MASTER (MSC) DEGREE PROGRAM AND COURSE SPECIFICATIONS FOR CARDIOVASCULAR MEDICINE

(According to currently Credit points applied bylaws)

Cardiovascular department
Faculty of medicine
Aswan University
2019/2020

Contents

Master degree of Cardiovascular Medicine

A. Basic Information

- **Program Title:** Master degree of Cardiovascular Medicine.
- **Nature of the program:** Single.
- **Responsible Department:** Cardiovascular Medicine

  External evaluator: Prof. WAEL Mohammed El Nagger
- **Total number of courses:** 7 courses + one elective course

B. Professional Information

1- Program aims

1/1. To enable candidates to acquire satisfactory level of clinical skills, bedside care skills, in addition to update medical knowledge as well as clinical experience and competence in the area of Cardiovascular Medicine.

1/2. Provide candidates with fundamental knowledge of Cardiac Intensive Care Medicine as regards; dealing with critically ill cardiac patients, CCU equipments, techniques, indications, contraindications and training skills of different intensive care techniques.

1/3. To introduce candidates to the basics of scientific medical research.

1/4. To enable candidates starting professional careers as specialists in Egypt and making them recognized as specialists abroad.

1/5. To enable candidates to pursue higher studies and subspecialties.

1/6. To enable candidates to understand and get the best of published scientific research and do their own.

2- Intended learning outcomes (ILOs) *for the whole program*:

2/1. Knowledge and understanding:

A. Explain the essential facts and principles of relevant basic sciences including Anatomy, Physiology, Biochemsitry, Pharmacology, Pathology and Basics of Cardiovascular medicine.

B. Mention essential facts of clinically supportive sciences such as Internal Medicine related to Cardiovascular Medicine.

C. Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of common diseases and situations related to Cardiovascular Medicine.
D. Give the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to Cardiovascular Medicine.
E. Mention the basic ethical and medicolegal principles that should be applied in practice and relevant to the Cardiovascular Medicine.
F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Cardiovascular Medicine.
G. Mention the ethical and scientific principles of medical research methodology.
H. State the impact of common health problems in the field of Cardiovascular Medicine on the society and how good clinical practice improves these problems.

2/2. Intellectual outcomes

A. Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the Cardiovascular Medicine.

B. Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to Cardiovascular Medicine.

C. Design and /or present a case or review (through seminars/journal clubs) in one or more of common clinical problems relevant to the Cardiovascular Medicine field.

D. Formulate management plans and alternative decisions in different situations in the field of the Cardiovascular Medicine.

2/3. Skills

2/3/1 Practical skills (Patient Care)

A. Obtain proper history and examine patients in caring and respectful behaviors.
B. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to Cardiovascular Medicine.
C. Carry out patient management plans for common conditions related to Cardiovascular Medicine.
D. Use information technology to support patient care decisions and patient education in common clinical situations related to Cardiovascular Medicine.
E. Perform competently non invasive and invasive procedures considered essential for the Cardiovascular Medicine.
F. Provide health care services aimed at preventing health problems related to Cardiovascular Medicine.
G. Provide patient-focused care in common conditions related to Cardiovascular Medicine, while working with health care professionals, including those from other disciplines
H. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets (Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)

2/3/2 General skills

Including:

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

Practice-Based Learning and Improvement:

A. Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).
B. Appraises evidence from scientific studies.
C. Conduct epidemiological studies and surveys.
D. Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
E. Facilitate learning of students and other health care professionals including their evaluation and assessment.

Interpersonal and Communication Skills:

F. Maintain therapeutic and ethically sound relationship with patients.

G. Elicit information using effective non-verbal, explanatory, questioning, and writing skills.
H. Provide information using effective non-verbal, explanatory, questioning, and writing skills.

I. Work effectively with others as a member of a health care team or other professional group.

Professionalism

J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society

K. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent and business practices

L. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.

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Systems-Based Practice

M. Work effectively in relevant health care delivery settings and systems including good administrative and time management.
N. Practice cost-effective health care and resource allocation that does not compromise quality of care.
O. Assist patients in dealing with system complexities.

3- Program Academic Reference Standards (ARS) (Annex 2)

Academic standards for master degree in Cardiovascular Medicine

Aswan Faculty of Medicine developed master degree programs academic standards for different clinical specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the Program.

4- Program External References (Benchmarks)

1. ACGME (Accreditation Council for Graduate Medical Education). http://www.acgme.org/acWebsite/navPages/nav_Public.asp

2. The European society of cardiology core syllabus. A learning framework for the continuing medical education of the general cardiologist.
http://www.uems-cardio.eu/jart/prj3/uems/data/uploads/downloads/4_Cooperations/4.3._ESC/ESC_CoreSyllabus.pdf

Comparison between program and external reference		
Item	**Cardiovascular Medicine program**	**The European Society of Cardiology core syllabus**
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	3-5 years	3 years
Requirement	Different	Different
Program structure	Different	Different

5. Program Structure and Contents

A. Duration of program: 3 5 years

B. Structure of the program:

Total contact number of credit points: 180 point (20 out of them for thesis)

Didactic 40 (22.2 %), practical 120 (66.7%), thesis 20 (11.1%), total 180

First part

Didactic 14 (35 %), practical 24 (60 %), elective course 2 CP (5%), total 40

Second part

Didactic 24 (20%), practical 96 (80%), total 120

 # Didactic (lectures, seminars, tutorial)

According the currently applied credit points bylaws:

Total courses: 160 credit point

Compulsory courses: 98.9%

Elective course: 2 credit point =1.25%

	Credit points	% from total
Basic science courses	24	13.3%
Humanity and social courses	0	0%
Speciality courses	136	76.7%
Others (Computer, …)		
Field training	120	66.7%
Thesis	20	11.1%

C. Program Time Table

Duration of program 3 years maximally 5 years divided into

- **Part 1: (One year)**
  Program-related basic science courses and ILOs
  Students are allowed to sit the exams of these courses after 12 months from applying to the MSc degree.
  One elective course can be set during either the 1st or 2nd parts.
- **Thesis**
  For the MSc thesis;
  MSc thesis subject should be officially registered within 6 months from application to the MSc degree,
  Discussion and acceptance of the thesis could be set after 12 months from registering the MSc subject;
  It should be discussed and accepted before passing the second part of examination)
- **Part 2 (2 years)**
  Program-related speciality science courses and ILOs
  Students are not allowed to sit the exams of these courses before 3 years from applying to the MSc degree.
  The students pass if they get 50% from the written exams and 60% from oral and clinical/practical exams of each course and 60% of summation of the written exams, oral and clinical /practical exams of each course
  Total degrees 1900 marks.
  700 marks for first part
  1200 for second part
  Written exam 40% - 70%.
  Clinical/practical and oral exams 30% - 60%.

D. Curriculum Structure: (Courses):

Year 1

The first year of the fellowship is primarily for basic science related medical knowledge, basics of Cardiology and internal medicine (studied in specialized courses over 12 months in collaboration with basic sciences department and Internal medicine Department of

Aswan Faculty of Medicine) and a clinical year during which the fellows gain experience with a wide variety of patients in in-patient and out-patient settings, develop proficiency in the performance and appropriate utilization of various procedures, and develop proficiency in the utilization and interpretation of cardiac laboratory tests . Throughout the year, emphasis is placed on developing: 1) an understanding of basic mechanisms and pathophysiology of cardiovascular diseases and critical illness ; 2) the ability to efficiently formulate clinical assessments and therapeutic plans; 3) the ability to critically analyze the relevant medical literature; and 4) skills in communicating with nursing and medical staff as well as house staff.

The first year fellow spends the year rotating among four different services: 1) Cardiology wards; 2) Cardiac Care Unit; 3) Cardiac Emergency unit and 4) Cardiac either general or specialized outpatient clinics all at Aswan University Heart Hospital. These rotations are briefly described below.

Years 2 and 3

Although the primary focus of the second and third year is the development of skills and experience in research (see below), senior fellows continue to participate in clinical activities and certain procedures. First, they maintain their longitudinal out-patient and in-patient clinic experience throughout these years. Senior fellows will also actively participate in the regular weekly scientific seminars and collaborate with those fellows in their first year. In addition, fellows rotate through the different in- patient clinical services. This rotation complements the previous inpatient and outpatient experiences.

Approximately by the end of the first year, fellows are expected to identify a research area in which the subsequent two years will be focused. Together, the trainee and supervisors develop a project for investigation that is of interest to the trainee and within the expertise of the faculty member; in certain instances, joint mentorship provided by two faculty members within the Division, or by one divisional faculty member and a collaborator from another

unit, is appropriate. By the beginning of the second year, the fellow presents a conference in which he/she synthesizes existing knowledge, presents the problem for investigation, and describes the proposed plan of investigation. The faculty members and fellows in attendance provide feedback to the fellow and supervisors about the proposed project; this process of peer review provides a useful experience for the fellow and often strengthens the experimental approach.

During the second and third years, the trainee carries out the proposed work in the clinical research facilities of the faculty mentor(s). The trainee also benefits from interactions with other trainees, technicians, and collaborating investigators. The trainee also participates in laboratory meetings and journal clubs specific to individual research groups. Presenting research findings at regional and national meetings and submitting work for publication are both important aspects of the investigative endeavor. The trainee will receive guidance and specific assistance in learning to prepare data for oral and written presentation, to prepare graphics, and to organize talks and prepare slides. Throughout the research training period, it is anticipated that the fellow will assume increasing intellectual responsibility and technical independence.

Research Pathway

Selection of a research project and supervisors is subject to the approval of the cardiovascular Department council approval and vice-Dean of post graduate studies of the faculty as officially regulated. Fellows may elect clinical trial, meta-Analysis/systematic Review, clinical audit or epidemiological studies - based research training pathways. For all Master degree students, a research advisory committee will be selected by the fellow based on the approved regulatory rules of the faculty council. This committee will monitor the progress of research fellows and provide advice regarding research training and career development

courses of the program:

Didactic (lectures, seminars, tutorial)

Courses and student work load list	Course Code	Credit points		
		Didactic#	training	Total
First Part				
Basic science courses (8CP)				
1. Course 1: Anatomy	CAR201	2	-	2
2. Course 2:	CAR232A#	2	-	2
Unit 1: Physiology				
Unit 2: Biochemistry				
3. Course 3: Pathology	CAR205	2		2
4. Course 4: Pharmacology	CAR206	2		2
General clinical compulsory courses (6 CP)				
5. Course 5: principles of Cardiology	CAR232B	3		3
Speciality compulsory courses 6. Course 6: Internal Medicine	CAR218	3		3
Elective courses*	2 CP			
Clinical training and scientific activities:				
Clinical training in general clinical compulsory courses (10 CP) **Internal Medicine**			10	10
Scientific activities in Speciality course (14 CP) **Course7;Cardiology**			14	14
Total of the first part		16	24	40
Second Part	Speciality course 24 CP Speciality Clinical Work 96 CP			
Speciality Courses				
5. Course 7: Cardiology	CAR232C	24		24
Training and practical activities in speciality (96 CP) (Cardiology)	CAR232C		96	96
Total of the second part		24	96	120
Thesis	20 CP			
Total of the degree	180 CP			

* Elective courses can be taken during either the 1st or 2nd parts.

Student work load calculation:

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

Elective Courses#:

- Medical statistics.
- Evidence based medicine.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
- Quality assurance of medical education
- Quality assurance of clinical practice.
- Hospital management

One of the above mentioned courses are prerequisites for fulfillment of the degree.

Thesis:

20 CP are appointed to the completion and acceptance of the thesis.

Course 7 Cardiology *

Units	% of total mark	Years	Core Credit Points		
			Didactic	training	total
Unit 1: Cardiovascular Diseases	60%	1,2,3	18	54	72
Unit 2: Cardiac Emergency	20%	1,2,3	6	18	24
Unit 3: Non-invasive cardiac investigations	15%	2,3	4.5	13.5	18
Unit 4: Cardiac Cath.	5%	3	1.5	4.5	6
Total: 4 Units	100%	3 years	30	90	120

** Different Courses ILOs are arranged to be studied and assessed in the 1st and 2nd parts of the program as scheduled in the program time table.

6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

See Annex 1 for detailed specifications for each course/ module

7-Admission requirements

- **Admission Requirements (prerequisites) if any :**

I. General Requirements:

- M.B.B.Ch. Degree from any Egyptian Faculties of Medicine
- Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
- One year appointment within responsible department (for non Assiut University based registrars)

II. Specific Requirements:

- Fluent in English (study language)

VACATIONS AND STUDY LEAVE

The current departmental policy is to give working residents one week leave prior to first part and 2 weeks prior to second part exams.

FEES:

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.

8-Progression and completion requirements

- Examinations of the first part could be set at 12 months from registering to the MSc degree.
- Examination of the second part cannot be set before 3 years from registering to the degree.
- Discussion of the MSc thesis could be set after 1 year from officially registering the MSc subject before setting the second part exams.
- The minimum duration of the program is 3 years.

The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MSc thesis.

9- Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: **Structured essay questions** **Objective questions:** **MCQ** **Problem solving**	**K & I**
Clinical: **Long/short cases** **OSCE**	**K ,I, P &G skills**
Structured oral	**K ,I &G skills**
Logbook assessment	**All**
Research assignment	**I &G skills**

Weighting of assessments:

	Course Code	Written Exam	Degree		Total
			Oral Exam *	Practical /Clinical Exam	
First Part					
Basic science courses:					
Course 1 : Anatomy	**CAR201**	**50**	**50**		**100**
Course 2: **Unit 1: Physiology** **Unit 2: Biochemistry**	**CAR232A#**	**50** **25** **25**	**50** **25** **25**		**100** **50** **50**
Course 3: Pathology	**CAR205**	**50**	**50**		**100**
Course 4: Pharmacology	**CAR206**	**50**	**50**		**100**
General clinical courses					
Course 5: **Priniciples of Cardiology**	**CAR232B**	**150**	**-**	**-**	**150**
Speciality courses					
Course 6: **Internal Medicine**	**CAR218**	**75**	**25**	**50**	**150**
Total of the first part					**700**
Second Part					
Speciality Courses:					
Course 7 Cardiovascular Medicine * **Paper 1** **Paper 2** **Paper 3** **Paper 4 (Cases & MCQs)**	**CAR232C**	**480** **120** **120** **120** **120**	**360**	**360**	**1200**
Total of the degree					**1900**
Elective course		**50**	**50**		**100**
Courses		**Degrees**			

* 25% of the oral exam for assessment of logbook

Total degree 1900

700marks for first part

1200 for second part

Written exam 40% (480 marks). Clinical/practical and oral exams 60% (720 marks)

Examination system:

First part:

- Written exam 2 hours in Anatomy + Oral exam
- Written exam 2 hours in Physiology and Biochemistry + Oral exam
- Written exam 2 hours in Pathology + oral exam.
- Written exam 2 hours in Pharmacology + oral exam.
- Written exam 3 hours in Internal Medicine + oral exam + clinical exam.
- Written exam 3 hours in Principles of Cardiology.

Second part:

- Written exam four papers 3 hours for each in Cardiovascular Medicine (Paper 1, Paper 2, Paper 3, Paper 4 (Cases and MCQs) + Oral exam + Clinical & Spots exam.

Elective courses

Written exam one paper 1 hour in Elective course + Oral & Practical exam.

10-Program evaluation

By whom	Method	Sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits Questionnaires	#
Senior students	Questionnaires	#
Alumni	Questionnaires	#

#Annex 5 contains evaluation templates and reports (joined in the departmental folder).

11-Declaration

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented.

Annex 1, Specifications for Courses / Modules

Annex 1: specifications for courses/

First Part

Course 1: Anatomy

1. Course data

Name of department: Anatomy

- **Course Title:** Anatomy
- **Course code: CAR201.**
- **Speciality :** Cardiovascular Medicine
- **Number of credit point:** 2 credit point, didactic: 2 credit point (100%)
- **Department (s) delivering the course:** Anatomy Department with Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of Anatomy Department in conjunction with Cardiovascular Medicine Department as annually approved by both departments councils
- **Date last reviewed:** February- 2017
- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

2. Course Aims

2/1. The student should acquire the anatomical and embryological facts necessary for Cardiovascular Medicine.

3. Course intended learning outcomes (ILOs) A-

Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A-Describe basic principles of anatomy and embryology related to cardiovascular medicine the following; - Embryology of heart and arch of aorta. - Surface anatomy of heart and great vessels, brachiocephalicvessels,and pulmonary circulation. - Anatomy of the heart and anatomy of cardiac chambers - Anatomy of coronary circulation. - Anatomy of brachiocephalic vessels with special stress on access to CVP. - Anatomy of aorta, pulmonary circulation and peripheral vessels	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of the anatomy with clinical reasoning, diagnosis and management of common	-Didactic	-Written and oral

diseases related to cardiovascular medicine.	(lectures, seminars, tutorial)	examination - Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to cardiovascular medicine		

C- Practical skills (Patient Care)

Practical: 0 credit point

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation)

Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
- Embryology of heart and arch of aorta.	A	A,B	-	A-D
- Surface anatomy of heart and great vessels, brachiocephalic vessels, and pulmonary circulation.	A	A,B	-	A-D
- Anatomy of the heart and	A	A,B	-	A-D

anatomy of cardiac chambers				
- Anatomy of coronary circulation.	A	A,B	-	A-D
- Anatomy of brachiocephalic vessels with special stress on access to CVP.	A	A,B	-	A-D
- Anatomy of aorta, pulmonary circulation and peripheral vessels	A	A,B	-	A-D

5. Course methods of teaching/learning

1. Didactic (lectures, seminars, tutorial)
2. Observation and supervision
3. Written & oral communication
4. Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)

7. Course assessment methods

i. Assessment tools:

a. Written and oral examination

b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies •

Medical anatomy books by Staff Members of the Department of Medical anatomy -Assiut University.

ii. Essential books

- Richard Snell Clinical Anatomy, 2015

iii. others : None

9. Signatures

Course Coordinator	
Course Coordinator: **Prof.**	**Head of the Department: Prof.**

Date: : February- 2019 **Date: :** February- 201

Course 2;Unit 1: Physiology

1. Unit data

- **Unit Title: Physiology**
- **Unit code: CAR232A#**
- **Speciality :** Cardiovascular Medicine
- **Number of credit point:** 1 credit point, didactic 1 credit point (100%)
- **Department (s) delivering the unit:** Physiology Department with Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of physiology Department with Cardiovascular Medicine Department as annually approved by both departments councils.
- **Date last reviewed: :** February- 2017
- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

2. Unit Aims

2/1The student should acquire the facts of physiology necessary for cardiovascular medicine.

3. Unit intended learning outcomes (ILOs)

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Describe physiologic principles of the following entities which are related to cardiovascular medicine: **-Circulation:** * Physiological principles of cardiac muscles. * Heart rate and its regulation. * Blood pressure and its regulation. * Cardiac cycle. * Cardiac output and its regulation. * Innervations of the heart. * Heart sounds. * Jugular venous pressure. * Coronary circulation. * Haemorrhage and its compensatory mechanisms. * ECG and its clinical significance. * Oedema and lymphatic system. * Venous and capillary circulation.	Lectures	Written and oral examination Log book
-Respiration: * Acid-base balance. * Hypoxia.	Lectures	Written and oral examination Log book

-Blood: * Mechanisms of blood coagulation. * Some clinical conditions due to abnormalities in blood coagulation.	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of physiology with clinical reasoning, diagnosis and management of common diseases related to cardiovascular medicine.	-Didactic (lectures, seminars, tutorial)	-Written and oral examination - Log book

C- Practical skills (Patient Care)

Practical = 0 credit point

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ Learning	Methods of Evaluation
B. Write a report in the conditions mentioned above.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Unit contents (topic s/modules/rotation

Unit Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Physiological principles of cardiac muscles.	A	A	-	A-D
Heart rate and its regulation.	A	A	-	A-D

Blood pressure and its regulation.	A	A	-	A-D
Cardiac cycle.	A	A	-	A-D
Cardiac output and its regulation.	A	A	-	A-D
Innervations of the heart.	A	A	-	A-D
Heart sounds.	A	A	-	A-D
Jugular venous pressure.	A	A	-	A-D
Coronary circulation.	A	A	-	A-D
Haemorrhage and its compensatory mechanisms	A	A	-	A-D
ECG and its clinical significance.	A	A	-	A-D
Oedema and lymphatic system.	A	A	-	A-D
Venous and capillary circulation.	A	A	-	A-D
Acid -base balance.	A	A	-	A-D
Hypoxia.	A	A	-	A-D
Mechanisms of blood coagulation.	B	A	-	A-D
Some clinical conditions due to abnormalities in blood coagulation.	B	A	-	A-D

5. Unit methods of teaching/learning

1. Didactic (lectures, seminars, tutorial)
2. Observation and supervision
3. Written & oral communication
4. Senior staff experience

6. Unit methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)

7. Unit assessment methods

ii. Assessment tools:

a. Written and oral examination
b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 50

8. List of references

i. Lectures notes

- Course notes

Staff members print out of lectures and/or CD

- copies

ii. Essential books

- Guyton AC, Hall JE: Textbook of Medical Physiology, 11th ed. Saunders, 2006.

iii. Recommended books

- Hurst, The Heart, 2015

iv. Periodicals, Web sites, … etc

v. others : None.

Course 2; Unit 2: Biochemistry

1. Unit data

- **Unit Title:** Biochemistry
- **Unit code**: CAR232A#
- **Speciality** : Cardiovascular Medicine.
- **Number of credit points: 1** credit point, didactic 1 credit point (100%), 0 CP for training, total 1 CP.
- **Department (s) delivering the unit:** Biochemistry Department with Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of Biochemistry Department in conjunction with Cardiovascular Medicine Department as annually approved by both departments' councils.

- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

2. Unit Aims

2/1.The student should acquire the professional knowledge and facts of biochemistry necessary for Cardiovascular Medicine.

3. Unit intended learning outcomes (ILOs)

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A-Illustrate biochemical principles of the Following entities which are related to cardiovascular medicine: - Diabetes Mellitus. - Lipid metabolism. - Dyslipoproteinemias. - Biochemistry of receptors and mechanisms of transmembrane signaling: * Catecholamines * Acetylcholine - Eicosanoids (prostaglandins and their biological functions). - Leukotrines. - Oxygen free radicals. - Storage diseases of the heart.	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of biochemistry with clinical reasoning, diagnosis and management of common diseases related to Cardiovascular Medicine.	- Didactic (lectures, seminars, tutorial)	- Written and oral examination - Log book

C- Practical skills (Patient Care)

Practical: 0 credit point.

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ Learning	Methods of Evaluation
B. Write a report in the conditions mentioned above.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360 global rating

4. Unit contents (topic s/modules/rotation

Unit Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	**Intellectual** B	**Practical skills** C	**General Skills** D
- Diabetes Mellitus.	A	A	-	A-D
- Lipid metabolism.	A	A	-	A-D
- Dyslipoproteinemias.	A	A	-	A-D
- Biochemistry of receptors and mechanisms of transmembrane signaling: * Catecholamines * Acetylcholine	A	A	-	A-D
- Eicosanoids (prostaglandins and their biological functions).	A	A	-	A-D
- Leukotrines.	B	A	-	A,B,D
- Oxygen free radicals.	A	A	-	A-D
- Storage diseases of the heart.	A	A	-	A-D

5. Unit methods of teaching/learning

1. Didactic (lectures, seminars, tutorial)
2. Observation and supervision
3. Written & oral communication
4. Senior staff experience

6. Unit methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)

7. Unit assessment methods

iii. Assessment tools:

a. Written and oral examination
b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 50

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/orcopies

ii. Essential books

- Marks Basic Medical Biochemistry

iii. Recommended books

- Hursts the Heart.

iv. Periodicals, Web sites, … etc

v. others : None

9. Signatures

Course Coordinator	
Unit 1 Coordinator: Prof.	**Head of the Department: Prof.**
Date:	**Date:**
Unit 2 Coordinator: Prof.	**Head of the Department: Prof.**
Date: : February- 2019	**Date: :** February- 2019

Course 3: Pathology

1. Course data

- **Course Title: Pathology**
- **Course code**: CAR205
- **Speciality** : Cardiovascular Medicine
- **Number of credit points:** 2 credit point, didactic 2 credit point (100%),%), 0 CP for training, total 2 CP
- **Department (s) delivering the course :** Pathology Department with Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of Pathology Department with Cardiovascular Medicine Department as annually approved by both departments' councils.

- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

2. Course Aims

2/1The student should acquire the facts of Pathology necessary for Cardiovascular Medicine.

3. Course intended learning outcomes (ILOs) A-

Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Mention basic pathological principles related to cardiology including the following: - Inflammation - Disturbance of circulation including ischaemia and thrombosis - Immunity - Infection. - Pathology of tumors	Lectures	Written and oral examination Log book
B. Describe the pathological details of the following: - Atherosclerosis and ischaemic heart diseases. - Heart failure. - Hypertension. - Diseases of the myocardium and pericardium. - Rheumatic fever. - Infective endocarditis. - Cor pulmonale. - Cardiac tumors.	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of Pathology with clinical reasoning, diagnosis and management of common diseases related to Cardiovascular Medicine.	-Didactic (lectures, seminars, tutorial)	-Written and oral examination - Log book

C- Practical skills (Patient Care)

Practical: 0 credit point

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation

Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skills	General Skills
- Pathology of acute inflammation	**A**	**A**	-	**A-D**
- Disturbance of circulation includingischaemia and thrombosis	**A**	**A**	-	**A-D**
- Immunity	**A**	**A**	-	**A-D**
- Infection.	**B**	**A**	-	**A-D**
- Pathology of tumors	**B**	**A**	-	**A-D**
Cardiovascular diseases				
- Atherosclerosis and ischaemic heart diseases.	**A**	**A**	-	**A-D**
- Heart failure.	**A**	**A**	-	**A-D**

- Hypertension.	**A**	**A**	-	**A-D**
- Diseases of the myocardium and pericardium.	**A**	**A**	-	**A-D**
- Rheumatic fever.	**A**	**A**	-	**A-D**
- Infective endocarditis.	**A**	**A**	-	**A-D**
- Cor pulmonale.	**A**	**A**	-	**A-D**
- Cardiac tumors.	**A**	**A**	-	**A-D**

5. Course methods of teaching/learning

1. Didactic (lectures, seminars, tutorial)
2. Observation and supervision
3. Written & oral communication
4. Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)

7. Course assessment methods

iv. Assessment tools:

a. Written and oral examination

b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Rosai and Ackerman's Surgical Pathology Juan Rosai, Mosby 2004

iii. Recommended books

- Hursts the Heart.
- Sternberg's Diagnostic surgical Pathology 4th edition, Lippincott Williams and Wilkins

iv. Periodicals, Web sites, … etc

- American journal of pathology
- Pathology journal
- Human pathology journal
- Web Sites: http://www.ncbi.nlm.nih.gov/pubmed/

v. **others :** None.

9. Signatures

Course Coordinator	
Course Coordinator: Prof.	**Head of the Department: Prof.**
Date: : February- 2019	**Date: :** February- 2019

Course 4: Pharmacology

1. Course data

- **Course Title: Pharmacology**
- **Course code**: CAR206
- **Speciality** : Cardiovascular Medicine.
- **Number of credit points: 2** credit point, didactic 2 credit point (100%), 0 CP for training, total 2 CP
- **Department (s) delivering the unit:** Pharmacology Department with Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of Pharmacology Department in conjunction with Cardiovascular Medicine Department as annually approved by both departments councils.
- **Date last reviewed: :** February- 2017
- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

2. Course Aims

2/1The student should acquire the professional knowledge and facts of pharmacology necessary for Cardiovascular Medicine.

3. Course intended learning outcomes (ILOs)

A-Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Illustrate basic principles of pharmacokinetics and pharmacodynamics (basic concepts).	Lectures	Written and oral examination Log book
B. Describe Pharmacological details of the following medications used in cardiology; - Anti-hypertensives and diuretics. - Inotropics and digitalis. - Coronary vasodilators. - Anti-arrhythmics. - Anti-dyslipidemics. - Anti-Diabetics. - Symapthetic and parasympathetic drugs. - Anti-coagulants. - Anti-platelets. - Fibrinolytics. - Other developing drugs in CV diseases.	Lectures	Written and oral examination Log book

B-Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of Pharmacology with clinical reasoning, diagnosis and management of common diseases related to Cardiovascular Medicine.	-Didactic (lectures, seminars, tutorial)	-Written and oral examination - Log book

C-Practical skills (Patient Care)

Practical: 0 credit point

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ Learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A &A.B	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation

Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Pharmacokinetics and pharmacodynamics(basic concepts)	A	A	-	A-D
- Anti-hypertensive and diuretics.	A	A	-	A-D
- Inotropics and digitalis.	A	A	-	A-D
- Coronary vasodilators.	A	A	-	A-D
- Anti-arrhythmics.	A	A	-	A-D
- Anti-dyslipidemics.	B	A	-	A,B,D

- Anti-Diabetics.	A	A	-	A-D
-Symapthetic and parasympathetic drugs.	A	A	-	A-D
- Anti-coagulants.	A	A	-	A-D
- Anti-platelets.	A	A	-	A-D
- Fibrinolytics.	A	A	-	A-D
- Other developing drugs in CV diseases.	A	A	-	A-D

5. Course methods of teaching/learning

5. Didactic (lectures, seminars, tutorial)
6. Observation and supervision
7. Written & oral communication
8. Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

2. Extra didactic (lectures, seminars, tutorial)

7. Course assessment methods

vi. Assessment tools:

a. Written and oral examination
b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Basic & Clinical Pharmacology, 11th Edition. By Bertram Katzung, Anthony Trevor, Susan Masters. Publisher: McGraw-Hill

iii. Recommended books

- Godman Gilmans. The pharmacological therapeutics. 11th Ed
- Hursts The Heart textbook of Cardiovascular Medicine, 2008

iv. Periodicals, Web sites, … etc

- British journal f pharmacology
- Pharmacological review
  http://www.ncbi.nlm.gov/

v. others : None

9. Signatures

Course Coordinator	
Course Coordinator: Prof.	**Head of the Department: Prof.**
Date: : February- 2019	**Date: :** February- 2019

1. Course data

- **Course Title:** Principles of Cardiology
- **Course code**: CAR232B
- **Speciality** : Cardiovascular Medicine.
- **Number of credit points:** 3 credit point, didactic 3 CP(100%) for didactics, 0 CP for training , total 3 CP
- **Department (s) delivering the course:** Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of Cardiovascular Medicine Department

- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book**

2. Course Aims

2/1The student should acquire the facts of Principles of cardiology necessary for Cardiovascular Medicine.

3. Course intended learning outcomes (ILOs) A-

Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A-Describe the following basic principles of Cardiology:- - Ultra structure of the heart. - Basics of genetics in cardiology. - Embryology of the heart, great vessels and coronary arteries. - Anatomy of the heart, great vessels and coronary arteries. - Stress testing modalities in cardiovascular medicine. - Imaging modalities of the heart and cardiac function assessment. - Basic principles of ECG. - Metabolism of the heart. - Excitation-contraction coupling. - Cardiovascular parameters under basal and stressful conditions. - Conductive system of the heart and the neural control. - Cardiac cycle and its pharmacological implications. - Cardiac effects of hypoxia, acid-base disturbances and electrolyte imbalances. - Endothelium function & abnormality. - Hemostasis, thrombosis, bleeding. - Cardiac case taking, history and examination.	Lectures	Written examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of basics of cardiology with clinical reasoning, diagnosis and management of common diseases related to Cardiovascular Medicine	-Didactic (lectures, seminars, tutorial)	-Written examination - Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Cardiovascular Medicine.		

C- Practical skills (Patient Care)

Practical: 0 credit point

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	-Written Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ Learning	Methods of Evaluation
B. Write a report in the conditions mentioned above.	-Observation and supervision -Written & oral communication	-Written Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	-Written Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation)

Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
- Ultra structure of the heart.	A	A, B	-	A-D
- Basics of genetics in cardiology.	A	A, B	-	A-D
- Embryology of the heart, great vessels and coronary arteries.	A	A, B	-	A-D
- Anatomy of the heart, great vessels and coronary arteries	A	A, B	-	A-D
- Stress testing modalities in cardiovascular medicine.	A	A, B	-	A-D

- Imaging modalities of the heart and cardiac function assessment.	A	A, B	-	A-D
- Basic principles of ECG.	A	A, B	-	A-D
- Metabolism of the heart.	A	A, B	-	A-D
- Excitation-contraction coupling.	B	A, B	-	A.,B,D
- Cardiovascular parameters under basal and stressful conditions.	A	A, B	-	A-D
- Conductive system of the heart and the neural control.	A	A, B	-	A-D
- Cardiac cycle and its pharmacological implications.	A	A, B	-	A-D
- Cardiac effects of hypoxia, acid-base disturbances and electrolyte imbalances.	C	A, B	-	A.,B,D
- Endothelium function & abnormality.	A	A, B	-	A-D
- Hemostasis, thrombosis, bleeding.	A	A, B	-	A-D
- Cardiac case taking, history and examination.	A	A, B	-	A-D

5. Course methods of teaching/learning

1. Didactic (lectures, seminars, tutorial)
2. Observation and supervision
3. Written & oral communication
4. Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)

7. Course assessment methods

vii. Assessment tools:

a. Written examination

b. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 150

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD

copies **ii. Essential books**

Hursts The heart..Text book of Cardiovascular Medicine.

iii. Recommended books

Topole textbook of Cardiovascular Medicine , 2015

iv. Periodicals,

Websi➢ tes, ... etc

Periodicals

- Heart
- JACC

v. others : None

9. Signatures

Course Coordinator: ……	**Head of the Department:** ……
Date: February- 2019	**Date:** February- 2019

Course 6: Internal Medicine

1. Course data

- **Course Title: Internal Medicine**
- **Course code**: CAR218
- **Speciality** : Cardiovascular Medicine.
- **Number of credit points: total 13 credit points, didactic 3 credit point (23.1%) and training 10 CP(76.9%)**
- **Department (s) delivering the course:** Internal Medicine Department with Cardiovascular Medicine Department
- **Coordinator (s):** Staff members of Internal Medicine Department with Cardiovascular Medicine Department as approved annually by both departments councils.
- **Date last reviewed:** September 2017
- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book**

2. Course Aims

2/1-The student should acquire the facts of Internal Medicine necessary for Cardiovascular Medicine.

3. Course intended learning outcomes (ILOs)

A- Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Illustrate basic principles of Internal medicine related to the following topics: I – **Endocrinology**: - Diabetes mellitus and its complications. - Thyroid and parathyroid diseases. - Adrenal gland diseases. - Pituitary gland disorders. - Obesity. II-**Chest Diseases**: - Chronic obstructive airway diseases. - Restrictive lung diseases. - Pneumonia. - TB and its complications. - Pleural diseases. III – **Haematology**: - Coagulation cascade and its disorders. - Hypercoagulable states and bleeding tendencies. - Platelet disorders. - Anemia. - Pharmacology of anti-coagulants. IV - **Hepatology & Gastroenterology**: - Liver cirrhosis - Gastritis and Gastroesophageal Reflux - Portal hypertension and esophageal varices - Hepatitis - Liver cell failure	Lectures	Written and oral examination Log book
B. Describe the updated details of the above items mentioned in AA.	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of internal medicine with clinical reasoning, diagnosis and management of common diseases related to cardiovascular medicine	-Didactic (lectures, seminars, tutorial)	-Written, clinical and oral examination - Log book

C- Practical skills (Patient Care)

ILOs	Methodsof teaching/ learning	Methods of Evaluation
A. Master of the basic and modern professional skills: Training on interpretation of physical signs and symptoms for diagnosis of various medical diseases.	-Clinical rounds, staff seminars	-Assessment of practical skills -Log book
B. Use information technology to support patient care decisions and patient education in common clinical situations related to cardiovascular medicine.		

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral and clinical Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A &A.B	-Observation and supervision -Written, clinical & oral communication	- Oral and clinical Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral and clinical Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topics/modules/rotation)

Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
1. Endocrinology				
Diabetes mellitus and its complications.	A	A	B	A-D
Thyroid and parathyroid diseases.	B	A	A,B	A-D
Adrenal gland diseases.	A	A	A	A-D
Pituitary gland disorders.	A	A	A	A-D
Obesity.	A	A	A	A-D
2. Chest diseases				
Chronic obstructive airway diseases.	A	A	A	A-D
Restrictive lung diseases.	A	A	A	A-D
Pneumonia.	A	A	A	A-D
TB and its complications.	A	A	A	A-D
Pleural diseases.	A	A	A	A-D
3. Haematology				
Coagulation cascade and its disorders.	A	A	A	A-D
Hypercoagulable states and bleeding tendencies.	A	A	A	A-D
Platelet disorders.	A	A	A	A-D
Anemia.	A	A	A	A-D
Pharmacology of anti-coagulants.	A	A	A	A-D
4. Hepatology & Gastroenterology:				
Liver cirrhosis	A	A	A	A-D
Gastritis and	A	A	A	A-D

Gastroesophageal Reflux				
Portalhypertensionand esophageal varices	A	A	A	A-D
Hepatitis	A	A	A	A-D
Liver cell failure	A	A	A	A-D

5. Course methods of teaching/learning

1. Didactic (lectures, seminars, tutorial)
2. Clinical rounds
3. Observation and supervision
4. Written & oral communication
5. Senior staff experience
6. Journal club meetings

6. Course methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)
2. Extra clinical work

7. Course assessment methods

viii. Assessment tools:

a. Written and oral examination
b. Practical exam
c. Log book

ii. Time schedule: At the end of the first part

iii. Marks: 150

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies **ii. Essential books**
  - Book of staff member of internal medicine department Davidson Internal Medicine.

iii. Recommended books

- Hutchinson Text book of Internal Medicine.

iv. Periodicals, Web sites, … etc

- American Journal of hematology
- American Journal of internal medicine.
- Journal of clinical chemistry
- Websites :http://www.ncbi.nlm.gov/

v. others : None

9. Signatures	
Course Coordinator	**Head of the Department:**
Date: : February- 2019	**Date: :** February- 2019

Prof. WAEL Mohammed El Nagger

Second Part

Name of department: Cardiovascular Medicine

Course 7: Cardiology

I. Course data

- **Program Title:** Master degree of Cardio-vascular medicine.
- **Department (s) responsible:** Department of Cardio-vascular medicine- Faculty of Medicine-
  -Code: CAR232C
  Credit points 24CP (17.9%) for didactics, 120CP(89.1%) for training, total; 134CP
- **External evaluator (s):**
  Prof. WAEL Mohammed El Nagger
- **Date of most recent approval of program specification by the**
- **Admission Requirements:**

III. General Requirements:

M.B.B.Ch in Medicine from a medical school approved by the higher council of the Egyptian universities

IV. Specific Requirements:

No specific requirements.

2. Course Aims

2/1. To enable candidates to acquire satisfactory level of clinical skills, bedside care skills, in addition to update medical knowledge as well as clinical experience and competence in the area of Cardiovascular Medicine, emergencies , investigation & intervention and enabling the candidates of making appropriate referrals to a sub-specialist.

2/2. Provide candidates with fundamental knowledge and skills of dealing with critically ill patients with cardiovascular disorders.

2/3- To improve knowledge of physiology about cardiac performance under resting and exercise condition.

2/4- To demonstrate the ability to provide patient-centered care that is appropriate, compassionate, and effective for treatment of Cardiovascular health problems and the promotion of health.

2/5- To give opportunities to evaluate and manage a broad variety of cardiovascular diseases.

2/6-To learn candidates to develop the analytic thinking way in facing a cardiovascular health problems

2/7-To enable candidates to acquire satisfactory level of clinical skills, bedside care skills, in addition to update medical knowledge as well as clinical experience and competence in the area of noninvasive cardiac investigations and enabling the candidates of making appropriate referrals to a sub-specialist.

2/8. Provide candidates with fundamental knowledge and skills of noninvasive cardiac investigations.

2/9- To improve knowledge of basics and thoritical background of noninvasive cardiac testing.

2/10-To demonstrate the ability to order, interpret and perform certain noninvasive cardiac testing.

Course 7; Module1: Cardiovascular Diseases

3. Course intended learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	Methodsof teaching/ learning	*Methods of Evaluation*
A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions: 1. Acute coronary syndromes. 2. Chronic ischaemic heart disease. 3. Rheumatic fever. 4. Valvular heart disease. 5. Hypertension. 6. Heart failure. 7. Infective endocarditis. 8. Arrhythmia. 9. Adult CHD. 10. Myocardial diseases. 11. Pericardial diseases. 12. Diabetic heart disease. 13. Pregnancy and heart disease. 14. Heart and CT disease. 15. Heart and renal disease. 16. Heart and endocrine diseases. 17. Cardio-pulmonary diseases 18. Cardiac tumors. 19. Peripheral arterial diseases 20 Drugs affecting heart function. 21. Obesity	-Didactic (lectures) - Clinical rounds - Seminars, tutorial) - Case presentation - Clinical rotations	-OSCE -Log book & portfolio - MCQ examination -Oral, practical and written exam
B. Mentiontheprinciplesofdiagnostic, therapeutic and preventive tools for management of conditions mentioned in A.A		

C. State update and evidence based Knowledge of the above entities mentioned in A,A.		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Cardiovascular medicine.		
E. Mention the basic ethical and medicolegal principles revenant to the Cardiovascular medicine.		
F. Mention the basics of quality assurance to ensure good clinical care in Cardiovascular medicine.		
G. Mention the ethical and scientific principles of medical research in Cardiovascular medicine.		
H. State the impact of common health problems in the field of Cardiovascular medicine on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related to Cardiovascular medicine.	Clinical rounds Senior staff experience	case presentation Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Cardiovascular medicine.		
C. Design and present cases, seminars in common problem related to Cardiovascular medicine.		
D-Formulate management plans and alternative decisions in different situations in the field of the Cardiovascular medicine		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic; -Lectures -Clinical rounds -Seminars -Clinical rotations (service teaching)	- OSCE - Log book & portfolio - MCQ
B. **Order the following noninvasive and invasive diagnostic procedures:** -Routine appropriate Lab investigations related to conditions mentioned in A.A -ECG -Chest X-ray -Echocardiography. - Exercise ECG. - 24-hours ECG. - Pericardiocentesis. - Multislice CT cardiac exam. - Myocardial perfusion scintigraphy. - Cardiac cath. - Lab investigation including blood picture, ESR, blood culture and blood chemistry - Metabolic profile:[i.e. serum electrolytes] - Endocrinal profile - Rheumatoid factor, ANF, LE cells.		
C. **Interpret the following noninvasive and invasive diagnostic procedures;** -Routine appropriate Lab investigations related to conditions mentioned in A.A -ECG -Chest X-ray	-Clinical round with senior staff Observation -Post graduate teaching	-Procedure presentation - Log book - Chick list

-Echocardiography. - Exercise ECG. - 24-hours ECG. - Multislice CT cardiac exam. - Myocardial perfusion scintigraphy. - Cardiac catheter. - Lab investigation including blood picture, ESR, blood culture and blood chemistry - Metabolic profile:[i.e. serum electrolytes] - Endocrinal profile -Rheumatoid factor, ANF, LE cells.		
D. Perform the noninvasive therapeutic procedures related to conditions mentioned in A.A.	Clinical round with senior staff	- Log book - Chick list
E. Prescribe the noninvasive therapeutic procedures related to conditions mentioned in A.A.		
F. Carry out patient management plans for common conditions related to Cardiovascular medicine.		
G. Use information technology to support patient care decisions and patient education in common clinical situations related to Cardiovascular medicine		
H. Provide health care services aimed at preventing health problems related to Cardiovascular diseases like: ischemic heart disease, Rheumatic fever, Valvular heart disease, hypertension, etc.		
A. Provide patient-focused care in common conditions related to Cardiovascular diseases, while working with health care professionals, including those from other disciplines like		

conditions mentioned in A.A.		
B. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets.(Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolios
B. Appraises evidence from scientific studies(journal club)	-Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	- Simulations - Clinical round	Global rating Procedure/case presentation
G. Elicit information using effective nonverbal,		

explanatory, questioning, and writing skills.	- Seminars - Lectures - Case presentation - Hand on Workshops	Log book Portfolios Chick list
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in common problems related to Cardiovascular Medicine.	Clinical round Seminars	Clinical Exam
K. Write a report on common conditions mentioned in		
L. Council patients and families about conditions mentioned above in A.A.	Clinical round with senior staff	

Professionalism

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	- Observation -Senior staff experience - Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		1. 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		1. Objective structured clinical examination 2. 360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	- Observation - Senior staff experience	360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		1. Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		1. 360o global rating 2. Patient survey

Course 7; Module2: Cardiac Emergency

3. Intended learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	Methodsof teaching/ learning	*Methods of Evaluation*
A. Describe the etiology, clinical picture, diagnosis and management of following cardiac emergency conditions: 1. Acute coronary syndromes. 2. Arrhythmia. 3. Cardiogenic shock. 4. Cardio-pulmonary resuscitation. 5. Hypertensive emergency. 6. Pulmonary edema. 7. Acute pulmonay embolsim. 8. The most common electrolyte disorders and its cardiac implications including: a. Hypokalemia b. Hypomagnesemia c. Hyperkalemia.	-Didactic (lectures) - Clinical rounds - Seminars, tutorial) - Case presentation - Clinical rotations	-OSCE -Log book & portfolio - MCQ examination -Oral, practical and written exam
B-Mention the principles of the diagnostic, therapeutic and preventive tools for conditions related to cardiac emergencies mentioned in AA.		
C. State update and evidence based Knowledge of related to above entities in AA,AB.		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Cardiac Emergency Medicine.		
E. Mention the basic ethical and medicolegal principles revenant to Cardiac Emergency		

Medicine.		
F. Mention the basics of quality assurance to ensure good clinical care in field of Cardiac Emergency Medicine.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common health problems in the field of cardiac emergency medicine on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related to cardiac emergency medicine.	Clinical rounds Senior staff experience	Procedure/case presentation Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to cardiac emergency medicine.		
C. Design and present cases, seminars in common problem related to cardiac emergency medicine.		
D-Formulate management plans and alternative decisions in different situations in the field of the cardiac emergency medicine.		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic; -Lectures -Clinical rounds - Seminars -Clinical rotations (service teaching)	- OSCE - Log book & portfolio - MCQ exam
B. **Order the following noninvasive& invasive diagnostic procedures for critically ill patients:** -Routine appropriate Lab investigations related to conditions mentioned in A.A -ECG -Chest X-ray -Echocardiography. - 24-hours ECG. - Pericardiocentesis. - Multislice CT cardiac exam. - Myocardial perfusion scintigraphy. - Cardiac catheter. - Lab investigation including blood picture, ESR, blood culture and blood chemistry - Metabolic profile:[i.e. serum electrolytes] - Endocrinal profile. -Rheumatoid factor, ANF, LE cells.		
C. Interpret the following noninvasive and invasive diagnostic procedures related to cardiac emergencies mentioned above in AA.		
D. Perform the following noninvasive therapeutic procedures related to conditions mentioned in AA.		
E.Prescribethefollowingnoninvasive therapeutic procedures related to conditions mentioned in AA.		
F. Carry out patient management plans for common conditions related to cardiac emergencies.		
G. Use information technology to support patient care		

decisions and patient education in common clinical situations related to cardiac emergencies.		
H. Provide health care services aimed at preventing health problems related to cardiac emergencies like conditions related to cardiac emergencies mentioned in AA.		
C. Provide patient-focused care in common conditions related to cardiac emergencies, while working with health care professionals, including those from other disciplines like conditions mentioned in AA.		
D. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets.(Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolios
B. Appraises evidence from scientific studies(journal club)	-Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	- Simulations - Clinical round - Seminars - Lectures - Case presentation - Hand on Workshops	Global rating Procedure/case presentation Log book Portfolios Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in common problems related to Cardiac emergency.	Clinical round Seminars	Clinical Exam
K. Write a report on common conditions mentioned in		
L. Perform Workshops about basic and advanced life support procedures.	- Simulations - Hand on Workshops	

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	- Observation -Senior staff experience - Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care,		1. 360o global rating

confidentiality of patient information, informed consent, business practices		
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		1. Objective structured clinical examination 2. 360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	- Observation - Senior staff experience	360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		1. Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		1. 360o global rating 2. Patient survey

Course 7; Module 3: Noninvasive Cardiac Investigations

A-Knowledge and understanding

ILOs	Methodsof teaching/ learning	*Methods of Evaluation*
A. Describe the principle and basics of the following noninvasive cardiac testing: 1. Resting 12-leads ECG. 2. Transthoracic echocardiographic examination. 3. Transesophageal echocardiographic examination 4. Multi-slice CT cardiac examination. 5. Myocardial perfusion scintigraphy. 6. Exercise ECG. 7. Stress Echocardiography 8. 24-hours ECG (Holter monitoring).	-Didactic (lectures) - Clinical rounds - Seminars, tutorial) - Case presentation - Clinical rotations	-OSCE -Log book & portfolio - MCQ examination -Oral, practical and written exam
B. Mention the principles of diagnostic and therapeutic cardiac tools mentioned in AA.		
C. State update and evidence based Knowledge of the investigatory tools mentioned in AA.		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Cardiac Testing.		
E. Mention the basic ethical and medicolegal principles revenant to the Cardiac investigations.		
F. Mention the basics of quality assurance to ensure good clinical care in cardiac testing.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common health problems in the field of cardiac testing on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common situations related to noninvasive cardiac testing.	Clinical rounds Senior staff experience	Procedure/case presentation Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to noninvasive cardiac testing.		
C. Design and present models and cases, seminars in common problem related to noninvasive cardiac testing.		
D-Formulate management plans and alternative decisions in different situations in the field of the Cardiac testing.		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic; -Lectures -Clinical rounds -Seminars -Clinical rotations (service teaching)	- OSCE - Log book & portfolio - MCQ exam
B. **Order the followingnoninvasive diagnostic procedures for cardiac patients:** 1. Resting 12-leads ECG. 2. Transthoracic echocardiographic examination. 3. Transesophageal echocardiographic examination 4. Multi-slice CT cardiac examination. 5. Myocardial perfusion scintigraphy. 6. Exercise ECG.		

7. Stress Echocardiography 8. 24-hours ECG (Holter monitoring).		
C. Interpret the results of the following noninvasive diagnostic procedures: 1. Resting 12-leads ECG. 2. Transthoracic echocardiographic examination. 3. Transesophageal echocardiographic examination 4. Multi-slice CT cardiac examination. 5. Myocardial perfusion scintigraphy. 6. Exercise ECG. 7. Stress Echocardiography 8. 24-hours ECG (Holter monitoring).		
D. Perform the noninvasive cardiac procedures mentioned above.	-Clinical roundwith senior staff Observation -Post graduate teaching.	-Procedure presentation - Log book - Chick list.
E. Prescribe the proper management of possible complications during noninvasive cardiac testing.		
F. Carry out patient management plans for common cardiac conditions using noninvasive cardiac testing.		
G. Use information technology to support patient care decisions and patient education in common clinical situations related to noninvasive cardiac investigations.		
H. Provide health care services aimed at preventing health problems related to noninvasive cardiac investigations.		
I. Provide patient-focused care in common conditions related to noninvasive cardiac testing, while working with health care professionals, including those from other disciplines.		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolios
B. Appraises evidence from scientific studies(journal club)	-Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	- Simulations - Clinical round - Seminars - Lectures - Case presentation - Hand on Workshops	Global rating Procedure/case presentation Log book Portfolios Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in common problems	Clinical round	Clinical Exam

related to noninvasive cardiac testing.	Seminars	
K. Write a report on a noninvasive cardiac testing modality mentioned in A.A.	- Simulations - Hand on Workshops	
L. Perform Workshops about noninvasive cardiac testing procedures.		

Professionalism

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	- Observation -Seniorstaff experience - Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinicalcare,confidentialityofpatient information, informed consent, business practices		1. 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		1. Objective structured clinical examination 2. 360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	- Observation - Senior staff experience	360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		1. Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		1. 360o global rating 2. Patient survey

Course 7; Module 4: Diagnostic and Interventional Cardiac Catheterization

A- Knowledge and understanding

ILOs	Methodsof teaching/ learning	*Methods of Evaluation*
A. **Describethe principle and basics of the following cardiac catheterization procedures:** 1. Diagnostic coronary angiography. 2. Therapeutic coronary interventions (PCI) 3. Diagnostic cardiac catheterization for congenital heart diseases. 4. Therapeutic percutaneous transluminal mitral commissurotomy (PTMC). 5. Therapeutic percutaneous transluminal pulmonary valvuloplasty (PPV). 6. Temporary pacemaker insertion. 7. Permanent pacemaker implantation.	-Didactic (lectures) - Clinical rounds - Seminars, tutorial) - Case presentation - Clinical rotations	-OSCE -Log book & portfolio - MCQ examination -Oral and written exam
B. Mention the principles of tools mentioned in A.A.		
C. State update and evidence based Knowledge including recent guidelines of the above mentioned procedures in A.A.		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to cardiac catheterization and cardiac pacing.		
E. Mention the basic ethical and medicolegal principles revenant to the cardiac catheterization and cardiac pacing.		

F. Mention the basics of quality assurance to ensure good clinical care during cardiac catheterization and cardiac pacing.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of cardiac catheterization cardiac pacing on common health problems as ischemic heart disease and arrhythmias in the society.		

B -Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of commonSituationsrelatedtocardiac catheterization and cardiac pacing.	Clinical rounds Senior staff experience	Procedure/case presentation Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to common clinical results and outcome of cardiac catheterization and cardiac pacing.		
C. Design and present cases of cardiac catheterization and/or paced case in seminars		
D-Formulate management plans and alternative decisions in different situations in different situations in the field of the cardiac catheterization and cardiac pacing.		

C- Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	-Didactic; -Lectures -Clinical rounds Seminars -Clinical rotations (service teaching)	-OSCE Log book portfolio MCQ exam
B. Order a diagnostic cardiac catheter for cardiac patients, including the proper indications for diagnostic cardiac catheter.	-Clinical round with senior staff Observation Post graduate teaching	-Procedure presentation - Log book - Chick list
C. Interpret results of the different cardiac catheterization procedures.		
D. Perform the different cardiac catheterization procedures.		
E. Prescribe proper management of possible complications during cardiac catheterization and cardiac pacing.		
F. Carry out patient management plans for common cardiac conditions using cardiac catheterization and/or cardiac pacing.		
G. Use information technology to support patient care decisions and patient education in common clinical situations in cardiac catheterization and cardiac pacing.		
H. Provide health care services aimed at preventing health problems in cardiac catheterization and cardiac pacing		

I. Provide patient-focused care in common conditions related to cardiac catheterization and pacing, while working with health care professionals, including those from other disciplines.	

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methodsof Evaluation
A.Perform practice-based improvement activities using a systematic methodology(audit, logbook)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolios
B.Appraises evidence from scientific Studies (journal club)	-Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	- Simulations - Clinical round	Global rating Procedure/case presentation

	- Seminars - Lectures - Case presentation - Hand on Workshops	Log book Portfolios Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in common problems related to cardiac catheterization and pacing.	Clinical round Seminars	Clinical Exam
K. Write a report on a cardiac catheterization Procedure or a pacemaker implantation procedure.		
L. Perform Workshops about cardiac catheterization and pacing procedures.	- Simulations - Hand on Workshops	

Professionalism

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	- Observation -Senior staff experience - Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		1. 360o global rating

O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		1. Objective structured clinical examination 2. 360o global rating

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	- Observation - Senior staff experience	360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		1. Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		1. 360o global rating 2. Patient survey

4. Module contents (topics/modules/rotation Module Matrix

Time Schedule: Second Part

The competency based objectives of this module is specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

Topic module 1; cardiovascular disease	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Acute coronary syndromes	A-H	A-D	A-I	A-R
Chronic ischaemicheart disease	A-H	A-D	A-I	A-R
Rheumatic fever	A-H	A-D	A-I	A-R
Valvular heart disease	A-H	A-D	A-I	A-R
Hypertension	A-H	A-D	A-I	A-R
Heart failure	A-H	A-D	A-I	A-R
Infective endocarditis	A-H	A-D	A-I	A-R
Arrhythmia	A-H	A-D	A-I	A-R
Adult CHD	A-H	A-D	A-I	A-R
Myocardial diseases	A-H	A-D	A-I	A-R
Pericardial diseases	A-H	A-D	A-I	A-R
Diabetic heart disease s	A-H	A-D	A-I	A-R
Pregnancy and heart disease	A-H	A-D	A-I	A-R
Heart and CT disease	A-H	A-D	A-I	A-R
Heart and renal disease	A-H	A-D	A-I	A-R
Heart and endocrine diseases	A-H	A-D	A-I	A-R
Cardio-pulmonary diseases	A-H	A-D	A-I	A-R
Cardiac tumors	A-H	A-D	A-I	A-R
Peripheral arterial diseases	A-H	A-D	A-I	A-R
Drugs affecting heart function	A-H	A-D	A-I	A-R
Obesity andcardiovascular medicine	A-H	A-D	A-I	A-R

Topic Module 2 cardiac emergencies	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Acute coronary syndromes	**A-H**	**A- D**	**A-I**	**A-R**
Arrhythmia	**A-H**	**A- D**	**A-I**	**A-R**
Cardiogenic shock	**A-H**	**A- D**	**A-I**	**A-R**
Cardio-pulmonary resuscitation	**A-H**	**A- D**	**A-I**	**A-R**
Hypertensive emergency	**A-H**	**A- D**	**A-I**	**A-R**
Pulmonary edema	**A-H**	**A- D**	**A-I**	**A-R**
Acute pulmonay embolsim	**A-H**	**A- D**	**A-I**	**A-R**
The most common electrolyte disorders andits cardiac implications:	**A C**			
Hypokalemia	**A-H**	**A- D**	**A-I**	**A-R**
Hypomagnesemia	**A-H**	**A- D**	**A-I**	**A-R**
Hyperkalemia	**A-H**	**A- D**	**A-I**	**A-R**
Topic **Module 3 noninvasive cardiac investigation**	**Covered ILOs**			
	Knowledge	**Intellectual**	**Practical skill**	**General Skills**
Resting 12-leads ECG	**A-I**	**A -D**	**A-G**	**A-R**
Transthoracic echocardiographic examination	**A-I**	**A -D**	**A-G**	**A-R**
Transesophageal echocardiographic examination	**A-I**	**A -D**	**A-G**	**A-R**
Multi-slice CT cardiac examination	**A-I**	**A -D**	**A-G**	**A-R**
Myocardial perfusion scintigraphy	**A-I**	**A -D**	**A-G**	**A-R**
Exercise ECG	**A-I**	**A -D**	**A-G**	**A-R**
Stress Echocardiography	**A-I**	**A -D**	**A-G**	**A-R**
24-hours ECG (Holter monitoring)	**A-I**	**A -D**	**A-G**	**A-R**

Topic module 4 Diagnostic and Interventional Cardiac Catheterization	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Diagnostic coronary angiograph.	A-I	A -D	A-G	A-R
Therapeutic coronary intervention.	A-I	A -D	A-G	A-R
Diagnostic cardiac catheterization	A-I	A -D	A-G	A-R
Therapeutic percutaneous transluminal mitral commissurotomy (PTMC)	A-I	A -D	A-G	A-R
Therapeutic percutaneous transluminal pulmonary valvuloplasty (PPV)	A-I	A -D	A-G	A-R
Temporary pacemaker insertion	A-I	A -D	A-G	A-R
Permanent pacemaker implantation	A-I	A -D	A-G	A-R

5. Methods of teaching/learning:

1. **Didactic (lectures, seminars, tutorial)**
2. **Outpatient**
3. **Inpatient**
4. **Case presentation**
5. **Direct observation**
6. **journal club**
7. **Critically appraised topic.**
8. **Educational prescription**
9. **Clinical rounds**
10. **Clinical rotation**

11. Senior staff experience
12. Case log
13. Observation and supervision
14. Written & oral communications
15. Simulation
16. Hand on workshops
17. Service teaching
18. Perform under supervision of senior staff
19. Postgraduate teaching

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra clinical work according to their needs

7. Course Assessment Methods:

i. **Assessment tools:**

1. Oral examination
2. Clinical examination
3. Written examination
4. Objective structure clinical examination (OSCE)
5. Procedure/case Log book and Portfolios
6. Simulation
7. Record review (report)
8. Patient survey
9. 360o global rating
10. Check list evaluation of live or recorded performance
11. MCQ Exam

ii. **Time schedule: At the end of second part**

Marks 1200 marks

8. List of references

i. **Lectures notes**

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

Topole Cardiology
Hurst, The Heart
Braunwals Cardiovascular Medicine

iii. Recommended books:

iv. Periodicals, Web sites,

Journal of American College of Cardiology
European Heart Journal
American Journal of Cardiology
American Heart Journal
Europace

v. others: None

9. Signatures

Course Coordinator: ……	**Head of the Department:** ……
Date: ……	**Date:** ……

ANNEX 2
Program Academic Reference Standards (ARS)

Graduate attributes for master degree in Cardiovascular medicine

***The Graduate (after residence training and master degree years of study) must*:**

1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and clinical audit *in* Cardiovascular medicine***.***

2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in related speciality.

3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Cardiovascular medicine***.***

4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and updated information.

5- Identify and share to solve health problems in his speciality.

6- Acquire all competencies –including the use of recent technologies- that enable him to provide safe, scientific, and ethical and evidence based clinical care including update use of new technology in Cardiovascular medicine***.***

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public.

8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.

9- Acquire decision making capabilities in different situations related to Cardiovascular medicine***.***

10- Show responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.

11- Be aware of public health and health policy issues and share in system-based improvement of health care.

12- Show appropriate attitudes and professionalism.

13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Cardiovascular or one of its subspecialties.

2- Competency based Standards for clinical master degree graduates

2.1- Knowledge and understanding

By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of

2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.

2-1-B- The relation between good clinical care of common health problems in the speciality and the welfare of society.

2-1-C- Up to date and recent developments in common problems related to Cardiovascular medicine.

2-1-D- Ethical and medicolegal principles relevant to practice in Cardiovascular medicine***.***

2-1-E -Quality assurance principles related to the good medical practice in Cardiovascular medicine***.***

2-1-F- Ethical and scientific basics of medical research.

2.2- Intellectual skills:

By the end of the program, the graduate should be able to demonstrate the following:

2-2-A- Correlation of different relevant sciences in the problem solving and management of common diseases of Cardiovascular medicine***.***

2-2-B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to cardiovascular medicine***.***

2.2- C- Demonstrating systematic approach in studying clinical problems relevant to cardiovascular medicine***.***

2-2-D- Making alternative decisions in different situations in cardiovascular medicine***.***

2.3- Clinical skills

By the end of the program, the graduate should be able to

2-3-A - Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

2-3-B- Demonstrate patient care skills relevant to cardiovascular medicine for patients with common diseases and problems.

2-3- C- Write and evaluate reports for situations related to the field of cardiovascular medicine.

2.4- General skills

By the end of the program, the graduate should be able to

- ***Competency-based outcomes for Practice-based Learning and Improvement***

2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence,, improvements in patient care and risk management.

2-4-B- Use all information sources and technology to improve his practice.

2-4-C- Demonstrate skills of teaching and evaluating others.

- ***Competency-based objectives for Interpersonal and Communication Skills***

2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.

- ***Competency-based objectives for Professionalism***

2-4-E- Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- ***Competency-based objectives for Systems-based Practice***

2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.

2-4-g- Demonstrate skills of effective time management.

2-4-H- Demonstrate skills of self and continuous learning.

Annex 3, Methods of teaching/learning

Annex 3, Methods of teaching/learning

	Patient Care	Medical knowledge	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

Teaching methods for knowledge

- Didactic (lectures, seminars, tutorial)
- journal club
- Critically appraised topic

- Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- Present a case (true or simulated) in a grand round

- Others

Teaching methods for patient care

- Observation and supervision /Completed tasks procedure/case logs
- On-the-job traing without structured teaching is not sufficient for this skill (checklists).
- Simulation is increasingly used as an effective method for skill/ teamwork training.

Teaching methods for other skills

- Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).

- Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members of the health care team) and/or non verbal skills (e.g., listening, team skills)

- Professionalism, including medical ethics, may be included as a theme throughout the program curriculum that includes

both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

Annex 4, Assessment methods

Annex 4, ILOs evaluation methods for Master Degree students.

Method	Practical skills	K	Intellectual	General skills			
	Patient care	K	I	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X	X		X	X	X
Checklist	X				X		
Global rating	X	X	X	X	X	X	X
Simulations	X	X	X	X	X	X	
Portfolios	X	X	X	X	X		
Standardized oral examination	X	X	X	X	X		X
Written examination	X	X	X	X			X
Procedure/ case log	X	X					
OSCE	X	X X		X	X	X	X

Annex 4, Glossary of Master Degree doctors assessment methods

- Record Review Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.

- Chart Stimulated Recall
  Uses the MSc doctor's patient records in an oral examination to assess clinical decision-making.

- Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.

  - Standardized Patients (SP) Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MSc doctor's performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MSc doctor's performance.

- Objective Structured Clinical Examination (OSCE) A series of stations with standardized tasks for the MSc doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MSc doctors.

- Procedure or Case Logs MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.

- PSQs Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a MSc doctors.
- Case /problems assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.
- Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.
- 360 Global Rating Evaluations MSc doctors, faculty, nurses, clerks, and other clinical staff evaluate MSc doctors from different perspectives using similar rating forms.
- Portfolios A portfolio is a set of project reports that are prepared by the MSc doctors to document projects completed during the MSc study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program, revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.
- Examination MCQ A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.
- Examination Oral Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.
- Procedure or Case Logs MSc doctors prepare summaries of clinical experiences including clinical

data. Logs are useful to document educational experiences and deficiencies.

- PSQs Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MSc doctors.

Annex 5, Program evaluation tools

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	questionnaires	#
Alumni	questionnaires	#

Annex 6, Program Correlations:

I- General Academic Reference Standards (GARS) versus Program ARS

1- Graduate attributes

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and clinical audit in Cardiovascular medicine.	1- إجادة تطبيق أساسيات و منهجيات البحث العلمي و استخدام أدواته المختلفة
2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in Cardiovascular medicine.	2-تطبيق المنهج التحليلي و استخدامه في مجال التخصص
3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in Cardiovascular medicine.	3-تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and update information.	4-إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
5- Identify and share to solve health problems in Cardiovascular medicine.	5-تحديد المشكلات المهنية و إيجاد حلولا لها
6- Acquire all competencies that enable him to provide safe, scientific, ethical and evidence based clinical care including update use of new technology in Cardiovascular medicine.	6-إتقان نطاق مناسب من المهارات المهنية المتخصصة، و استخدام الوسائل التكنولوجيةالمناسبة بما يخدم ممارسته المهنية

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public. 8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.	7-التواصل بفاعلية و القدرة على قيادة فرق العمل
9- Acquire decision making capabilities in different situations related to Cardiovascular medicine.	8-اتخاذ القرار في سياقات مهنية مختلفة
10- Show responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.	9- توظيف الموارد المتاحة بما يحقق أعلي استفادة و الحفاظ عليها
11- Be aware of public health and health policy issues and share in system-based improvement of health care.	10-إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
12- Show appropriate attitudes and professionalism.	11-التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Cardiovascular medicine or one of its subspecialties.	12-تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

2. Academic standard

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1.A -Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problems and topics.	2-1-أ-النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.
2.1.B- The relation between good clinical care of common health problems in Cardiovascular medicine and the welfare of society.	2-1-ب-التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة.
2.1. C- Up to date and recent developments in common problems related to Cardiovascular medicine.	2-1-ج-التطورات العلمية في مجال التخصص.
2.1. D- Ethical and medicolegal principles relevant to practice in the Cardiovascular medicine.	2-1-د-المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.
2.1. E-Quality assurance principles related to the good medical practice in Cardiovascular medicine.	2-1-هـ- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
2.1. F- Ethical and scientific basics of medical research.	2-1-و- أساسيات وأخلاقيات البحث العلمي
2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Cardiovascular medicine. 2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Cardiovascular medicine.	2-2-أ- تحليل و تقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل

2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Cardiovascular medicine	2-2-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Cardiovascular medicine.	2-2-ج- الربط بين المعارف المختلفة لحل المشاكل المهنية
2.2. C- Demonstrating systematic approach in studying clinical problems relevant to the Cardiovascular medicine.	2-2-د- إجراء دراسة بحثية و أو كتابة دراسة علمية منهجية حول مشكلة بحثية
2.4.A-Demonstrate practice-based learning and Improveent skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2هـ- تقييم المخاطر في الممارسات المهنية في مجال التخصص
2.4.A-Demonstrate practice-based learning and Improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2-و- التخطيط لتطوير الأداء في مجال التخصص
2.2.D- Making alternative decisions in different situations in the field of Cardiovascular medicine.	2-2-ز- اتخاذ القرارات المهنية في سياقات مهنية متنوعة
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. 2.3.B- Demonstrate patient care skills relevant to cardiovascular medicine for patients with common diseases and problems.	2-3-أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص

2.3.C- Write and evaluate reports for Situation related to Cardiovascular medicine.	2-3-ب- كتابة و تقييم التقارير المهنية
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. 2.3.B- Demonstrate patient care skills relevant to that speciality for patients with common diseases and problems.	2-3-ج- تقييم الطرق و الأدوات القائمة في مجال التخصص
2.4.D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	2-4-أ-التواصل الفعال بأنواعه المختلفة
2.4.A-Demonstrate practice-based learning and improvement skills that investigation and involves evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice.	2-4-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice. 2.4.E-Demonstrate professionalism behavior, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	2-4-ج- التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية

2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, , improvements in patient care and risk management.	2-4-د- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
Demonstrateskillsofteachingand evaluating others.	2-4-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين
2.4. F- Demonstrateanawarenessof and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.	2-4-و- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
2.4.G- Demonstrate skills of effective time management.	2-4-ز- إدارة الوقت بكفاءة
2.4.H- Demonstrate skills of self and continuous learning.	2-4-ح- التعلم الذاتي و المستمر

Comparison between ARS and ILOS for master degree in Cardiovascular Medicine.

2-1- Knowledge and understanding	***2-1- Knowledge and understanding***
2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.	A. **2-1-A**- Explain the essential facts principles of relevant basic sciences including, anatomy, physiology, biochemistry, pathology and pharmacology and Basics of Cardiology related to Cardiovascular medicine. **2-1-B-** Mention essential facts of clinically supportive sciences including internal medicine related to Cardiovascular medicine. **2-1-C-** Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to Cardiovascular medicine.
2-1-B The relation between good clinical care of common health problem in the Cardiovascular medicine and the welfare of society.	**2-1-H-** State the impact of common health problems in the field of Cardiovascular medicine on the society and how good clinical practice improve these problems.
2-1-C- Up to date and recent developments in common problems related to the field of Cardiovascular medicine.	**2-1-C-** Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to Cardiovascular medicine. **2-1-D-** Give the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to Cardiovascular medicine .
2-1-D- Ethical and medicolegal Principles relevant to practice in	**2-1-E-** Mention the basic ethical and medicolegal principles that should be applied in practice

the Cardiovascular medicine field.	and are relevant to the field of Cardiovascular medicine.
2-1-E-Quality assurance principles related to the good medical practice in the Cardiovascular medicine field.	**2-1-F-** Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Cardiovascular medicine.
2-1-F- Ethical and scientific basics of medical research	**2-1-G-** Mention the ethical and scientific principles of medical research methodology**.**
***2-2- Intellectual skills*:**	***2-2- Intellectual skills:***
2-2-A-Correlation of different relevant sciences in the problem solving and management of common diseases of the Cardiovascular medicine.	**2-2-A-** Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the Cardiovascular medicine
2-2-B-Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Cardiovascular medicine.	**2-2-B-** Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to Cardiovascular medicine.
2-2-C- Demonstrating systematic approach in studding clinical problems relevant to the Cardiovascular medicine field.	**2-2-C-** Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the Cardiovascular medicine field.
2-2-D Making alternative decisions in different situations in the field of the Cardiovascular medicine.	**2-2-D-** Formulate management plans and alternative decisions in different situations in the field of the Cardiovascular medicine

Continuous (ARS)	continuous (ILOs)
2-3- Clinical skills:	***2/3/1/Practical skills (Patient Care :)***
2-3-A- Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.	**2-3-1-A-** Obtain proper history and examine patients in caring and respectful behaviors.
	2-3-1-B- Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to Cardiovascular medicine.
2-3-B- Demonstrate patient care skills relevant to that Cardiovascular medicine for patients with common diseases and problems.	**2-3-1-C-** Carry out patient management plans for common conditions related to Cardiovascular medicine.
	2-3-1-D- Use information technology to support patient care decisions and patient education in common clinical situations related to Cardiovascular medicine.
	2-3-1-E- Perform competently non invasive and invasive procedures considered essential for the Cardiovascular medicine.
	2-3-1-F- Provide health care services aimed at preventing health problems related to Cardiovascular medicine.
	2-3-1-G- Provide patient-focused care in common conditions related to Cardiovascular medicine , while working with health care professionals, including those from other disciplines.
2-3-C- Write and evaluate reports for situations related to the field of Cardiovascular medicine.	**-3-1-H** Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets. (Write

	a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records).
2-4- General skills	***2/3/2 General skills***
2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	**2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks). **2-3-2-B-** Appraises evidence from scientific studies. **2-3-2-C-** Conduct epidemiological studies and surveys.
2-4-B- Use all information sources and technology to improve his practice.	**2-3-2-C-** Conduct epidemiological studies and surveys. **2-3-2-D**.Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
2-4-C- Demonstrate skills of teaching and evaluating others.	**2-3-2-E-** Facilitate learning of students other health care professionals including their evaluation and assessment.
2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	**2-3-2-F-** Maintain therapeutic and ethically sound relationship with patients. **2-3-2-G-** Elicit information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-H-** Provide information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-I-** Work effectively with others as a

	member of a health care team or other professional group.
2-4-E-Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	**2-3-2-J-** Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society. **2-3-2-K**- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices. **2-3-2-L**-Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.
2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.	**2-3-2-M**-Work effectively in relevant health care delivery settings and systems including good administrative and time management **2-3-2-N-** Practice cost-effective health care and resource allocation that does not compromise quality of care. **2-3-2-O**- Assist patients in dealing with system complexities.
2-4-G- Demonstrate skills of effective time management	**2-3-2-M**-Work effectively in relevant health care delivery settings and systems including good administrative and time management
2-4-H- Demonstrate skills of self and continuous learning.	**2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).

III-Program matrix
Knowledge and Understanding

	Program covered ILOs Course							
	2/1/A	2/1/B	2/1/C	2/1/D	2/1/E	2/1/F	2/1/G	2/1/H
Course 1 : ✓ Anatomy								
Course 2: Physiology & Biochemistry	✓							
Course 3: Pathology	✓							
Course 4 : Pharmacology	✓							
Course 5: Principles of Cardiology	√	✓						
Course 6 : Internal medicine		✓						
Course 7: Cardiology	✓	✓	✓	✓	✓	✓	✓	✓

Intellectual

Course	Program covered ILOs			
	2/2/A	2/2/B	2/2/C	2/2/D
Course 1 : Anatomy	✓	✓		
Course 2: Physiology &Biochemistry	✓			
Course 3: Pathology	✓			
Course 4 : Pharmacology	✓	✓		
Course 5: Principles of Cardiology	✓	√		
Course 6 :Internal medicine	✓	✓		
Course 7: Cardiology	✓	✓	✓	✓

Practical Skills (Patient Care)

Course	Program covered ILOs							
	2/3/1/A	**2/3/1/B**	**2/3/1/C**	**2/3/1/D**	**2/3/1/E**	**2/3/1/F**	**2/3/1/G**	**2/3/1/H**
Course 1 : Anatomy								
Course 2: Physiology& Biochemistry								
Course 3: Pathology								
Course 4 : Pharmacology								
Course 5: Principles of Cardiology								
Course 6 : Internal medicine	√			✓				
Course 7: Cardiology	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs							
	2/3/2/A	2/3/2/B	2/3/2/C	2/3/2/D	2/3/2/E	2/3/2/F	2/3/2/G	2/3/2/H
Course 1 : Anatomy				✓				✓
Course 2: Physiology& Biochemistry				✓				✓
Course 3: Pathology				✓				✓
Course 4 : Pharmacology				✓				✓
Course 5: Principles of Cardiology				✓				✓
Course 6 : Internal medicine				✓				✓
Course 7: Cardiology	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs							
	2/3/2/I	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/O	2/3/2/P
Course 1 : Anatomy			✓		✓			
Course 2: Physiology& Biochemistry			✓		✓			
Course 3: Pathology			✓		✓			
Course 4 : Pharmacology			✓		✓			
Course 5: Principles of Cardiology			✓		✓			
Course 6 : Internal medicine			✓		✓			
Course 7: Cardiology	✓	✓	✓	✓	✓	✓	✓	✓

Annex 7, Additional information:

Department information:

1 **Equipments and Specialized Units:**

- Cardiac inpatient ward: 6 beds for males/ 6 beds for females.
- Coronary care unit (CCU): 13 beds.
- Echo Lab including 3 echocardiography Devices, 2 Transesophageal echo probes and 2 stress echo soft wares as well as 2 tissue Doppler soft wares.
- Exercise stress ECG.
- Holter monitoring.
- Catheterization lab. (Well equipped for diagnostic and therapeutic purposes).
- Seminar room equipped with data show
- Electronic Library of Scientific Seminars, case presentations.
- Data base filing for all cases in CCU, cath. lab. and out-patient clinics.

Outpatient clinics:

1. 2 general cardiology clinics.
2. Congenital heart disease clinic.
3. Hypertension clinic.
4. Rheumatic Heart Disease clinic.
5. Post-coronary intervention clinic.