

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: University of Diyala

Faculty/Institute: College of Medicine

Scientific Department: Physiology

Academic or Professional Program Name: Bachelor of Medicine and General Surgery

Final Certificate Name: Bachelor Degree in Medicine and General Surgery

Academic System: Courses (first course + second course)

Description Preparation Date:

8/2/2024

File Completion Date:8/2/2024

Signature:

Head of Department Name:

Date:

Signature:

Scientific Associate Name:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

1. Program Vision

Following graduation, our students will be able to work in a multidisciplinary team in health sector to ensure the team's optimal functioning and effective patient outcomes.

2. Program Mission

Our college seeks to get the international accreditation, rise to the global level in terms of the outcome's quality, and graduate medical doctors who are highly effective in patient's care, medical education research, and community service.

3. Program Objectives

- Achieving of quality standards and medical accreditation according to IGL derived on the basis of scientific institutional quality standards.
- Graduating medical doctors, with a bachelor's degree in medicine and general surgery, who will be well-prepared to conduct a patient examination, diagnose the disease, and dispense treatment on a scientific and medical basis, advanced clinical, and professional knowledge, skills, and attitudes they need to practice in an ethical manner to provide excellent health services and enable them for long life learning.
- Preparing doctors who will be able to interact in the workplace and solve urgent problems in response to the needs of the health delivery system/ society and changing circumstances which make them capable of working in Iraq and internationally, as well as pursuing postgraduate study and training in any medical branch.
- Graduating doctors with high skills and knowledge in conducting scientific research in basic, clinical, behavioral, and biomedical fields.
- Encouraging faculty, staff, and students to enhance their technical skills and utilize information and communication technology to convey knowledge, produce scientific research, and create curricula for educational programs.
- Implementing a development program for the faculty and staff.

4. Program Accreditation

The college has sent a request to get it.

5. Other external influences

Teaching hospital, library, internet, community, doctors' syndicate.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	2 for Physiology	6 for each course	100%	Basic
	2 for Medical Physics	3 for each course	100%	Basic
College Requirements	2 for Physiology	6 for each course	100%	Basic
	2 for Medical Physics	3 for each course	100%	Basic

Department Requirements	2 for Physiology	6 for each course	100%	Basic
	2 for Medical Physics	3 for each course	100%	Basic
Summer Training	None	None	None	
Other	None	None	None	

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024/First	MPH105, MPH106	Medical Physics	Theory: 30 hours For each course	Practical: 30 hours For each course
2023-2024/Second	PHY207	Physiology	Theory: 60 hours For each course	Practical: 60 hours For each course

8. Expected learning outcomes of the program

Knowledge

- ✓ Learning the basics of human physiology and medical physics and its various vocabulary.
- ✓ Developing mental abilities through various modern academic and practical education methods.
- ✓ Linking basic sciences with applied sciences in the future.
- ✓ Learn about the methods of action and effect of drugs.
- ✓ Learn the method of scientific discussion.
- ✓ Acquisition of laboratory skills.

Skills

- ✓ Learning the methods of dealing with laboratory animals and scientific equipment.
- ✓ Learning how to use chemical and physical materials.
- ✓ Acquisition of clinical examination skills.
- ✓ Methods of dealing with devices and their work on the human body
- ✓ Learning how to use physical materials.
- ✓ Learning how to link the benefits of the experience and link them with the medical benefits.

Ethics

- ✓ Learning the ethical manner in dealing with patients, their families, and colleagues to provide excellent health services.
- ✓ Ethical and professional discipline.
- ✓ Good interaction of students with each other.
- ✓ Develop a spirit of help.
- ✓ Eliminate class differences.

9. Teaching and Learning Strategies

- ✓ Lectures, computers, plasma screens, modern scientific equipment, clinical tours, educational seminars, audio-visual equipment, and small groups discussions.
- ✓ In-person and electronic blended education (via the Classroom platform).

10. Evaluation methods

- ✓ Discussion in lectures.
- ✓ Mid-course exams and end-of-course exams.
- ✓ Periodic evaluation through quizzes.
- ✓ Small Education Groups.
- ✓ Practical exams.
- ✓ Reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Physics	Medical Physics			2	None
Ass. Prof.	Biomedical Engineering	Artificial Intelligence			1	None
Lecturer	Physics	Medical Physics			2	None
	Medicine and General Surgery	Biochemistry			1	None
Assistant Lecturer	Physics	Medical Physics			1	None

Professional Development

Mentoring new faculty members

New faculty members will get orientation seminars and regular meetings to familiarize them with the work, daily supervision, ongoing follow-up, and guidance and instruction.

Professional development of faculty members

Regular training can be achieved through actively participating in various labs, attending seminars and specialist scientific symposia, and searching for advancements online and in libraries.

12. Acceptance Criterion

After compiling the online application, the Ministry of Higher Education and Scientific Research centrally processes admissions based on test scores in the scientific branch of the twelfth grade of the high school.

13. The most important sources of information about the program

University and college website, in addition to website of the Ministry of Higher Education and Scientific Research, along with college library and university's central library.

14. Program Development Plan

- Developing the college's scientific and administrative staff by identifying their strengths and shortcomings through yearly evaluation files.
- Propose strategies, plans, methods, and operational policies to ensure quality and reliability.
- Establish principles for implementing academic accreditation and quality to get the international accreditation.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2023-2024/First	MPH105, MPH106	Medical Physics	Basic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2023-2024/Second	PHY207	Physiology	Basic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

Course Description Form

1. Course Name:	
Physiology	
2. Course Code:	
PHY207	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
8/2/2024	
5. Available Attendance Forms:	
Mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 nd year: 120 hours theoretical + 120 hours practical (6 units)	
7. Course administrator's name (mention all, if more than one name)	
Name: Ass. Prof. Dr. Asmaa Abbas Ajwad E-mail: ajwad@uodiyala.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> ✓ Determining the functions of the different body systems. ✓ Describe the mechanism of action of the various body systems and the accompanying sequence of physiological events. ✓ Estimation of the normal values of biological activities in relation to different biological conditions. ✓ Distinguish between the normal and abnormal functions of the different body systems. ✓ Clarify the amount of change in the natural functions of different body systems and accompanying some disease states. ✓ Expanding knowledge through periodicals, medical books and the Internet. ✓ Apply the basic scientific building blocks he has acquired to conduct scientific research and medical studies.
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> ✓ Small scientific circles. ✓ Discussions. ✓ Seminars. ✓ In-person and electronic blended education (via the Classroom platform).

10- Course Structure of Physiology /First Course/Theory					
Week	Hours	Required educational goals Learning physiology of:	Unit name and/or topic	Education method	Evaluation method
1	4	cell structure	cell	Lecture	Exam
		cell contents	cell	Lecture	Exam
		cell wall	cell	Lecture	Exam
		transport across the cell	cell	Lecture	Exam
		Cellular division	cell	Lecture	Exam
2	4	Nucleus	cell	Lecture	Exam
		energy houses	cell	Lecture	Exam
		cell proliferation	cell	Lecture	Exam
		internal transmitters of the cell	cell	Lecture	Exam
		The DNA	cell	Lecture	Exam
3	4	recipients	cell	Lecture	Exam
		Influences on cell division	cell	Lecture	Exam
		apoptosis	cell	Lecture	Exam
		Drugs that affect the cell	cell	Lecture	Exam
		discussions	cell	Lecture	Exam
4	4	Blood volume & plasma	Blood physiology	Lecture	Exam
		RBC	Blood physiology	Lecture	Exam
		Hemoglobin	Blood physiology	Lecture	Exam
		Anemia	Blood physiology	Lecture	Exam
		Blood groups	Blood physiology	Lecture	Exam
5	4	transfusion reaction	Blood physiology	Lecture	Exam
		Homeostasis, platelets	Blood physiology	Lecture	Exam
		external & internal pathways of coagulation	Blood physiology	Lecture	Exam
		Tests of homeostasis	Blood physiology	Lecture	Exam
		Hemophilia	Blood physiology	Lecture	Exam
6	4	Immunity	Blood physiology	Lecture	Exam
		Immunity	Blood physiology	Lecture	Exam
		Tissue typing & transplantation	Blood physiology	Lecture	Exam
		Plasma	Blood physiology	Lecture	Exam
		Platelets	Blood physiology	Lecture	Exam
7	4	The functional design of C.V.S., the structure of the heart & blood vessels	Circulatory physiology	Lecture	Exam
8	4	Properties of cardiac muscle- autorhythmicity & conductivity	Circulatory physiology	Lecture	Exam
9	4	Electrophysiology of the heart ECG	Circulatory physiology	Lecture	Exam
10	4	Mechanical events in cardiac cycle	Circulatory physiology	Lecture	Exam
11	3	Cardiac output	Circulatory physiology	Lecture	Exam
12	3	Blood pressure	Circulatory physiology	Lecture	Exam
13	3	Process of Respiration: Mechanics of Breathing	Respiratory physiology	Lecture	Exam
14	3	Lung Volumes and Capacities	Respiratory physiology	Lecture	Exam
15	3	Compliance of the Lung/ Pulmonary and Alveolar Ventilation	Respiratory physiology	Lecture	Exam
16	3	Transport of O ₂ by the blood	Respiratory physiology	Lecture	Exam
17	2	Acid- Base Regulation	Respiratory physiology	Lecture	Exam

Course Structure of Practical Physiology /Second academic level / First course					
Week	Hours	Required educational goals	Unit name and/or topic	Education method	Evaluation method
1	4	Identify different lab tools and how to use the microscope.	Introduction	Lecture + lab	Exam
2	4	Learn how to count RBCs and discuss some medical aspects related to it.	RBC _s count	Lecture + laboratory experiment	Exam
3	4	Learn how to count WBCs and discuss some medical aspects related to it.	WBC _s count	Lecture + laboratory experiment	Exam
4	4	Identify different types of WBCs and discuss their function and related medical aspects.	Differential WBC _s count	Lecture + laboratory experiment	Exam
5	4	Learn how to estimate Hb and discuss some medical aspects related to it.	Estimation of hemoglobin concentration	Lecture + laboratory experiment	Exam
6	4	Learn how to count platelets and discuss some medical aspects related to it.	Platelets count	Lecture + laboratory experiment	Exam
7	4	Learn how to get ESR and discuss some medical aspects related to it.	Erythrocyte sedimentation rate (ESR)	Lecture + laboratory experiment	Exam
8	4	Learn how to get PCV (Hematocrit) and discuss some medical aspects related to it.	Packed cell volume (PCV)	Lecture + laboratory experiment	Exam
9	4	Discuss blood indices and their importance	Blood indices	Lecture + laboratory experiment	Exam
10	4	Learn how to get bleeding time and discuss some medical aspects related to it.	Bleeding time	Lecture + laboratory experiment	Exam
11	4	Learn how to get clotting time and discuss some medical aspects related to it.	Clotting time	Lecture + laboratory experiment	Exam
12	4	Learn how to get prothrombin time and discuss some medical aspects related to it.	Prothrombin time	Lecture + laboratory experiment	Exam
13	4	Learn how to get aPTT and PT time and discuss some medical aspects related to them.	APTT/TT	Lecture + laboratory experiment	Exam
14	4	Learn how to do blood grouping test and discuss some medical aspects related to it.	Blood grouping and cross matching tests	Lecture + laboratory experiment	Exam
15	4	Discuss different aspects of blood banking	Blood banking	Lecture + laboratory experiment	Exam

10- Course Structure of Physiology /Second Course/Theory					
Week	Hours	Required educational goals	Unit name and/or topic	Education method	Evaluation method
1	4	Renal circulation & glomerular filtration	Urinary system physiology	Lecture	Exam
2	4	Water excretion by the kidneys	Urinary system physiology	Lecture	Exam
3	3	Tubular reabsorption	Urinary system physiology	Lecture	Exam
4	3	Tubular secretion	Urinary system physiology	Lecture	Exam
5	4	Excitable tissue	Muscle and nerve physiology	Lecture	Exam
6	4	Nervous tissue	Muscle and nerve physiology	Lecture	Exam
7	4	Types of nerves	Muscle and nerve physiology	Lecture	Exam
8	3	Excitation of muscle	Muscle and nerve physiology	Lecture	Exam
9	4	Neuromuscular transmission	Muscle and nerve physiology	Lecture	Exam
10	4	Sympathetic and parasympathetic N.S.	Brain physiology	Lecture	Exam
11	2	General Sensation	Brain physiology	Lecture	Exam
12	3	Spinal Cord pathway and Reflexes	Brain physiology	Lecture	Exam
13	3	Thalamus Central representation of Sensation	Brain physiology	Lecture	Exam
14	2	Learning and memory	Brain physiology	Lecture	Exam
15	3	Cerebellum	Brain physiology	Lecture	Exam
16	2	Saliva and swallowing	Digestive System Physiology	Lecture	Exam
17	2	Water excretion by the kidneys	Digestive System Physiology	Lecture	Exam
18	3	Different aspects of Endocrine glands	Digestive System Physiology	Lecture	Exam
19	3	Physiology of different parts of the reproductive system	Digestive System Physiology	Lecture	Exam

10- Course Structure of Practical Physiology /Second academic level / the second course					
Week	Hours	Required educational goals	Unit name and/or topic	Education method	Evaluation method
1	4	Teach students to measure BP correctly.	Blood pressure measurement	Lecture+lab	Exam
2	4	Teach students to measure body temperature correctly.	Body temperature measurement	Lecture + laboratory experiment	Exam
3	4	Teach students how to examine peripheral pulses practically and correctly.	Examination of the peripheral pulses	Lecture + laboratory experiment	Exam
4	4	Teach students how to get the RR practically and correctly.	Respiratory rate	Lecture + laboratory experiment	Exam
5	4	Teach students how to examine the cranial nerves practically and correctly.	Examination of the cranial nerves	Lecture + laboratory experiment	Exam
6	4	Teach students how to examine the motor and sensory systems practically and correctly.	Examination of motor & sensory systems	Lecture + laboratory experiment	Exam
7	4	Teach students how to connect ECG electrodes and read ECG.	ECG	Lecture + laboratory experiment	Exam
8	4	Show students some abnormalities of ECG.	Interpretation of ECG	Lecture + laboratory experiment	Exam
9	4	Teach students how to work on spirometer and how to differentiate between obstructive and restrictive lung diseases.	Pulmonary function test (spirometer)	Lecture + laboratory experiment	Exam
10	4	Teach students how to do different tests to examine optic nerve.	Vision tests	Lecture + laboratory experiment	Exam
11	4	Teach students how to do different tests to examine the cochlear branch of the 8 th cranial nerve.	Hearing tests	Lecture + laboratory experiment	Exam
12	4	Teach students how to listen to different heart sounds.	Heart sounds	Lecture + laboratory experiment	Exam
13	4	Teach students how to work on EMG.	Electromyography (EMG)	Lecture + laboratory experiment	Exam
14	4	Teach students how to connect EEG electrodes and read EEG.	Electroencephalography (EEG)	Lecture + laboratory experiment	Exam
15	4	Show students the different steps and maneuvers of CPR.	Cardiopulmonary resuscitation (CPR).	Lecture + laboratory experiment	Exam

11. Cours Evaluation

- ✓ Discussion in lectures
- ✓ Mid-course exams and end-of-course exams
- ✓ Periodic evaluation through quizzes
- ✓ Small Education Groups
- ✓ Practical exams 6. Reports.

12. Learning and Teaching Resources

Required textbooks (curricular book, if any)	Ganong's Review of Medical Physiology, by Kim E. Barret, Susan M. Barman. Mc Graw Hill LANGE. 2011. Guyton and Hall textbook of Medical Physiology. Saunders comp. 2016
Main references (source)	All medical physiology books and journals
Recommended book and references (scientific journals , reports)	All medical physiology books and journals
Electronic References, Website	Berny & Levy Physiology Cardiovascular physiology Cell physiology sourcebook Elsevier's Integrated physiology Gale Virtual Reference Library for Medicine Heart physiology and pathophysiology Medical physiology Netter's essential physiology Wiley's comprehensive physiology

Course Description Form

1. Course Name:	
Medical Physics	
2. Course Code:	
MPH105, MPH106	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
8/2/2024	
5. Available Attendance Forms:	
Mandatory attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 nd year: 60 hours theoretical + 60 hours practical (3units)	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof.Dr.Suad Muslih Al-deen Abdul Majeed E-mail: suad@uodiyala.edu.iq	
Name: Prof.Dr.Amer Dawood Majeed E-mail: amer.dmk58@gmail.com	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> ✓ Familiarize students with the laboratory devices specialized in medical physics and how these physical devices work, and get acquainted with what is related to these physical devices and their medical work. ✓ The student is taught in a practical way to carry out practical experiments on various topics of physics and their applications in medicine and the relationship of various physical phenomena to the organs of the human body and the vital activities that take place inside the human body and it shows the extent of the impact of the body on natural conditions
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> ✓ Small scientific circles. ✓ Discussions. ✓ Seminars. ✓ In-person and electronic blended education (via the Classroom platform).

10- Course Structure/Medical Physics/Theory /First Course					
Week	Hours	Required educational goals	Unit name and/or topic	education method	evaluation method
1	2	Forces on and in the human body	Medical physics	Lecture	Exam
2	2	Frictional force, Dynamics, Clinical applications of gravity.	Medical physics	Lecture	Exam
3	2	Sedimentation velocity.	Medical physics	Lecture	Exam
4	2	Physics of the skeleton, The functions of bones	Medical physics	Lecture	Exam
5	2	Elastic properties of biological materials.	Medical physics	Lecture	Exam
6	2	Lubrication of bone joints.	Medical physics	Lecture	Exam
7	2	Heat and cold in medicine	Medical physics	Lecture	Exam
8	2	Heat therapy	Medical physics	Lecture	Exam
9	2	Cold in medicine	Medical physics	Lecture	Exam
10	2	Energy, work, and power of the body	Medical physics	Lecture	Exam
11	2	Pressure, measurement of pressure in the body	Medical physics	Lecture	Exam
12	2	The physics of lung and breathing function of the lung	Medical physics	Lecture	Exam
13	2	The physics of lung and breathing function of the lung	Medical physics	Lecture	Exam
14	2	The breathing mechanism	Medical physics	Lecture	Exam
15	2	Laplace law, Bernoulli's principle	Medical physics	Lecture	Exam

10- Course Structure/Medical Physics/Practical /First Course					
Week	Hours	Required educational goals	Unit name and/or topic	education method	evaluation method
1	2	Tools - Chart - How it works	Medical physics	Lecture+ lab	Exam
2	2	Finding the Earth's	Medical physics	Lecture+ lab	Exam

		acceleration and its relationship to the human body			
3	2	Tools - Chart - How it works	Medical physics	Lecture+ lab	Exam
4	2	Finding the coefficient of friction and its relationship to joint diseases in the human body, and the reduction of fluids between the cartilage increases the rate of friction and causes joint pain	Medical physics	Lecture+ lab	Exam
5	2	Tools - Chart - How it works	Medical physics	Lecture+ lab	Exam
6	2	Finding Yuncck's modulus and its relationship to sound vibrations and vibrations	Medical physics	Lecture+ lab	Exam
7	2	Tools - Chart - How it works	Medical physics	Lecture+ lab	Exam
8	2	Finding the moment of inertia and its relationship to vibrations and acoustic vibrations	Medical physics	Lecture+ lab	Exam
9	2	Tools - Chart - How it works	Medical physics	Lecture+ lab	Exam
10	2	Finding the half-life and its relationship to the decomposition of the treatment inside the human body	Medical physics	Lecture+ lab	Exam
11	2	Tools - how it works	Medical physics	Lecture+ lab	Exam
12	2	Finding the focal length and its relationship to lenses and optics	Medical physics	Lecture+ lab	Exam
13	2	Shows both EEG-ECG	Medical physics	Lecture+ lab	Exam
14	2	Tools - how it works	Medical physics	Lecture+ lab	Exam
15	2	Finding resistance and its relationship to bone fractures	Medical physics	Lecture+ lab	Exam

10- Course Structure/Medical Physics/Theory /Second Course					
Week	Hours	Required educational goals	Unit name and/or topic	Education method	Evaluation method
1	2	Electricity within the body	Medical physics	Lecture	Exam
2	1	Electrical activity of the heart	Medical physics	Lecture	Exam
3	1	Cardiovascular Instrumentation	Medical physics	Lecture	Exam
4	1	Sound in medicine	Medical physics	Lecture	Exam
5	2	The loudness and intensity level	Medical physics	Lecture	Exam
6	2	Ultrasonic sound	Medical physics	Lecture	Exam
7	2	Ultrasound to measure motion	Medical physics	Lecture	Exam
8	2	Physics of the ear and hearing	Medical physics	Lecture	Exam
9	1	Light in medicine	Medical physics	Lecture	Exam
10	2	Application of ultraviolet	Medical physics	Lecture	Exam
11	2	The eye and vision	Medical physics	Lecture	Exam
12	1	Optical defects of the eye	Medical physics	Lecture	Exam
13	1	Laser	Medical physics	Lecture	Exam
14	2	Laser interaction	Medical physics	Lecture	Exam
15	1	Production of X-ray beams	Medical physics	Lecture	Exam
16	2	Application of Radiation in medicine	Medical physics	Lecture	Exam
17	2	Physics of Nuclear medicine and application of Radioisotopes	Medical physics	Lecture	Exam
18	1	Physics of Radiation therapy	Medical physics	Lecture	Exam
19	2	Radiation Protection	Medical physics	Lecture	Exam

10- Course Structure/Medical Physics/Practical /Second Course					
Week	Hours	Required educational goals	Unit name and/or topic	Education method	Evaluation method
1	2	Tools - Chart - How it works	Test tube	Lecture+ lab	Exam
2	2	Finding the density of water	Test tube	Lecture+ lab	Exam
3	2	Tools - how it works	Spherometer	Lecture+ lab	Exam
4	2	Finding the radius of curvature for mirrors and lenses and its use in	spherometer	Lecture+ lab	Exam

		medical devices			
5	2	Tools - how it works	Wheatstones bridg	Lecture+ lab	Exam
6	2	Finding resistance and its relationship to bone fractures	Wheatstones bridge	Lecture+ lab	Exam
7	2	Tools - Chart - How it works	Spiral spring	Lecture+ lab	Exam
8	2	Finding the wavelength and its relationship to elasticity on the movement of the human body	Spiral spring	Lecture+ lab	Exam
9	2	Tools - Chart - How it works	CRO	Lecture+ lab	Exam
10	2	Shows both EEG-ECG	CRO	Lecture+ lab	Exam
11	2	Tools - Chart - How it works	Friction for wood on wood	Lecture+ lab	Exam
12	2	Finding the coefficient of friction and its relationship to joint diseases and the lack of fluid between the cartilage and increase the friction and thus cause joint pain	Friction for wood on wood	Lecture+ lab	Exam
13	2	Tools - Chart - How it works	Viscosity of water	Lecture+ lab	Exam
14	2	Finding a wife and its relationship to blood viscosity and high blood pressure	Viscosity of water	Lecture+ lab	Exam
15	2	Explains its use in medical devices used magnetic imaging	Ohms law	Lecture+ lab	Exam

11. Cours Evaluation

- ✓ Discussion in lectures
- ✓ Mid-course exams and end-of-course exams
- ✓ Periodic evaluation through quizzes
- ✓ Small Education Groups
- ✓ Practical exams
- ✓ Reports

12. Learning and Teaching Resources

Required textbooks (curricular book , if any)	Medical Physics By: John R. Cameron & James G. Skofronick Practical Physics in SI By: Armitage
Main references (source)	All medical physics books and journals
Recommended book and references (scientific journals , reports)	All medical physics books and journals
Electronic References, Website	Medical Physics - Wiley Online Library Journal of Medical Physics