Program Specification for Diploma Degree in   Preventive Cardiology

Code: 1715600

University: Alexandria   **Faculty:** Medical Research Institute

Program Specification

A- Basic information

1- Program title: Diploma in Preventive Cardiology

2- Program type: single | √ | double | | multiple | |

3- Department(s): Cardiology

4- Coordinator: Prof. Dr. Kamal Mahmoud

5- External evaluator(s): Prof. Dr. Magdy Mohamed Mohamed Elmasry
Professor of cardiology and angiology
Head of the department of cardiology and angiology
Faculty of Medicine
Tanta University

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

A-   Professional Information

1- Program aims:

1. Recognize the epidemiology of heart diseases and the trends in cardiovascular medicine
2. Recognize the new methods for early screening of asymptomatic individuals at high risk of cardiovascular events, cardiovascular risk factors.
3. Distinguish the methods of prevention of cardiovascular disease, international guidelines as well as heart disease in special population (women, children, elderly, etc..).
4. Recognize the metabolic heart diseases including diabetes, insulin resistance and obesity and the risk for cardiovascular disease
5. Diagnose heart failure, recognize its epidemiology, pathogenesis, diagnosis and treatment.
6. Recall the effect of cardioprotective drugs as beta blockers, statins, antiplatelets and addictive drugs on the cardiovascular system.

7. List the different etiologic agents causing cardiovascular infections and different aspects of cardiac trauma.

8. Recall different diseases affecting coronary arteries, their impact on health and how to prevent and treat them.
9. Recognize the different diseases affecting arteries, their impact on health and how to prevent them as well as the pathophysiology and management of hypertension.
10. Discuss the different hereditary and genetic factors affecting the cardiovascular system, as well as introduce the concept of pharmacogenetics.
11. Determine standards of cost-effectiveness and cost-savings in preventive cardiology.
12. List the basic principles, methods and usefulness of cardiac rehabilitation
13. Gain skills in information technology, problem solving, oral presentation and team working.

2- Intended learning outcomes (ILOS)

a- Knowledge and understanding:

a1- Recognize the cardiovascular risk factors as well as methods of screening of asymptomatic individuals at risk of cardiovascular events and recall the international guidelines in cardiovascular prevention and barriers for their implementation.
a2- Recall the pathogenesis and diagnostic criteria of cardiovascular diseases in different metabolic diseases and their management.
a3- Discuss the different etiologies of heart failure, the diagnostic tests, the pathogenesis and lines of treatment.
a4- List cardio-protective drugs.
a5- List different infectious etiologies and the different types of cardiac trauma.
a6- Recall the anatomy and physiology of the coronary arteries as well as pathophysiology of atherosclerosis, recognize the coronary artery disease risk factors and the lines of treatment of coronary artery disease.
a7- Discuss different hypertension and arterial disease risk factors
a8- Discuss genetically determined cardiovascular diseases.
a9- List the principles underlying the methods of cardiac rehabilitation

b- Intellectual skills:

b1- Evaluate the methods used for screening high risk patients and the barriers against implementation of the international guidelines in prevention of cardiovascular diseases**.**
b2- Analyze the effects of metabolic diseases on the heart.
b3- Assess the effects of heart failure on various body systems
b4- Analyze the effects of different drugs
b5- Analyze the effect of infection to the heart
b6- Evaluate atherosclerosis and endothelial pathology to coronary artery disease.
b7- Analyze the effects of hypertension and arterial diseases.
b8- Analyze the effects of hereditary and genetic factors on the cardiovascular system and estimate the genetic risk
b9- Analyze the effects of cardiac disease on performance and evaluate the methods used in cardiac rehabilitation.

c- Professional and practical skills:

c1- Develop skills to Screen for risk factors, perform exercise stress testing and calculate different incidence and risk rates and ratios.

c2- Gain experience in identification of metabolic risk factors for CVD, perform obesity indices and interpretation of lab investigations and management to metabolic diseases

c3- Diagnose, manage and interpret ECG, CXR abnormalities associated with heart failure

c4- Perform dobutamine stress echo.

c5- Gain skills to diagnose clinically infectious diseases of the heart including rheumatic fever, infective endocarditis and interpret lab and imaging tests

c6- Examine cases with coronary artery disease.

c7- Gain skills in identification of risk factors of hypertension, diagnose, manage cases with hypertension, identify complications and signs of hypertension on ECG and echo.

c8- Gain skills to identify individuals at risk for genetic CVD and perform appropriate counseling

c9- Gain skills in measuring and improving quality of cardiovascular care

d- General and transferable skills:

d1- Communicate through group discussion

d2- Work as a part of team

d3- Develop skills in information technology

d4- Develop skills for oral presentation

d5- Develop skills in reading and research

d6-Develop skills to work safely in a laboratory environment

3- Academic standards

3a External references for standards (Benchmarks)

Generic Academic Reference Standards of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) adopted at MRI council 12/2/2014 and re-adopted at 15/1/2023.

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

3b Comparison of provision to selected external references

Domain	NAQAAE	ARS
Knowledge & understanding	▪ Basic facts, theories, of the specialty and related subjects/ fields ▪ Fundamentals of ethical & legal practice ▪ Quality standards of the practice ▪ Effect of the specialty practice on the environment including rules for environmental conservation	● Recognize the cardiovascular risk factors as well as methods of screening of asymptomatic individuals at risk of cardiovascular events and recall the international guidelines in cardiovascular prevention and

		- barriers for their implementation. - Recall the pathogenesis and diagnostic criteria of cardiovascular diseases in different metabolic diseases and their management. - Discuss the different etiologies of heart failure the diagnostic tests, the pathogenesis and lines of treatment. - List cardio-protective drugs. - List different infectious etiologies and the different types of cardiac trauma. - Recall the anatomy and physiology of the coronary arteries as well as pathophysiology of atherosclerosis, recognize the coronary artery disease risk factors and the lines of treatment of coronary artery disease. - Discuss different hypertension and arterial disease risk factors - Discuss genetically determined cardiovascular diseases. - List the principles underlying the methods of cardiac rehabilitation - Recognize the fundamentals of ethics and legal practice and quality standards of the practice
Intellectual skills	- Determine, analyze & prioritize problems - Solve common problems effectively - Critically appraise researches and articles - Evaluate professional risks - Make decisions to solve professional problems according to available data	- Illustrate the methods used for screening high risk patients and the barriers against implementation of the international guidelines in prevention of cardiovascular diseases**.** - Analyze the effects of metabolic diseases on the heart. - Illustrate the effects of heart failure on various body systems - Analyze the effects of different drugs - Analyze the effect of infection to the heart

			● Relate atherosclerosis and endothelial pathology to coronary artery disease. ● Analyze the effects of hypertension and arterial diseases. ● Analyze the effects of hereditary and genetic factors on the cardiovascular system and estimate the genetic risk ● Analyze the effects of cardiac disease on performance and evaluate the methods used in cardiac rehabilitation.
Professional & Practical skills	▪ Practice basic professional skills (clinical/practical & procedural skills) competently ▪ Write reports related to the profession (Patient records, self-appraisal/ audit reports etc...)		● Develop skills to Screen for risk factors, perform exercise testing and calculate different incidence and risk rates and ratios. ● Gain experience in identification of metabolic risk factors for CVD, perform obesity indices and interpretation of lab investigations and management to metabolic diseases ● Diagnose, manage and interpret ECG, CXR abnormalities associated with heart failure ● Perform dobutamine stress echo. ● Gain skills to diagnose clinically infectious diseases of the heart including rheumatic fever, infective endocarditis and interpret lab and imaging tests ● Examine cases with coronary artery disease. ● Gain skills in identification of risk factors of hypertension, diagnose, manage cases with hypertension, identify complications and signs of hypertension on ECG and echo. ● Gain skills to identify individuals at risk for genetic CVD and perform appropriate counseling ● Gain skills in measuring and improving quality of cardiovascular care

| General & transferable skills | ▪ Communicate effectively using all methods
▪ Use information technology to improve his/her professional practice
▪ Practice self-appraisal and determines his learning needs
▪ Use different sources of information to obtain data
▪ Work in teams
▪ Manage time effectively
▪ Work as team leader in situations comparable to his work level
▪ Learn independently and seek continuous learning | ● Communicate through group discussion
● Work as a part of team
● Develop skills in information technology
● Develop skills for oral presentation
● Develop skills in reading and research
● Develop skills to work safely in a laboratory environment |

4- Curriculum structure and contents

4.a Program duration: *a minimum of 1 year*

4.b program structure:

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

Semester	No. of hours of Core courses	Number of hours of elective courses
First semester	15	none
Second semester	11	4 hours

4.b.ii- No. of credit hours

Lectures	20	Practical	10	Total	30
Compulsory	26	Elective	4	Optional	0

4.b.iii- No. of credit hours of specialized courses No. | 30 | % | 100

4.b.iv- No. of credit hours of other courses No. | 0 | % | 0

4.b.vi Program levels (in credit-hours system): N/A

5- Program Courses

5.1- Compulsory (26 credit hours)

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	clinical
1715610	Epidemiology of the heart	3	2	2
1715611A	Metabolic diseases of the heart	3	2	2
1715611B	Heart failure	4	3	2
1715612	Drugs and the heart	4	3	2
1715613	Infections and trauma of the heart	4	3	4
1715614A	Coronary artery disease	4	2	4
1715614B	Hypertension and arterial diseases	4	3	2
		Total	16	10

5.2- Elective I (4 credit hours)

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1715615	Genetics and hereditary factors in CVS disease	2	1	2
1715609	Cardiac rehabilitation			
1715616	Cost-effectiveness in preventive cardiology	2	1	2

5.3- Elective II – (none)

5.4- Optional – (none)

6- Program admission requirements

✔ Graduate students with a M.B.Ch.B of Medicine

✔ At least one-year experience working in cardiology department in any governmental hospital

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7- Teaching and Learning Methods

- Lecture
- Practical/Clinical
- Brainstorming
  - Discussion Groups
  - Problem Solving
  - Case Study
  - Training Workshops
  - Self-Directed Learning

8. Regulations for progression and program completion

For the progression and completion of the program to obtain the degree of **Diploma in Preventive Cardiology**, the student must complete **30** credit hours with CGPA of at least C+ through courses.

9- Evaluation of Students enrolled in the program.

Evaluation tools	Intended learning outcomes being assessed
Written	**ILOs a &b**
Practical	**ILOs c**
Oral	**ILOs a ,b &d**
Semester Work	**ILOs b & d**

Evaluation of program intended learning outcomes

Evaluator	tool	Sample
1- Senior students	Questionnaire	At least 50%
2- Alumni	Questionnaire	Representative sample
3- Stakeholders (Employers)	Meeting	Representative sample
4- External Evaluator(S) **External Examiner (s)**	Reports of the external evaluator	**Prof. Dr. Magdy Mohamed Mohamed Elmasry**

		Professor of cardiology and angiology Head of the department of cardiology and angiology Faculty of Medicine Tanta University
5- Other		

Program Coordinator   **Prof. Dr. Kamal Mahmoud**   **Signature**

Head of the Department **Prof. Dr. Mohamed Shamsia**   **Signature**

Date of department council Approval: 27/8/2023

Program Aims vs Graduate Attribute matrix

Generic Graduate Attributes of NAQAAE	Graduate Attributes of diploma in preventive cardiology By the end of this program, graduate should be able to	Program Aims
Apply specialized knowledge related to professional skills in the field of specification.	Apply the basics and methodologies of preventive cardiology and using its various tools for early detection of heart diseases proficiently.	Recognize the epidemiology of heart diseases and the new methods for early screening of asymptomatic individuals at high risk of cardiovascular events, cardiovascular risk factors.
Identify professional problems in the field of specification and propose solutions to them.	Apply acquired knowledge in the field of preventive cardiology and integrate it with relevant knowledge in his professional practice. Use the analytical methods in the field of preventive cardiology and propose solutions to them.	Distinguish the methods of prevention of cardiovascular disease, international guidelines as well as heart disease in special population
Master professional skills in the field of specification.	Apply acquired knowledge in the field of preventive cardiology and integrate it with relevant knowledge in his professional practice.	
Use appropriate technology means in his/her professional practice of the field of specification.	Demonstrate awareness of current problems and modern visions in the field of preventive cardiology	Recognize the metabolic heart diseases including diabetes, insulin resistance and obesity and the risk for cardiovascular disease
Communicate and lead work teams in a systematic, professional manner.	Identify professional problems in the field of preventive cardiology and propose solutions to them.	Diagnose heart failure, recognize its epidemiology, pathogenesis, diagnosis and treatment.
Take professional decisions in case of available information.	Master an appropriate of professional skills in the field of preventive cardiology	Recall the effect of cardioprotective drugs as beta blockers, statins, antiplatelets and

		addictive drugs on the cardiovascular system.

Courses vs Program ILOs matrix

Program Aim vs Program ILOs matrix

Aims	a1	a2	a3	a4	a5	a6	a7	a8	a9	b1	b2	b3	b4	b5	b6	b7	8b	9b	c1	c2	c3	C4	c5	C6	C7	C8	C9	d1	d2	d3	d4	d5	d6
Recognize the epidemiology of heart diseases	x							x	x									x							x			x	x	x	x	x	x
2) Recognize the metabolic heart diseases including diabetes, insulin resistance and obesity and the risk for cardiovascular disease	x							x		x			x					x				x						x	x	x	x	x	x
3) Understand heart failure, its epidemiology, pathogenesis, diagnosis and treatment.		x				x		x			x							x										x	x	x	x	x	x
4) Recall the effect of cardioprotective drugs as beta blockers, statins, antiplatelets and addictive drugs on the cardiovascular system			x					x				x				x				x								x	x	x	x	x	x
5) Understand the different etiologic agents causing cardiovascular infections and different aspects of cardiac trauma.				X			x	x			x		x								x							x	x	x	x	x	x
6) Recall the different diseases affecting coronary arteries, their impact on health and how to prevent and treat them.					X			x						x							x							x	x	x	x	x	x

7) Recognize the different diseases affecting arteries, their impact on health and how to prevent them as well as the pathophysiology and management of hypertension.				x		x				x			x		x			x	x	x	x	x	x				
8) Understand the different hereditary and genetic factors affecting the cardiovascular system, as well as introduce the concept of pharmacogenetics					x	x				x					x		x	x	x	x	x	x	X				
9) Determine standards of cost-effectiveness and cost-savings in preventive cardiology.		x			x	x		x				x				x	x	x	x	x	x	X					
10) Understand the basic principles, methods and usefulness of cardiac rehabilitation	x					x				x					x	x	x	x	x	x	X						
11) Gain skills in information technology, problem solving, oral presentation and team working.	x			x			x			x	x		x	x		x	x	x	x								

ARS vs Program ILOs matrix

Aims	a1	a2	a3	a4	a5	a6	a7	a8	a9	b1	b2	b3	b4	b5	b6	b7	8b	9b	c1	c2	c3	C4	c5	C6	C7	C8	C9	d1	d2	d3	d4	d5	d6
1) Know different coronary artery disease risk factors and how to prevent them	x									x	x								x							x		x	x	x	x	x	x
2) Know different peripheral arterial disease and hypertension risk factors and how to prevent them		x								x		x			x					x			x					x	x	x	x	x	x
3) Learn about different cardiovascular drugs, their beneficial and adverse effects and how to make the best use of them .			x			x				x			x								x							x	x	x	x	x	x
4) Learn about different screening methods for different cardiovascular diseases				x						x				x		x						x						x	x	x	x	x	x
5) Know different causes					X		x			x			x		x								x					x	x	x	x	x	x

Outcome																															
of heart failure and how to prevent them																															
6) Recall different cardiovascular infections and types of cardiac trauma				X			x					x							x				x	x	x	x	x	x			
7) Recognize different genetic and hereditary factors contributing to cardiovascular diseases					x		x					x				x			x				x	x	x	x	x	x			
8) Understand the concept of pharmacogenetics						x	x						x					x				x	x	x	x	x	x			
9) Learn about comprehensive cardiovascular rehabilitation programs and how to start and implement them.			x			x	x		x						x						x	x	x	x	x	x	x			
10) Know how to use different cardiovascular preventive strategies cost effectively		x					x						x								x	x	x	x	x	x			
11) Develop skills in and communication	x				x			x					x	x			x	x			x	x	x	x					

using all methods. Manage scientific meeting and appropriately utilize time.																																	

Teaching methods Vs Course matrix

	17156 10	17156 11 (A)	1715 611 (B)	1715 612	1715 613	1715 614 (A)	17156 14 (B)	17156 15	171 560 9
Lecture	x	x	x	x	x	x	x	x	x
Practical/ Clinical	x	x	x	x	x	x	x	x	x
Brainstorming	x		x	x		x	x		
Discussion Groups	x		x		x		x		
Problem Solving	x	x	x	x	x	x	x	x	x
Case Study	x	x	x	x	x	x	x	x	x
Training Workshops						x	x		
Self-Directed Learning	x	x	x	x	x	x	x	x	x
e-learning									
Project									