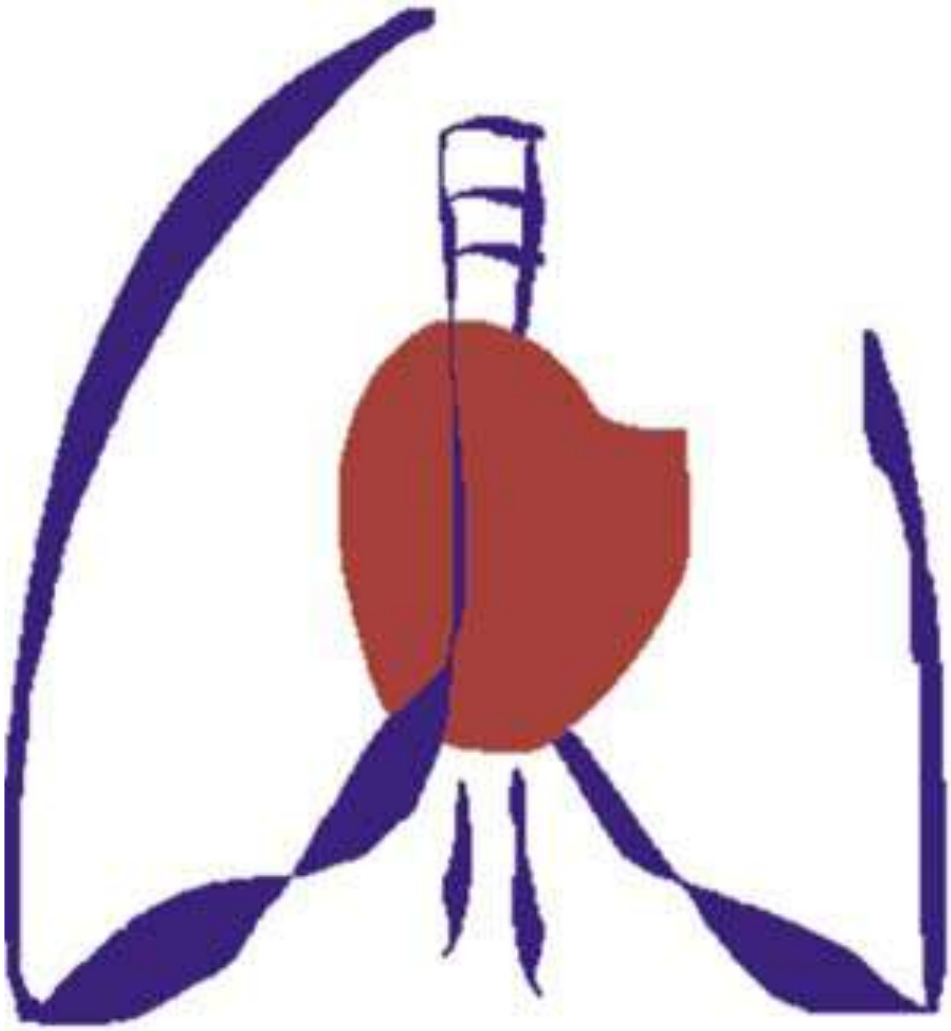
Medical Doctorate (M.D.) Degree of Cardiothoracic Surgery Log Book



" كراســـــة الأنشـــــطة "

اللازمة لحصول المتدرب على درجة الدكتوراه في جراحة القلب والصدر

2022-2023

Contents

Personal photo

Name…….
Date of birth……..
Address……..
Place of work……
Telephones………**Mobile phone(s)**……..
E mail……

Name of hospital	Period of work	**Hospital director signature**

Academic Information

MBBCh……/……/…… ……..University Grade ….....
MSc… ……..University Grade ….....
Grade of General Surgery course on graduation ……..
Others……/……/…… ……..University
……/……/…… ……..University

Aim of the activities book

To provide one source of evidence for the assessment committee that you attained the desired level of competency required to gain the award.

In this book you will document all clinical, academic and other experiences and skills you attained during your training.

Instructions to the use of logbook

For each module / course / rotation

You should fill the following sections:-

1- Clinical case log

1- You will first find list with all required cases in the concerned module and the minimum number of cases you must get exposed to and level of participation you should achieve for each type of cases.

2- You should record all clinical cases in the module and each case should be signed by you trainer.

2- Clinical case presentation log

Record the cases related to the module that you have presented in a seminar of the activity.

3- Procedures / operations log

1- You will find a list for required procedure, diagnostic – therapeutic operations and level of desired performance you should achieve at the end of training.

2- You will find empty tables to write down the procedure, you level of participation and date and signature of supervisor.

4- Post operative care log

1 - You will find a list for required post operative care and level of desired performance you should achieve at the end of training.

2- You will find empty tables to write down the post operative care, you level of participation and date and signature of supervisor.

4- Rotation / attendance proof

You should have evidence of achievement the required training hours within each module.

For the whole program fill the following sections.

1- Academic activities

A- Document all academic activities e.g. lecture, journal clubs, workshops, conference, services attended. This documentation should include the level of participation " attendance, preparation, presentation,……"

2- Academic achievements

A- Document all outcomes you achieved in the field of:-
- Audit participation
- Research "clinical trial" participation.
- Evidence- based medicine "generation of guidelines" protocols
- ……..

3- Formative assessment log

This document all types of formative assessment attended e.g.:-
- Mini clinical examination
- Quizzes

Program aims

1/1 To enable candidates master high level of clinical skills, bedside care skills, in addition to update medical knowledge as well as surgical experience and competence in the area of Thoracic Diseases, Congenital Heart Disease, Acquired Heart Disease, Thoracic Trauma and enabling the candidates of making appropriate referrals to a sub-specialist
1/2 Provide candidate with fundamental knowledge and skills of Extracorporeal Bypass as regards; mastering dealing with Extracorporeal circuits , equipments, and training skills of different techniques.
1/3 To enable candidates to perform high standard scientific medical research and how to proceed with publication in indexed medical journals.
1/4 To enable candidates to describe the basic ethical and medicolegal principles relevant to cardiothoracic surgery
1/5 To enable candidates to have professional careers as a consultant in Egypt but recognized abroad.
1/6To enable candidates to continue self learning in subspecialties.
1/7 To enable candidates to master different research methodology and do their own.

Program Structure

A. Program Time Table

Duration of program up to 4 years (could be extended to 6 years) divided into

- Part 1

Program-related basic science courses
- Medical statistics.& Research methodology
-: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
Students are allowed to sit the exams of these courses after 6 months from applying to the M D degree.

- Thesis and 2 published researches

  For the M D thesis;
  MD thesis subject should be officially registered within 1 year from application to the MD degree,
  Discussion and acceptance of the thesis should not be set before 24 months from registering the M D subject;
  It could be discussed and accepted either before or after passing the second part of examination
- Part 2

Program –related speciality courses and ILOs
Students are not allowed to sit the exams of these courses before 4 years from applying to the MD degree.

Students have to pass the final written exams to be eligible to sit the oral and clinical exams.
If the student fails to pass the clinical and oral exams for 4 times, he has to repeat the final written exam again.
Final written exams degrees and the case solving are all added together.

First Part

Basic science Courses

Course	Name of the course
Course 1	Medical statistics
Course 2	Research methodology
Course 3	Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
Course 4	Applied Physiology (Chest and heart)
Course 5	Applied Surgical Cardiothoracic Pathology
Course 6	Applied Surgical Cardiothoracic Anatomy

Medical statistics

Requirements

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Practical	Percentage of Achieved points
Medical statistics	1 credit point	Pubic Health & Community Medicine			100%
	0.1		Introduction 1 hour	SPSS Introduction 2H	10%
	0.1		Tables and graphics 1 Hour	Data entry and cleaning of data 2H	10%
	0.1		Sampling 1 Hour	Transforming of variables 2H	10%
	0.1		Methodology of data collection 1 Hour	Descriptive statistics 2 H	10%
	0.1		Type of variables 1 Hour	Graphic presentation 2 H	10%
	0.1		Proportion test Chi-square test 1 Hour	Chi square and interpretation of results 2 H	10%
	0.1		Student T test Paired T test 1 Hour	Student, Paired and ANOVA tests 2H	10%
	0.1		ANOVA test 1 Hour	Correlation Regression 2 Hour	10%
	0.1		Non parametric tests 1 Hour	Multiple and logistic Regression 2 H	10%
	0.1		Discrimination analysis factor analysis 1 Hour	Non parametric tests 2 H	10%
			Revision 1 H	Revision 2H	
Student signature			Principle coordinator signature		Head of the department signature

Medical Statistics

Lectures and tutorials

Date	Attendance	Topic	Signature

Research Methodology

Requirements

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Research Methodology	1 credit point	Pubic Health & Community Medicine		100%
	0.15		4 hours Introduction & proposal writing	15%
	0.15		4 hours Epidemiological study designs	15%
	0.15		4 hours Screening & theoretical background	15%
	0.24		6 hours Screening practical	24%
	0.15		4 hours Sample size calculation	15%
	0.08		2 hours Research bias	8%
	0.08		2 hours Ethics in research	8%
	-		2 hours Revision	-
Student signature			**Principle coordinator signature**	**Head of the department signature**

Research Methodology

Lectures and tutorials

Date	Attendance	Topic	Signature

Medicolegal Aspects and Ethics in Medical Practice and Scientific Research

Requirements

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Medicolegal Aspects and Ethics in Medical Practice and Scientific Research	1 credit point	Forensic Medicine and Clinical Toxicology	10 hours	100%
	0.2		2 hours Suspicious death. Death and death certificate.	20%
	0.2		2 hours Supportive measures	20%
	0.2		2 hours Toxicological reports	20%
	0.2		2 hours Ethics in research.	20%
	0.2		2 hours Medical ethics.	20%
Student signature			Principle coordinator signature	Head of the department signature

Medicolegal Aspects and Ethics in Medical Practice and Scientific

Lectures and tutorials

Date	Attendance	Topic	Signature

Course 4: Applied Physiology (Chest and heart)

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Physiology	0.5	Cardiothoracic Surgery	5 hours - Chest wall. - Pleura - Tracheobroncheal tree and Lungs - Esophagus - Diaphragm - Mediastinum - Pericardium	50%
	0.5		5 hours - Heart - Great Vessels in the Thorax	50%
Student signature			Principle coordinator signature	Head of the department signature

Applied Physiology (Chest and heart)

Lectures

Date	Attendance	Topic	Signature

Course 5: Applied Surgical Cardiothoracic Pathology

Requirements

- **Credit points: 3 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Pathology	0.5	Cardiothoracic Surgery	5 hours - Chest wall. - Thoracic inlet - Diaphragm	16.7%
	0.5		5 hours - Pleura - Tracheobroncheal tree and Lungs	16.7%
	0.5		5 hours - Esophagus - Mediastinum - Pericardium	16.6%
	1.5		15 hours - Heart - Great Vessels in the Thorax	50%
Student signature			Principle coordinator signature	Head of the department signature

Applied Surgical Cardiothoracic Pathology

Lectures

Date	Attendance	Topic	Signature

Course 6: Applied Surgical Cardiothoracic Anatomy

Requirements

- **Credit points: 3 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Anatomy	0.5	Cardiothoracic Surgery	5 hours - Chest wall. - Thoracic inlet - Diaphragm	16.7%
	0.5		5 hours - Pleura - Tracheobroncheal tree and Lungs	16.7%
	0.5		5 hours - Esophagus - Mediastinum - Pericardium	16.6%
	1.5		15 hours - Heart - Great Vessels in the Thorax	50%
Student signature			Principle coordinator signature	Head of the department signature

Applied Surgical Cardiothoracic Anatomy

Lectures

Date	Attendance	Topic	Signature

Course 7: Cardiothoracic Surgery

Units' Titles' list	% from total Marks	Level (Year)	Core Credit points		
			Didactic	training	Total
1) Unit (Module)1 Thoracic Diseases	25%	1,2&3	6	30.7	36.7
2) Unit (Module)2 Acquired Heart Disease	25%	1,2&3	6	30.7	36.7
3) Unit (Module)3 Congenital Heart Disease	25%	3&4	6	30.7	36.7
4) Unit (Module)4 Thoracic Trauma	10%	1&2	2.4	12.3	14.7
5) Unit (Module)5 Extracorporeal Bypass	7.5%	1&2	1.8	9.3	11.1
6) Unit (Module)6 Minor Procedures	7.5%	1&2	1.8	9.3	11.1
Total No. of Units:	**6**	24	**24**	**123**	**147**

Unit (Module) 1
Thoracic diseases

Rotation / attendance proof
الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 6 credit point for didactic (lectures, seminars, tutorial) and 30.7 point for training.
- Minimal rate of attendance 80% of training and didactic

Year 1

(10.7 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Thoracic diseases	5	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 5 week in the department ➢ Procedures log as mentioned below	46.7%
	3		➢ Night shift (From 2pm to 8am) 1/week for 6 weeks	28%
	1		➢ Attendance of at least 2 weeks in the Outpatient clinic (3 hours /day)	9.4%
	1		➢ Attendance of at least 30% of clinical rounds (1 hour /week for 30 week)	9.4%
	0.7		➢ Formative assessment	6.5%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Thoracic diseases Cases:

PROCEDURES	Number of cases
1. Lobectomy	3
2. Pneumonectomy	1
3. Decortication	2
4. Mediastinal tumor	2
5. Other Thoracic Major, ie Pleurectomy or Chest Wall	2
6. Oesophageal resection	1
7. Other oesophageal procedures	1

Year 2

(3 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module) 1 Thoracic diseases	3	Cardiothoracic Surgery	Year 2	**50% of the didactics of Unit 1**
	1.8		**Topics and attendance**	**60%**
	0.5		5 hours **CHEST WALL** **A. Acquired Abnormalities and Neoplasms** ***1. Malignant neoplasms of the chest wall*** a. Chondrosarcoma b. Osteogenic sarcoma c. Malignant fibrous histiocytoma d. Rhabdomyosarcoma e. Lymphoma f. Myeloma g. Ewing's sarcoma h. Metastatic lesions i. Lung cancer invading the chest wall ***2. Benign neoplasms of the chest wall*** a. Fibrous dysplasia b. Chondroma c. Osteochondroma d. Eosinophilic granuloma **B. Congenital Abnormalities and thoracic Outlet Syndrome** ***1. Pectus excavatum*** a. Components b. Evaluation and management (operative and non-operative) 1. Nuss procdure 2. Conventional repair (Ravitch) c. Plastic surgical alternatives ***2. Pectus carinatum*** a. Components b. Evaluation and management (operative and non-operative) ***3. Thoracic outlet anatomy*** a. Skeletal, muscular, vascular, neural	

			4. Diagnostic tests a. Clinical examination and physical exam b. Nerve conduction studies c. Angiography d. CT scan e. MRI f. Non-invasive vascular studies ***5. Forms of conservative management*** a. Physical therapy b. Weight reduction ***6. Surgical management*** a. First rib resection (operative approaches) b. Cervical ribs c. Associated vascular abnormalities d. Management of intraoperative complications e. Re-operation	
	0.8		8 hours **LUNGS & PLEURA** A. **Non-Neoplastic Lung Disease** ***1. Common pulmonary pathogens*** a. Bacteria b. Fungi c. Mycobacterial (tuberculoisis and atypical [MOTT]) d. Viruses e. Protozoa f. Immunocompromised patients ***2. Chronic obstructive pulmonary disease*** a. Natural history b. Presentation, evaluation c. Alteration of lung function d. Complications requiring operative treatment e. Treatment (operative and non-operative) ***3. Bronchospasm*** a. Natural history b. Evaluation c. Complications requiring operative treatment d. Treatment (operative and non-operative) ***4. Foreign bodies of the lung and airways*** a. Common types b. Causes, pathology c. Evaluation d. Treatment (operative and non-operative) ***5. Hemoptysis*** a. Causes	

			b. Physiologic derangements c. Evaluation d. Treatment (operative and non-operative) ***6. Pneumothorax*** a. Etiology b. Indications for treatment c. Types of treatment B. **Neoplastic Lung Disease** ***1. Benign tumors of the lung and airways*** a. Pathology, biologic behavior b. Evaluation, diagnosis, treatment (operative and non-operative) ***2. Solitary lung nodule*** a. Differential diagnosis, evaluation, diagnostic techniques b. Treatment (operative and non-operative) ***3. Malignant tumors of the lung and airways*** a. Pathology, biologic behavior b. Evaluation, diagnosis, treatment (operative and non-operative) ***4. Metastatic tumors to the lungs*** a. Pathology and biologic behavior b. Evaluation, diagnosis, treatment (operative and non-operative) C. **Congenital Lung Disease** ***1. Pulmonary sequestration*** a. Presentation (intralobar and extralobar) b. Evaluation and management c. Prognosis ***2. Congenital lobar emphysema*** a. Presentation and physiology b. Evaluation and management ***3. Cystic fibrosis*** a. Presentation and physiology b. Evaluation and management c. Complications and their management d. Role of pulmonary transplantation ***4. Bronchogenic cysts*** a. Presentation b. Evaluation and indications for operation c. Operative options ***5. Cystic adenomatoid malformation*** a. Presentation and physiology b. Evaluation and indications for operation c. Operative options	

			D. **Diseases of the Pleura** ***1. Mesothelioma*** a. Pathology, biologic behavior, and natural history b. Treatment (operative and non-operative) ***2. Pleural effusions*** a. Types b. Diagnosis c. Treatment (operative and non-operative) ***3. Empyema*** a. Presentation with and without bronchopleural fistula b. Diagnosis c. Treatment (operative and non-operative) d. Surgical options (e.g., thoracentesis, tube thoracostomy, decortication, rib resection, repair of bronchopleural fistula)	
	0.5		5 hours **DIAPHRAGM** ***A.* Acquired Abnormalities and Neoplasms** ***1. Diaphragmatic rupture*** a. Clinical presentation b. Physiologic effects c. Operative management d. Management of associated injuries ***2. Periphrenic abscess*** a. Clinical presentation b. Physiologic effects c. Operative management ***3. Acquired diaphragmatic hernias*** a. Esophageal b. Eventration c. Treatment ***4. Tumors of the diaphragm*** a. Mesenchymal origin (benign and malignant) b. Neurogenic (benign and malignant) c. Secondary (lung, esophageal, mesothelioma) d. Treatment ***5. Paralysis of the diaphragm*** a. Causes b. Diagnosis c. Treatment	

			B. **Congenital Abnormalities** ***1. Congenital diaphragmatic hernias*** a. Clinical presentations b. Pulmonary abnormalities c. Gastrointestinal abnormalities d. Cardiovascular abnormalities e. Treatment	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**17%**
	0.5		**Conference or workshop**	**17%**
	0.2		**Formative assessment**	**6%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 2

(10 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Cardiothoracic Surgery department	4.4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 2 month in the department ➢ Procedures log as mentioned below	44%
	3		➢ Night shift (From 2pm to 8am) 1/week for 6 weeks	30%
	1		➢ Attendance of at least 2 weeks in the Outpatient clinic (3 hours /day)	10%
	1		➢ Attendance of at least 30% of clinical rounds (1hour /week for 30 week)	10%
	0.6		➢ Formative assessment	4.6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Thoracic diseases Cases:

PROCEDURES	Number of cases
1. Lobectomy	3
2. Pneumonectomy	1
3. Decortication	2
4. Mediastinal tumor	2
5. Other Thoracic Major, ie Pleurectomy or Chest Wall	2
6. Oesophageal resection	1
7. Other oesophageal procedures	1

Year 3

(3 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module) 1 Thoracic diseases	3	Cardiothoracic Surgery	Year 3	**50% of the didactics of Unit 1**
	1.8		**Topics and attendance**	**60%**
	0.6		6 hours **TRACHEA & BRONCHII** **A. Congenital and Acquired Abnormalities** ***1. Radiologic assessment of the trachea and bronchi*** a. Plain x-rays b. CT scans c. MRI d. Barium swallow ***2. Stricture of the trachea*** a. Post-intubation b. Post-tracheostomy c. Post-traumatic ***3. Strictures of the bronchi*** a. Transplant b. Stricture after sleeve resection c. Histoplasmosis ***4. Anesthesia for tracheal operations*** a. Methods of airway control b. Extubation concerns ***5. Operative approaches to the trachea*** a. Reconstruction of the upper trachea b. Reconstruction of the lower trachea c. Mediastinal tracheostomy ***6. Tracheostomy and its complications*** a. Tracheal stenosis b. Tracheo-esophageal fistula c. Tracheo-innominate artery fistula d. Persistent tracheal stoma ***7. Airway trauma*** a. Airway control	

				b. Evaluation of associated injuries c. Principles of repair (primary and secondary) d. Protecting tracheostomies ***8. Tracheomalacia, Bronchomalacia*** a. Diagnosis b. Strategies for management (operative and non-operative) B. **Neoplasms** ***1. Neoplasms of the trachea*** a. Benign b. Malignant c. Metastatic ***2. Operative techniques*** a. Resection of tracheal tumors b. Methods of tracheal reconstruction c. Operative approaches ***3. Prosthetics*** a. Silastic prosthetics b. Stents c. Types of tracheostomy tubes and tracheal T-tubes 4. Airway management a. Bronchoscopic "core out" b. Laser c. photodynamic therapy **MEDIASTINUM & PERICARDIUM** ***A.*** **Congenital Abnormalities of the Mediastinum** ***1. Mediastinal cysts*** a. Anterior 1. Cystic hygroma b. Middle 1. Pericardial cysts 2. Bronchogenic cysts c. Posterior 1. Esophageal duplications 2. Neurogenic tumors ***2. Symptoms of mediastinal abnormalities*** ***3. Management (operative and non-operative)*** ***B.*** **Acquired Abnormalities of the Mediastinum** ***1. Anterior mediastinal tumors*** a. Thymoma	

			1. Histologic appearance 2. Management b. Thyroid 1. Histologic appearance 2. Management c. Teratoma 1. Histologic appearance 2. Management d. Lymphoma 1. Histologic appearance 2. Management e. Germ cell tumor 1. Histologic appearance 2. Management ***2. Middle mediastinal tumors*** a. Lymphoma 1. Histologic appearance 2. Management b. Hamartoma 1. Histologic appearance 2. Management c. Cardiac tumors 1. Histologic appearance 2. Management ***3. Posterior mediastinum (paravertebral sulcus)*** a. Neurilemoma 1. Histologic appearance 2. Management b. Neurofibroma 1. Histologic appearance 2. Management c. Pheochromocytoma 1. Histologic appearance 2. Management d. Ganglion neuroma 1. Histologic appearance 2. Management e. Dumbbell neurogenic tumor 1. Histologic appearance 2. Management ***4. Mediastinal infection*** a. Postoperative b. Primary (Ludwig's angina) c. Management (operative and non-operative) ***5. Diagnostic tests*** a. Plain radiographs	

			b. CT scans c. MRI d. Contrast studies e. Radionucleotide studies f. Ultrasound g. Fine needle aspiration h. Core biopsy i. Mediastinoscopy j. Serologic tests C. **Congenital and Acquired Abnormalities of the Pericardium** ***1. Pericardial effusions*** a. Benign b. Malignant c. Diagnostic tests d. Management (operative and non-operative) ***2. Constrictive pericarditis*** a. Infectious b. Postoperative c. Diagnostic tests to differentiate from restrictive disease d.Management (operative and non-operative) ***3. Pericardial cysts and tumors*** a. Congenital cysts b. Benign tumors c. Malignant tumors d. Management (operative and non-operative)	
	0.5		5 hours **LUNG TRANSPLANTATION** ***1. Indications and contraindications for lung transplantation*** a. Patient evaluation b. Patient selection c. Informed consent ***2. Immunosuppressive therapy in lung transplantation*** a. Evaluation of therapy b. Drugs c. Complications ***3. Technique of single and double lung transplantation*** a. Left lung b. Right lung	

			c. Extracorporeal bypass techniques and indications for their use ***4. Donor evaluation*** a. History b. Physiology c. Radiology ***5. Donor preparation and organ harvest*** a. Brain death, legal and family-related issues b. Organ procurement and preservation c. Pharmacologic and technical aspects of donor lung harvest operations ***6. Pulmonary rejection*** a. Signs and symptoms b. Endobronchial biopsy c. Histologic evaluation of rejection d. Management of rejection ***7. Immunosuppressive therapy*** a. Immunosuppressive drugs and their side effects b. Antibody therapy and side effects c. Complications of immunosuppressive therapy ***8. Outcomes***	
	0.7		7 hours **ESOPHAGUS** ***A.* Congenital Abnormalities** ***1. Esophageal atresia/tracheo-esophageal fistula*** a. Types b. Clinical presentation c. Diagnosis d. Operative and non-operative management ***2. Esophageal duplication*** a. Histology b. Clinical presentation c. Diagnosis d. Operative management B. **Acquired Abnormalities** ***1. Esophageal reflux*** a. Histology b. Clinical presentation c. Etiology d. Diagnosis e. Operative and non-operative management f. Management of complications (bleeding, ulceration, Barrett's mucosa, stricture)	

			2. Paraesophageal hernias a. Clinical presentation b. Diagnosis and indications for operation c. Operative management ***3. Motility disorders*** a. Achalasia b. Scleroderma c. Spasm d. Diverticula e. Clinical presentation f. Diagnosis g. Operative and non-operative management ***4. Esophageal perforation*** a. Etiology b. Clinical presentation and diagnosis c. Operative and non-operative management ***5. Trauma*** a. Chemical injuries b. Blunt and penetrating trauma c. Clinical presentation and diagnosis d. Operative and non-operative management ***6. Esophageal replacement*** a. Stomach b. Jejunum c. Colon d. Free jejunal replacement ***7. Foreign bodies*** a. Clinical presentation and diagnosis b. Methods of removal ***8. Video assisted thoracic surgery for esophageal disorders*** a. Indications b. Techniques ***9. Infections*** a. Moniliasis b. Diagnosis c. Treatment ***10. Rings and webs*** a. Diagnosis b. Treatment **c. Neoplasms** ***1. Benign esophageal tumors*** a. Histology b. Fibrovascular polyps c. Leiomyoma d. Operative and non-operative management ***2. Malignant esophageal tumors***	

			a. Histology b. Squamous cell carcinoma c. Adenocarcinoma d. Sarcoma e. Small cell carcinoma f. Melanoma g. Staging h. Adjuvant treatment i. Operative management j. Methods of palliation	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**17%**
	0.5		**Conference or workshop**	**17%**
	0.2		**Formative assessment**	**6%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 3

(10 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Thoracic diseases	4.4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 2 month in the department ➢ Procedures log as mentioned below	44%
	3		➢ Night shift (From 2pm to 8am) 1/week for 6 weeks	30%
	1		➢ Attendance of at least 2 weeks in the Outpatient clinic (3 hours /day)	10%
	1		➢ Attendance of at least 30% of clinical rounds (1hour /week for 30 week)	10%
	0.6		➢ Formative assessment	4.6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Thoracic diseases Cases:

PROCEDURES	Number of cases
1. Lobectomy	3
2. Pneumonectomy	1
3. Decortication	2
4. Mediastinal tumor	2
5. Other Thoracic Major, ie Pleurectomy or Chest Wall	2
6. Oesophageal resection	1
7. Other oesophageal procedures	1

A-Attendance, Clinical Rotation Outpatient clinic, and Night Shift Attendance

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Outpatient clinic

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

**Your role:

A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

**Your role:

A- Attendance

B- Organization

C- Presentation

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on- line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit (Module)2 Acquired Heart Disease

الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 6 credit point for didactic (lectures, seminars, tutorial) and 30.7 point for training.
- Minimal rate of attendance 80% of training and didactic

Year 1

(10.7 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Acquired cardiac surgery	5	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 5 weeks in the department ➢ Procedures log as mentioned below	46.7%
	3		➢ Night shift (From 2pm to 8am) 1/week for 6 weeks	28%
	1		➢ Attendance of at least 2 weeks in the Outpatient clinic (3 hours /day)	9.4%
	1		➢ Attendance of at least 30% of clinical rounds (1hour /week for 30 week)	9.4%
	0.7		➢ Formative assessment	6.5%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Acquired cardiac surgery Cases:

COMPONENT PROCEDURES: (only one per patient)	Number of cases
1. Saphenous vein harvest	7
2. Radial artery harvest	2
3. Median sternotomy	10
4. Internal mammary artery harvest	4
5. Cannulation for bypass	10
6. Aorto-coronary anastomosis	5
7. Other proximal anastomosis, e.g. T graft.	
9. Distal coronary anastomosis	3
10. Sternal closure	10
11. Re-Do sternotomy	2
CORONARY BYPASS SURGERY	
Off Pump coronary bypass. (No. of patients)	
All coronary bypass surgery. (No. of patients)	7
AORTIC VALVE SURGERY	
1. Aortic Valve Replacement	4
Mechanical prosthesis	4
Stented bioprosthesis	
Stentless valve	
Homograft	
*2. Aortic Valve Repair	

AORTIC SURGERY	
1. Ascending aorta (supracoronary)	
** 2. Aortic valve plus supracoronary aorta	
3. Bental/Cabrol/Valve Sparing Root*	
4. Aortic arch replacement	
5. Descending aorta procedure	
6. Thoraco abdominal repair	
7. Aortic Dissection:	
TypeA	
TypeB	
8. Co-arctation repair	2

MITRAL VALVE SURGERY	
1. Mitral Valve Repair	2
2. Mitral Valve Replacement	5
Mechanical prosthesis	5
Bioprosthesis	
OTHER VALVE SURGERY	
1. Tricuspid Valve Procedure	2
2. Double Valve Procedure	2
3. Triple Valve Procedure	2

OTHER MAJOR CARDIAC OPERATIONS	
1. Infarct VSD/ rupture	
2. Cardiac Tumors	
Myxoma	1
Other	
3. Pulmonary embolectomy	
4. Surgery for atrial fibrillation	
5. Miscellaneous major procedures	

Year 2

(3 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module)2 Acquired Heart Disease	3	Cardiothoracic Surgery	Year 2	**50% of the didactics of Unit 2**
	1.8		**Topics and attendance**	**60%**
	0.8		8 hours *Coronary Artery Disease* A. Coronary artery bypass grafting B. Preoperative evaluation C. Postoperative care D. Outcome E. Complications of ischemic heart disease	
	0.5		5 hours *Myocarditis, Cardiomyopathy, Hypertrophic Obstructive Cardiomyopathy, Cardiac Tumors* *A.* Tumors *B.* Myocarditis *C.* Hypertrophic cardiomyopathy (HCM) *D.* Cardiomyopathy *E.* Cardiac transplantation	
	0.5		5 hours *Abnormalities of the Aorta* A. Aortic aneurysms (atherosclerotic, aortic dissections) B. Operative and non-operative treatment(including pharmacologic and endoluminal therapy). C. Intramural Hematoma, penetrating ulcer – diagnosis and therapy.	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**17%**
	0.5		**Conference or workshop**	**17%**
	0.2		**Formative assessment**	**6%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 2

(10 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Acquired cardiac surgery	4.4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 1 month in the department ➢ Procedures log as mentioned below	44%
	3		➢ Night shift (From 2pm to 8am) 1/week for 6 weeks	30%
	1		➢ Attendance of at least 2 weeks in the Outpatient clinic (3 hours /day)	10%
	1		➢ Attendance of at least 30% of clinical rounds (1hour /week for 30 week)	10%
	0.6		➢ Formative assessment	4.6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Acquired cardiac surgery Cases:

COMPONENT PROCEDURES: (only one per patient)	Number of cases
1. Saphenous vein harvest	7
2. Radial artery harvest	2
3. Median sternotomy	10
4. Internal mammary artery harvest	4
5. Cannulation for bypass	10
6. Aorto-coronary anastomosis	5
7. Other proximal anastomosis, e.g. T graft.	
9. Distal coronary anastomosis	3
10. Sternal closure	10
11. Re-Do sternotomy	2
CORONARY BYPASS SURGERY	
Off Pump coronary bypass. (No. of patients)	
All coronary bypass surgery. (No. of patients)	7
AORTIC VALVE SURGERY	
1. Aortic Valve Replacement	4
Mechanical prosthesis	4
Stented bioprosthesis	
Stentless valve	
Homograft	
*2. Aortic Valve Repair	

AORTIC SURGERY	
1. Ascending aorta (supracoronary)	
** 2. Aortic valve plus supracoronary aorta	
3. Bental/Cabrol/Valve Sparing Root*	
4. Aortic arch replacement	
5. Descending aorta procedure	
6. Thoraco abdominal repair	
7. Aortic Dissection:	
TypeA	
TypeB	
8. Co-arctation repair	2
MITRAL VALVE SURGERY	
1. Mitral Valve Repair	2
2. Mitral Valve Replacement	5
Mechanical prosthesis	5
Bioprosthesis	
OTHER VALVE SURGERY	
1. Tricuspid Valve Procedure	2
2. Double Valve Procedure	2
3. Triple Valve Procedure	2

OTHER MAJOR CARDIAC OPERATIONS	
1. Infarct VSD/ rupture	
2. Cardiac Tumors	
Myxoma	1
Other	
3. Pulmonary embolectomy	
4. Surgery for atrial fibrillation	
5. Miscellaneous major procedures	

Year 3

(3 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module)2 Acquired Heart Disease	3	Cardiothoracic Surgery	Year 3	**50% of the didactics of Unit 2**
	1.8		**Topics and attendance**	**60%**
	0.5		5 hours *Cardiac Arrhythmias* *A.* Cardiac arrhythmias *B.* 2. Non-operative management *C.* 3. Operative management	
	0.7		7 hours *Valvular Heart Disease* *1.*Assessment of patients with valvular heart disease *2.* Choice of treatment *3.* Long term complications of replacement devices *4.* Mitral valve 1. Etiology and pathologic anatomy 2. Natural history and complications 3. Physiology 4. Non-operative treatment 5. Indications for intervention (risk stratification) 6. Merits of balloon valve dilation vs. operative repair or replacement 7. Techniques of valve repair and replacement 8. Intraoperative and postoperative complications and Management 9. Early and late results of operative and balloon valvulotomy 5. Mitral incompetence 1. Etiology and pathologic anatomy 2. Natural history and complications 3. Physiology (mechanisms of incompetence) 4. Non-operative treatment -for nonischemic etiology - for ischemic etiology 5. Indications for surgical intervention (risk stratification) - in isolation - with CAD - in dilated cardiomyopathy	

			6. Techniques of valve repair - ring and suture annuloplasty - leaflet plication, excision - chordal/papillary muscle shortening - chordal transposition and artificial chordae 7. Perioperative care 8. Early and late results of repair and replacement	
	0.6		6 hours *Valvular Heart Disease* **1. Aortic valve** a. Normal anatomy b. Normal function ***c. Aortic stenosis*** 1. Etiology and pathologic anatomy 2. Natural history and complications 3. Physiology (ventricular hypertrophy, mitral incompetence, ischemia, arrythmia) 4. Non-operative therapy 5. Indications for operative intervention (risk stratification) 6. Techniques of valve replacement and repair management of small aortic root -homograft and autograft valve replacement 7. Perioperative care considerations 8. Early and late results ***d. Aortic incompetence*** 1. Etiology- Indications for operative intervention in absence and pathologic anatomy 2. Natural history and complications 3. Physiology (LV dilatation and LV dysfunction) 4, Non-operative treatment 5. Of clinical symptoms -when complicated by endocarditis -when complicated by aortic root aneurysm 6. Techniques of valve repair and replacement -with endocarditis and aortic root abscess -with ascending and root aneurysm 7. Perioperative care consideration 8. Early and late results **2. Tricuspid valve** a. Normal anatomy b. Normal function ***c. Tricuspid incompetence*** 1. Etiology and pathologic anatomy 2. Physiology 3. Indications for operation -functional incompetence -endocarditis 4. Techniques of repair, indications for replacement -ring and suture annuloplasty -endocarditis (valve excision vs. repair or replacement)	

			5. Perioperative care -management of RV dysfunction -interventions to decrease pulmonary vascular resistance 6. Early and late results ***d. Tricuspid stenosis*** 1. Etiology and pathologic anatomy 2. Physiology 3. Differentiation from constrictive pericarditis 4. Indications for operative repair vs. replacement 5. Techniques of repair and replacement 6. Early and late results **3. Multiple valve disease**	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**17%**
	0.5		**Conference or workshop**	**17%**
	0.2		**Formative assessment**	**6%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 3

(10 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Acquired cardiac surgery	4.4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 1 month in the department ➢ Procedures log as mentioned below	44%
	3		➢ Night shift (From 2pm to 8am) 1/week for 6 weeks	30%
	1		➢ Attendance of at least 2 weeks in the Outpatient clinic (3 hours /day)	10%
	1		➢ Attendance of at least 30% of clinical rounds (1hour /week for 30 week)	10%
	0.6		➢ Formative assessment	4.6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Acquired cardiac surgery Cases:

COMPONENT PROCEDURES: (only one per patient)	Number of cases
1. Saphenous vein harvest	7
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7. Other proximal anastomosis, e.g. T graft.	
9. Distal coronary anastomosis	3
10. Sternal closure	10
11. Re-Do sternotomy	2
CORONARY BYPASS SURGERY	
Off Pump coronary bypass. (No. of patients)	
All coronary bypass surgery. (No. of patients)	7
AORTIC VALVE SURGERY	
1. Aortic Valve Replacement	4
Mechanical prosthesis	4
Stented bioprosthesis	
Stentless valve	
Homograft	
*2. Aortic Valve Repair	

AORTIC SURGERY	
1. Ascending aorta (supracoronary)	
** 2. Aortic valve plus supracoronary aorta	
3. Bental/Cabrol/Valve Sparing Root*	
4. Aortic arch replacement	
5. Descending aorta procedure	
6. Thoraco abdominal repair	
7. Aortic Dissection:	
TypeA	
TypeB	
8. Co-arctation repair	2
MITRAL VALVE SURGERY	
1. Mitral Valve Repair	2
2. Mitral Valve Replacement	5
Mechanical prosthesis	5
Bioprosthesis	
OTHER VALVE SURGERY	
1. Tricuspid Valve Procedure	2
2. Double Valve Procedure	2
3. Triple Valve Procedure	2

OTHER MAJOR CARDIAC OPERATIONS	
1. Infarct VSD/ rupture	
2. Cardiac Tumors	
Myxoma	1
Other	
3. Pulmonary embolectomy	
4. Surgery for atrial fibrillation	
5. Miscellaneous major procedures	

A-Attendance, Clinical Rotation Outpatient clinic, and Night Shift Attendance

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Outpatient clinic

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

A- Attendance
B- Organization
C- Presentation

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on- line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit (Module)3 Congenital Heart Disease

الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 6 credit point for didactic (lectures, seminars, tutorial) and 30.7 point for training.
- Minimal rate of attendance 80% of training and didactic

Year 3

(3 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module)3 Congenital Heart Disease	3	Pediatric Cardiothoracic Surgery Unit	Year 3	**50% of the didactics of Unit 3**
	1.8		**Topics and attendance**	**60%**
	0.9		9 hours **Left-To-Right Shunts** ***1. Atrial septal defect*** a. Anatomy 1. Types of atrial septal defects 2. Key landmarks of the right atrium and location of the conduction system. 3. Associated anomalies (i.e.,cleft mitral valve with primum defect, sinus venosus defect and partial anomalous pulmonary venous drainage) b. Clinical features 1. Natural history, indications for operation 2. Clinical signs and symptoms, physical exam 3. Chest x-ray and ECG 4. Echocardiogram and cardiac catheterization 5. Indications for surgery or catheter-based repair c. Operative repair and complications 1. Extracorporeal bypass and myocardial protection 2. Incisions in the heart 3. Techniques for defect closure 4. Treatment of associated anomalies (e.g., cleft mitral valve) 5. Complications of closure (e.g., air embolism, conduction abnormalities, residual defects) d. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***2. Ventricular septal defect*** a. Anatomy 1. Types 2. Location of the conduction system with the various types of VSD b. Clinical features 1. Clinical signs and symptoms, physical exam 2. Echocardiogram and cardiac catheterization	

				3. Chest x-ray and ECG 4. Natural history 5. Indications, contraindications, and timing of operation vs. catheter based repair (e.g., total repair vs. pulmonary artery banding) 6.Associated lesions e.g., coarctation, TGA c. Operative repair and complications 1. Extracorporeal bypass and myocardial protection 2. Incisions for different types of defects 3. Closure techniques (direct suture vs. patch) 4. Treatment of associated anomalies (e.g., atrial septal defect, right ventricular muscle bands) 5. Complications (rhythm disturbances, residual defects, and their management, air embolism) 6. Techniques of PA banding d. Outcomes 1. expected operative mortality 2. long-term results 3. complications ***3. Patent ductus arteriosus*** a. Anatomy b. Physiology 1. Neonate vs. older child 2. Effect of prostaglandin and prostaglandin inhibitors c. Diagnosis and clinical features 1. Symptoms and physical findings 2. Echocardiogram and cardiac catheterization 3. Chest x-ray and ECG 4. Natural history (neonate vs. older child, endocarditis) 5. Medical treatment vs. surgical, indications for closure (surgical vs. catheter based) 6. associated anomalies (e.g., ductus-dependent conditions) d. Operative repair and complications 1. Operative techniques for simple ductus 2. Management of the difficult ductus 3. Complications of operative repair e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***4. Atrioventricular septal defect*** a. Anatomy 1. Types (complete, transitional, ostium primum ASD) 2. Atrioventricular valve pathologic anatomy 3. Location of conduction system b. Physiology 1. Shunts and resistance calculation 2. Complete vs. incomplete c. Diagnosis and clinical features 1. Symptoms and signs (infant vs. older patient,	

			physical exam) 2. Echocardiogram, angiocardiogram, cardiac catheterization 3. Chest x-ray and ECG 4. Natural history (development of Eisenmenger's syndrome) 5. Indications for and timing of operation (size of shunt, endocarditis risk, total repair vs. pulmonary artery banding) d. Operative repair and complications 1. Cardiopulmonary bypass and myocardial protection 2. Incisions in the heart 3. Operative techniques 4. Complications and their management (residual defects, residual cleft "mitral valve" insufficiency, heart block) e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***5. Double-outlet right ventricle*** a. Anatomy 1. Types (subaortic, subpulmonic, uncommitted) 2. Associated anomalies b. Clinical features 1. Natural history 2. Indications for and timing of operation 3. Signs and symptoms of each of the anatomic types 4. Chest x-ray, ECG 5. Echocardiogram and cardiac catheterization c. Operative repair and complications 1. Palliative operations vs. total repair (application of shunts, pulmonary artery band, total repair) 2. Cardiopulmonary bypass and myocardial protection 3. Approach to each anatomic subtype and placement of incisions in the heart 4. Specific operative techniques (e.g., suturing, placement of patches) 5. Complications and their management d. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***6. Aorto-pulmonary window*** a. Anatomy 1. Types b. Clinical features 1. Natural history (development of pulmonary vascular obstructive disease)	

			2. Symptoms and signs 3. Echocardiogram, angiocardiogram, cardiac catheterization 4. Chest x-ray, ECG 5. Indications for surgery c. Operative repair d. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications	
	0.9		9 hours **Cyanotic Anomalies** ***1. Tetralogy of Fallot*** a. Anatomy and embryology 1. Embryology and anatomy of malaligned ventricular septal defect. 2. levels of right ventricular outflow tract obstruction b. Physiology 1. Genesis and medical management of "tet spells" 2. Factors which affect degree of right-to-left shunt 3. Associated anomalies c. Clinical features 1. Symptoms and physical findings 2. Cardiac catheterization, echocardiogram, angiocardiogram 3. Chest x-ray, ECG 4. Natural history 5. Indications for and timing OF operation (pink vs. blue TOF) d. Operative repair and complications 1. Role of systemic-to-pulmonary artery shunt vs. total repair 2. Types of aortic-to-pulmonary artery shunts 3. Extracorporeal bypass and myocardial protection 4. Ventricular septal defect closure by transventricular or transatrial approach 5. Techniques for relief of right ventricular outflow tract obstruction and indications for transannular patching 6. Indications for conduit repair 7. Anatomic considerations (abnormal coronary anatomy, small PA's, MAPCA's) e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications 4. Late pulmonary artery/valve replacement/reoperation (percutaneous interventions) ***2. Transposition of the great vessels (TGA)*** a. Anatomy	

			1. Simple TGA 2. Complex TGA (ventricular septal defect, pulmonary stenosis) b. Physiology 1. Concept of circulations in parallel and mixing c. Clinical features 1. Symptoms and physical findings 2. Echocardiogram, angiocardiogram, cardiac catheterization 3. Chest x-ray, ECG 4. Natural history, role of balloon atrial septostomy 5. Indications for and timing of operations d. Operative repair and complications 1. Technique open atrial septectomy 2. Cardiopulmonary bypass and myocardial protection 3. Operative techniques for total repair (Mustard, Senning, arterial switch, Rastelli) 4. Palliative operations (PA band, systemic-to-pulmonary artery shunt) e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications 4. Arrhythmias after atrial repairs 5. Semilunar insufficiency, PA stenosis, coronary problems after arterial switch 6. Conduit obstruction after Rastelli ***3. Truncus arteriosus*** a. Anatomy 1. Types of truncus arteriosus 2. Associated anomalies (VSD, left ventricular outflow tract obstruction, arch interruption, DiGeorge syndrome) b. Clinical features 1. Symptoms and physical findings 2. Cardiac catheterization, echocardiogram, angiocardiogram 3. Chest x-ray, ECG 4. Natural history (development of pulmonary vascular obstructive disease) 5. Indications for and timing of operation c. Operative repair and complications 1. Extracorporeal bypass and myocardial protection 2. Operative techniques - Conduits (composite, xenograft and homograft) - Modifications required for types II and III truncus 3. Techniques for repair of associated anomalies d. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications 4. Conduit replacement long-term	

			4. Tricuspid atresia a. Anatomy 1. Types I and II, subtypes b. Physiology 1. Subtypes with right-to-left shunt 2. Subtypes with left-to-right shunt c. Clinical features 1. Symptoms and physical findings 2. Echocardiogram, angiocardiogram, cardiac catheterization 3. Chest x-ray, ECG 4. Natural history, role of balloon atrial septostomy 5. Indications for and timing of operation 6. Role of palliative operations (systemic-pulmonary artery shunts, PA banding, bidirectional Glenn, Fontan, other right heart bypass operations) d. Operative repair and complications 1. Palliative operations 2. Operations for right heart bypass (bidirectional Glenn, Fontan) e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***5. Total anomalous pulmonary venous connection*** a. Anatomy 1. supracardiac, cardiac, infracardiac, mixed b. Physiology 1. obstructive vs. nonobstructive c. Clinical features 1. Symptoms and physical findings 2. Cardiac catheterization, echocardiogram, angiocardiogram 3. Chest x-ray, ECG 4. Natural history 5. Indications for and timing of operation d. Operative repair and complications 1. Extracorporeal bypass, myocardial protection 2. Operative techniques for different subtypes e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***6. Ebstein's anomaly*** a. Anatomy b. Physiology 1. Concept of atrialized ventricle 2. Right ventricular outflow tract obstruction c. Clinical features 1. Symptoms and physical findings 2. Cardiac catheterization, echocardiogram,	

			angiocardiogram 3. Chest x-ray, ECG 4. Natural history 5. Associated lesions (e.g., Wolf-Parkinson-White syndrome) 6. Indications for and timing of operation d. Operative repair and complications 1. Extracorporeal bypass and myocardial protection 2. Technique of tricuspid repair, obliteration of atrialized ventricle 3. Technique of tricuspid valve replacement e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**17%**
	0.5		**Conference or workshop**	**17%**
	0.2		**Formative assessment**	**6%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 3

(15.7 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Congenital Heart Disease	6.7	Pediatric Cardiothoracic Surgery Unit	➢ Practice with clinical cases for at least 2 month in the department ➢ Procedures log as mentioned below	42.7%
	4		➢ Night shift (From 2pm to 8am) 1/week for 8 weeks	25.5%
	2		➢ Attendance of at least 4 weeks in the Outpatient clinic (3 hours /day)	12.7%
	2		➢ Attendance of at least 30% of clinical rounds (2hour /week for 60 week)	12.7%
	1		➢ Formative assessment	6.4%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of congenital heart diseases:

PAEDIATRIC	Number of cases
Cases without cardiopulmonary bypass	10
Cases with cardiopulmonary bypass	10

Year 4

(3 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module)3 Congenital Heart Disease	3	Pediatric Cardiothoracic Surgery Unit	Year 4	**50% of the didactics of Unit 3**
	1.8		**Topics and attendance**	**60%**
	0.9		9 hours **Obstructive Anomalies** ***1. Aortic stenosis*** a. Anatomy 1. Supravalvular, valvular, subvalvular (including subtypes) b. Physiology 1. Associated anomalies c. Clinical features 1. Symptoms and physical findings 2. Cardiac catheterization, echocardiogram, angiocardiogram 3. Chest x-ray, ECG 4. Natural history 5. Indications for and timing of operation d. Operative repair and complications 1. Extracorporeal bypass, myocardial protection 2. Operative techniques 3. Pros and cons of various techniques and patch configurations for supravalvular stenosis 4. Techniques of aortic valvotomy 5. Operations to enlarge the aortic annulus (e.g., Konno-Rastan procedure, Ross procedure) 6. Technique of apical aortic conduit 7. Myomectomy and myotomy for subaortic obstruction e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***2. Pulmonary stenosis*** a. Anatomy 1. Valvular and supravalvular 2. Associated anomalies (e.g., atrial septal defect, ventricular septal defect, branch stenosis) b. Clinical features 1. Symptoms and physical findings 2. Echocardiogram, angiocardiogram, cardiac	

			catheterization 3. Chest x-ray, ECG 4. Natural history; role of balloon valvuloplasty 5. Indications for and timing of operation c. Operative repair and complications 1. Extracorporeal bypass, myocardial protection 2. Incisions in the heart and great vessels 3. Operative considerations (technique of valvulotomy, indications for transannular patching, division of right ventricular muscle bands) 4. Complications (residual obstruction) d. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications ***3. Coarctation of the aorta*** a. Anatomy 1. Relationship to the ductus arteriosus 2. Associated anomalies (e.g., hypoplasia of transverse aorta, patent ductus arteriosus, LVOT obstruction) b. Physiology 1. Infant vs. older child 2. Ductal v. non-ductal dependent 3. Concept of collateral circulation c. Clinical features 1. Symptoms and physical findings (neonate with a closing ductus vs. older infant and child) 2. Echocardiogram, angiogram, cardiac catheterization 3. Chest x-ray, ECG 4. Natural history 5. Indications for and timing of operation vs. catheter based intervention 6. Role of prostaglandins in stabilizing neonates 7. Effect of associated anomalies (e.g., patent ductus arteriosus, aortic stenosis, ventricular septal defect) d. Operative repair and complications 1. Methods of repair (end-to-end vs. patch vs. subclavian angioplasty) 2. Methods of arch reconstruction 3. Complications (residual obstruction, paraplegia, chylothorax GI reperfusion syndromes) 4. Role of extracorporeal bypass or use e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications 4. Re-coarctation and the role of balloon angioplasty ***4. Interrupted aortic arch*** a. Anatomy 1. Types A, B, and C	

				2. Associated anomalies (e.g., DiGeorge syndrome, VSD) b. Physiology 1. Role of ductal patency, prostaglandin c. Clinical features 1. Symptoms and physical findings 2. Echocardiogram, angiocardiogram, cardiac catheterization 3. Chest x-ray, ECG 4. Natural history 5. Indications for and timing of operation 6. The role of prostaglandins in preoperative stabilization 7. DiGeorge syndrome (hypocalcemia, need for irradiated blood) d. Operative repair and complications 1. Extracorporeal bypass, hypothermic arrest, regional cerebral perfusion 2. Median sternotomy vs. left thoracotomy 3. Techniques (e.g., end-to-end anastomosis, interposition grafting, absorbable vs. nonabsorbable sutures) 4. Complications (e.g., residual obstruction, recurrent laryngeal nerve injury, chylothorax) 5. Repair of associated anomalies e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications 4. Reoperation 5. Management of DiGeorge syndrome ***5. Vascular ring*** a. Anatomy 1. Double aortic arch, right arch with left ligamentum arteriosus, anomalous subclavian artery, unusual rings, pulmonary artery sling b. Physiology 1. Compression of airway and esophagus c. Clinical features 1. Signs and symptoms 2. Barium esophagogram, CT scan, MRI d. Operative repair and complications 1. Techniques for exposure by left thoracotomy, indications for other approaches 2. Technique for correction of each type 3. Role of aortopexy 4. Complications (e.g., recurrent laryngeal nerve paralysis, chylothorax, residual tracheomalacia) e. Outcome 1. Expected operative mortality 2. Long-term results 3. Complications 4. Residual tracheomalacia	

	0.45		4.5 hours **Miscellaneous Anomalies** *the natural history, evaluation, and treatment of:* 1. coronary anomalies 2. congenital complete heart block 3. hypoplastic left heart syndrome 4. pulmonary atresia (with and without VSD) 5. "corrected transposition" 6. Single ventricle 7. Cardiomyopathy *8.* Cortriatriatum *9.* cardiac tumors	
	0.45		4.5 hours **Principles of Postoperative Care** ***1. Preoperative assessment and preparation*** a. Clinical and diagnostic data b. Physical examination ***2. Expected postoperative course for each operation.*** ***3. Ventilatory management*** a. Reactive pulmonary vasculature b. Left heart syndrome c. Right heart bypass operations ***4. Pharmacologic management*** a. After right heart bypass operations b. With parallel circulation c. With reactive pulmonary vasculature	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**17%**
	0.5		**Conference or workshop**	**17%**
	0.2		**Formative assessment**	**6%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 4

(15.7 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Congenital Heart Disease	6.7	Pediatric Cardiothoracic Surgery Unit	➢ Practice with clinical cases for at least 2 month in the department ➢ Procedures log as mentioned below	42.7%
	4		➢ Night shift (From 2pm to 8am) 1/week for 8 weeks	25.5%
	2		➢ Attendance of at least 4 weeks in the Outpatient clinic (3 hours /day)	12.7%
	2		➢ Attendance of at least 30% of clinical rounds (2hour /week for 30 week)	12.7%
	1		➢ Formative assessment	6.4%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of congenital heart diseases:

PAEDIATRIC	Number of cases
Cases without cardiopulmonary bypass	10
Cases with cardiopulmonary bypass	10

A-Attendance, Clinical Rotation Outpatient clinic, and Night Shift Attendance

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Outpatient clinic

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
  A- Independent performance
  B- Performance under supervision
  C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

C- Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Postgraduate student's program
Rotation in training assessment

***Name:**

Period of training** ***From:

To:

***Site:**

***Rotation**

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on- line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit (Module) 4 Thoracic Trauma

Rotation / attendance proof
الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 2.4 credit point for didactic (lectures, seminars, tutorial) and 12.3 point for training.
- Minimal rate of attendance 80% of training and didactic

Year 1

(6.3 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Thoracic Trauma	3.4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 1 month in the department ➢ Procedures log as mentioned below	54%
	1.5		➢ Night shift (From 2pm to 8am) 1/week for 3 weeks	24%
	0.5		➢ Attendance of at least 1 week in the Outpatient clinic (3 hours /day)	7.8%
	0.5		➢ Attendance of at least 30% of clinical rounds (1 hour /week for 15 week)	7.8%
	0.4		➢ Formative assessment	6.4%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of Thoracic Trauma:

Case	Number
1 - Emergency thoractomy	15 cases
2 - Repair of traumatic diaphragmatic hernia	5 cases
3 - Repair of lung tears.	5 cases
4 - Emergency lobectomy, pneumonectomy.	3 cases
5 - Repair of bronchial, tracheal, esophageal tears.	3 cases
6 - Repair of cardiac tears.	2 cases

Year 2

(2.4 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module) 4 Thoracic Trauma	2.4	Cardiothoracic Surgery	Year 2	**100% of the didactics of Unit 4**
	1.25		**Topics and attendance**	**52.2%**
	0.75		7.5 hours **Trauma of the Chest Wall** ***1. Thorax*** a. Rib fracture b. Flail chest/pulmonary contusion c. Sucking chest wounds ***2. Pneumothorax*** a. Simple b. Tension ***3. Hemothorax*** a. Diagnosis b. Operative and non-operative management **Tracheobronchial and Pulmonary Trauma** ***1. Tracheobronchial injury*** a. Signs and symptoms b. Radiologic findings c. Diagnosis and management ***2. Airway control*** a. Intubation b. Bronchoscopy c. Emergency tracheostomy d. One-lung ventilation e. High-frequency ventilation ***3. Pulmonary contusion*** a. Signs and symptoms b. Pathophysiology c. Radiologic findings d. Operative and non-operative management ***4. Penetrating injury*** a. Signs and symptoms b. Indications for operation c. Management of peripheral injuries d. Management of hilar injuries	

			e. Air embolism	
	0.5		5 hours **Esophageal Trauma** ***1. Esophageal trauma*** a. Signs and symptoms b. Radiologic assessment (e.g., plain radiographs, CT scans, contrast studies) ***2. Methods of repair*** a. Primary repair b. Resection and reconstruction c. Diversion ***3. Complications*** a. Esophageal leak b. Esophageal obstruction c. Management **Diaphragmatic Trauma** ***1. Blunt trauma*** a. Signs and symptoms b. Radiologic findings c. Indication for operation d. Operative approach e. Techniques of repair f. Delayed presentation g. Associated injuries ***2. Penetrating trauma*** a. Signs and symptoms b. Radiologic findings c. Operative approaches and techniques of repair d. Management of associated injuries **Cardiovascular Trauma** ***1. Cardiac contusion*** a. Pathophysiology b. Noninvasive diagnostic techniques c. Management d. Follow-up and outcomes ***2. Penetrating cardiovascular injuries*** a. Major vessel laceration b. Penetrating cardiac trauma c. Laceration of coronary arteries d. Pericardial tamponade e. Diagnostic methods f. Management 1. Operative approaches for specific injuries	

			2. Use of cardiopulmonary bypass or partial mechanical support 3. Management of concomitant injuries ***3. Postoperative management*** a. Outcomes ***4. Traumatic aortic transection*** a. Pathophysiology b. Anatomic locations and operative approaches c. Operative and non-operative management d. Role of endovascular therapy e. Management of associated injuries f. Outcomes	
	0.5		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**20.8%**
	0.5		**Conference or workshop**	**20.8%**
	0.15		**Formative assessment**	**6.2%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 2

(6 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Thoracic Trauma	3.1	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 2 month in the department ➢ Procedures log as mentioned below	52%
	1.5		➢ Night shift (From 2pm to 8am) 1/week for 3 weeks	25%
	0.5		➢ Attendance of at least 1 weeks in the Outpatient clinic (3 hours /day)	8.5%
	0.5		➢ Attendance of at least 30% of clinical rounds (1hour /week for 15 week)	8.5%
	0.4		➢ Formative assessment	6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of Thoracic Trauma:

Case	Number
1 - Emergency thoractomy	15 cases
2 - Repair of traumatic diaphragmatic hernia	5 cases
3 - Repair of lung tears.	5 cases
4 - Emergency lobectomy, pneumonectomy.	3 cases
5 - Repair of bronchial, tracheal, esophageal tears.	3 cases
6 - Repair of cardiac tears.	2 cases

A-Attendance, Clinical Rotation Outpatient clinic, and Night Shift Attendance

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Outpatient clinic

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
  A- Independent performance
  B- Performance under supervision
  C- Observed

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

B- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on- line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit (Module) 5 Extracorporeal Bypass

Rotation / attendance proof
الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 1.8 credit point for didactic (lectures, seminars, tutorial) and 9.3 point for training.
- Minimal rate of attendance 80% of training and didactic

Year 1

(5 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Extracorporeal Bypass	4.7	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 5 weeks in the department ➢ Procedures log as mentioned below	94%
	0.3		➢ Formative assessment	6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of Extracorporeal Bypass**:**

Case	Number
1 – Adult Cardiopulmonary bypass 2 – Congenital Cardiopulmonary bypass 3 – Intra-aortic Balloon 3 – Extracorporeal Membrane Oxygenation	15 cases 8 cases 3 cases

Year 2

(1.8 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module) 5 Extracorporeal Bypass	1.8	Cardiothoracic Surgery	Year 2	**100% of the didactics of Unit 5**
	1.2		**Topics and attendance**	**67%**
	0.6		6 hours **Physiology of Extracorporeal Bypass** ***1. Membrane oxygenators*** a. Physiology b. Design c. Complications ***2. Bubble oxygenators*** a. Physiology b. Design c. Complications ***3. Roller head pumps*** a. Design b. Safety measures c. Complications ***4. Centrifugal pumps*** a. Mechanism and design b. Safety measures c. Complications ***5. Extracorporeal circuits*** a. Set-up (Full Cardiopulmonary Bypass vs. left heart assist) b. Types of tubing, filters, hemoconcentrators c. Safety measures d. Blood and artificial surface interaction e. Oxygenators (types, indications, benefits, disadvantages) f. Venous reservoir g. Cardiotomy reservoir h. Tubing (choice of adequate internal diameter and surface treatments) i. Osmotic pressure, oncotic pressure (use of mannitol, albumin) j. Blood gas control ***6. Perfusion solutions***	

			a. Prime solutions b. Hemodilution c. Blood sustitutes ***7. Manipulation of:*** a. Flow b. Pressure c. Temperature **Techniques of Extracorporeal Bypass** ***1. Standard cardiopulmonary bypass*** a. Routes for cannulation (arterial and venous) b. Types of extracorporeal circuits c. Monitoring d. Complications ***2. Anticoagulation for cardiopulmonary bypass*** a. Heparin and other agents b. Monitoring c. Reversal d. Complications ***3. Special situations*** a. Left and/or right heart bypass b. Profound hypothermia and circulatory arrest	
	0.6		6 hours **Mechanical Support** ***1. Indications for mechanical support*** a. Deterioration of an established prospective transplant recipient b. Patient unable to be weaned from cardiopulmonary bypass but is a candidate for “postcardiotomy” usage or “bridging” to transplantation c. Acute myocardial infarction with balloon-dependent left heart failure ***2. Respiratory failure*** a. Indications for ECMO b. Alternatives to ECMO ***3. Alternatives to mechanical devices*** a. Balloon pumping (left and right) b. Centrifugal devices c. Impeller devices d. Pulsatile devices e. Total artificial heart ***4. Techniques of insertion*** a. Cardiac b. ECMO	

			5. Complications a. Blood trauma b. Thrombosis c. Bleeding d. Infection ***6. Weaning the patient from support devices and the use of mechanical devices to "bridge" to transplantation.*** a. Hemodynamic parameters used in weaning from cardiac support, criteria for weaning and rate of weaning. b. Concept of "rehabilitation" of the bridging patient and modification of transplantation criteria for the bridging patient. ***7. Anticoagulation*** a. Requirements for various mechanical devices b. Detection of blood trauma c. Early detection of thrombotic problems **Fundamentals of Coagulation Management and Blood Component Therapy** ***1. Blood characteristics*** a. Blood groups and specific antigens b. Cellular elements c. Clotting cascade d. Pathophysiology of clotting e. Drugs that affect clotting and platelet function ***2. Hemorrhagic and thrombotic complications of cardiac surgery*** a. Diagnosis b. Preoperative, intraoperative, and postoperative management c. Heparin, Protamine d. Cardiac and vascular prostheses ***3. Component therapy*** a. Packed red blood cells b. Fresh frozen plasma c. Platelets d. Cryoprecipitate e. Specific clotting factors ***4. Blood conservation*** a. Indications for transfusion b. Autotransfusion c. Cell-plasma salvage d. Hemoconcentration	

			e. Pharmacologic manipulation	
	0.25		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**14%**
	0.25		**Conference or workshop**	**14%**
	0.1		**Formative assessment**	**5%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 2

(4.3 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Extracorporeal Bypass	4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 4 weeks in the department ➢ Procedures log as mentioned below	93%
	0.3		➢ Formative assessment	7%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of Extracorporeal Bypass**:**

Case	Number
1 – Adult Cardiopulmonary bypass 2 – Congenital Cardiopulmonary bypass 3 – Intra-aortic Balloon 3 – Extracorporeal Membrane Oxygenation	15 cases 8 cases 3 cases

A- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
  A- Independent performance
  B- Performance under supervision
  C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on- line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit (Module) 6 Minor Procedures

Rotation / attendance proof
الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 1.8 credit point for didactic (lectures, seminars, tutorial) and 9.3 point for training.
- Minimal rate of attendance 80% of training and didactic

Year 1

(5 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Minor Procedures	4.7	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 5 weeks in the department ➢ Procedures log as mentioned below	94%
	0.3		➢ Formative assessment	6%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of Minor Procedures:

Case	Number
1. Bronchoscopy 2. Esophagoscopy 3. Thoracostomy tubes 4. Others	15 cases 5 cases 20 cases

Year 2

(1.8 credit point for didactic)

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Unit (Module) 5 Extracorporeal Bypass	1.8	Cardiothoracic Surgery	Year 2	**100% of the didactics of Unit 5**
	1.2		**Topics and attendance**	**67%**
	0.6		6 hours **Bronchoscopy** ***1. Rigid bronchoscopy*** a. Indications b. Patient selection c. Instrumentation d. Techniques under local and under general anesthesia e. Biopsy and brushing techniques f. Complications ***2. Fiberoptic bronchoscopy*** a. Indications b. Patient selection c. Instrumentation d. Techniques under local and under general anesthesia e. Biopsy and brushing techniques f. Complications ***3. Laser techniques*** a. Safety measures b. Types of application c. Delivery systems **Esophagoscopy** ***1. Rigid esophagoscopy*** a. Indications b. Patient selection c. Instrumentation d. Techniques under local and under general anesthesia e. Biopsy and brushing techniques f. Complications ***2. Fiberoptic esophagoscopy*** a. Indications b. Patient selection	

			c. Instrumentation d. Techniques under local and under general anesthesia e. Biopsy and brushing techniques f. Complications ***3. Laser techniques*** a. Safety measures b. Types of application	
	0.6		6 hours **Tube Thoracostomy** ***1 Iindications for tube thoracostomy*** a. Pleural spaces b. Pleural effusions and empyema c. Lung parenchymal air leaks ***2. Insertion techniques*** a. Instrument placement b. Trocar placement c. Direct vision (e.g., thoracotomy) d. Local, regional or general anesthesia ***3. Complications*** a. Lung parenchymal injury b. Neurovascular intercostal injury c. Infection d. Post chest tube pneumothorax **Permanent Pacemakers** ***1. Indications for pacemakers*** a. Sick sinus syndrome b. Heart block c. Hypertrophic obstructive cardiomyopathy d. Other ***2. Techniques of pacemaker implantation*** a. Transvenous (single chamber and dual chamber) b. Epicardial (single chamber and dual chamber) c. Phrenic nerve pacing d. Cardiomyoplasty pacing ***3. Types of pacemakers*** a. Single chamber b. Dual chamber c. Specialized applications d. Phrenic e. Cardiomyoplasty ***4. Pacemaker complications*** a. Infections b. Pacing thresholds c. Exit block	

			d. Pacemaker programming e. Lead fracture	
	0.25		**Seminars** ➢ Attendance of at least 50% of the clinical seminars ➢ Presentation of at least 1 time in the seminar	**14%**
	0.25		**Conference or workshop**	**14%**
	0.1		**Formative assessment**	**5%**
Student signature			Principle coordinator Signature	Head of the department signature

Year 2

(4.3 credit point for training)

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in Minor Procedures	4	Cardiothoracic Surgery	➢ Practice with clinical cases for at least 4 weeks in the department ➢ Procedures log as mentioned below	93%
	0.3		➢ Formative assessment	7%
Student signature			Principle coordinator Signature	Head of the department signature

Procedure and Operation log

Cases of Minor Procedures**:**

Case	Number
1. Bronchoscopy 2. Esophagoscopy 3. Thoracostomy tubes 4. Others	15 cases 5 cases 20 cases

A- Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
  A- Independent performance
  B- Performance under supervision
  C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Procedures and Operations log book

H N	Procedure	Level of competency*	Location	Signature

* Level of competency
A- Independent performance
B- Performance under supervision
C- Observed

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Academic activities

Lecture, seminar, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Postgraduate student's program
Rotation in training assessment

***Name:**

Period of training** ***From:

To:

***Site:**

***Rotation**

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on- line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Elective Course 1

Requirements

- **Credit points:** 1.5 credit point.

- Minimal rate of attendance 80% of lectures and 80% of training

One of these courses

- Advanced medical statistics.
- Evidence based medicine.
- Advanced infection control.
- Quality assurance of medical education.
- Quality assurance of clinical practice.
- -Hospital management

Name of the elective course: ----------

Elective Course Lectures

Date	Attendance	Topic	Signature

Elective Course Practical skills

Date	Attendance	Topic	Signature

Elective Course 2

Requirements

- **Credit points:** 1.5 credit point.

- Minimal rate of attendance 80% of lectures and 80% of training

One of these courses

- Advanced medical statistics.
- Evidence based medicine.
- Advanced infection control.
- Quality assurance of medical education.
- Quality assurance of clinical practice.
- -Hospital management

Name of the elective course: ----------

Elective Course Lectures

Date	Attendance	Topic	Signature

Elective Course Practical skills

Date	Attendance	Topic	Signature

Academic activities

Lecture, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

*Degree
A- Excellent
B- Very good
C- Good
D- Pass

الرسائل العلمية

عنوان الرسالة

عربـــــــــــــــــــي :

انجلـــــــــــــــــــيزي :

المشرفـــــــــــــــون :

1- .....
2- .....
3 .....
4- .....

تاريخ القيــد لدرجــة : ..... / /

تاريخ التسجيل الموضوع: .....

المتابعة الدوريـــــــــة : .....

التاريخ	ما تم انجازه من بروتوكول البحث	المتبقي	توقيع المشرفين

Declaration

Course Structure Mirror	Responsible (Course) Coordinator Name:	Signature	Date
First Part			
-Course 1: Medical statistics			
-Course 2: Research methodology			
-Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research			
-Course 4: Applied Physiology (Chest and heart))			
Course 5: Applied Surgical Cardiothoracic Pathology			
Course 6: Applied Surgical Cardiothoracic Anatomy			
Second Part			
Course 7 Cardiothoracic surgery			
1) Unit (Module)1 Thoracic Diseases			
2) Unit (Module)2 Acquired Heart Disease			
3) Unit (Module)3 Congenital Heart Disease			
4) Unit (Module)4 Thoracic Trauma			
5) Unit (Module)5 Extracorporeal Bypass			
6) Unit (Module)6 Minor Procedures			
- Elective Course (1) Certificate Dates:			
- Elective Course (2) Certificate Dates:			
- M. D. Thesis Acceptance Date:			
- Fulfillment of required credit points prior to final examination			
Cardiothoracic Surgery M.D. Degree Principle Coordinator:			
Date approved by Cardiothoracic Surgery Department Council:			

يعتمد ،

رئيس القسم

أ.د/