 5. Stochasticity/Variability/Lineage Commitment 6. Stem Cell Niche 7. Adult stem cells -1 (Overview) 8. Adult stem cells-2 (NSCs) 9. Adult stem cells-3 (MSCs) 10. Human Umbilical cord derived stem cells (HUCs) 11. Stem Cell Transplantation Therapy 12. Cancer Stem Cells 13. Translational Stem Cell Medicine 14. Ethics of stem cells research 15. Trans-differentiation, in vivo control.	5		1		6 hours

(4) Teaching methods:

4.1: Lectures

4.2: Practical lab work

(5) Assessment methods:

5.1:Exam Description

Final exam at 6th month from admission to Ph.D degree with total of 300 marks composed of 2 Written exams for 3 hours (Short Essay questions 2 hours 240 marks + MCQ 1 hour 60 marks). **Other assessment without marks:** Logbook activities

5.2: Marks

Course/ code	Marks		
	Short Essay questions	MCQ	Total
Stem cells, development and regeneration/ RMD630BS1	**240**	**60**	**300**

(6) References of the course:

Text books: Stem Cell from bench to bedside

Stem cells and the future of regenerative medicine

(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: