

# **Program specification for doctor of philosophy degree in dental biomaterials**

**Mansoura University**

**Faculty :** Dentistry

**Department :** Dental Biomaterials

## **A-Basic information**

- |                                  |  |
|----------------------------------|--|
| 1. Program title:                | Doctor of philosophy of dental biomaterials branch |
| 2. Program type:                 | Single   |
| Department offering the program: | Dental Biomaterials                                |

Coordinator: Dr. Manal Farouk

Dr. Reham Mohammed Abdallah

3. External evaluator: Prof. Dr. Manal Ahmed El Ebiary

## **B-Professional information**

### **1. Program aims**

The postgraduate student for philosophy of doctor degree should be able to

1. Apply proficiently the fundamentals and methodologies of scientific research and work continuously on adding to knowledge in the field of dental biomaterials.
2. Apply an analytical and critical approach for knowledge in dental biomaterials domain and other related domains.
3. Demonstrate a deep awareness of the ongoing problems and new theories in the dental biomaterials field and find innovative solutions for them.
4. Communicate effectively and ability to lead teams in different professional domains.
5. Make a decision in proper materials selection and use in the presence of available information besides disposition to reflect the commitment to integrity and credibility and the rules of the profession.
6. Commit with continuous self-development and transfer of his knowledge and experience in the field of dental biomaterials to the

others and understand his role in community development and maintenance of his environment and transfer of his knowledge to the others.

7. Integration of specialized knowledge in dental biomaterials field with relevant knowledge in other dental fields with conclusion and development of interconnected relations.
8. Proficiency of a broad spectrum of professional skills in proper manipulation and usage of dental biomaterials field.
9. Development of methods, tools and new ways and technologies for professional practicing of different dental biomaterials.

## **2. Intended Learning Outcomes (ILOs)**

### **a. Knowledge and Understanding**

By the end of this course, the postgraduate student will be able to:

- a1. Understand the general classification, fundamentals and modern knowledge related to different dental biomaterials.
- a2. Know the principles and fundamentals of quality in professional practice and proper choice of different dental biomaterials.
- a3. Recognize the legal and ethical principles related to different dental biomaterials and their possible health hazards.
- a4. Understand the tools and ethics of scientific research and its various tools.
- a5. Know about the effects of using new dental materials and technologies on the environment and methods of development as well as conservation of the environment.

### **b. Intellectual Skills**

By the end of this course, the postgraduate student will acquire the skills to:

- b1. Analyze and evaluate the information within the domain of dental biomaterials to assess with and to conclude upon it.
- b2. Plan for improvement of performance within the domain of dental biomaterials by their proper and right application.
- b3. Innovate new dental biomaterials based on improvements of the already available ones.
- b4. Formulate scientific papers in the field of dental biomaterials.
- b5. Perform different research tests for different biomaterials adding to knowledge.
- b6. Evaluate risks of professional practices from some dental biomaterials owing possible health hazards.

- b7 Make a dialogue and discuss basing on evidences and poofs related validity and reliability of dental biomaterials.
- b8 Take professional decisions in different dental biomaterials selection and application situations.
- b9 Solve specific problems related to usage of different dental biomaterials based on available knowledge to their properties.

### **c. Professional and Practical Skills**

By the end of this course, the postgraduate student will acquire the skills to:

- c1 Apply the basic and advanced professional skills within the domain of dental biomaterials perfectly.
- c2 Evaluate and develop the existing tools used in estimating the performance of dental biomaterials.
- c3 Utilize the new technologies to serve professional practicing of different dental biomaterials.
- c4 Plan to develop the dental biomaterials practice and performance of the others.
- c5 Write and evaluate professional reports related to assessment of different materials properties .

### **d. General and Transferable skills**

By the end of this course, the postgraduate student will be able to:

- d1 Employ reading and database search capacities both in the library and internet to retrieve information and knowledge.
- d2 Communicate effectively with different means in dental biomaterials field.
- d3 Carry out self-evaluation and learn continuously.
- d4 Properly communicate with the teachers and colleagues and ability to teach them and evaluate their performance.
- d5 Deal with information technology to develop dental biomaterials skills.
- d6 Direct the scientific meetings and manage the time efficiently.
- d7 Work in a team and be a team leader.

## **3 – Academic standards**

### **3a.Comparison of provision to external reference**

The following tables show a comparison of the academic standards and the ARS adopted by the Faculty of Dentistry, Mansoura University:

<b>Subject knowledge and understanding</b>	
<b>ARS</b> <b>Graduates should demonstrate knowledge and understanding in:</b>	<b>Program ILOs</b>
<b>1.</b> Theories, fundamentals and modern knowledge within the domain of dental biomaterials and related fields.	a1
<b>2.</b> Fundamentals, methodologies and ethics of scientific research and its various tools.	a4
<b>3.</b> The legal and ethical principles of dental practice in the area of dental biomaterials.	a3
<b>4.</b> Principles and fundamentals of quality in professional practice within the domain of dental biomaterials.	a2
<b>5.</b> Knowledge about the effects of his/her practice on the environment and methods of development as well as conservation of the environment.	a5
<b>Subject skills</b>	
<b>ARS</b> <b>Graduates should have the ability to:</b>	<b>Program ILOs</b>
<b><u>2.2 Intellectual skills</u></b>	
<b>1.</b> Analyze and evaluate the information within the domain of dental biomaterials to assess with and to conclude upon it.	b1
<b>2.</b> Solve specific problems based on available givens.	b9
<b>3.</b> Perform research studies adding to knowledge.	b5
<b>4.</b> Formulate scientific papers.	b4
<b>5.</b> Evaluate risks of professional practices.	b6
<b>6.</b> Plan for improvement of performance within the domain of dental biomaterials.	b2

7. Take professional decisions in different dental biomaterials situations.	b8
8. Create/ innovate.???	b3
9. Dialogue and discuss basing on evidences and proofs.	b7
<b><u>2.3 Practical and clinical skills</u></b>	
<b>The graduate must be able to:</b>	
1. Apply the basic and advanced professional skills within the domain of specialty perfectly.	c1
2. Write and evaluate professional reports.	c5
3. Evaluate and develop the existing methods and tools within the domain of dental biomaterials.	c2
4. Utilize the technology to serve the professional practice.	c3
5. Plan to develop the dental biomaterials practice and performance of the others.	c4
<b><u>2.4 General and transferable skills:</u></b>	
<b>The graduate must be able to:</b>	
1. Communicate effectively with different means.	d2
2. Utilize information technology to develop dental biomaterials skills.	d5
3. Teach others and evaluate their performance.	d4
4. Carry out self-evaluation and learn continuously.	d3
5. Employ different resources to retrieve information and knowledge.	d1
6. Work in a team and be a team leader.	d7
7. Direct the scientific meetings and manage the time efficiently.	d6

#### **4-Curriculum Structure**

- At least two years special advanced dental biomaterials course.

#### **5- Program admission requirements**

- 1- The postgraduate student should have obtained the Bachelor's Degree of Oral and Dental Medicine and Surgery from one of the Egyptian Universities or an equivalent degree from any other academic institute acknowledged by the university.
- 2- The postgraduate student should have obtained the Master's Degree in dental biomaterials.
- 3- The postgraduate student will apply for his/her registration at any time.

#### **6 – Regulations for progression and program completion**

1. The postgraduate student must conduct innovative scientific researches based on the suggestion of the supervisor (supervisors) which is subject to the approval of the faculty council. The research topic is registered from the date of the University Postgraduate and Research Council approval on the faculty council decree, for two years at least from the date of the faculty council's approval of the registration.
2. The postgraduate student should submit a thesis that is accepted by the jury based on his/her research results. He/she should defend the thesis at least two months before the final exam date.
3. The thesis registration application is to be submitted to the Dean of the Faculty then it is to be channeled to the faculty council, based on the competent department's view. The Faculty Council approves the application and assigns a thesis supervisor who reports annually to the Department Council on the student's research progress. In the light of this report, the student's thesis registration can be cancelled. Under all circumstances the thesis registration is cancelled after the period of 6 years from the date of registration unless the faculty council allows a period of extension based on the supervisor's report.
4. The postgraduate student should pass the required exams and should register for the exam at least one month before conducting it.
5. In order for the postgraduate student to obtain the Ph.D. Degree, he/she must get at least a minimum mark of 60% out of the total marks of each of the exam branches.
6. Ph.D. Degree exams are held two times per year, the first is in November and the second is in April at the time set by the University Postgraduate and Research Council based on the suggestion of the faculty council and the one who fails in one subject will have to attend a retake exam.

- **The exam marks are as follow:**

Courses	Test Type	Mark
Dental biomaterials	Two Written Tests	200
	Oral test	200

- Presentation of formal seminars on various assigned topics in dental biomaterials domain through the program.
- Preparing two systematic review articles on various dental biomaterials subjects.
- Participation in the weekly journal club meetings.
- Attendance of at least two practical sections per week.

#### **7– Evaluation of program intended learning outcomes**

Evaluator	Tool	Sample
1. Senior students		
2. Alumni		
3. Stakeholders		
4. External Evaluator(s)	√	Dr.Manal Ahmed El Ebiary
5. Other		

**Coordinator**                      Dr. Manal Farouk

Dr. Reham Mohammed Abdallah

**Head of department**        Dr. .Manal Farouk

Program ILOs				Program Aims	Graduate specifications ARS
General and transferable skills	Practical and clinical skills	Intellectual Skills	Knowledge and Understanding		
	c5	b4	a4	1.1	Apply proficiently the fundamentals and methodologies of scientific research
		b1, b5	a1	1.1	Work continuously on adding to knowledge in the field of specialty
	c5	b1	a1	1.2	Apply an analytical and critical approach for knowledge in specialty domain and other related domains.
		b5		1.7	Integration of specialized knowledge with relevant knowledge with conclusion and development of interconnected relations.
	c3	b3,b9		1.3	Demonstrate a deep awareness of the ongoing problems and new theories in the specialty field
	c1	b2	a2	1.8	Proficiency of a broad spectrum of professional skills in specialty field
	c3	b2, b3	a2	1.9	Development of methods, tools and new ways for professional practicing



	c3	b2	a2	1.9	The use of suitable technological means to serve professional practicing
d7				1.4	Communicate effectively and ability to lead teams in different professional domains.
d1		b8		1.5	Make a decision in the presence of available information
d1	c4	b3		1.9	The efficient usage and development of available resources and work on finding new ones
		b6	a5, a3	1.6	Awareness with his role in community development and maintenance of his environment.
				1.5	Disposition to reflect the commitment to integrity and credibility and the rules of the profession.
d3, d4				1.6	Commit with continuous self-development and transfer of his knowledge and experience to the others

Program ILOs				Course name	Course code
General and transferable skills	Practical and clinical skills	Intellectual Skills	Knowledge and Understanding		
d1→d7	c1→c5	b1→b9	a1→a5	Dental biomaterials	
d1→d7	√		√	Thesis	

