MSc. ROGRAMME SPECIFICATION

Cardiovascular Department

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Program Title & Code	Postgraduate Master degree of cardiovascular medicine / CARD500
(2) Final award/degree	**Master**
(3) Department (s)	1. Cardiovascular medicine department 2. Medical Physiology department 3. Pathology department 4. Pharmacology department 5. Internal medicine department
(4) Coordinator	Dr. Eman ELSafty Dr. Moheb Magdy
(5) External evaluator (s)	**Prof. Medhat Mohammad Ashmawy** (Professor of Cardiovascular medicine - Tanta Faculty of Medicine)
(6) Date of approval by the Department`s council	**24-5-2016**
(7) Date of last approval of program specification by Faculty council	9-8-2016

(B) Professional information

(1) Program Aims:

The broad aims of the Programme are as follows:

1- Provide the candidate with basic knowledge of Cardiovascular medicine (Basic Cardiology), physiology ,pharmacology, pathology and internal medicine related to different Cardiovascular diseases
2- To provide our candidates with knowledge of the basics of different diagnostic and therapeutic procedures in different Cardiovascular diseases
3- To provide our candidates with knowledge of Heart and other systems relationship
4- To give our candidates the ability to integrate the history, clinical examination and investigations to diagnose and treat different Cardiovascular diseases.
5- To prepare our candidates to acquire practical skills in basic diagnostic and therapeutic techniques in invasive interventional Cardiology and electrophysiology
6- To give our candidates the ability to basically interpret chest x-ray, echocardiography, cardiac CT, Cardiac MRI, different Cardiac stress testing and myocardial perfusion imaging.
7- To give our candidates the ability to select the proper treatment regimen in different cardiovascular disorders
8- To provide our candidates with knowledge of different guidelines and strategies of treating acute cardiovascular conditions in CCU and the ability to select proper strategy according to the patient condition.
9- To provide our candidates with knowledge of ethical consideration ,basic and advanced CPR and progress in CCU

(2) Intended Learning Outcomes (ILOs):

Intended learning outcomes (ILOs); Are four main categories: knowledge & understanding to be gained, intellectual qualities, professional/practical and transferable skills.

On successful completion of the program, the candidate will be able to:

A- Knowledge and Understanding

Candidates must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social behavioral sciences, as well as the application of this knowledge to patient care.

A1- Recognize the basics of the physiology of Cardiovascular system.

A2- Explain the basics of Electrocardiography

A3- Explain the physiology of arterial blood pressure

A4- Explain different body parts circulation

A5- Explain pathophysiology of edema, shock and hemorrhage

A6- Recognize the different drugs used in patients with heart failure

A7- Discuss the update in therapeutic protocols of patients with ischemic heart diseases.

A8- Explain the mechanisms of action, indications and adverse effects of anti-arrhythmic drugs.

A9- Recognize when and how to use antihypertensive drugs

A10- Explain the mechanisms of action, indications and adverse effects of anticoagulants, anti-platelet and thrombolytic therapy

A11- Discuss the gross and microscopic features of the pathology of Cardiomyopathies, aortic diseases and thromboembolic disorders

A12- Recognize the gross and microscopic features of the pathology of ischemic heart diseases and atherosclerosis

A13- Recognize the gross and microscopic features of the pathology of endocarditis

A14- Recognize common endocrinal disorders (diabetes mellitus, suprarenal disorders and thyroid disorders).

A15- Discuss common respiratory disorders (COPD, respiratory failure, Chest infections, lung tumors, pleural diseases, differential diagnosis of cough and dyspnea)

A16- Describe common GI disorders (acute and chronic hepatitis, liver cirrhosis and liver cell failure, GERD and peptic ulcer)

A17- Explain common renal disorders (acute and chronic renal failure, acidosis and alkalosis, hyper and hypocalemia)

A18- Describe common collagen vascular diseases (Systemic lupus and rheumatoid arthritis).

A19- Explain Indications, contraindications, techniques and complications of different cardiovascular diagnostic procedures

A20- Recognizes guidelines of using different diagnostic cardiovascular modalities

A21- Recognize different modalities of Electrocardiography, echocardiography, myocardial perfusion scanning, electrophysiology, invasive and non invasive cardiac imaging

A22-Recognize Indications, contraindications, techniques and complications of cardiac catheterization

A23- Explain anatomy and congenital anomalies of the heart, pericardium, great vessels and peripheral vessels and its applied

A24- Explain the basic principles of echocardiography

A25- Explain the basic interpretation of cardiac x ray, CT, MRI

A26- Recognize clinical approach to cardinal Cardiovascular symptoms (dyspnea, cough, orthopnea, swelling LL, syncope, palpitation and chest pain)

A27- Explain guidelines in diagnosis and treatment of heart failure

A28- Explain guidelines in diagnosis and treatment of ischemic heart disease

A29- Explain different types of arrhythmia and its clinical impact

A30-Recognize diagnosis and treatment of cardiac tumors

A31-Recognize recent treatment modalities in pulmonary hypertension

A32-Identify methods of diagnosis and treatment of congenital heart diseases

A33-Classify different cardiomyopathies

A34-identify guidelines in diagnosis and treatment of pulmonary embolism

A35- Rcognize ethical consideration ,basic and advanced CPR and progress in CCU

B- Intellectual skills

B1- Diagnose cardiac arrhythmias diseases from electrocardiography

B2-Measure blood pressure properly

B3- Differentiate different types of shock

B4- Choose appropriate antihypertensive in different subsets of patients

B5- Apply guidelines for management of ischemic heart disease

B6- Choose appropriate anticoagulant and anti-platelets in different situations

B7- Choose appropriate type and dose of different anti-failure drugs

B8- Predict the possible complications of pathological processes in endocarditis, myocarditis, cardiac tumors, cardiomyopathies, aortic disease, ischemic heart diseases, atherosclerosis, pericardial diseases as well as pulmonary hypertension

B9- Analyze the impact of common disorders related to different body system on cardiovascular system.

B10- Interpret Electrocardiography and stress ECG

B11- Select proper diagnostic cardiovascular modality in different cardiovascular disorder

B12- Perform basic echocardiography, Pericardiocentesis and direct current cardioversion

B13 -Interpret Myocardial Perfusion Scanning

B14 - Interpret chest X ray, cardiac CT and MRI properly

B15- Interpret cardiac symptoms and suspect the provisional diagnosis

B16–Interpret Echocardiography properly

B17-Choose proper non invasive and invasive procedures in different cardiovascular disorders

C- Professional/practical skills

C1- Take history properly (cardiovascular sheet)

C2- Perform general and local examination effectively

C3- Prepare and evaluate the patient effectively before any diagnostic or therapeutic procedure

C4- Perform Echocardiography and ECG interpretation effectively

C5- Deal with cardiovascular emergencies

D- Communication & Transferable skills

D1- Develop communication and presentation skills

D2- Demonstrate teamwork and interpersonal skills

D3- Competently use information technology

D4- Demonstrate competence in problem solving

D5- Develop personal and career development plan

D6- Develop an autonomous and effective approach of lifelong learning

D7- Develop professional, ethical and legal practice

	A1– A22	A19-A25	A15-A19	A26-A34	A20-A22	A24 –A25	A6-A9 A31	A31-A34	A35
Objective1	✔								
Objective2		✔							
Objective3			✔						
Objective4				✔					
Objective5					✔				
Objective6						✔			
Objective7							✔		
Objective8								✔	
Objective9									✔

	B1-B2	B10-B14	B9	B3 B17	B17	B10 B13 B14	B4-B7	B12
Objective1	✔							
Objective2		✔						
Objective3			✔					
Objective4				✔				
Objective5					✔			
Objective6						✔		
Objective7							✔	
Objective8								✔
Objective9								

	C5	C3	C4	C1 C2
Objective1				
Objective2		✔		
Objective3				
Objective4				✔
Objective5				
Objective6			✔	
Objective7				
Objective8	✔			
Objective9				

(3) Academic standards:

Academic standards for the program are attached in Appendix I. in which **NARS** issued by the National Authority for Quality Assurance & Accreditation in Education are used being approved by the faculty council on 14/7/2010. External reference points/Benchmarks are attached in Appendix II.

3.a- External reference points/benchmarks are selected to confirm the appropriateness of the objectives, ILOs and structure of assessment of the program

- The Cardiovascular department selected the general cardiology fellowship program, Stanford University (USA) as an external reference point.
- **http://med.stanford.edu/cvmedicine/education/general-cardiology-fellowship/educational-objectives.html**

3.b- Comparison of the specification to the selected external reference/ benchmark:

- At least 70% program aims of the Benchmark are covered by the current program
- Assessment method and timing are differing from the structure of the program specification of the benchmark.

Curriculum structure and contents:

4.a- Duration of the program (in years or months): 4 semesters

4.b- program structure:

●4.b.1: Number of credit hours (minimum) : 45 credit hours

First part: 5+1 clinical Second part: 18+ 13 clinical Thesis: 6

4). Program courses:

First part (one semester =15 weeks duration/6 months)

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week					Total teaching hours/15 weeks
		Theoretical		Laboratory /practical	Field	Total	
		Lectures	seminars				
Internal Medicine	CARD 510	2.0	------	1.0	----	3.0	60
Applied Physiology	CARD 503	0.5	------	------	----	0.5	7.5
Clinical Pharmacology	CARD 506	0.5	------	------	----	0.5	7.5
Applied Pathology	CARD 505	0.5	------	------	----	0.5	7.5
Basic Cardiology	CARD 514 BC	1.5	------		----	1.5	22.5

b- Elective courses: none

Second part (45 weeks duration= 3 semesters)

a- Compulsory courses:

Cardiovascular medicine

Course Title	Course Code	NO. of hours per week		Total teaching hours/45 weeks
		Lectures	Clinical /practical	
Cardiovascular Medicine	**CARD 514 CM**		clinical and practical training courses	255 lectures hours and 390 clinical hours in 45 weeks
1. First module		**5**	**5**	**225**
2.Second module		**6**	**4**	**210**
3- Third module		**6**	**4**	**210**
Optional courses :				
Non invasive Cardiovascular im	**CARD 514 NC**	**1**		**15**
Cardiac Dysrhythmias	**CARD 514 CD**			
Heart Failure	**CARD 514 HF**			
Thesis		**6**		
Log book activities		**16**		

b- Elective courses:

The candidate has to choose one of the following optional courses:

1-Non invasive Cardiovascular imaging

2-Cardiac Dysrhythmias

3- Heart Failure

Program-Courses ILOs Matrix

Program ILOs are enlisted in the first row of the table (by their code number: a1, a2……etc), then the course titles or codes are enlisted in first column, and an "x" mark is inserted where the respective course contributes to the achievement of the program ILOs in question.

P.S. All courses` specifications are attached in Appendix III.

Course Title/Code	A1-A5	A6-A10	A11-A13	A14-A18	A19-A25	A26-A 35	A20-A21 A24 A25	A19 A29 A33	A27 A31-A33
Applied Physiology /CARD503	X								
Clinical Pharmacology /CARD506		X							
Applied Pathology /CARD505			X						
Internal medicine/CARD510				X					
Basics of Cardiology/ CARD514BC					X				
Cardiovascular Medicine / CARD 514 CM						X			
Non invasive Cardiovascular imaging / CARD 514 NC							X		
Cardiac Dysrhythmias / CARD 514 CD								X	
Heart Failure/ CARD 514 HF									X

Course Title/Code	B1-B3	B4-B7	B8	B9	B10-B14	B15-B17	B12-B14 B17	B10 B12	B3 B7 B11
Applied Physiology /CARD503	X								
Clinical Pharmacology /CARD506		X							
Applied Pathology /CARD505			X						
Internal medicine/CARD510				X					
Basics of Cardiology/ CARD514BC					X				
Cardiovascular Medicine / CARD 514 CM						X			
Non invasive Cardiovascular imaging / CARD 514 NC							X		
Cardiac Dysrhythmias / CARD 514 CD								X	
Heart Failure/ CARD 514 HF									X

Course Title/Code	C1 C4	C2	C3 C5
Applied Physiology /CARD503			
Clinical Pharmacology /CARD506			
Applied Pathology /CARD505			
Internal medicine/CARD510			
Basics of Cardiology/ CARD514BC	X		
Cardiovascular Medicine / CARD 514 CM		X	X
Non invasive Cardiovascular imaging / CARD 514 NC			
Cardiac Dysrhythmias / CARD 514 CD			
Heart Failure/ CARD 514 HF			

Program admission requirements:

●General requirements:

According to the faculty postgraduate by laws Appendix IV.

●Specific requirements (if applicable):

No specific requirements

(4) Regulations for progression and program completion:

● Student must complete minimum of 45 credit hours in order to obtain the MSc. degree, which include the courses of first and second parts, thesis and activities of the log book.

● Courses descriptions are included in Appendix III.

● Registration for the Msc. thesis is allowed 6 months from the day of registration to the program and must fulfill a total of 10 credit hours including material collection, patients selection and evaluation, laboratory work, patients follow-up, and meetings with supervisors.

Log book fulfillment:

● Student must fulfill a minimum of 10 credits of log book activities including;

1. Rotational clinical training in the general and specialized outpatients clinics of cardiovascular medicine department
2. Rotational training on all cardiovascular department units including; CCU, Echocardiography room, patient wards, cardiac catheterization LAB
3. Undergraduate clinical demonstration.
4. Conferences attendance or speaking.

● Lectures and seminars of the previously described courses must be documented in the log book and signed by the lecturer.

●Any workshops, conferences and scientific meetings should be included in the log book .

Final exam:

First part

Tools		Mark
Applied Physiology **Clinical Pharmacology** **Applied Pathology**		Written exam: 90 degree foe each (18 for MCQ, 72 for written exam) Oral exam: 60 mark for each
Basics of Cardiology		300(36MCQ, 144 for written, 120 oral)
Internal Medicine	Written exam	300 (36 for MCQ, 144 for written exam)
	Oral exam	20
	Clinical exam	100

Second part

Tools	Mark
Cardiovascular Diseases	
Written exam - **Cardiovascular Medicine** (2 papers with time allowed 3 hours for each paper)	120+120
MCQ	60
Oral exam	100
Practical exam	100
Clinical exam	100
Total marks:	600
Elective course	

Written	24
MCQ	6

(5) Evaluation of Programme's intended learning outcomes (ILOs):

Evaluator	Tools*	Signature
Internal evaluator **(s)**	**Focus group discussion Meetings**	
External Evaluator **(s)** Prof. Medhat Mohammad Ashmawy (Professor of Cardiovascular Medicine - Tanta Faculty of Medicine)	**Reviewing according to external evaluator checklist report.**	
Senior student **(s)**	**Personal communication**	
Alumni	**none**	
Stakeholder **(s)**	**none**	
others	**none**	

* TOOLS= QUESTIONNAIRE, INTERVIEW, WORKSHOP, COMMUNICATION, E_MAIL

We certify that all information required to deliver this programme is contained in the above specification and will be implemented. All course specification for this programme are in place.	
Programme coordinator: Name: Prof/ Eman ElSafty Moheb Magdy	Signature & date:
Dean: Name:	Signature & date:
Executive director of the quality assurance unit: Name:	Signature & date:

مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير المرجعية لبرنامج الماجستير في طب أمراض القلب و الأوعية الدموية.

أ ـ المعرفة والفهم:

المقررات التى تحقق المعايير الأكاديمية للبرامج	ILOs مخرجات التعلم المستهدفة	(ARS) Benchmark المعايير الأكاديمية لجامعة General cardiology fellowship program, Stanford University	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في طب أمراض القلب و الأوعية الدموية)
Cardiovascular Medicine	A 20,27,28,31,34	prepare physicians for careers in academic cardiology. We are assured of the clinical excellence of our fellows by providing an intensive experience in clinical cardiology rotations	1- Recent advances and areas under research in the field of Cardiovascular medicine
Cardiovascular Medicine	A19,20,35	The development of a scholarly attitude includes active participation in and completion of one or more research projects supervised by faculty and ideally followed by publication in critically reviewed journals	2- Scientific research ethics, research methodology & research design. Curriculum must advance knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.
Cardiovascular Medicine	A35	Foster humanistic and ethical attributes in our trainees.	3- Legal aspects in practice of cardiovascular medicine as well as medical ethics.
Cardiovascular Medicine	A19-22,26	The fellow is responsible for providing the first-line consultation care, and reviewing computer-generated ECG reports	4- Principles and basic concepts of quality in professional practice including planning, improvement of performance and control of practicing outcomes.
Cardiovascular Medicine	A 21,22,27,28	Teach the knowledge, skills, clinical judgement, attitudes, and values that are essential to cardiovascular medicine	5- Knowledge related to cardiovascular medicine development, patient safety, and research results in improving public health outcomes.

ب ـ القدرات الذهنية :

المقررات التي تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة General cardiology fellowship program, Stanford University	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في طب أمراض القلب و الأوعية الدموية)
Basics of Cardiology Clinical Pharmacology	B 4, 5, 6	To develop expertise in the consultative evaluation of cardiovascular problems and	6- Medical data analysis, interpretation and proper therapy choice.

		presentations, to acquire the skills necessary to rapidly and efficiently triage medical problems, to communicate assessments and recommendations to colleagues and, where necessary, to implement diagnostic and therapeutic strategies	
Cardiovascular Medicine	B 11,15,16,18	To develop expertise in the consultative evaluation of cardiovascular problems and presentations, to acquire the skills necessary to rapidly and efficiently triage medical problems, to communicate assessments and recommendations to colleagues and, where necessary, to implement diagnostic and therapeutic strategies	7- Medical problem solving and Evidence-based medicine.
Cardiovascular Medicine	B 16	Encourage an appropriate balance between academic endeavors and clinical service	8- Participation in research development and innovation.
Cardiovascular Medicine *Log book "personal development programs"	B5	their training, faculty encourage trainees to cultivate an attitude of scholarship and dedication to continuing education that will remain with them throughout their professional careers	9- Scientific paper reviewing.
Cardiovascular Medicine	B3,8		10- Risk assessment in Cardiovascular medicine
Cardiovascular Medicine Internal medicine	B 9,10,11,12,13	the program has a strong emphasis on balancing clinical training with investigative training. It is a three-year program; two years of clinical training and one year of investigative training	11- Planning for improvement of professional performance in the field of cardiovascular medicine. Residents are expected to develop skills and habits to be able to meet the following goals: (1) identify strengths, deficiencies, and limits in one's knowledge and expertise; (2) set learning and improvement goals; (3) identify and perform appropriate learning activities; (4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; (5) Incorporate formative evaluation feedback into daily practice; (6) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (7) use information technology to optimize learning; and participate in

			the education of patients, families, students, residents and other health professionals.
Cardiovascular Medicine	B 8,11,17	A system is in place to track the competency of each fellow as they learn those skills.	12- Decision making skill.
Cardiovascular Medicine	B 5,14,16	Intensive training in invasive and noninvasive clinical cardiologic techniques, and in basic and clinical cardiovascular research, individually tailored, prepares each fellow to pursue his/her career at the forefront of cardiology.	13- Development, innovation and medical breakthrough.
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ج ـ المهارات العملية:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة General cardiology fellowship program, Stanford University	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في طب أمراض القلب و الأوعية الدموية)
Cardiovascular Medicine	C 1 ,2 , 3	It is our intent that clinical and investigative programs should be integrated and of sufficient duration that the trainee will acquire the skills necessary to begin a career in academic cardiology.	15- Professionalism and up to date practice. Providing patient care that is compassionate, appropriate, & effective for the treatment of health problems and the promotion of health. In this context; Residents must demonstrate a commitment to carrying out professional responsibilities & an adherence to ethical principles. Residents are expected to demonstrate: (1) compassion, integrity, and respect for others; (2) responsiveness to patient needs that supersedes self-interest; (3) respect for patient privacy and autonomy; (4) accountability to patients, society and the profession; and,(5) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.
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	C 1 , 2	For individuals with focused research interests and pre-established affinity with a specific faculty preceptor, we encourage	17- Ability to investigate and evaluate the Health of workers and workplace environment, to appraise and assimilate scientific evidence, and to

		full-time investigation usually after two years of clinical training. However	continuously improve worker's health based on constant self-evaluation and life-long learning.
Log book "personal development programs"	C 2	The Stanford training program seeks to provide a rich educational environment	18- Effective use of IT and healthcare information system in medical practice and patient medical records to optimize learning; and participate in the education of patients, families, students, residents and other health professionals
Cardiovascular Medicine	C 3 ,4,5	Develop teaching skills by actively engaging our trainees in teaching activities with the Stanford medical students, residents, and allied health professionals	19- Planning for improvement of professional performance in the field of cardiovascular medicine. Residents are expected to develop skills and habits to be able to meet the following goals: (1) identify strengths, deficiencies, and limits in one's knowledge and expertise; (2) set learning and improvement goals; (3) identify and perform appropriate learning activities; (4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; (5) incorporate formative evaluation feedback into daily practice; (6) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (7) use information technology to optimize learning; and participate in the education of patients, families, students, residents and other health professionals

د- مهارات الاتصال:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة General cardiology fellowship program, Stanford University	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الماجستير في طب أمراض القلب و الأوعية الدموية)
Cardiovascular Medicine	D 1 - 2	The fellows are afforded opportunities to present seminars on clinical or basic research topics as well as to participate in monthly journal clubs held in the homes of faculty members. In addition to these opportunities, fellows can elect to audit courses offered within the Stanford University community.	20- Interpersonal and communication skills that result in the effective exchange of information and collaboration with workers, their families, and other health professionals
logbook "personal development courses	D 3 , 4	The fellows are afforded opportunities to present seminars on clinical or basic research topics as well as to participate in monthly	21- Teaching and evaluation skills as senior staff.

		journal clubs held in the homes of faculty members. In addition to these opportunities, fellows can elect to audit courses offered within the Stanford University community.	
logbook Activities	D 5,6		22- Self-appraisal and life-long learning.
logbook "personal development courses	D 3	Tutorial lectures are provided each year to provide fellows with basic concepts in clinical cardiology, biostatistics and clinical epidemiology as well as cellular and molecular biology	23- Accessibility to specialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities.
logbook "personal development courses	D 2		24- Teamwork/leadership.
logbook "personal development courses	D 6		25- Time management and meeting organization