Program specifications for: Medical Doctorate (MD) of Cardiology

[1] Basic Information

1. **Program title:** Medical Doctorate (MD) of Cardiology (CODE: CV100)
2. **Final award:** Medical Doctorate (MD) in Cardiology.
3. **Program type:** **single.**
4. **Responsible department:** Cardiology
5. **Departments involved in the program:** Cardiology, Public Health and Preventive medicine, Medical Physiology and Human Anatomy and embryology.
6. **Program duration: 3.5 Years.**
7. **Number of program courses:** 5
8. **Coordinator: Dr Amr Setouhi, MD**
9. **External evaluators:** Dr Hesham Boshra and Dr Amr Yousof
10. **Program management team:** All staff members of Cardiology department.

[2] Basic Information: Program Aims

Graduate of the MD degree in Cardiology should be able to:

The aim of this program is to provide the MD candidate with the medical knowledge; skills and attitudes essential to gain further training and practice in the field of cardiology that allow the postgraduate to be prepared to engage in the academic education through:

1. Providing the scientific knowledge essential for the practice of cardiology according to the international standards.
2. Enhance skills necessary for proper diagnosis and management of patients in the field of cardiology including diagnostic, problem solving and decision making.
3. Spread the ethical principles related to the practice in this specialty.
4. Enhance the interaction with the community and its problems and problems solving.
5. Stimulate continued medical learning, development and research.
6. Increase the creativity of the students to maintain research interest and abilities.

[3] Intended Learning Outcomes (ILOs):

(a) Knowledge and understanding:

By the end of the study of MD degree of Cardiology the candidate should be able to:

By the end of the study of Doctorate program in Cardiology the Graduate should be able to

A. 1 Explain the essential facts and principles of relevant basic sciences related to cardiovascular medicine including, Biostatistics & Computer, Research Methodology, Cardiac Anatomy, and Physiology.

A. 2 Identify and apply clinically supportive sciences which are appropriate to the following areas of:

a. Cardiovascular diseases (CVD)
b. Cardiac emergency (CE).
c. Non-invasive cardiac investigations (NICI).
d. Cardiac catheterization (Cath.)

A. 3 Explain natural history of common cardiovascular diseases and situations to cardiovascular system.

A. 4 Discuss etiology of common cardiovascular diseases and situations related to cardiovascular system

A. 5 Summarize knowledge of clinical picture of common cardiovascular diseases and situations related to cardiovascular system

A. 6 Discuss recent knowledge of diagnostic and Laboratory Techniques to establish and confirm diagnosis of common cardiovascular diseases and situations related to cardiovascular system.

A. 7 Identify various prevention and therapeutic methods/alternatives in the treatment of common cardiovascular diseases and situations related to cardiovascular system

A. 8 Describe in the pharmacodynamics and pharmacokinetics, advantages, disadvantages, side effects and complications of the different cardiovascular drugs

A. 9 Illustrate the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to cardiovascular system.

A 10 Recognize the basic ethical and medicolegal principles relevant to professional practice in field of cardiology.

A 11 Describe the basics of quality assurance to ensure good clinical care in the field of practice.

A 12 State the impact of common health problems in the field of cardiovascular system on the society

A 13 State the ethical and scientific principles of medical research.

(b) Intellectual skills

By the end of the study of doctorate program in Cardiology the Graduate should be able to

B.1 Interpret data acquired through history taking to reach a provisional diagnosis for cardiovascular problems.

B.2 Select from different diagnostic alternatives the ones that help reaching a final diagnosis for Cardiovascular problems.

B.3 Conduct research studies, that adds to knowledge.

B.4 Formulate scientific papers in the area of Cardiology

B.5 Assess risk in professional practices in the field of Cardiology

B.6 Plan to improve performance in the field of Cardiology

B.7 Correlate Cardiovascular problems and find solutions.

B.8 Innovate nontraditional solutions to cardiovascular problems.

B.9 Mange scientific discussion based on scientific evidences and proofs.

B.10 Criticize researches related to Cardiology.

(c) Professional and practical skills

By the end of the study of doctorate program in Cardiology the Graduate should able to

C.1 Practice the basic and modern professional clinical and interventional skills in the area of Cardiology.

C.2 Write and evaluation of medical reports.

C.3 Evaluate and develop of methods and tools existing in the area of Cardiology

C.4 Perform both non invasive (echo) and invasive (cath &angiographic) evaluation in Cardiology.

C.5 Train junior staff though continuous medical education

C.6 Perform new methods, tools and ways of professional practice.

(d) General and transferable skills

By the end of the study of MD program in Cardiology the Graduate should be capable to:

D1 Communicate effectively by all types of effective communication.
D2 Use information technology to serve the development of professional practice
D3 Assess himself and identify his personal needs.
D4 The use of different sources to obtain information and knowledge.
D5 Develop rules and indicators for assessing the performance of others.
D6 Work in a team, and team's leadership in various professional contexts.
D7 Manage time efficiently.
D8 Learn himself continuously

[4] Program Academic Reference Standards:

Faculty of Medicine Minia university adopted the general national academic reference standards provided by the national authority for quality assurance and accreditation of education (NAQAAE) for all postgraduate programs. (Faculty council Degree No.6854, in its cession No.177 Dated :18\5\2009).

Faculty of Medicine, Minia University has developed the academic standards (ARS) for MD program and approved in faculty council decree No. 7528, in its cession No. 191, dated 15/3/2010, and these standards (Faculty ARS) have been updated and approved in faculty Council No. 52/2 dated 20/2/2023 (ANNEX 1)

Then, The Cardiology department has adopted these standards and developed the ILOs and academic standards (ARS) for MD degree in Cardiology. (15\3\2013**) and the last update in 3/2023 (ANNEX 2).**

[5] Program structure:

Program duration: 3.5 Years.

Topic	Lecture hours/week	Practical/Clinical hours/week	Total No. of hours hours/week
First part (6 months, 24 weeks)			
1- Medical Physiology	**2**	**1**	**3**
2- Human Anatomy and embryology	**2**	**1**	**3**
3- Medical statistics and research methodology **4- Use of Computer in medicine**	**1**	**1**	**2**
Total/week	**5**	**3**	**8**
Total hours fo first part	**120 hours**	**72hours**	**192 hours**
Second part (2 Academic Years, 60 Weeks)			
Cardiology. (2 academic years, 60 weeks)	10	10	20
Total hours/second part	**600**	**600**	**1200**
Third Part (12 months)			
Research Thesis and discussion	**continuous.**		

Program courses (curriculum)

Course Title	Total No. of hours	No. of hours /week			Program ILOs Covered
		Lect.	Practical	Tutorial	
FIRST PART (24 weeks)					
1. Medical Physiology	**72**	**2**	**1**		a.1
2. Human Anatomy And embryology	**72**	**2**	**1**		a.1
3- Medical statistics and research methodology **4- Use of Computer in medicine**	**48**	**1**	**1**		**A1, A10, A11, A12 and A13**
Training programs and workshops, field visits, seminars& other scientific activities	Continuous				a.1-a.11, b.1-b.12, c.1-c.9, d.1-d.12
5SECOND PART (60 weeks):					
5- Cardiology (lectures and clinical)	20	10	10		**A2; A9** **B1; B10** **C1; C6**
Training programs and workshops, field visits, seminars& other scientific activities	continuous				**D1; D8**
THIRD PART (18 months):					
Research (Thesis)	Continuous				**A1, A3; A13** **B3; B6, B9 and B10** **C2**

[6] program admission requirements:

Requirements for registration

1- Electronic enrolment to MD program is permitted twice/ year, in March and September.
2- Master's degree in cardiovascular medicine with at least" Good Rank" from any universities in the Arab Republic of Egypt, or an equivalent degree from another scientific institute recognized by the university.
3- Complying with the postgraduate regulatory rules of postgraduate studies at Minia faculty of medicine.
4- Fees payment:

- For candidates enrolled in the Ministry of Health or other agencies: 6230 EGP + 150 EGP for stamps and registration form.
- For the assistant lecturers in Minia University: 210 EGP for stamps and registration form.

Regulations for progression and program completion:.

Duration of program is ≥3.5 years, starting from registration till approval of the thesis. The program is apportioned to:

First Part: (≥6 months from the date of registration):

- All courses are taught as specified in the faculty internal bylaw.
- Enrollment for the first part exam is only permitted after a minimum 6 month from the registration date.
- First part exam is set twice a year in April and in October.

- Students are requested to achieve a minimum score 60% in each curriculum to pass.
- Failed students are permitted to reset the exam in the unsuccessful curriculum only.

Second Part: (2 years after passing the first part exam): • Program related specialized courses are taught.

- Enrolment for the second part exam is only permitted after a minimum 24 months from the date of passing the first part exam.
- Fulfilment of the requirements in each course as described in the template recorded in the logbook is a prerequisite for candidates to be assessed and undertake exams; as following:
    a) Seminars
    b) Workshops
    c) Journal club
    d) Conference attendance
- Two sets of exams: in April and in October.
- It is obligatory to achieve a minimum score 60% in the written exam to go for the oral and practical exams.
- Passing the written exam permits students to go for the practical and oral.

Passing the written exam but failing the practical and oral exams permits students to undertake the practical and oral exams only. Failure 4 times, obligate students to retake the written exams.

Requirements for enrolment into first and second parts:

• Approval of the candidate's department to enroll for the doctoral exam.
• Approval of the other departments in which the exam will be held to enroll for the exam.
• Department's logbook that explains the training program, participation in various scientific activities, attending scientific conferences, and theses' discussions.
• In case of work break holidays, a back to work notice should be submitted 3 months before the exam.

Thesis: (2-4 years from the date of enrolment):
• Candidate can start working on the thesis after enrolment.
• It is obligatory to complete the thesis and to get it approved after passing the second part final examination and after a minimum of 24 months following official registration of the thesis protocol.
• For approval of the thesis, it is obligatory to get 2 research papers published out of the thesis with at least one published in international journal *(listed in WOS or/ and Scopus, cite score ≥ 0. 5, have ISSN)*.
• Thesis discussion with approval is enough to pass this part.
• The maximum duration for completion and approval of thesis is 4 years. Extension for a maximum of 8 years is allowed under certain conditions but this is subjected to the approvals of the supervisors, the dean and the university president.

Methods of teaching and learning

Methods of Teaching & Learning	**Intended Learning Outcomes (ILOs)**
Lecture	A1; A13 and B1; B10
Clinical	C1; C6
Assignment	D1; D8

Student assessment methods and rules

Method of assessment	The ILOs measured
1-Research assignment	**-general transferable skills, intellectual skills**

2-Written Exams:	
-Short essay	
-MCQs	**-knowledge**
-Commentary	**-knowledge, intellectual skills**
-Problem solving	**- intellectual skills**
3-Practical Exams	**-general transferable skills, intellectual skills**
4-OSPE	**- Practical skills, intellectual skills**
5-Clinical Exams.	**- Practical skills, intellectual skills**
6-OSCE	**- Practical skills, intellectual skills**
7-Oral Exams.	**- Practical skills, intellectual skills**
8-Structured Oral Exams	**- knowledge**

Weighting of assessments:

Courses		**Degrees**			
First Part	Course code	Written Exam	Oral Exam	Practical / Clinical Exam	Total
Basic Courses:					
1- Medical statistics and research methodology		100	100		100%

2- Use of Computer in medicine		100	100		100%
3.Human Anatomy and embryology		100	100		100%
4. Medical Physiology		100	100		100%
Second Part					
Specialized Courses: Cardiology course					
1st Paper		100			100
2nd Paper		100			100
Long case exam				100	100
Short cases				100	100
Oral exam			100		100
Spot diagnosis exam				100	100

[8] Evaluation of program intended learning outcomes:

Evaluator (By whom)	Method/tool	Sample
1. Senior students (Students of last year	Questionnaires	All the students
2. Graduates (Alumni)	Questionnaires	10 at least
3. Stakeholders	Meeting Questionnaires	10 at least
4. External & Internal evaluators and external examiners	Reports	1 at least
5. Quality Assurance Unit	Reports Questionnaires Site visits	
6. Exams results	Results analysis Report	All the students

Date of the last approval by department council: 6-3-2023
Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

ANNEX [I]

Matrix Between National Academic Quality Assurance & Accreditation (NAQAAE) General Academic Reference Standards (GARS) and Faculty Academic Reference Standards (ARS), (Including Graduate Attributes)

برامج الدكتوراه NAQAAE	Faculty Doctorate (MD) Program
1. مواصفات الخريج: خريج برنامج الدكتوراه في أي تخصص يجب أن يكون قادرا على:	1. Graduate attributes: Graduate of doctorate (MD) program in any specialty should be able to:
1.1. إتقان أساسيات ومنهجيات البحث العلمي.	1.1. Mastery of basic research skills and types of study design.
1.2. العمل المستمر علي الإضافة للمعارف في مجال التخصص.	1.2. Contribute to development, application, and translation of new medical knowledge in his scholarly field through research.
1.3. تطبيق المنهج التحليلي والناقد للمعارف في مجال التخصص والمجالات ذات العلاقة.	1.3. use analytical and critical skills in observing, collecting and interpreting data.
1.4. دمج المعارف المتخصصة مع المعارف ذات العلاقة مستنبطا ومطورا للعلاقات البينية بينها.	1.4. Integrate biomedical sciences with clinical information to explore scientific basis of medical practice for improvement of management of diseases.

1.5. Demonstrate an awareness of current health problems and recent theories in his scholarly field	1.5. إظهار وعيا عميقا بالمشاكل الجارية والنظريات الحديثة في مجال التخصص.
1.6. Identify and create solutions for occupational problems and medical malpractice conditions.	1.6. تحديد المشكلات المهنية و إيجاد حلولا مبتكرة لحلها.
1.7. perform a wide range of professional skills in his scholarly field.	1.7. إتقان نطاقا واسعا من المهارات المهنية في مجال التخصص

1.8. Develop and improve new methods and approaches in the professional medical practice of the specific field.	1.8. التوجه نحو تطوير طرق و أدوات و أساليب جديدة للمزاولة المهنية.
1.9. Use information technology to improve his professional medical practice including online medical information manage information and researches.	1.9. استخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
1.10. communicate effectively as a member or leader of health care group or other professional group and gain leadership skills.	1.10. التواصل بفاعلية وقيادة فريق عمل في سياقات مهنية مختلفة.
1.11. Make informed decisions based on available data (e.g. patient information, up to date scientific evidence and clinical judgement).	1.11.اتخاذ القرار في ظل المعلومات المتاحة.
1.12. Effective management, development & improvement of available resources and have the competency to get new resources.	1.12. توظيف الموارد المتاحة بكفاءة وتنميتها والعمل على إيجاد موارد جديدة .
1.13. Be aware of his community needs related to his field and have the ability to improve & maintain health care and carryout system-based improvement.	1.13.الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة.

1.14.التصرف ب ما يعكس الالتزام بالنزاهة والمصداقية وقواعد المهنة.	1.14. Demonstrate ethical behavior, moral reasoning, honesty, integrity, dependability, and commitment to service and health equity.
15.1.الالتزام بالتنمية الذاتية المستمرة ونقل علمه و خبراته للآخرين.	1.15. Critically reflect on one's own performance to set learning and improving goals and sharing his knowledge.

2. المعايير القياسية العامة: **NAQAAE General Academic Reference Standards "GARS" for MD Programs**	**2. Faculty Academic Reference Standards (ARS) for MD Program**
1.2. المعرفة والفهم: **بانتهاء دراسة برنامج الدكتوراه يجب أن يكون الخريج قادرا علي الفهم والدراية بكل من:**	**2.1. Knowledge and understanding:** **Upon completion of the doctorate Program (MD), the graduate should have sufficient knowledge and understanding of:**
1.1.2. النظريات والأساسيات والحديث من المعارف في مجال التخصص والمجالات ذات العلاقة	2.1.1. Theories, basics and updated knowledge in his scholarly field and related basic sciences.
2.1.2. أساسيات ومنهجيات وأخلاقيات البحث العلمي وأدواته المختلفة	2.1.2. Basic, methods and ethics of medical research.
3.1.2. المبادئ الأخلاقية والقانونية للممارسة المهنية في مجال التخصص	2.1. 3. Ethical and medicolegal principles of medical practice.
4.1.2. مبادئ وأساسيات الجودة في الممارسة المهنية في مجال التخصص	2.1. 4. Identify Principles and fundamental of quality in professional medical practice.

5.1.2. المعارف المتعلقة بآثار ممارسته المهنية على البيئة وطرق تنمية البيئة وصيانتها	2.1.5. Knowledge related to effects of professional practice on public health and methods of maintenance and system-based improvement of public health.
2.2. المهارات الذهنية: **بانتهاء دراسة برنامج الدكتوراه يجب أن يكون الخريج قادرا على:**	**2.2. Intellectual skills:** **Upon completion of the doctorate program (MD), the graduate must be able to:**

1.2.2.تحليل وتقييم المعلومات في مجال التخصص والقياس عليها والاستنباط منها	2.2.1 Analysis and evaluation of information to correlate and deduce from it.
2.2.2. حل المشاكل المتخصصة استنادا على المعطيات المتاحة	2.2.2. Problem solving skills based on analysis of available data for common health problems related to his scholarly field.
3.2.2. إجراء دراسات بحثية تضيف إلى المعارف	2.2.3. Carryout research projects related to his scholarly field.
4.2.2. صياغة أوراق علمية	2.2.4. Write and publish scientific papers.
5.2.2. تقييم المخاطر في الممارسات المهنية	2.2.5. Assess risk in professional medical practice.
6.2.2. التخطيط لتطوير الأداء في مجال التخصص	2.2.6. Establish goals, commitments and strategies for improved productivity and performance.
7.2.2. اتخاذ القرارات المهنية في سياقات مهنية مختلفة	2.2.7. Making professional decisions in different professional contexts.
8.2.2. الابتكار/ الإبداع	2.2.8. Demonstrate intellectual curiosity necessary for scientific discovery and

	innovation through active participation in research.
9.2.2. الحوار والنقاش المبني على البراهين والأدلة	2.2.9. Using Evidence-based strategies to during discussion or teaching others.
3.2. مهارات المهنية: **بانتهاء دراسة برنامج الدكتوراه يجب أن يكون الخريج قادرا على:**	**2.3. Professional skills:** Upon completion of the doctorate program (MD), the graduate must be able to:
1.3.2. إتقان المهارات المهنية الأساسية والحديثة في مجال التخصص	2.3.1. Master the basic as well as modern professional practical and/or clinical skills.

2.3.2 . كتابة وتقييم التقارير المهنية	2.3.2. Write and evaluate professional reports.
2.3.3 . تقييم وتطوير الطرق والأدوات القائمة في مجال التخصص	2.3.3. Evaluate and improve the methods and tools in the specific field
4.3.2. استخدام الوسائل التكنولوجية بما يخدم الممارسة المهنية	2.3.4. use of technological means to serve Professional practice
2.3.5. التخطيط لتطوير الممارسة المهنية وتنمية أداء الآخرين.	2.3.5. Planning for the development of professional practice and improve of the performance of others
4.2. المهارات العامة والمنتقلة: **بانتهاء دراسة برنامج الدكتوراه يجب أن يكون الخريج قادرا على:**	**2.4. General and transferable skills** **Upon completion of the doctorate program (MD), the graduate must be able to:**
1.4.2. التواصل الفعال بأنواعه المختلفة	2.4.1. Communicate (in writing and orally) effectively and respectfully with peers, faculty, colleagues, and other members of the health care team,

	understanding the role of consultations and referrals.
2.4.2. استخدام تكنولوجيا المعلومات ب ما يخدم تطوير الممارسة المهنية	2.4.2. Use of information technology to serve Professional Practice Development.
3.4.2. تعليم الآخرين وتقييم أداءهم	2.4.3. Demonstrate effective teaching and evaluating others.
4.2.4. التقييم الذاتي والتعلم المستمر.	2.4.4. Self-assessment and continuous learning.
5.4.2. استخدام المصادر المختلفة للحصول على المعلومات والمعارف.	2.4.5. use physical information resources (print, analog), online (electronic, digital,) text, audio-video, book and journal to address medical questions and knowledge to sustain professional growth
6.4.2. العمل في فريق وقيادة فرق العمل	2.4.6. Work as a member in larger teams and as well as a team leader knows how to develop "teaming strategy" to plan how people will act and work together.
7...4.2 إدارة اللقاءات العلمية والقدرة علي إدارة الوقت	2.4.7. Manage of scientific meetings and the ability to manage Time effectively.

Date of the last approval by department council: 6-3-2023
Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

ANNEX [II]

Matrix Between Faculty Academic Reference Standards (ARS), and Program ILOs for MD in Cardiology.

Faculty Academic Reference Standards (ARS) for MD Program	Cardiology MD program ILOs
2.1. Knowledge & Understanding: Upon completion of **the MD Program,** the graduate should have sufficient knowledge and understanding of:	**A. Knowledge And Understanding (A)** Upon completion of **the MD Program in** cardiology the graduate should have sufficient knowledge and understanding of:
2.1.1. Theories, basics and updated knowledge in his scholarly field and related basic sciences.	A. 1 Explain the essential facts and principles of relevant basic sciences related to cardiovascular medicine including, Biostatistics & Computer, Research Methodology, Cardiac Anatomy, and Physiology.
2.1.2. Basic, methods and ethics of medical research.	A 10 Recognize the basic ethical and medicolegal principles to professional practice in field of cardiology.
2.1. 3. Ethical and medicolegal principles of medical practice.	A 13 State the ethical and scientific principles of medical research
2.1. 4. Identify Principles and fundamental of quality in professional medical practice.	A 11 Describe the basics of quality assurance to ensure good care in the field of practice.
2.1.5. Knowledge related to effects of professional practice on public health and methods of maintenance and system-based improvement of public health.	B. 2 Identify and apply clinically supportive sciences which are appropriate to the following areas of: e. Cardiovascular diseases (CVD) f. Cardiac emergency (CE). g. Non-invasive cardiac investigations (NICI). h. Cardiac catheterization (Cath.) A. 3 Explain natural history of common cardiovascular diseases and situations to cardiovascular system.

	A. Discuss etiology of common cardiovascular diseases and situations related to cardiovascular system A. 5 Summarize sufficient knowledge of clinical picture of common cardiovascular diseases and situations related to cardiovascular system A. 6 Discuss recent knowledge of diagnostic and Laboratory Techniques to establish and confirm diagnosis of common cardiovascular diseases and situations related to cardiovascular system. A. 7 Identify various prevention and therapeutic methods/alternatives in the treatment of common cardiovascular diseases and situations related to cardiovascular system A. 8 Describe in the pharmacodynamics and pharmacokinetics, advantages, disadvantages, side effects and complications of the different cardiovascular drugs A. 9 Illustrate the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of comm diseases related to cardiovascular system.
2.2. Intellectual Skills: Upon completion of the MD program of, the graduate should be able to:	**Intellectual Skills** **(B)** Upon completion of **the MD Program in** cardiology the graduate should have sufficient intellectual skills of:
2.2.1 Analysis and evaluation of information to correlate and deduce from it.	B.1 Interpret data acquired through history taking to reach a provisional diagnosis for cardiovascular problems.
2.2.2. Problem solving skills based on analysis of available data for common health problems related to his scholarly field.	B.2 Select from different diagnostic alternatives the ones that help reaching a final diagnosis for Cardiovascular problems..

2.2.3. Carryout research projects related to his scholarly field.	B.3 Conduct research studies, that adds to knowledge.
2.2.4. Write and publish scientific papers.	B.4 Formulate scientific papers in the area of Cardiology
2.2.5. Assess risk in professional medical practice.	B.5 Assess risk in professional practices in the field of Cardiology
2.2.6. Establish goals, commitments and strategies for improved productivity and performance.	B.6 Plan to improve performance in the field of Cardiology
2.2.7. Making professional decisions in different professional contexts.	B.7 Correlate Cardiovascular problems and find solutions. B.9 Mange scientific discussion based on scientific evidences and proofs.
2.2.8. Demonstrate intellectual curiosity necessary for scientific discovery and innovation through active participation in research.	B.8 Innovate nontraditional solutions to cardiovascular problems.
2.2.9. Using Evidence-based strategies during discussion or teaching others.	B.10 Criticize researches related to Cardiology.
3.2. Professional Skills: Upon completion of the MD program, the graduate must be able to:	**Professional Skills (C)** Upon completion of **the MD Program in** cardiology the graduate should have sufficient professional skills of:
2.3.1. Master the basic as well as modern professional practical and/or clinical skills.	C.1 Practice the basic and modern professional clinical and interventional skills in the area of Cardiology. C.6 Perform new methods, tools and ways of professional practice.
2.3.2. Write and evaluate professional reports.	C.2 Write and evaluation of medical reports.

2.3.3. Evaluate and improve the methods and tools in the specific field	C.3 Evaluate and develop of methods and tools existing in the area of Cardiology
2.3.4. use of technological means to serve Professional practice.	C.4 Perform both non invasive (echo) and invasive (cath &angiographic) evaluation in Cardiology.
2.3.5. Planning for the development of professional practice and improve of the performance of others	C.5 Train junior staff though continuous medical education
4.2. **General and transferable skills** Upon completion of the MD program, the graduate should be able to:	**General and Transferrable Skills.** **(D)** By the end of the study of MD program in Cardiology the Gr should be capable to
4.2.1. 2.4.1. Communicate (in writing and orally) effectively and respectfully with peers, faculty, colleagues, and other members of the health care team, understanding the role of consultations and referrals.	D1 Communicate effectively by all types of effective commu .
4.2.2. Use of information technology to serve Professional Practice Development.	D2 Use information technology to serve the development o professional practice D5 Develop rules and indicators for assessing the performar others
2.4.3. Demonstrate effective teaching and evaluating others.	D6 Work in a team, and team's leadership in various profess contexts.
2.4.4. Self-assessment and continuous learning.	D3 Assess himself and identify his personal needs. D8 Learn himself continuously
2.4.5. use physical information resources (print, analog), online (electronic, digital,)	D4 Use of different sources to obtain information and know

text, audio-video, book and journal to address medical questions and knowledge to sustain professional growth.	
2.4.6. Work as a member in larger teams and as well as a team leader knows how to develop "teaming strategy" to plan how people will act and work together.	D6 Work in a team, and team's leadership in various professional contexts.
2.4.7. Manage of scientific meetings and the ability to manage Time effectively.	D7 Manage time efficiently.

Date of the last approval by department council: 6-3-2023
Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

ANNEX [III]:
Matrix of Coverage of Program ILOs by Program topics (Courses)

Program Topic (course)	Course ILOS
FIRST PART (24 weeks)	
1- Medical Physiology	**A1**
2- Human Anatomy and embryology	**A1**

3- **Medical statistics and research methodology** 4- **Use of Computer in medicine**	**A1, A10, A11, A12 and A13**
SECOND PART (60 weeks):	
3- **Cardiology (lectures and clinical)**	**A2; A9** **B1; B10** **C1; C6**
Training programs and workshops, field visits, seminars& other scientific activities	**D1; D8**
THIRD PART (1 year):	
Research (Thesis)	**A1, A3; A13** **B3; B6, B9 and B10** **C2**

Date of the last approval by department council: 6-3-2023
Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

ANNEX [IV]:
Matrix of Coverage of Program ILOs by Methods of Teaching & Learning

Methods of Teaching & Learning	Intended Learning Outcomes (ILOs)			
	A. Knowledge & understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Lectures (PowerPoint, chalk, and talk)	1,2,3,4,5,6,7,8,9,10,11,12, 13	1,2,3,4,5,6,7, 8,9,10		
Clinical and practical (Including grand rounds)			1,2,3,4,5,6	
Presentation/seminar				1,2,3,4,5,6,7,8
Journal club				1,2,3,4,5,6,7,8
Thesis				1,2,3,4,5,6,7,8

Date of the last approval by department council: 6-3-2023
Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

ANNEX [V]
Matrix of Coverage of Program ILOs by Methods of Assessment

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
WRITTEN EXAM **- Short essay** **- MCQs** **- Complete** **- True or false and correct the wrong** **- Commentary** **- Problem solving**	**1,2,3,4,5,6,7,8,9,10,11,12, 13**	**1,2,3,4,5,6,7, 8,9,10**		
CLINICAL/practical EXAMS.			**1,2,3,4,5,6**	
ORAL EXAM	**1,2,3,4,5,6,7,8,9,10,11,12, 13**	**1,2,3,4,5,6,7, 8,9,10**		

Date of the last approval by department council: 6-3-2023
Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

University: Minia

Faculty: Medicine

Department: Cardiology

Course Specifications of Cardiology
Medical Doctorate (MD) Degree.

1. Course Information	
• **Academic Year/level:** Second Part	• **Course Title:** Course Specifications of Cardiology, MD Degree **(CODE: CV100)**

• **Number of hours:**
  ○ **Practical: 251 hours/one year.**
  ○ **Lectures: 250 hours/one year.**
• **Total: (30 h/wk); 1560 hours.**	

2. Overall Aims of the course	The aim of this program is to provide the postgraduate with the advanced medical knowledge and skills essential for the mastery of practice of Cardiology and necessary for further

	training and practice in the field of Cardiovascular medicine including: through providing: 1. Recent scientific knowledge essential for the mastery of practice of cardiovascular medicine, cardiac emergency, non invasive cardiac investigations and invasive cardiology and enabling the candidates of making appropriate referrals to a sub-specialist according to the international standards. 2. Skills necessary for proper diagnosis and management of patients including diagnostic, decision making and problem solving and interventional skills. 3. Ethical principles related to medical practice. 4. Enabling candidates with doctorate degree to start professional careers as spe Enabling candidates with doctorate degree to start professional careers as consultant in Egypt and to make them recognized as Consultant abroad. 5. Active participation in community needs assessment and problems identification. 6. Maintenance of learning abilities necessary for continuous medical education. 7. Upgrading research interest and abilities.
3. Intended learning outcomes of course (ILOs): ***Upon completion of the course, the student should be able to:***	
A- Knowledge and Understanding	By the end of the study of Doctorate program in Cardiology the Graduate should be able to C. 1 Identify and apply clinically supportive sciences which are appropriate to the following areas of: i. Cardiovascular diseases (CVD) j. Cardiac emergency (CE). k. Non-invasive cardiac investigations (NICI). l. Cardiac catheterization (Cath.) A. 2 Explain natural history of common cardiovascular diseases and situations to cardiovascular system.

	A. 3 Classify knowledge of etiology of common cardiovascular diseases and situations related to cardiovascular system A. 4 Summarize knowledge of clinical picture of common cardiovascular diseases and situations related to cardiovascular system A. 5 Discuss recent knowledge of diagnostic and Laboratory Techniques to establish and confirm diagnosis of common cardiovascular diseases and situations related to cardiovascular system. A. 6 Identify various prevention and therapeutic methods/alternatives in the treatment of common cardiovascular diseases and situations related to cardiovascular system A. 7 Describe in the pharmacodynamics and pharmacokinetics, advantages, disadvantages, side effects and complications of the different cardiovascular drugs A. 8 Illustrate the recent and update developments in the pathoge diagnosis, prevention and treatment of common diseases related cardiovascular system. A 9 State the ethical and scientific principles of medical research.
B- Intellectual Skills	B1. Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the cardiovascular system. B2. Relate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to cardiovascular system. B3. Design and present case for common problem related to cardiovascular system. B4. Formulate management plans and alternative decisions in different situations in the field of cardiovascular system.
C- Professional and Practical Skills	By the end of the study of doctorate program in Cardiology the G should able to C.1 Practice the basic and modern professional clinical and interventional skills in the area of Cardiology. C.2 Write and evaluation of medical reports. C.3 Evaluate and develop of methods and tools existing in the area of Cardiology

	C.4 Perform both non invasive (echo) and invasive (cath &angiographic) evaluation in Cardiology. C.5 train junior staff though continuous medical education C.6 Perform new methods, tools and ways of professional practice.
D- General and transferable Skills	By the end of the study of MD program in Cardiology the Graduat capable to: D1 Communicate effectively by all types of effective communicati D2 Use information technology to serve the development of profe practice D3 Assess himself and identify his personal needs. D4 The use of different sources to obtain information and knowle D5 Develop rules and indicators for assessing the performance of D6 Work in a team, and team's leadership in various professional D7 Manage time efficiently. D8 Learn himself continuously

COURSE CONTENTS

	Lectures	Practical	Total hours
Acute coronary syndromes	**5**	**5**	**10**
Chronic ischemic heart disease	**3**	**6**	**9**
Rheumatic fever	**5**	**8**	**13**
Valvular heart disease	**6**	**9**	**15**
Hypertension	**8**	**4**	**13**
Heart failure	**7**	**5**	**12**
Infective endocarditis	**2**	**3**	**5**
Arrhythmia	**3**	**4**	**7**
Adult CHD	**2**	**2**	**4**

Myocardial diseases	**3**	**5**	**8**
Pericardial diseases	**6**	**9**	**15**
Diabetic heart disease s	**9**	**1**	**10**
Pregnancy and heart disease	**8**	**4**	**12**
Heart Disease in the elderly	**1**	**6**	**7**
Heart Disease in women	**2**	**3**	**5**
Heart and CT disease	**5**	**5**	**10**
Heart and neurological diseases	**3**	**3**	**6**
Heart and renal disease	**8**	**5**	**13**
Heart and endocrine diseases	**7**	**3**	**10**
Cardio-pulmonary diseases	**5**	**2**	**7**
Cardiac tumors	**2**	**5**	**7**
Peripheral arterial diseases	**2**	**6**	**8**
Drugs affecting heart function	**3**	**8**	**11**
Obesity and cardiovascular medicine	**6**	**9**	**15**

	Lectures	**Practical**	**Total hours**
Acute coronary syndromes	**2**	**5**	**7**
Arrhythmia	**3**	**3**	**6**
Cardiogenic shock	**6**	**6**	**12**
Cardio-pulmonary resuscitation	**6**	**9**	**15**

Hypertensive emergency	**5**	**8**	**13**
Pulmonary edema	**8**	**7**	**15**
Acute pulmonay embolsim	**9**	**2**	**11**
The most common electrolyte disorders and its cardiac implications:	**7**	**5**	**12**
Hypokalemia	**2**	**5**	**7**
Hypomagnesemia	**2**	**1**	**3**
Hyperkalemia	**3**	**5**	**8**

	Lectures	**Practical**	**Total hours**
Resting 12-leads ECG	**5**	**5**	**10**
Transthoracic echocardiographic examination	**3**	**6**	**9**
Transesophageal echocardiographic examination	**6**	**3**	**9**
Multi-slice CT cardiac examination	**4**	**6**	**10**
Myocardial perfusion scintigraphy	**9**	**4**	**13**
Exercise ECG	**8**	**2**	**10**
Stress Echocardiography	**7**	**5**	**12**
24-hours ECG (Holter monitoring)	**2**	**5**	**7**

	Lectures	**Practical**	**Total hours**

Diagnostic coronary angiograph.	**5**	**9**	**14**
Therapeutic coronary intervention.	**4**	**6**	**10**
Diagnostic cardiac catheterization	**6**	**5**	**11**
Therapeutic percutaneous transluminal mitral commissurotomy (PTMC)	**8**	**4**	**12**
Therapeutic percutaneous transluminal pulmonary valvuloplasty (PPV)	**8**	**7**	**15**
Temporary pacemaker insertion	**9**	**5**	**14**
Permanent pacemaker implantation	**2**	**3**	**5**

Course Methods of Teaching/learning:

1. **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**

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**

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. Assessment Schedule: At the end of second part

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

William Grossman, Cath and CV diagnosis

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

Date of <u>last update</u> & approval by department Council:

March 2023

<u>Head of the department signature:</u>

Dr Khaled Sayed Almaghraby, MD

جامعة: المنيا

كلية: الطب

قسم: القلب

مسمى المقرر	دكتوراه أمراض القلب
كود المقرر	CV100

[ANNEX II] Matrix of Coverage of Course ILOs by Methods of Teaching&Learning

Methods of Teaching & Learning	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
bLectures (PowerPoint, chalk, and talk)	A1; A9	B1; B4		
Clinical (Including grand rounds)			C1; C6	
Presentation/seminar				D1; D8

Journal club				**D1; D8**
Thesis discussion				**D1; D8**

Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

[ANNEX III] Matrix of Coverage of Course ILOs by Methods of Assessment

Head of the department Signature: Dr Khaled Sayed Almaghraby, MD

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Written exam	A1; A9	A1; A9	-	-
Clinical exam - Short Case. - Long Case. - ECG & Radiology Quizzes.			C1; C6	
Oral Exam	A1; A9	A1; A9		

[ANNEX IV] MATRIX OF COVERAGE OF COURSE ILOS BY COURSE TOPICS

Course topics	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Acute coronary syndromes	A1; A9	B1; B4		
Chronic ischemic heart disease	A1; A9	B1; B4		
Rheumatic fever	A1; A9	B1; B4		
Valvular heart disease	A1; A9	B1; B4		
Hypertension	A1; A9	B1; B4		
Heart failure	A1; A9	B1; B4		
Infective endocarditis	A1; A9	B1; B4		
Arrhythmia	A1; A9	B1; B4		
Adult CHD	A1; A9	B1; B4		
Myocardial diseases	A1; A9	B1; B4		
Pericardial diseases	A1; A9	B1; B4		

Diabetic heart disease s	**A1; A9**	**B1; B4**		
Pregnancy and heart disease	**A1; A9**	**B1; B4**		
Heart Disease in the elderly	**A1; A9**	**B1; B4**		
Heart Disease in women	**A1; A9**	**B1; B4**		
Heart and CT disease	**A1; A9**	**B1; B4**		
Heart and neurological diseases	**A1; A9**	**B1; B4**		
Heart and renal disease	**A1; A9**	**B1; B4**		
Heart and endocrine diseases	**A1; A9**	**B1; B4**		
Cardio-pulmonary diseases	**A1; A9**	**B1; B4**		
Cardiac tumors	**A1; A9**	**B1; B4**		
Peripheral arterial diseases	**A1; A9**	**B1; B4**		
Drugs affecting heart function	**A1; A9**	**B1; B4**		
Obesity and cardiovascular medicine	**A1; A9**	**B1; B4**		
Acute coronary syndromes	**A1; A9**	**B1; B4**		
Arrhythmia	**A1; A9**	**B1; B4**		
Cardiogenic shock	**A1; A9**	**B1; B4**		

Cardio-pulmonary resuscitation	**A1; A9**	**B1; B4**		
Hypertensive emergency	**A1; A9**	**B1; B4**		
Pulmonary edema	**A1; A9**	**B1; B4**		
Acute pulmonay embolsim	**A1; A9**	**B1; B4**		
The most common electrolyte disorders and its cardiac implications:	**A1; A9**	**B1; B4**		
Hypokalemia	**A1; A9**	**B1; B4**		
Hypomagnesemia	**A1; A9**	**B1; B4**		
Hyperkalemia	**A1; A9**	**B1; B4**		
Resting 12-leads ECG			**C1; C6**	**D1; D8**
Transthoracic echocardiographic examination			**C1; C6**	**D1; D8**
Transesophageal echocardiographic examination			**C1; C6**	**D1; D8**
Multi-slice CT cardiac examination			**C1; C6**	**D1; D8**

Myocardial perfusion scintigraphy			**C1; C6**	**D1; D8**
Exercise ECG			**C1; C6**	**D1; D8**
Stress Echocardiography			**C1; C6**	**D1; D8**
24-hours ECG (Holter monitoring)			**C1; C6**	**D1; D8**
Diagnostic coronary angiograph.			**C1; C6**	**D1; D8**
Therapeutic coronary intervention.			**C1; C6**	**D1; D8**
Diagnostic cardiac catheterization			**C1; C6**	**D1; D8**
Therapeutic percutaneous transluminal mitral commissurotomy (PTMC)			**C1; C6**	**D1; D8**
Therapeutic percutaneous transluminal pulmonary valvuloplasty (PPV)			**C1; C6**	**D1; D8**
Temporary pacemaker insertion			**C1; C6**	**D1; D8**

Permanent pacemaker implantation			**C1; C6**	**D1; D8**

Head of the department signature:

Dr Khaled Sayed Almaghraby, MD

Blueprint Of Cardiology Department Candidates for MD Degree [Cardiology Examination Paper, Second Part]

	Topic	Hours	Knowledge %	Intellectual %	% of topic	N of items per topic	Marks	Actual Mark
1.	Acute coronary syndromes	**10**	75%	25%	2.0	4	4	4
2.	Chronic ischemic heart disease	**9**	75%	25%	1.8	2	4	4
3.	Rheumatic fever	**13**	83.4%	16.6%	2.6	1	5	5
4.	Valvular heart disease	**15**	75%	25%	3.0	1	6	6
5.	Hypertension	**13**	75%	25%	2.6	1	5	5
6.	Heart failure	**12**	75%	25%	2.4	2	5	5
7.	Infective endocarditis	**5**	66.7%	33.4%	1.0	2	2	2
8.	Arrhythmia	**7**	75%	25%	1.4	2	3	3
9.	Adult CHD	**4**	75%	25%	0.8	4	2	2
10.	Myocardial diseases	**8**	75%	25%	1.6	2	3	3

11.	Pericardial diseases	**15**	83.4%	16.6%	3.0	1	6	6
12.	Diabetic heart disease s	**10**	75%	25%	2.0	1	4	4
13.	Pregnancy and heart disease	**12**	75%	25%	2.4	1	5	5
14.	Heart Disease in the elderly	**7**	75%	25%	1.4	2	3	3
15.	Heart Disease in women	**5**	66.7%	33.4%	1.0	2	2	2
16.	Heart and CT disease	**10**	75%	25%	2.0	2	4	4
17.	Heart and neurological diseases	**6**	75%	25%	1.2	4	2	2
18.	Heart and renal disease	**13**	75%	25%	2.6	2	5	5
19.	Heart and endocrine diseases	**10**	83.4%	16.6%	2.0	1	4	4
20.	Cardio-pulmonary diseases	**7**	75%	25%	1.4	1	3	3
21.	Cardiac tumors	**7**	75%	25%	1.4	1	3	3
22.	Peripheral arterial diseases	**8**	75%	25%	1.6	2	3	3
23.	Drugs affecting heart function	**11**	66.7%	33.4%	2.2	2	4	4
24.	Obesity and cardiovascular medicine	**15**	75%	25%	3.0	2	6	6
25.	Acute coronary syndromes	**7**	75%	25%	1.4	4	3	3
26.	Arrhythmia	**6**	75%	25%	1.2	2	2	2
27.	Cardiogenic shock	**12**	83.4%	16.6%	2.4	1	5	5
28.	Cardio-pulmonary resuscitation	**15**	75%	25%	3.0	1	6	6
29.	Hypertensive emergency	**13**	75%	25%	2.6	1	5	5
30.	Pulmonary edema	**15**	75%	25%	3.0	2	6	6
31.	Acute pulmonay embolsim	**11**	66.7%	33.4%	2.2	2	4	4
32.	Hypokalemia	**12**	75%	25%	2.4	2	5	5
33.	Hypomagnesemia	**7**	75%	25%	1.4	4	3	3
34.	Hyperkalemia	**3**	75%	25%	0.6	2	1	1
35.	Resting 12-leads ECG	**10**	83.4%	16.6%	2.0	1	4	4
36.	Transthoracic echocardiographic examination	**9**	75%	25%	1.8	1	4	4
37.	Transesophageal echocardiographic examination	**9**	75%	25%	1.8	1	4	4
38.	Multi-slice CT cardiac examination	**10**	75%	25%	2.0	2	4	4
39.	Myocardial perfusion scintigraphy	**13**	66.7%	33.4%	2.6	2	5	5
40.	Exercise ECG	**10**	75%	25%	2.0	2	4	4
41.	Stress Echocardiography	**12**	75%	25%	2.4	4	5	5

42.	24-hours ECG (Holter monitoring)	**7**	75%	25%	1.4	2	3	3
43.	Diagnostic coronary angiograph.	**14**	83.4%	16.6%	2.8	1	6	6
44.	Therapeutic coronary intervention.	**10**	75%	25%	2.0	1	4	4
45.	Diagnostic cardiac catheterization	**11**	75%	25%	2.2	1	4	4
46.	Therapeutic percutaneous transluminal mitral commissurotomy (PTMC)	**12**	75%	25%	2.4	2	5	5
47.	Therapeutic percutaneous transluminal pulmonary valvuloplasty (PPV)	**15**	66.7%	33.4%	3.0	2	6	6
48.	Temporary pacemaker insertion	**14**	75%	25%	2.8	2	6	6
49.	Permanent pacemaker implantation	**5**	75%	25%	1.0	4	3	3
TOTAL		**501**			100%		200	200

Head of the department Signature: Dr Khaled Sayed Almaghraby, MD

Course Specifications of Human Anatomy and Embryology in Doctorate Degree (MD) Doctorate in CARDIOLOGY

University: Minia

Faculty: Medicine

Department: Human Anatomy and Embryology

4. Course Information		
• **Academic Year/level:** first part	**Course Title:** Course Specifications of Human Anatomy and Embryology in MD degree in **CARDIOLOGY**	• **Code**: **CV100**
• **Number of teaching hours:** - **Lectures:** Total of 24 hours - **Practical**: Total of 12 hours		
5. Overall Aims of the course	***By the end of the course the student must be able to have the professional knowledge of human anatomy and embryology of cardiovascular system.***	
6. Intended learning outcomes of course (ILOs):		
E- Knowledge and Understanding	**A1**. Mention the normal structure and function of the cardiovascular system on the macroscopic levels. **A2**. Describe the normal structure of mediastinum, pericardium and pericardial sinuses & their clinical correlates. **A3**. Recognize the cardiac surface, borders & detailed structure of cardiac chambers, and chest wall. **A4**. Identify the blood supply, conducting system and nerve supply of the heart. **A5**. Summarize early **embryonic developmen**t of heart tube, cardiac septa, and normal prenatal shunt of oxygenated blood from right to left atria. **A6**. Discuss fetal **circulation** and postnatal changes.	

	A7. Tell normal **development** of embryonic aortic arches, fate of aortic sac, source of adult aorta & common aortic anomalies. **A8**. Describe the normal **development** of cardinal, umbilical & vitelline veins. **A9**. Recognize the source of **development** of caval veins and common anomalies of venous development. **A10**. Explain the course, relations and branches of Subclavian artery, Axillary artery, Brachial artery, Ulnar and Radial arteries. **A11**. Describe the important anastomosis of upper limb vessels around shoulder, elbow superficial & deep palmar arches. **A12**. Describe the superficial & deep veins of upper limb & lymphatic drainage. **A13**. Recognize the course, relations and branches of iliac arteries, Femoral artery, Popliteal artery Anterior & posterior tibial arteries. **A14**. Describe the important anastomosis of lower limb vessels around hip, knee, ankle, dorsalis pedis artery & planter arch. **A15**.Describe the superficial & deep veins of lower limb & lymphatic drainage. **A16**. Recognize the course, branches, relations of carotid & vertebral arteries. **A17**. Illustrate dural folds, dural sinuses, veins of face and scalp & jugular veins. **A18**. Infer development of limb arteries, veins and their common anomalies. **A19**. List the thoracic lymph nodes, lymph vessels of the chest, lymphatic drainage of chest wall & chest organs. **A20**. Describe the autonomic nerve plexuses, esophageal plexus, pulmonary plexus, cardiac plexus, course of vagus & sympathetic trunks. **A21**. Illustrate and explain the applied anatomy of the coronary arteries, distribution of coronaries, common sites for atherosclerosis and vessels used for coronary bypass auto-graft.
F- Intellectual Skills	**B1**. Link between knowledge for Professional problems solving. **B2**. Conduct research study and / or write a scientific study on a research problem. **B3**. Correlate cardiovascular diseases based on anatomical bases & gene disruptions.

G- Professional and Practical Skills	**C1**. Investigate the basic and modern medical skills in the area of cardiology. **C2**Interpret diseases and anomalies based on anatomical data and gene expression disorders.
H- General and transferable Skills	**D1**. Use information technology to serve the development of professional practice **D2**. Assess himself and identify personal learning needs.

7. Course Contents

Topic	Lecture hours/week	Practical hours/week	Total No. of hours hours/week
Anatomy of HEART and pericardium	4	2	6
Anatomy of great vessels of heart and neck	2	١	٣
Normal and abnormal development of CVS and general embryology	4	1	5
Anatomy upper limb vessels and nerves	2	1	3
Anatomy lower limb vessels and nerves	2	1	3
Autonomic supply and lymphatic drainage of thoracic organs	3	1	4
Clinical correlation of coronaries and blood vessels	1	1	2
Anatomy of thoracic cage in details	4	2	6
Revision	2	2	4
Total	24	12	36

8. Teaching and Learning Methods	1 - Lectures. 2 - Practical lessons. 3- Assignments for the students to empower and assess the general and transferable skills
9. Teaching and Learning Methods for students with limited Capacity	

10. Student Assessment

A. Student Assessment Methods	1- Assignments for the students to empower and assess the general and transferable skills

	2- Final written exam to assess Knowledge, understanding and intellectual skills. 3- Final oral exam to assess understanding and intellectual skills. 4- Final practical exam to assess practical skills.
B. Assessment Schedule (Timing of Each Method of Assessment)	Assessment 1 …Final practical exam Week: 20-24 Assessment 2…. Final written exam. Week …22-24 Assessment 3…..Final oral exam Week….22-24
C. Weighting of Each Method of Assessment	Final-term Exam paper based exam= 100 Oral exam = 100 Skill lab exam = 100

11. List of References:

- **Standring,S, Ellis, H., Healy, J.C., Johnson, D., and Williams, J.C., 2016. Gray's anatomy. 50th edition.**
- **Junqueira, L.C. and Carneiro, J., 2015. Basic histology. 10th edition.**
- **Moore K.L., and Agur A.M.R., 2016. Essential clinical anatomy. 14th edition.**
- **Romanes G.J., 2015. Cunningham's manual of practical anatomy, Oxford.**

A. Course Notes/handouts	Lecture notes prepared by staff members of Anatomy department.
B. Essential Books	**- Gray's Anatomy.** **- Essential clinical anatomy.** **- Cunningham's manual of practical anatomy**
C. Recommended Text Books	A colored Atlas of Human anatomy and Embryology.
D. Periodicals, websites	American J. of Anatomy Cochrane Library,Medline & Popline.

Course Coordinator/s:

Prof. Dr. AL-Sayed Ali Mahran

Head of Department:

Prof. Dr. Fatma Elzahraa Fouad

Date of last update & approval by department Council:

3/2023

مسمى المقرر	التشريح
كود المقرر	CV100

جامعة/أكاديمية : المنيا

كلية / معهد: الطب

قسم: التشريح

A. Matrix of Coverage of Course ILOs By Contents

Contents (List of course topics)	Week No.	Intended Learning Outcomes (ILOs)			
		A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
		A	B	C	D
Anatomy of HEART and pericardium	1	1,2,3	2	1,2	1,2
Anatomy of great vessels of heart and neck	2	3,4,21	1	1,2	1,2
Normal and abnormal development of CVS and general embryology	3	٥,6,7,8,9	3	1,2	1,2
Anatomy upper limb vessels and nerves	4	10,11,12	1	1,2	1,2
Anatomy lower limb vessels and nerves	5	13,14,15	3	1,2	1,2
Autonomic supply and lymphatic drainage of thoracic organs	6	10,16,17	1	1	1,2

Clinical correlation of coronaries and blood vessels	**7**	**7,8,9,18**	**1,2**	**2**	**1,2**
Anatomy of thoracic cage in details	**8**	**3,19,20**	**3**	**1,2**	**1,2**
Revision	**9**	**4,21**	**3**	**1**	**1,2**

Matrix of Coverage of Course ILOs by Methods of Teaching & Learning

Methods of Teaching & Learning	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Lecture	1-21	1,2		
Practical			1,2	
Presentation/seminar				1,2
Group discussion	5:9		1,2	1,2
Log book activity	1-21		1,2	

B. Matrix of Coverage of Course ILOs by Methods of Assessment

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Written exam (paper based exam)	1:21	1,2,3		
Practical exam (skill lab exam)			1,2	
Oral Exam	1:21	1,2,3		1,2

Blueprint of Cardiology MD" Examination Paper"

	Topic	Hours	Knowledge %	Intellectual %	% topic	No. of items per topic	Knowledge mark	Intellectual Mark	Mark	Actual mark
1	Anatomy of HEART and pericardium	4	75%	25%	18.2%	4	13.65	4.55	18.2	18
2	Anatomy of great vessels of heart and neck	2	75%	25%	9.1%	2	6.83	2.27	9.1	9
3	Normal and abnormal development of CVS and general embryology	4	83.4%	16.6%	18.2%	1	15.2	3	18.2	18
4	Anatomy upper limb vessels and nerves	2	75%	25%	9.1%	1	6.83	2.27	9.1	9
5	Anatomy lower limb vessels and nerves	2	75%	25%	9.1%	1	6.83	2.27	9.1	9
6	Autonomic supply and lymphatic drainage of thoracic organs	3	75%	25%	13.6%	2	10.2	3.4	13.6	14
7	Clinical correlation of coronaries and blood vessels	1	66.7%	33.4%	4.5%	2	3	1.5	4.5	5

8	Anatomy of thoracic cage in details	4	75%	25%	18.2%	2	13.65	4.55	18.2	18
	total	22			100%		76.19	23.81	100	100

“100 Marks”

Course specification of :

"Use of Computer in Medicine"

in MD degree

University: Minia

Faculty: Medicine

Department offering the course: Community Medicine department

Department offering the programme: All Clinical and Academic Postgraduate MD Students

Programme(s) on which the course is given: First part MD for all postgraduates

Academic year/ Level: First part of MD

1. Course Information		
Academic Year/level: **First part MD**	Course Title: **Use of Computer in Medicine**	Code: **CM 100**
• **Number of teaching hours:** - **Lectures:** 20 hours - **Practical/clinical:** 10 hours - **Total:** 30 hours		
2. Overall Aims of the course	***By the end of the course the student must be able to:*** 1. Recognize knowledge about the software and their applications in Medicine 2. Gain skills necessary for using and managing heath care information systems	
3. Intended learning outcomes of course (ILOs): ***Upon completion of the course, the student should be able to:***		
A. Knowledge and understanding	A.1. Define each part of computer hardware and its function A.2. Have a basic understanding of various computer applications in medicine - for instruction, information managing, and computer based medical record, etc.	

	A.3. Define telemedicine and its importance A.4. Recognize importance of health information technology in improvement of healthcare A.5. Describe electronic medical records and obstacles facing it A.6. Identify the concept of big data analysis
B. Intellectual Skills	B.1. Criticize adoption of telemedicine B.2. Discover factors constraining adoption of telemedicine
C. Professional and Practical Skills	C.1. Design framework for understanding of health information system performance
D. General and transferable Skills	D.1. Utilize computers in conducting research D.2. Appraise adoption of telemedicine D.3. Discover skills to carry out the process of improving health information system performance

4. Course Contents

Topic	**No. of hours**	**Lecture**	**Tutorial/ Practical**
Use of Computer in Medicine			
General concepts Introduction to Microsoft PowerPoint	6	4	2
Health Information Systems (HIS)	6	4	2
Telemedicine	6	4	2
Software Used in the Health Care	6	4	2
Big Data Analysis in Health	6	4	2
Total	**30**	**20**	**10**

5. Teaching and Learning Methods

Due to COVID-19 pandemic, blended learning approach was adopted that mixes virtual face-to-face interaction activities with the online learning. 60% of study method is offline and 40% of study is online

Online learning materials are available at Minia University site

- Lectures: Face to face lectures, Pre-recorded video lectures

	▪ Practical lessons ▪ Assignment ▪ Online quizzes
6. Teaching and Learning Methods for students with limited Capacity	• Outstanding student rewarded certificate of appreciation due to high level of achievement • Limited students divided into small group to make learning more effective
7. Student Assessment	
A. Student Assessment Methods	7.1- **Research assignment:** to assess general transferable skills, intellectual skills. 7.2- **Written exams:** • Short essay: to assess knowledge. • Commentary: to assess intellectual skills. 7.3- **Practical Exams:** to assess practical skills, intellectual skills. 7.4- **Oral Exams:** Oral exams to assess knowledge and understanding, attitude, communication 7.5- **Structured oral exams:** to assess knowledge.
B. Assessment Schedule (Timing of Each Method of Assessment)	Assessment 1: Final written exam week: 24-28 Assessment 2: Oral exam week: 24-28 Assessment 3: Practical exam week: 24-28
C. Weighting of Each Method of Assessment	Final Written Examination 50 **%** Oral Examination 30 **%** Practical Examination 20% Other types of assessment 0% Total 100%
8. List of References	
A. Course Notes/handouts	Department notes, lectures and handouts
B. Essential Books	Essential Medical Statistics, Betty R. Kirkwood and J. A. Sterne (2000), 2nd edition

C. Recommended Textbooks	Data Management and Analytics for Medicine and Healthcare: Begoli, Edmon, Fusheng Wang, and Gang Luo. Springer, 2017.
D. Periodicals, websites	- National Institutes of Health: http://www.nih.gov - American Medical Informatics Association: http://www.amia.org/

- **Course Coordinators:**

  ➢ **Coordinator:**

  1) Assistant Professor/ Ebtesam Esmail
  2) Professor/ Eman Sameh

  ➢ **Assistant-coordinators:**

  1) Ass. Lecturer/ Shaza Fadel

- **Head of Department**:

  Professor Dr. Nashwa Nabil Kamal

Date of program specifications 1st approval by department council: 13 /5/2013.

Date of last update & approval by department council: 3 /6/ 2023

نموذج رقم (١١)

أكاديمية :المنيا/جامعة

معهد: الطب / كلية

الوقائي قسم: الصحة العامة والطب

Use of Computer in Medicine	**مسمى المقرر**
CM 100	**كود المقرر**

Matrix of Coverage of Course ILOs By Contents

Contents (List of course topics)	**Week No.**	**Intended Learning Outcomes (ILOs)**			
		A. Knowledge & Understanding	**B. Intellectual Skills**	**C. Professional & Practical skills**	**D. General & Transferable Skills**
		A	**B**	**C**	**D**
Use of Computer in Medicine					
General concepts Introduction to Microsoft PowerPoint		A.1, A.2,			D.1
Health Information Systems (HIS)		A.4, A.5		C1	D.3
Telemedicine		A.3	B.1, .2		D.2
Software Used in the Health Care		A.5, A.6			D.1
Big Data Analysis in Health		A.6			

Matrix of Coverage of Course ILOs by Methods of Teaching & Learning

	Intended Learning Outcomes (ILOs)

Methods of Teaching & Learning	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Lecture	A.1 to A.6	B.1,	C.1	
Practical	A.1,		C.1	D.1,D3
Assignment	A.4	B.2		D.2

Matrix of Coverage of Course ILOs by Methods of Assessment

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Written exam	A.1, to A.6	B.1		
Practical exam	A.4			D.1
Oral Exam	A.4, A..6	B.2	C.1	D.2, D.3

Test blueprint for Uses of computer in Medicine course

Topic	Hour	% of topic	Total No. of items	Written exam (100 marks)		Marks (Percentages)	Modified marks (Percentages)
				Knowledge	Intellectual		
Use of Computer in Medicine							
General concepts Introduction to Microsoft PowerPoint	4	20%	6	4	2	30%	30%
Health Information Systems (HIS)	4	20%	4	4		20%	15%
Telemedicine	4	20%	6	2	4	25%	30%

Software Used in the Health Care	4	20%	5	4	1	20%	15%
Big Data Analysis in Health	4	20%	1	1		5%	10%
Total	20	100%	20			100%	100%

جامعة: المنيا
كلية : الطب البشري
قسم: الفسيولوجيا الطبية

Medical Physiology Course Specifications

For 1st Part Master (MD) Degree in CARDIOLOGY

University: Minia
Faculty: Medicine
Faculty offering the program: Faculty of Medicine.
Department offering the course: Medical Physiology Department.
Program(s), on which the course in given: MD Degree in **Cardiology**.
Major or minor element of program(s): Medical Physiology.
Academic year/level: 1st part **MD** degree in **Cardiology**.
Date of specification approval: 3 – 2023.

Basic Information

Title: Physiology course specifications for 1st part **MD** degree of **Cardiology**
Code: CV100 **Credit Hours:** Not applicable
Lectures: 1 hour / week
Tutorial/Practical: Not applicable

Professional information

1) OVERALL AIM OF COURSE:

The aim of the course is to provide the postgraduate students with knowledge about the physiological principles underlying **cardiovascular** diseases that aid in interpretation of symptoms, investigations and management.

INTENDED LEARNING OUTCOMES OF COURSE (ILOS)

A. Knowledge and Understanding:

By the end of the course, the student should be able to:

A1. Describe the Physiology of Respiration:

1.1. Gas transport functions of blood and its disorders.
1.2. Peripheral and central control of respiration and its disorders.

A2. Explain the Physiology of Autonomic Nervous System:

2.1. Distribution & functions of sympathetic and parasympathetic.
2.2. Chemical transmitters, receptors, and their role in cardiac regulation.

A3. Describe the Physiology of Central Nervous System:

3.1. Pain sensation; types, effects and control mechanisms.

A4. Discuss the Physiology of Blood:

4.1. Erythropoiesis; types and effects of anemias.

4.2. Blood coagulation mechanisms and anticoagulants.

A5. Identify the Physiologic principles of Endocrine System:

5.1. Hormones affecting cardiac functions, electrolyte balance and blood pressure.

5.2. Glucose Homeostasis

A6, Discuss the Physiology of Renal Function:

6.1. Body water balance,

6.2. Acid-base balance.

A7. Discuss in details the Physiology of CVS (Specialty):

7.1. Electrophysiology of Cardiac Muscle & Origin of Heartbeat.

7.2. Cardiac Muscle Excitation-Contraction Coupling.

7.3. Conduction System in the Heart.

7.4. Cardiac cycle, ECG & Heart sounds.

7.5. Heart Rate & Cardiovascular Reflexes.

7.6. Cardiac Output & Cardiac Reserve.

7.7. Blood pressure, flow in arteries and arterioles, hemorrhage & Shock.

7.8. Capillary circulation,

7.9. Tissue fluid & Lymph.

7.10. Venous Circulation.

7.11. Coronary circulation.

A. Intellectual Skills:

By the end of the course, the student should be able to:

B1. Develop the skills for demonstrating different functions of the body systems related to Cardiology to diagnose deviation from normality as detected disease state.

B2. Assess the problems associated with different factors, which affect the normal function of different body systems related to Cardiology.

B. Practical Skills:

Practical hours: -

C. General and Transferable Skills:

By the end of the course, the student should be able to:

D1. Adopt the principles of lifelong learning.

D2. Prepare and present clearly and effectively a scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D3. Work efficiently within a team, honor and respect his colleagues.

Curriculum structure & contents:

Topic:	No. of Lectures	Total no. of hours
1. Respiratory System: • Gas transport functions of blood and its disorders. • Peripheral and central control of respiration and its disorders.	**2**	**2**
2. Autonomic Nervous System: • Distribution & functions of sympathetic and parasympathetic. • Chemical transmitters, receptors, and their role in cardiac regulation.	**2**	**2**
3. Central Nervous System: • Pain sensation.	**2**	**2**
4. Blood: • Erythropoiesis; types and effects of anemias. • Blood coagulation mechanisms and anticoagulants.	**2**	**2**
5. Endocrine System: • Hormones affecting cardiac functions, electrolyte balance and blood pressure. • Glucose Homeostasis.	**2**	**2**
6. Physiology of Renal Function: • Body water balance, • Acid-base balance.	**2**	**2**
7. Physiology of CVS (Specialty Topics): • Electrophysiology of Cardiac Muscle & Origin of Heartbeat. • Cardiac Muscle Excitation-Contraction Coupling. • Conduction System in the Heart. • Cardiac cycle, ECG & Heart sounds. • Heart Rate & Cardiovascular Reflexes. • Cardiac Output & Cardiac Reserve. • Blood pressure, flow in arteries and arterioles, Haemorrhage & shock. • Capillary circulation, • Tissue fluid & Lymph. • Venous Circulation. • Coronary circulation.	**12**	**12**

Total	**24**	**24**

TEACHING AND LEARNING METHODS:

1. Lectures (1hr/wk.) throughout the academic year interchangeable with recorded lectures.
2. Self-learning activities such as use of internet and multimedia.

STUDENT ASSESSMENT METHODS:

1. **Written exam** to assess the student's knowledge in the form of short essay questions and /or MCQs.
2. **Oral exam** to assess student's knowledge, intellectual and general skills as well as assessing the verbal communication abilities.
3. **Log book.**

Assessment Schedule:

- **Assessment 1:** Final written exam (1.5 hr.)
- **Assessment 2:** Final oral exam.

Weighting of assessment:

- **Final written exam 100%**
- **Final oral exam 100%**
- **Total 100%**

LIST OF REFERENCES:

1. **Department books and notes.**
   Prepared by Medical Physiology Department staff members, Faculty of Medicine, Minia University.
2. **Essential books (Text Books):**
   - Ganong review of medical physiology.
   - Guyton text book of medical physiology.
3. **Periodicals, Web sites… etc.**

FACILITIES REQUIRED FOR TEACHING AND LEARNING:

1. Classrooms with data show for lectures.
2. Computers and internet facilities.

Course Coordinator,
Prof. Dr. Hanaa Mohamed Ibrahim
Prof. of Medical Physiology
Faculty of Medicine, Minia University

Head of Department,
Prof. Dr. Merhan Mamdouh Ragy
Prof. & Head of Medical Physiology Department
Faculty of Medicine, Minia University

Date of last update & approval by Department council: 3/2023

جامعة: المنيا
كلية: الطب البشري
قسم: الفسيولوجيا الطبية

Physiology course specifications for **1st Part MD degree in Cardiology**	**مسمى المقرر**
CV100	**كود المقرر**

A. Matrix of Coverage of Course ILOs by Contents

Contents			**Intended Learning Outcomes ILOs**																								
	A. Knowledge & Understanding																						**B. Intellectual skills**		**D. General & Transferable Skills**		
	A 1.2	**A 1.2**	**A 2.1**	**A 2.2**	**A 3.1**	**A 4.1**	**A 4.2**	**A 5.1**	**A 5.2**	**A 6.1**	**A 6.2**	**A 7.1**	**A 7.2**	**A 7.3**	**A 7.4**	**A 7.5**	**A 7.6**	**A 7.7**	**A 7.8**	**A 7.9**	**A 7.10**	**A 7.11**	**B 1**	**B 2**	**D 1**	**D 2**	**D 3**
1. Physiology of Respiration	X	X																					X	X	X	X	X
2. Autonomic Nervous System			X	X																			X	X	X	X	X
3. Central Nervous System					X																		X	X	X	X	X
4. Physiology of Blood						X	X																X	X	X	X	X
5. Endocrine System								X	X														X	X	X	X	X

6. Physiology of Renal Function									X	X															
7. Physiology of CVS (Specialty)									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

B. Matrix of Coverage of Course ILOs by Methods of Teaching & Learning

Methods of Teaching & Learning	**Intended Learning Outcomes (ILOs)**			
	A. Knowledge & Understanding	**B. Intellectual Skills**	**C. Professional & Practical skills**	**D. General & Transferable Skills**
	A	**B**	**C**	**D**
Lectures	X	X	-	X
Self-learning activities	X	X	-	X

C. Matrix of Coverage of Course ILOs by Methods of Assessment

Methods of Assessment	**Intended Learning Outcomes (ILOs)**			
	A. Knowledge & Understanding	**B. Intellectual Skills**	**C. Professional & Practical skills**	**D. General & Transferable Skills**
	A	**B**	**C**	**D**
Written exam	X	X	-	-

Oral Exam	X	X	-	X
Log Book	X	X	-	X

Course Coordinator,
Prof.Dr. Hanaa Mohamed Ibrahim
Prof. of Medical Physiology
Department
Faculty of Medicine, Minia University

Head of Department,
Prof. Dr. Merhan Mamdouh Ragy
Prof. & Head of Medical Physiology
Faculty of Medicine, Minia University

Blueprint of Cardiology MSC Physiology Examination paper

Postgraduate Physiology Course for MD degree (1st part) of Cardiology (Code: CV100)

Topic	Hours	Knowledge %	Intellectual %	Weight %	Total Marks	Actual Mark
ILOS 1 Physiology of Respiration: Gas transport functions of blood and its disorders. Peripheral and central control of respiration and its disorders	2	75	25	8.3%	8.3	9
ILOS 2 and 3 Physiology of Autonomic Nervous system and Central Nervous System (CNS): Distribution & functions of sympathetic and parasympathetic, Chemical transmission in ANS. Pain sensation; types, effects and control mechanisms.	4	75	25	16.6%	16.6	17
ILOS 4 Discuss the Physiology of Blood: Erythropoiesis; types and effects of anemias. Blood coagulation mechanisms and anticoagulants.	2	75	25	8.3%	8.3	8
ILOS 5 Physiologic principles of Endocrine System :	4	75	25	16.6%	16.6	16

Calcium homeostasis and Glucose Homeostasis **ILOS 5 <u>Physiology of Renal Function:</u>** Body water balance and Acid-base balance.						
<u>ILOS 7 Physiology of CVS (Specialty):</u> Electrophysiology of Cardiac Muscle & Origin of Heartbeat, Cardiac Muscle Excitation-Contraction Coupling, Conduction System in the Heart, Cardiac cycle, ECG & Heart sounds., Heart Rate & Cardiovascular Reflexes, Cardiac Output & Cardiac Reserve, Blood pressure, flow in arteries and arterioles, hemorrhage & Shock, Capillary circulation,Tissue fluid & Lymph, Venous Circulation, Coronary circulation.	12	75	25	50%	50	50
Total	24	75	25	100%	100	100

Course specification of :

"Medical Statistics and Research Methodology"

In MD degree

University: Minia

Faculty: Medicine

Department offering the course: Community Medicine department

Department offering the programme: All Clinical and Academic Postgraduate MD Students

Programme(s) on which the course is given: First part MD for all postgraduates

Academic year/ Level: First part of MD

1. Course Information		
Academic Year/level: **First part MD**	Course Title: **Medical Statistics and Research Methodology**	Code: **CM 100**
Number of teaching hours: - **Lectures:** 30 hours - **Practical/clinical:** 15 hours - **Total:** 45 hours		
2. Overall Aims of the course	***By the end of the course the student must be able to:*** 1. Gain skills necessary for proper practice in the field of Research Methods including diagnostic, problem solving and decision making skills. 2. Apply ethical principles of scientific research with good awareness about patient´s rights. 3. Use precisely the research methodology in researches	

	4. Influence the students to adopt an analytical thinking for evidence-based medicine 5. Enable graduate students to use statistical principles to improve their professional work and develop the concept of critical interpretation of data 6. To use precisely computer programs SPSS, Epi Info and Excel in data analysis
3. Intended learning outcomes of course (ILOs): ***Upon completion of the course, the student should be able to:***	
A. Knowledge and understanding	A.1. Define terms of research methodology . A.2. Describe the spectrum of research methodology . A.3. Explain tie strategies and design of research . A.4. Describe the study design, uses, and limitations . A.5. Explain evidence-based Medicine A.6. Define causation and association . A.7. Tell the principles and fundamentals of ethics. A.8. Describe the different sampling strategies A.9. Summarize the advantages and disadvantages of different sampling strategies A.10. Summarize different methods of samples size calculation A.11. Recognize the sources and the recent methods in data collection and analysis. A.12. Identify the types of variables A.13. Identify types of tabular and graphic presentation of data A.14. Describe the normal curves and its uses A.15. Identify the characters of normal distribution curve A.16. Identify measures of central tendency and measures of dispersion A.17. Explain regression analysis, its use and differentiate its types A.18. Define the screening tests pertinent to selected diseases and the at-risk approach in the application of screening tests

	A.19. Explain the usefulness of screening tests
B. Intellectual Skills	B.l. Apply research methods to different community health problems. B.2. Apply appropriate research strategies for use . B.3. Select appropriate research methods . B.4. Teach and advocate appropriately in the research design. B.5. Describe the normal curves B.6. Describe and summarize data B.7. Select the proper test of significance for a specific data. B.8. Interpret selected tests of significance and the inferences obtained from such tests
C. Professional and Practical Skills	C.1. Plan a research proposal for community diagnosis. C.2. Design questionnaires. C.3. Conduct research. C.4. Judge association and causation. C.5. Criticize for bias and confounding factors C.6. Design data entry file C.7. Validate data entry C.8. Manage data files C.9. Construct tables and graphs C.10. Calculate different samples sizes C.11. Calculate measures of central tendency and measures of dispersion C.12. Calculate sensitivity, specificity, and predictive values
D. General and transferable Skills	D.l. Lead a research team to conduct a specific study . D.2. Take part and work coherently with his associates to in research. D.3. Write scientific papers. D.4. Appraise scientific evidence D.5. Analyze and interpret data D.6. Use standard computer programs for statistical analysis effectively

4. Course Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
Research methods			
Introduction : - Introduction to research. - Terminology and Rationale - Originality		3	
- Study design : -Cross sectional study and the prevalence rate -Cohort study, incidence rate, relative & attributable risk -Case-control study, Odd's ratio sampling -Experimental study and clinical trials		4	
- Sources of Errors in Medical Research **- Bias and confounding and its Control.**		3	
- Validity and reliability		2	
- The questionnaire design		2	
- Writing the Research Paper or Manuscript **- Protocol Writing**		2	2
- Critic technique for the literature review		2	2
- Association and causation		1	
- Evidence -based approach in medical practice		2	1
- Ethics of medical research		2	
Statistics			
Sampling		1	
Introduction to Sample Size Calculation		1	1
Data presentation		1	1
Tests of significance		2	
Introduction to SPSS		1	1
Proportion test			1
Chi-square test			1
Student T test, Paired T test			1
ANOVA test			1
Correlation (simple and multiple)			1
Regression			1
Screening		1	1
Total		**30**	**15**

5. Teaching and Learning Methods

Due to COVID-19 pandemic, blended learning approach was adopted that mixes virtual face-to-face interaction activities with the online learning. 60% of study method is offline and 40% of study is online

	Online learning materials are available at Minia University site ▪ Lectures: Face to face lectures, Pre-recorded video lectures ▪ Practical lessons ▪ Assignment ▪ Online quizzes
6. Teaching and Learning Methods for students with limited Capacity	• Outstanding student rewarded certificate of appreciation due to high level of achievement • Limited students divided into small group to make learning more effective
7. Student Assessment	
D. Student Assessment Methods	7.1- **Research assignment:** to assess general transferable skills, intellectual skills. 7.2- **Written exams:** • Short essay: to assess knowledge. • Commentary: to assess intellectual skills. 7.3- **Practical Exams:** to assess practical skills, intellectual skills. 7.4- **Oral Exams:** Oral exams to assess knowledge and understanding, attitude, communication 7.5- **Structured oral exams:** to assess knowledge.
E. Assessment Schedule (Timing of Each Method of Assessment)	Assessment 1: Final written exam week: 24-28 Assessment 2: Oral exam week: 24-28 Assessment 3: Practical exam week: 24-28
F. Weighting of Each Method of Assessment	- Final Written Examination 50 **%** - Oral Examination 30 **%** - Practical Examination 20% - Other types of assessment 0% - Total 100%

8- List of References	
A. Course Notes/handouts	- Department notes, lectures and handouts
B. Essential Books	- The Lancet Handbook of Essential Concepts in Clinical Research
C. Recommended Textbooks	***Research methods:*** - **Introducing Research Methodology**; A Beginner's Guide to Doing a Research Project - **Understanding Clinical Research**, Renato Lopes and Robert Harrington; ISBN-10: 0071746781 | ISBN-13: 978-0071746786 - **Users' guides to the medical literature: a manual for evidence-based clinical practice:** Guyatt, G., D. Rennie, M. Meade and D. Cook (2002), AMA press Chicago. - **Research Methods in Community Medicine:** Surveys, Epidemiological Research, Programme Evaluation, Clinical Trials, 6th Edition Joseph Abramson, Z. H. Abramson ***Computer:*** - Discovering statistics using IBM SPSS statistics, Field, A. (2013). sage. - Medical Statistics: A Guide to SPSS, Data Analysis and Critical Appraisal, Belinda Barton, Jennifer Peat - 2nd EditionEveritt, Brian S. - Medical statistics from A to Z: a guide for clinicians and medical students. Cambridge University Press, 2021. - Bowers, David. Medical statistics from scratch: an introduction for health professionals. John Wiley & Sons, 2019.

	- Aviva, P. (2005): Medical Statistics at a Glance, Blackwell Company, 2nd , ed., Philadelphia
D. Periodicals, websites	- https://phrp.nihtraining.com/users/login.php - http://www.jhsph.edu/ - Journal of Biomedical Education - https://lagunita.stanford.edu/courses/Medicine/MedStats-SP/SelfPaced/about?fbclid=IwAR3nfirLM4wnuEqqUjLjk8TCR7lzPdnpGqwin06L-GjFq32a62w3j6R5s9c

- **Course Coordinators:**
  - ➢ **Coordinator:**
    3) **Assistant Professor/** Ebtesam Esmail
    4) **Professor/** Eman Sameh
  - ➢ **Assistant-coordinators:**
    1) Ass. Lecturer/ Shaza Fadel
- **Head of Department**:

  Professor Dr. Nashwa Nabil Kamal

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نموذج رقم (١١)

جامعة/أكاديمية : المنيا

كلية / معهد: الطب

قسم: الصحة العامة والطب الوقائي

Medical Statistics and Research Methodology	**مسمى المقرر**
CM 100	**كود المقرر**

Matrix of Coverage of Course ILOs By Contents

Contents (List of course topics)	**Week No.**	**Intended Learning Outcomes (ILOs)**			
		A. Knowledge & Understanding	**B. Intellectual Skills**	**C. Professional & Practical skills**	**D. General & Transferable Skills**
		A	**B**	**C**	**D**
Introduction : - Introduction to research. - Terminology and Rationale - Originality		A.1, A.2,			
- Study design : -Cross sectional study and the prevalence rate -Cohort study, incidence rate, relative & attributable risk -Case-control study, Odd's ratio sampling -Experimental study and clinical trials		A.3, A.4,	B.l, B.2, B.3, B.4,	C.1,	
- Sources of Errors in Medical Research **- Bias and confounding and its Control.**			B.3,	C.5	
- Validity and reliability					
- The questionnaire design				C.2,	
- Writing the Research Paper or Manuscript **- Protocol Writing**			B.3,	C.3,	D.1, D.2, D.3
- Critic technique for the literature review					
- Association and causation		A.6,		C.4,	

- Evidence -based approach in medical practice		A.5,			
- Ethics of medical research		A.7			
Statistics					
Sampling		A.8, A.9, A.11			D.4
Introduction to Sample Size Calculation		A.10		C.10	D.4
Data presentation		A.13, A.14	B.6	C.9	D.4
Tests of significance		A.15, A16	B.5	C.11	D.4
Introduction to SPSS		A.12	B.6	C.6, C7, C8	D.5, D.6
Proportion test		A.11	B.7, B8		D.5, D.6
Chi-square test		A.11	B.7, B8		D.5, D.6
Student T test, Paired T test		A.11	B.7, B8		D.5, D.6
ANOVA test		A.11	B.7, B8		D.5, D.6
Correlation (simple and multiple)		A.11	B.7, B8		D.5, D.6
Regression		A.17	B.7, B8		D.5, D.6
Screening		A.18, A.19	B.7, B8	C.12	D.4

Matrix of Coverage of Course ILOs by Methods of Teaching & Learning

Methods of Teaching & Learning	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	**B. Intellectual Skills**	**C. Professional & Practical skills**	**D. General & Transferable Skills**
	A	**B**	**C**	**D**
Lecture	A.1, A.2, A.3, A.4, A.5, A.6, A.7 , A.8, A.14, A.15, A.16, A.18	B.4. B.5, B.6	C.1, C.4, C.11	D.3, D.4
Practical	A.9, A.10, A.11, A.12, A.13, A.16. A.17, A.18	B.1, B.2, B.3, B.4, B.6, B.7, B.8	C.3, C.5, C.6, C.7, C.8. C.9, C.10, C.12	D.2, D.4, D.5, D.6
Assignment	A.11, A.13, A.18	B.7, B.8	C.2, C.6, C.8, C.9, C.10, C.12	D.1, D.2., D.4, D.5, D.6

Matrix of Coverage of Course ILOs by Methods of Assessment

Methods of Assessment	Intended Learning Outcomes (ILOs)			
	A. Knowledge & Understanding	B. Intellectual Skills	C. Professional & Practical skills	D. General & Transferable Skills
	A	B	C	D
Written exam	A.3, A.4, A.5, A.6, A.7, A.8, A.9, A.14, A.15, A16, A18	B.3, B.5,	C.1,	
Practical exam	A.10, A11, A.12, A13, A.15, A.16, A.17, A18	B.1, B.2, B.6, B.7, B.8	C.1, C.2, C.5, C.6, C.7,C.8, C.9, C.10, C.11, C.12	D.1, D.2, D.5, D.6

Test blueprint for Research methodology course

Topic	Hour	% of topic	Total No. of items	Written exam (100 marks)		Marks (percentages)	Modified marks (Percentages)
				Knowledge	Intellectual		
Research							
Introduction: - Introduction to research. - Terminology and Rationale - Originality	3	10%	5	4	1	7%	5%
- Study design	4	13.3%	8	3	5	17%	17%
- Sources of Errors in Medical Research - Bias and confounding and its Control.	3	10%	4	2	2	13%	10%
- Validity and reliability	2	6.67%	3	2	1	7%	5%
- The questionnaire design	2	6.67%	3	1	2	5%	5%
- Writing the Research Paper or Manuscript - Protocol Writing	2	6.67%	4	1	3	13%	10%
- Critic technique for the literature review	2	6.67%	2	1	1	7%	5%
- Association and causation	1	3.33%	3	2	1	7%	8%

- Evidence -based approach in medical practice	2	6.67%	1	1		3%	5%
- Ethics of medical research	2	6.67%	2	2		3%	6%
Statistics							
Sampling	1	3.33%	2	1	1	4%	4%
Introduction to Sample Size Calculation	1	3.33%	1	1		2%	2%
Data presentation	1	3.33%	3	2	1	5%	4%
Tests of significance	2	6.67%	2	1	1	8%	8%
Introduction to SPSS	1	3.33%	1	1		3%	3%
Screening	1	3.33%	2	1	1	3%	3%
Total	**30**	**100%**					**100%**