
Program SPECIFICATION FOR medical doctorate in experimental surgery

Code: 1714800

University: Alexandria Faculty: Medical Research Institute

Program Specification

A. Basic information

1- Program title: medical doctorate in experimental surgery

2- Program type: Single double multiple

3- Department(s): Experimental and Clinical surgery

4- Coordinator: Dr. Mohamed Sultan

5- External evaluator(s): Professor Dr. Tarek EL Fayoumy

**Professor of general surgery, Surgical Oncology Unit, Surgery Department, Faculty of
Medicine, Alexandria University**

6- Last date of program specification approval: 5/6/2014

B. Professional Information

1- Program aims:

Provide the students with knowledge, skills and critical awareness to make has significant contribution to research and services provided by the department.

1. Acquire and add knowledge through research and reasoning on anatomy and physiology of the pancreas, Islet cell transplantation.
2. Describe liver transplant operation, allograft immune response, pre- and post-transplant management of hepatitis C.
3. Recognize ethical and legal aspects of medical practice and surgical practitioners.
4. To provide the student with the appropriate knowledge about breast cancer management and role of surgery.
5. To provide the student with the appropriate knowledge about new surgical techniques for GERD and its management.
6. To focus on endocrine surgery: thyroid, parathyroid, adrenal gland surgery and Multiple Endocrine Neoplasia (MEN) and carcinoid tumors.
7. To enlist bowel diseases, vascular disorders of colon, functional and structural colorectal disorders and colorectal neoplasia.
8. To acknowledge husbandry and animal care. Role of animal research in medicine.
9. To provide the student with the appropriate knowledge about experimental small intestine transplantation in animal models.
10. To provide the student with the appropriate knowledge about different endoscopic equipment, principles in techniques, infection control in endoscopy and risks prevention and management.

11. To describe motility disorders of oesophagus and the use of oesophageal manometry.
12. Describe fundamentals of ERCP in pancreatico-biliary malignancies, motility disorders of the oesophagus and anorectal manometry
13. To provide the student with the appropriate knowledge about fundamentals of laparoscopic surgery and medical malpractice in laparoscopic surgery.
14. To use systematic approaches to design and conduct scientific research.
15. Conduct research studies that add to the existing specialty knowledge.

2- Intended learning outcomes (ILOS)

a- knowledge and understanding:

- A1.** Define the main types of pancreatic transplantation, indications, complications and prognosis and principles of Xenotransplantation.
- A2.** Describe the liver transplant operation with emphasis on special operative problems for donor and recipient, understand the role of immunosuppressive drugs and their different mechanisms of action.
- A3.** Recall ethical and legal aspects of medical practice and the principles of evidence based surgery
- A4.** List different types of hernias, different hernia mechanisms and have a comprehensive overview of herniotomy, herniorrhaphy and hernioplasty, benign breast diseases and nipple disorders.
- A5.** Define GERD, its complications and management, the etiology and classification of upper GIT bleeding colorectal disorders and colorectal neoplasia to reach the appropriate diagnosis and management
- A6.** Recall anatomy and physiology of the biliary tract, liver and pancreas, determine investigations of the biliary tract, discuss jaundice with emphasis on obstructive jaundice and portal hypertension.
- A7.** Describe laboratory animal as a model of human disease and operative techniques in laboratory animals.
- A8.** Recall basics of experimental small intestinal transplantation in animal models.
- A9.** Discuss motility disorders of oesophagus, use of impedance manometry for measurements of gastrointestinal motility and bolus transport based on intraluminal measurements of electrical Impedance.
- A10.** Recall fundamentals of ERCP in cholangiocarcinoma.
- A11.** Discuss fundamentals of laparoscopic surgery: appendectomy and colorectal surgery, laparoscopic obesity surgery, laparoscopy in managing GERD, hiatal hernia and achalasia.
- A12.** Design, conduct & explore publishing of scientific research.

b- Intellectual skills:

- B1.** Categorize problems of pancreatic transplantation, prioritize them, and generate a list of different solutions for each problem.
- B2.** Discuss the pre-operative management of patients with end stage liver disease to ensure success of liver transplantation.
- B3.** Illustrate the importance of medical ethics and legal aspects of medical practice.
- B4.** Discuss different techniques of hernia repair and breast surgery.

- B5.** Predict causes of upper GIT bleeding, propose the appropriate management, and interpret the role of laparoscopy in management of upper GIT bleeding. Analyze causes of intestinal obstruction. Interpret the role of new diagnostic tools in managing bile duct stricture and biliary enteric fistulae.
- B6.** Interpret the results of commonly used diagnostic procedures Suspect complications of lower limb ischemia and plan for appropriate management.
- B7.** Predict diseases outcome in laboratory animal used as model for human diseases.
- B8.** Plan for prevention and management of upper and lower gastrointestinal bleeding.
- B9.** Analyze combined impedance manometry for esophageal motility testing.
- B10.** Explain the role of ERCP (diagnostic & therapeutic) in pancreatobiliary malignancies, CBD stones, and cholangitis and in acute pancreatitis.
- B11.** Prepare scientific articles/papers to be published in indexed journals.

c- Professional and practical skills:

- C1** Gain skills to use appropriate laboratory animals.
- C2** Apply main strategies for pancreatic and islet cell transplantation and strategies to prolong experimental xenograft survival.
- C3** Demonstrate liver transplantation in non-alcoholic Fatty liver disease and long term metabolic complications.
- C4** Practice Evidence Based Surgery, surgical practitioners, ethical and legal aspects of medical practice and practice writing of thesis protocol.
- C5** Examine diabetic foot infection, functional tumors and paraneoplastic syndrome.
- C6** Practice patient examination for hernia and breast diseases.
- C7** Choose surgical techniques in the management of breast cancer patients.
- C8** Apply the effectiveness of GORD therapy and surgical management.
- C9** Choose appropriate initial therapy for patients with haemorrhoids, rectal prolapsed, colonic infestations, cancer anus.
- C10** Apply main surgical strategies of management of cholangitis and pancreatic neoplasms and cholangiocarcinoma, endocrine diseases, portal hypertension and lymphoma.
- C11** Practice strategies of management (surgery and endovascular techniques) of acute and chronic venous insufficiency, post phlebitis syndrome, lower limb ischemia, arteriovenous fistulae and diabetic foot disease.
- C12** Demonstrate lymphatic system and the spleen and lymphoma.
- C13** Apply main strategies to prolong experimental graft survival and intestinal transplantation.
- C14** Practice technique skills in gastrointestinal endoscopy and new techniques: endoscopic ultrasound and enteroscopy.
- C15** Apply main strategies to optimize the use of ERCP as diagnostic and therapeutic tool.
- C16** Apply the effectiveness of laparoscopy in bariatric surgery, biliary surgery, and splenectomy, GERD, hiatal hernia and achalasia.
- C17** Demonstrate laparoscopic repair for inguinal and ventral hernias and errors.
- C18** Practice main strategies to optimize laparoscopic biliary surgery: laparoscopic cholecystectomy, cholangiography and CBD exploration.

d- General and transferable skills:

- D1.** Communicate effectively using scientific language and reasoning.
- D2.** Work effectively and cooperatively in a team.
- D3.** Maintain an open and questioning mind toward ideas and alternative points of view.
- D4.** Manage scientific meetings and Utilize time appropriately.

3- Academic standards

3a External references for standards (Benchmarks)

Generic Academic Reference Standards of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE)

Adopted at MRI council 12/2/2014 and re-adopted at 15/1/2023

Last date of Academic Reference standards (ARS) approval by Institute Council: 15/1/2023

3b Comparison of provision to selected external references

NAQAAE	ARS for doctorate in experimental surgery
A1-Basic facts , theories, of the specialty and related subjects/ fields	A1 Outline the liver transplant operation with emphasis on special operative problems for donor and recipient, understand the role of immunosuppressive drugs and their different mechanisms of action
A2- Mutual relation between professional practice and effects on environment	A2 Explain the procedures for early cancer diagnosis and risk group identification.
A3- Recent advances in the field of practice	A3 Define GERD, its complications and management, the etiology and classification of upper GIT bleeding colorectal disorders and colorectal neoplasia to reach the appropriate diagnosis and management
A4-Details of ethical & legal practice	A4 The moral and legal ramifications of surgical practice are listed.
A5 -Quality standards of the practice	A5 Identify frequent and significant surgical conditions and describe their origin, pathophysiology, clinical characteristics, consequences, and therapy. The teaching team

	provides the students with several opportunity to explore significant and typical surgical issues.
A6- Design, conduction & publishing of scientific research	A6 Design, conduction & explore publishing of scientific research.
A7- Ethical considerations in different types of scientific research	A7 Describe the moral and legal ramifications of surgical techniques.
B1- Analyze, deduce, extrapolate & evaluation of information	B1 Make the proper diagnosis by analyzing the outcomes of clinical and investigative data.
B2- Solve the majority of problems in the specialty according to the available data (complete or incomplete)	B2 Develop management plans for surgical disorders, track the efficacy of treatment, and adjust management plans as necessary
B3- Conduct research studies that add to the existing specialty knowledge	B3 Conduct research studies that add to the existing specialty knowledge.
B4- Publish scientific articles/papers (in indexed journals)	B4 Prepare scientific articles/papers to be published in indexed journals.
B5- Plan and implement (or supervise implementation of) enhancement & Improvement approaches to practice	B5 Determine which tests are necessary for the surgical patient's diagnosis and care.
B6- Take decisions in various professional situations (including dilemmas & controversial issues)	B6 Explain the role of ERCP (diagnostic & therapeutic) in pancreatico-biliary malignancies, CBD stones, cholangitis and in acute pancreatitis. Analyze causes of malpractice in laparoscopic surgery and propose solutions, and different surgical techniques.
B7- Add to the specialty field through creativity & innovation	B7 Gaining skills and knowledge in the treatment of various surgical problems and monitoring these patients to assess the outcome of the treatment.
B8- Manage discussions on basis of evidence and proofs	B8 Consider the anatomical, pathologic, and functional diagnostic relevance of the patient's symptoms and physical manifestations.
C1- Competent in all basic and all required advanced professional skills (to be determined according to the specialty board/ department)	C1 Gain skills to use appropriate laboratory animals. Apply techniques to get sample or specimens.
C2- Write and appraise reports	C2 To increase surgical training abilities, distinguish between fundamental and sophisticated surgical methods.

C3- Evaluate and improve methods and tools used in specialty	C3 Practice patient examination for hernia and breast, choose techniques for hernia and breast lumps and nipple.
C4- Use technology to advance practice	C4 Through exploratory surgical research, acquire improved practical skills.
C5- Plan professional development courses to improve practice and enhance performance of juniors	C5 Apply main strategies for pancreatic and islet cell transplantation and choose Strategies to prolong experimental xenograft survival. Illustrate the effectiveness of immunosuppressive drugs to overcome different immunological barriers, and illustrate allograft immunology.
D1- Communicate effectively using all methods	D1 Communicate effectively using scientific language and reasoning
D2- Use information technology to improve his/her professional practice	D2 Engage in trustworthy and accountable behavior.
D3- Teach and evaluate others	D3 Work cooperatively as a team and successfully communicate with other healthcare professionals.
D4- Perform self-appraisal& seek continuous learning	D4 Maintain an open and questioning mind toward ideas and alternative points of view
D5- Use different sources of information to obtain data	D5 Evaluate the value and relevance of other people's views.
D6- Work in teams as well as a member in larger teams	D6 Work effectively and cooperatively in a team
D7- Manage scientific meetings and appropriately utilize time	D7 Develop skills for oral presentation

4- Curriculum structure and contents

4.a program duration: 5 – 7 years

4.b program structure : 24 credit hours + 24 thesis

4.b.i- No. of hours per week in each year/semester:

Semester	Core Courses	Elective Courses
	No. of hours	No. of hours
First semester	(1714806) 2 credit hours	
Second semester	(1709840- 1714803) 6 credit hours	
Third semester	(1714801-1714814) 2 credit hours	(1714814) 2 credit hours
Fourth semester	(1714804-1714805) 4 credit hours	
Fifth semester	(1714802-807) 4 credit hours	
Sixth semester	(1714808-1710820) 2 credit hours	(1710821) 2 credit hours

4.b.ii- No. of credit hours Lectures Clinical Thesis Total

 Compulsory Elective Optional

4.b.iii- No. of credit hours of specialized courses No. %

4.b.iv- No. of credit hours of other courses No. %

4.b.v- Program levels (in credit-hours system) :

Student is required to pass at least 12 credit hours with CGPA not less than C+ before submitting a thesis proposal.

5- Program Courses

Admission Requirement: Postgraduate medical students with a M.Sc. in Surgery, Experimental Surgery or an academic M.Sc. relevant to Surgery.

Core Courses (20 CH): 1709821, 1714801, 1714802, 1714803, 1714804, 1714805, 1714806, 1714807, 1714808.

Elective Courses (4CH): 1714809, 1714810, 1714811, 1710821

M.D. Thesis: 24 CH

5.1- Compulsory core courses (20 credit hours)

Code	Name	Hours/Week		
		Clinical	Theoretical	Total Cr
1709840	Advanced Laboratory Animal Science	2	1	2
1714801	Experimental Pancreas Transplantation	2	1	2
1714802	Experimental Liver Transplantation	2	1	2
1714803	Advanced Science for Applied Surgery	4	2	4
1714804	Updating Surgery I	2	1	2
1714805	Updating Surgery II	2	1	2
1714806	Updating Surgery III	2	1	2
1714807	Updating Surgery IV	2	1	2
1714808	Updating Surgery V	2	1	2
Total		20	10	20

5.2- Elective courses (4 credit hours)

Code	Name	Hours/Week		
		Clinical	Theoretical	Total Cr
Elective Courses (4 CH)				
1714810	Experimental Small Intestine Transplantation	2	1	2
1714811	Gastrointestinal Endoscopy	2	1	2
1714812	Endoscopic Retrograde Cholangiopancreatography	2	-	1
1714813	Gastrointestinal Motility Studies	2	-	1
1714814	Laparoscopic Surgery II	2	1	2
1710821	Pathology	2	2	3

5.3- Optional – (none)

6- Program admission requirements: Postgraduate students with a M.Sc. or an equivalent degree in Surgery or Experimental Surgery.

7- Teaching and learning methods:

- Lecture
- Clinical
- Brainstorming
- Discussion Groups

- Problem Solving
- Case Study
- Role-playing
- Training Workshops
- Self-Directed Learning
- Project

8- Regulations for progression and program completion

For the progression and completion of the program to obtain the degree of master of experimental surgery, the student must:

1. Complete 24 credit hours with CGPA of at least C+ through courses.
2. Complete 24 credits hours through thesis.
3. Submit a thesis validity report by an examination committee approved by the department council and their members include at least one external examiner.

9- Evaluation of Students enrolled in the program.

Tool evaluation	Intended learning outcomes being assessed
Written	ILOs a &b
Clinical	ILOs c
Oral	ILOs a ,b &d
Semester Work	ILOs b & d

Evaluation of the Program

Evaluator	Tool	Sample
1- Senior students	Questionnaire	At least 50 %
2- Alumni	Questionnaire	Representative sample
3- Stakeholders (Employers)	Meeting	Representative sample
4- External Evaluator(S) or External Examiner (s)	Report	Professor Tarek Abd-El-Halim El-Fayoumy
5- Other		

Program coordinator:

Name: **Dr. Mohamed Sultan**

Signature:

محمد سلطان

Department Head:

Name: **Prof. Dr. Medhat Anwar**

Signature:

مهدى محمد انور

Date of Department Council Approval: 2/8/2023

Program Aims vs Graduate Attribute matrix

Generic Graduate Attributes of NAQAAE	Graduate Attributes of Doctorate degree in Experimental Surgery	Program Aims
	By the end of this program, graduate should be able to	
Basic facts, theories, of the specialty and related subjects/ fields	To be able to conduct scientific research and access medical information.	Acquire and add knowledge through research and reasoning on anatomy and physiology of the pancreas, Islet cell transplantation.
Mutual relation between professional practice and effects on environment	To be able to conduct research studies in a sound manner, taking into account the scientific and ethical foundations of scientific research	Describe liver transplant operation, allograft immune response, pre- and post-transplant management of hepatitis C.
Recent advances in the field of practice	To be able to draft papers and research studies	Recognize ethical and legal aspects of medical practice and surgical practitioners.
Details of ethical & legal practice	To be able to communicate with scientific journals and know the rules and methods of scientific publishing.	To provide the student with the appropriate knowledge about breast cancer management and role of surgery.
Ethical considerations in different types of scientific research	To be able to conduct proper clinical examination of cases, take patient histories, and request the necessary tests	To provide the student with the appropriate knowledge about new surgical techniques for GERD and its management.
Solve the majority of problems in the specialty according to the available data (complete or incomplete)	To be able to conduct a sound and comprehensive evaluation of cases and acquire the skills of presenting cases for scientific discussion.	To focus on endocrine surgery: thyroid, parathyroid, adrenal gland surgery and Multiple Endocrine Neoplasia (MEN) and carcinoid tumors.

Conduct research studies that add to the existing specialty knowledge	To be able to perform the basic surgical operations mentioned above, as well as more complex operations such as repair of diverticulum hernias, exploration of bile ducts, conservative mastectomy, and removal of colon and stomach tumors.	To enlist bowel diseases, vascular disorders of colon, functional and structural colorectal disorders and colorectal neoplasia.
Manage discussions on basis of evidence and proofs	To be able to assist junior doctors in the operations he is good at	To acknowledge husbandry and animal care. Role of animal research in medicine.
Use technology to advance practice	To be familiar with the basics and able to assist senior doctors in large and complex cases.	To provide the student with the appropriate knowledge about experimental small intestine transplantation in animal models.
Communicate effectively using all methods	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	Conduct research studies that add to the existing specialty knowledge.

Program Aims vs ILOs matrix

program aims	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ILOs															
a1	x														
a2		x													
a3			x												
a4				x									x		
a5					x		x			x	x	x			
a6	x					x						x			
a7							x								
a8								x							
a9									x						
a10										x		x			
a11						x		x					x		
a12															x
b1	x														
b2		x													
b3			x												
b4				x											
b5					x										
b6						x									
b7							x								
b8								x							
b9									x						
b10										x					
b11															x
c1-3									x						
c4-6	x														
c7		x													
c8			x												
c9				x											
c10					x										
c11						x									
c12							x								
c13								x							
c14										x					
c15											x				
c16												x			
c17													x		
c18														x	
d1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

d2	x	x	x	x	x	x	x	x	x	x	X	x	x	x	x	
d3	x	x	x	x	x	x	x	x	x	X	x		x	x		
d4	x	x	x	x	x	x	x	x	x	X	x	x	x			

Courses vs Program ILOs matrix

CO	170	171	171	171	171	171	171	171	171	171	171	171	171	171	Th
URS	982	480	480	480	480	480	480	480	480	481	481	481	481	481	esi
ES	1	1	2	3	4	5	6	7	8	0	1	2	3	4	s
ILOs															
a1	x														
a2		x													
a3			x												
a4				x											
a5					x										
a6						x									
a7							x								
a8								x							
a9									x				x		
a10										x		x			
a11														x	
a12															x
b1	x														
b2		x													
b3			x												
b4				x											
b5					x										
b6						x									
b7							x								
b8								x							
b9									x				x		
b10										x		x			
b11															x
c1-3									x						
c4-6	x														
c7		x													
c8			x												
c9				x											
c10					x										
c11						x									
c12							x								
c13								x							
c14										x					

c15												X	X			
c16																
c17														X		
c18															X	
d1	X						X									
d2		X				X		X		X		X		X		
d3			X		X				X		X		X	X	X	
d4				X			X	X	X	X	X	X	X	X	X	

ARS vs ILOs matrix

ARS	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5	D6	D7
ILOs	x																											
a1		x			x	x				x		x	x	x			x	x			x		x	x	x		x	
a2								x	x		x			x		x			x	x		x			x			x
a3	x		x		x		x																					
a4		x		x		x		x		x		x	x		x		x		x		x		x	x		x	x	
a5				x			x		x		x			x		x		x		x		x			x			x
a6		x	x	x			x						x					x						x		x		
a7	x				x						x	x	x			x	x	x				x	x	x		x		x
a8						x		x		x					x				x		x						x	
a9	x		x						x					x					x						x			
a10		x			x					x		x			x		x				x		x				x	
a11			x		x		x																					
a12						x						x	x															
b1				x				x	x					x					x	x					x			
b2	x		x				x											x										
b3		x			x					x		x	x		x		x				x		x	x		x	x	
b4				x		x		x			x					x			x			x						x
b5	x								x					x				x		x					x			
b6			x		x		x			x					x						x						x	
b7		x						x				x	x				x		x				x	x		x		
b8				x		x	x				x					x						x						x
b9			x						x				x	x				x		x				x	x	x		
b10	x				x		x					x					x						x					

Department of Experimental
And Clinical Surgery



b11						X						X	X														
c1-3		X		X	X				X	X		X	X		X			X	X		X		X		X		
c4-6																											
c7	X	X	X			X		X		X	X		X		X	X		X		X	X		X		X	X	X
c8				X			X					X				X	X					X					
c9			X		X			X		X		X		X			X		X		X		X				X
c10	X	X				X				X			X		X					X			X		X	X	
c11			X					X			X				X			X			X						X
c12			X	X			X				X	X			X	X	X				X	X					X
c13		X			X		X		X	X			X	X				X	X				X		X		X
c14		X		X	X				X	X		X		X		X		X	X		X		X		X		X
c15	X					X		X				X					X					X		X			X
c16		X		X					X		X			X		X	X			X		X				X	
c17		X		X	X		X			X		X	X	X	X		X	X		X		X	X	X	X		X
c18			X		X			X	X		X			X		X		X	X		X			X			X
d1																											
d2	X	X		X		X	X	X		X		X	X		X		X		X		X	X		X	X		X
d3			X		X				X		X			X		X		X		X		X			X		X
d4	X					X	X	X		X			X				X							X		X	

Teaching methods used in each course

	12098 21	12148 01	12148 02	12148 03	12148 04	12148 05	12148 06	12148 07	12148 08	12148 10	12148 11	12148 12	12148 13	12148 14
Lecture	x	x	x	x	x	x	x	x	x	x	x			x
Clinical	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Brainstorming	x			x			x	x	x	x	x			x
Discussion Groups		x			x				x			x		
Problem Solving			x			x			x	x			x	
Case Study	x	x				x					x			
Training Workshops			x										x	
Self-Directed Learning				x	x			x				x	x	x
e-learning														
Project	x	x								x		x		