

Program specification for master degree in dental biomaterials

Mansoura University

Faculty : Dentistry

Department : Dental Biomaterials

A-Basic information

1. Program title: Master degree in basic science in dentistry in
2. Program type: branch of dental biomaterials
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 master degree should be able to

- 1.1 Apply proficiently the fundamentals and methodologies of scientific research and the use of different tools.
- 1.2 Apply and use the analytical methods and employ available resources to bring the greatest benefit and maintain in the field of dental biomaterials.
- 1.3 Demonstrate an awareness of the ongoing problems and new visions in the dental biomaterials field.
- 1.4 Determine the professional problems in using and application of different dental biomaterials and find solutions for them.
- 1.5 Communicate effectively and ability to lead teams and Disposition reflecting the commitment to integrity, credibility and abide by the rules of the profession.
- 1.6 Make a decision in proper materials selection and use and show awareness with his rule in community and environment development with proper use and development in dental biomaterials.

1.7 Self- development both academically and professionally, capability of continuous learning and awareness with all new materials and technologies relevant to their uses. Besides, the use of these appropriate technological means to serve the dental biomaterials practice.

1.8 The use of specialized dental biomaterials knowledge to be integrated with knowledge relevant in professional practice.

2. Intended Learning Outcomes (ILOs)

a. Knowledge and Understanding

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

- a1 List and describe different parts of the head and neck.
- a2 Understand the functional organization and structure of various body systems and its relation to function.
- a3 Identify the normal histological structure of oral tissues.
- a4 Describe the histological findings of the most common lesions.
- a5 Understand the role of microorganisms (including bacteria, viruses, fungi) in pathogenic mechanisms.
- a6 Recognize basic concepts of biostatistics and data analysis.
- a7 Understand the general classification, concepts and science appropriate to professional practicing of different dental biomaterials.
- a8 Identify mutual influence between professional practice and its impact on the environment and the possible health hazards of different dental biomaterials.
- a9 know the scientific developments in the dental biomaterials field.
- a10 Recognize the legal and ethical principles related to the usage of different dental biomaterials and their possible health hazards.
- a11 Recognize the moral and legal ethics during professional practicing of different dental materials
- a12 Understand the basics and ethics of scientific research in the field of dental biomaterials.

b. Intellectual Skills

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

- b1 Analyze the correlation of nerve supply of the head and neck to accurately diagnose the patient's complaint, especially in cases of referred pain.
- b2 Solve medical problems related to diagnosis and treatment of physiological ones as PH,osmolarity,etc.
- b3 Examine the tissues under the microscope.
- b4 Differentiate the different clinical radiographic and microscopic features of oral diseases.

- b5 Diagnose and decide the best way of treatment of some diseases (hypersensitivity and autoimmune diseases).
- b6 Differentiate between types of variables.
- b7 Plan for improvement of performance within the domain of dental biomaterials by their proper and right application.
- b8 Make Career decisions regarding proper materials selection and application in different professional aspects.
- b9 Carry out a research study in the field of dental biomaterials and solving a research problem.
- b10 Assess and analyze the biocompatibility and possible health hazards of different dental materials.
- b11 Analyze and evaluate information related to dental materials and make full use of them to solve problems.
- b12 Solve specific problems related to usage of different dental material on the basis of limited or unavailable information.
- b13 Coordination between different sources of knowledge to solve problems related to usage of different dental biomaterials.

c. Professional and Practical Skills

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

- c1 Identify source of pain anywhere in the head and neck region.
- c2 Acquire skills for use of basic medical devices as thermometer and stethoscope.
- c3 Interpret some physiological records (ECG and spirogram) and some laboratory tests (blood count and hemoglobin).
- c4 Diagnose each case.
- c5 Interpret biopsy report.
- c6 Write and evaluate technical reports about different dental biomaterials.
- c7 Apply the modern and advanced professional skills within the domain of dental biomaterials perfectly.
- c8 Evaluate and develop the existing tools used in estimating the performance of dental biomaterials.

d. General and Transferable skills

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

- d1 Discuss lectures and give own comments with continuous self -education.
- d2 Develop reading and database search capacities in such a way that serves in the development of the professional practice.
- d3 Communicate effectively in different aspects with proper time management.
- d4 Continuous self-education and progression
- d5 Properly assess the performance of teachers and colleagues.
- d6 Deal with information technology.

d7 Work professionally in a team work and lead teams in different professional contexts.

d8 Manage time efficiently.

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:

Subject knowledge and understanding	
ARS Graduates should demonstrate knowledge and understanding in:	Program ILOs
1) Theories, concepts and specialized knowledge of the learning area and also sciences appropriate to the professional practice.	a1, a2, a3, a4, a5, a6
2) Mutual influence between professional practice and its impacts on the environment.	a8
3) Scientific developments in the field of specialization	a9
4) Moral and legal ethics of the professional practice in the area of specialization.	a10, a11
5) The concepts and principles of quality of the professional practice in the area of specialization.	a7
6) The basics and ethics of scientific research.	a12
Subject skills	
ARS Graduates should have the ability to:	Program ILOs
2.2 Intellectual skills	
1) Analyze and evaluate of information in the field of specialization and make full use of such information to solve problems.	b1, b11
2) Solve specific problems on the basis of limited and contradictory information.	b2, b12
3) Demonstrate a high level of competence in the coordination of different sources of knowledge to solve professional problems..	b3, b4, b5, b6, b13
4) Carry out a research study and / or writing a scientific methodology study on research problem.	b9
5) Assess and analyze risks of the professional practice in the field of specialization.	b10
6) Plan to improve performance in the field of specialization	b7

7) Make career decisions in different professional aspects	b8
2.3 Practical and clinical skills	
The graduate must be able to:	
1) Apply modern and principle professional skills in the area of specialization.	c1, c2, c7
2) Write and evaluate technical reports.	c3, c4, c5, c6
3) Adopt assessment methods and tools existing in the area of specialization	c8
2.4 General and transferable skills:	
The graduate must be able to:	
1) Communicate effectively in different aspects.	d3
2) Demonstrate efficient IT capabilities in such a way that serves in the development of the professional practice.	d2
3) Adopt self-assessment and specify his needs of personal learning.	d4
4) Use different resources for information and knowledge.	d6
5) Establish rules and indicators for assessing the performance of others.	d5
6) Collaborate effectively within multidisciplinary team and lead teams in different professional contexts.	d7
7) Demonstrate a high level of competence in the time management.	d8
8) Continuous self-education.	d1

4-Curriculum Structure

The duration for obtaining the Master's Degree would be at least two years starting from the registration date.

A- Basic Courses Group - Nine months from the registration date.

B- Major Courses Group - Two years from the registration date.

5- Program admission requirements

1. The postgraduate student should obtain the Bachelor's Degree of Oral and Dental Medicine and Surgery with a minimum grade of "Good" in both the general grade and dental biomaterials 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 spent at least three years after obtaining the Bachelor's Degree of Oral and Dental Medicine and Surgery or at least two years for those who work as demonstrators in one of the Faculties of

Dentistry or at least two years for those who have been working in an academic Institute of Dentistry acknowledged by the university.

3. The postgraduate student should submit a registration request to the faculty dean during the first half of September to register in October. Dental biomaterials department council will assign the supervisor who will determine the research field.

6 – Regulations for progression and program completion

(Regarding faculty post graduate bylaw)

- Attendance of the academic courses should be satisfactory (at least 75%).
- The postgraduate student must conduct a scientific research based on the suggestion of the supervisor (supervisors) which is subject to the approval of faculty council. The research topic is registered from the date of the University Postgraduate and Research Council approval of the faculty council decree.
- 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.
- The postgraduate student should pass the required exams and should register for the exam at least one month before conducting it.
- The postgraduate student will not be granted the Master's Degree unless he/she passes the English language preparation course (ESP) and the computer course (ICDL) or any equivalent course. This will also be applied to all the students who are registered for the first part of the Master's Degree in the academic year following the issuance of this amendment.
- 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.
- Master's Degree exams are held two times per year, the first is in June and the second is in November at the time set by the University Postgraduate and Research Council based on the suggestion of the faculty council and according to the following system:
 - A- The exam of the basic courses (anatomy, histology, oral pathology, physiology, microbiology, biostatistics) should be held after nine months from the degree registration.
 - B- The exam of dental biomaterials course should be held after two years from the degree registration.

C- The postgraduate student should not register for the dental biomaterials course exam unless he/she passes the basic courses.

D- The postgraduate student who fails or misses an exam in any of the two sessions should apply for the exam of the courses he/she failed in the second session.

- The postgraduate student should pass all the assigned exams based on the following:

A-In order for the postgraduate student to pass any course in the first year (Basic Courses), he/she should get at least a minimum mark of (60%) out of the total marks of this course, and he/she should get at least 50% from the maximum mark in the written exam.

B-In order for the postgraduate student to pass any course in the second year (Major Courses), he/she should get at least a minimum mark of (60%) out of the total marks of all the exams of this course (written - practical - oral - clinical).

- The postgraduate's success or failure and the grades of the courses should be according to one of the following grades:

- Excellent $\geq 85\%$
- Very good $\geq 75\%$ - less than 85%
- Good $\geq 65\%$ - less than 75%
- Fair $\geq 60\%$ - less than 65%
- Failed $<60\%$

- The following tables show the courses that are taught in dental biomaterials Master's Degree as well as the number of the weekly assigned hours for each course. The duration of study for each of the two groups is as follows:

A- Basic Courses Group - Nine months from the registration date.

B- Major Courses Group - Two years from the registration date.

(A) Basic Courses Group	Lectures	Practical	Training	Total
General Surgical Anatomy including Head and Neck (in detail)	3	2	-	5
General Physiology	2	-	-	2
Anatomy and Oral Histology	2	2	-	4
Oral and Dental Pathology	1	1	-	2
Oral Microbiology	1	1	-	2
Principles of Biostatistics and Methods of Scientific Research	1	-	-	1

(B) Major Courses Group	Lectures	Practical	Training	Total
Dental biomaterials	4	-	12	16

The following tables show the maximum grades of the exam of each course in the dental biomaterials Master's Degree. The exams are written, oral, practical and clinical according to what is shown in the following tables:

The First Part: 600

(A) Basic Courses Group	Exam Type	Mark
General Surgical Anatomy including Head and Neck (in detail)	Written and Oral	100
General Physiology	Written and Oral	100
Anatomy and Oral Histology	Written and Oral	100
Oral and Dental Pathology	Written and Oral	100
Oral Microbiology	Written and Oral	100
Principles of Biostatistics and Methods of Scientific Research	Written and Oral	100

B- Major Courses Group	Test Type	Mark
Dental biomaterials	Two written tests Oral, and Practical	800

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 Mohamed 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		
	c8		a12	1.1	1) 1.1 Proficiency in the application of the fundamentals and methodologies of scientific research and the use of different tools
	c3, c4	b1, b10, b11, b4	a2, a6	1.2	2) 1.2 Application of the analytical method and its use in the field of specialization.
d6		b13	a1, a3, a4	1.8	3) 1.3 Specialized knowledge application and integrated with knowledge relevant in professional practice.
		b7, b9, b12		1.3	4) 1.4 Demonstrate an awareness of the problems of ongoing and new visions in the field of specialization.
		b2, b5, b9	a5	1.4	5) 1.5 Determine the professional problems and find solutions.
d6	c1, c2, c5, c6	b3, b6	a7	1.7	6) 1.6 Proficiency suitable range of specialized professional skills, and the use of appropriate technological means to serve the professional practice.
d3, d5, d7				1.5	7) 1.7 Communicate effectively and the ability to lead teams.
		b8		1.6	8) 1.8 Decision-making in different professional contexts.
			a8	1.2	9) 1.9 Employ available resources to bring the greatest benefit and maintain.
d2			a8, a9	1.6	10) 1.10 Show awareness of its role in community development and environmental.
			a10, a11	1.5	11) 1.11 Disposition reflecting the commitment to integrity, credibility and abide by the rules of the profession.
d1, d4, d8	c7			1.7	12) 1.12 The same development academically and professionally and capable of continuous learning.

Program ILOs				Course name	Course code
General and transferable skills	Practical and clinical skills	Intellectual Skills	Knowledge and Understanding		
d1 → d8	c1	b1	a1	Anatomy	
d1 → d8	c2, c3, c4	b2	a2	Physiology	
d1 → d8	c4	b3	a3	Oral histology,	
d1 → d8	c5	b4	a4	Oral pathology	
d1 → d8		b5	a5	Oral microbiology	
d1 → d8		b6	a6	Biostatistics	
d1 → d8	c6 → c8	b7 → b13	a7 → a12	Dental biomaterials	
d1 → d8				English language	
d1 → d8				ICDL	
d1 → d8	√		√	Thesis	