Ministry of Higher Education and Scientific Research

Scientific Supervision and Scientific Evaluation Apparatus

Directorate of Quality Assurance and Academic Accreditation

Accreditation Department

University of SAWA

College of Health and Medical Techniques

Department of Radiology

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: .SAWA University

Faculty/Institute: College of Health and Medical Technology

Scientific Department: Radiology

Academic or Professional Program Name: Academic program application

Final Certificate Name: Bachelor's degree

Academic System: Course/ semester

Description Preparation Date: daily

File Completion Date: 19/4/2024

جامعة سماوة العلمية
كلية التقنيات الصحية والطبية
قسم الأشعة والسونار

Signature:

Head of Department Name:

Assist Dr. firas abdul abbas sukar

Date:

Signature:

Scientific Associate Name:

Assist proof..Dr.Nada sami naser

Date: 15-4-2024

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

Assist .proof.Dr.Hassan Raheem Khudur

15-4-2024

1. Program Vision

Department of radiology aspires gain global recognition in the fields of scientific research and teaching by achieving academic quality, as well as local recognition in the field of supplying the labor market with highly qualified scientific personnel.work to prepare specialized professional.

Place students in a scientific and practical environment to learn about laboratory instrument, The trainee will learn how to operate laboratory equipment in all specialties

2. Program Mission

Work to prepare specialized professional, scientific and technical medical cadres to work in hospital laboratories, Ministry of Health departments, public and private laboratories, and other relevant departments to serve the community.

3. Program Objectives

1. Work to prepare specialized professional, scientific and technical medical cadres to work in hospital laboratories, Ministry of Health departments, public and private laboratories, and other relevant departments to serve the community.

2. Developing the research, scientific and technical capabilities of teachers and graduates, keeping pace with modern developments, and urging the use of advanced methods in areas of specialization.

3. Working to establish strong joint scientific and research relations with the corresponding departments at the university and other universities by participating in seminars, courses and training workshops and investing in them to develop capabilities as well as mutual benefit in serving the public interest.

4. Program Accreditation

Ministry of Higher Education, Research and Scientific Affairs / Scientific Supervision and Evaluation Authority - Department of Quality Assurance and Academic Accreditation - Accreditation Department

5. Other external influences

Ministry of Higher Education, Research and Scientific Affairs / Scientific Supervision and Evaluation Authority - Department of Quality Assurance and Academic Accreditation - Accreditation Department

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	10	160-180	90%	
College Requirements	6	160-180	90%	
Department Requirements	6	160-180	90%	
Summer Training	1			
Other				

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

7. Expected learning outcomes of the program

Knowledge	
Teaching the student topics related to medical laboratory specializations.	Teaching the student topics related to medical laboratory specializations.
Skills	
2Preparing and using various methods used in medical laboratories.	Preparing and using various methods used in medical laboratories.
-Training the student on how to obtain forms from auditors for laboratory use.	-Training the student on how to obtain forms from auditors for laboratory use.
Ethics	
Interpreting the results obtained from the analysis and their consistency with the diagnosis of the case	Interpreting the results obtained from the analysis and their consistency with the diagnosis of the case

8. Teaching and Learning Strategies

Books, manuals, practical application, and searching in references and the Internet

9. Evaluation methods

1. Theoretical and practical tests.
2. Discussions.
3. Final exams.

10. Faculty

Faculty Members

Academic Rank Doctor teacher	Specialization Emergency		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
M.Sc.marwa ghanim	radiology	radiology			✓	
M.Sc.Hiba karim	radiology	radiology			✓	
M.Sc.milad ali	radiology	radiology			✓	
					✓	
					✓	
					✓	
					✓	
					✓	
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					✓	
					✓	
					✓	
					✓	
						✓
						✓
						✓

Professional Development
Mentoring new faculty members
New faculty members were directed to complete a teaching suitability test and entered training courses and workshops to develop their skills in teaching and scientific research.
Professional development of faculty members
Introducing faculty members into training courses and workshops to develop their skills in teaching and scientific research.

11. Acceptance Criterion

1-Central admission.

2- Scientific interview.

3- Preparatory school graduates are accepted exclusively in the scientific (biological)

stream.

4-Medical examination.

12. The most important sources of information about the program

Sources approved by the university (sectoral committee).
2- External sources and various books.
3- The Internet.

13. Program Development Plan

. 1- Vocational training in government or private laboratories recognized by health departments for two months

2- Field visits to government laboratories periodically.

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
First stage		Anatomy of skeleton	Basic	-	-	-		-	-	-		-	-	-	
		General physics	Basic	-	-	-		-	-	-		-	-	-	
		General physiology	Basic	-	-	-		-	-	-		-	-	-	
		Biology	Basic	-	-	-		-	-	-		-	-	-	
		General chemistry	Basic	-	-	-		-	-	-		-	-	-	
		Computer principles1	Basic	-	-	-		-	-	-		-	-	-	
		Human rights and democracy	Basic	-	-	-		-	-	-		-	-	-	
		English language	Basic	-	-	-		-	-	-		-	-	-	
		Anatomy of body systems	Basic	-	-	-		-	-	-		-	-	-	
		Physics of atom	Basic	-	-	-		-	-	-		-	-	-	

		Systemic physiology													
		Radiobiology													
		Principles of nursing	**Basic**	-	-	-		-	-	-		-	-	-	
		Computer principles2	**Basic**	-	-	-		-	-	-		-	-	-	
		Medical terminology		-	-	-		-	-	-		-	-	-	
		Arabic language	**Basic**	-	-	-		-	-	-		-	-	-	
Second stage		radiological equipment techniques	Basic	-	-	-		-	-	-		-	-	-	
		Radiographic techniques	**Basic**	-	-	-		-	-	-		-	-	-	
		radiological procedures	**Basic**	-	-	-		-	-	-		-	-	-	
		Radiological anatomy	**Basic**	-	-	-		-	-	-		-	-	-	
		Radio-Physics	**Basic**												
		radiation protection	**Basic**	-	-	-		-	-	-		-	-	-	
			Basic	-	-	-		-	-	-		-	-	-	

		Computed temography equipment	**Basic**	-	-	-		-	-	-		-	-	-	
		Radiographic techniques for lower limbs	**Basic**	-	-	-		-	-	-		-	-	-	
		Special radiological	**Basic**	-	-	-		-	-	-		-	-	-	
		Radiological anatomy	**Basic**	-	-	-		-	-	-		-	-	-	
		Physics of computed	**Basic**	-	-	-		-	-	-		-	-	-	
Third stage		equipment techniques	Basic	-	-	-		-	-	-		-	-	-	
		Radiographic techniques	**Basic**	-	-	-		-	-	-		-	-	-	
		radiological procedures	**Basic**	-	-	-		-	-	-		-	-	-	
		Radiological anatomy	**Basic**	-	-	-		-	-	-		-	-	-	
		General pathology	**Basic**	-	-	-		-	-	-		-	-	-	
		Physics of MRI	**Basic**	-	-	-		-	-	-		-	-	-	
		Biological radiation hazards	**Basic**	-	-	-		-	-	-		-	-	-	

		computer applications	**Basic**	-	-	-		-	-	-		-	-	-	
		Ultrasound equipment techniques	**Basic**												
		Radiographic techniques	**Basic**												
		radiological procedures	**Basic**												
		Radiological anatomy	**Basic**												
		Systemic pathology	**Basic**												
		Physics of ultasound	**Basic**												
		Computer applications	**Basic**												
Fourth stage		Computed tomography imaging	Basic	-	-	-		-	-	-		-	-	-	
		MRI principles	**Basic**	-	-	-		-	-	-		-	-	-	
		Abdominal ultrasound imaging	**Basic**	-	-	-		-	-	-		-	-	-	
		Medicine of internal diseases	**Basic**	-	-	-		-	-	-		-	-	-	

		Biostatistics and computer applications	**Basic**	-	-	-		-	-	-		-	-	-	
			Basic	-	-	-		-	-	-		-	-	-	
		Computed tomography imaging	**Basic**	-	-	-		-	-	-		-	-	-	
		MRI	**Basic**	-	-	-		-	-	-		-	-	-	
		Obstetrics and gynecologic ultrasound imaging	**Basic**												
		Medicine of surgical diseases	**Basic**												
		Professional ethics	**Basic**												
		Graduation project	**Basic**												

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

Course Description Form

1. Course Name:
Human biology
2. Course Code:
3. Semester / Year:
semester
4. Description Preparation Date:
5/4/2024
5. Available Attendance Forms:
Daily attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
60/3
7. Course administrator's name (mention all, if more than one name)
Name: mohammed ali jawad Email: mohammedali@sawauniversity.edu.iq
8. Course Objectives

Course Objectives

- The course objectives of human biology typically include
- understanding the structure and function of the human body, including organs, systems, and cells.
- exploring the mechanisms of human physiology and how they relate to health and disease.
- examining the principles of genetics and evolution as they apply to human biology; and fostering critical thinking skills through the analysis and interpretation of biological data and research. Additionally, the course may aim to cultivate an appreciation for interconnectedness of biological systems and their relevance to everyday life and societal issues.

9. Teaching and Learning Strategies	
Strategy	Teaching and learning strategies for human biology can vary depending on the audience, lev of understanding, and available resources. Here are some effective strategies: 1. Active learning: Incorporate activities that engage students actively in the learning proce such as case studies, group discussions, role-playing, and hands-on laboratory experiments. 2. Visual aids: Use diagrams, models, charts, and videos to illustrate complex concepts and processes in human biology. Visual aids help students better understand and remember the

material.
3. Real-world applications: Relate biological concepts to real-life situations, health issues, a current events to make the material more relevant and interesting to students.
4. Technology integration: Utilize online resources, interactive simulations, virtual labs, an educational apps to enhance learning and provide students with opportunities for self-paced exploration.
5. Differentiated instruction: Recognize and accommodate the diverse learning styles and abilities of students by providing multiple modes of instruction, such as auditory, visual, an kinesthetic approaches.
6. Formative assessment: Use quizzes, concept maps, exit tickets, and other formative assessment tools to monitor student progress, identify misconceptions, and provide timely feedback for improvement.
7. Collaborative learning: Encourage peer-to-peer collaboration through group projects, pe teaching, and cooperative learning activities, fostering communication skills and teamwork.
8. Inquiry-based learning: Promote curiosity and critical thinking by posing open-ended questions, guiding students to explore topics independently, and conduct research to find answers.
9. Scaffolded instruction: Break down complex topics into smaller, more manageable chun providing scaffolding and support as students build their understanding and skills progressively.
10. Reflection and metacognition: Encourage students to reflect on their learning process, articulate their understanding, and develop metacognitive strategies to become more self-directed learners.

By employing a combination of these strategies, educators can create engaging and effec learning experiences that facilitate a deeper understanding of human biology among student

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	knowledge	Introduction to Biology -History and General concepts of Biology -Cel theory -Comparing Prokaryotic and Eukaryotic Cells	Lectures, using blackboard, giving demonstrations,using diagrams and pictures,and learning using data show	Theoretical, practical/oral written exams(daily monthly) and scientific reports
2	2	knowledge	Introduction ot the Chemistry of Life -Cels chemistry and Chemical bonds -Water -pH, Salts and ions	= = = = = = =	= = = = = = =
3	2	knowledge	Biologically Important Molecules: -Carbohydrates -Lipids -Proteins -Nucleic Acids	= = = = = = =	= = = = = = =

5	2	knowledge	Introduction to Cel Structure and Function - Plasma Membrane, Passive transport, active transport, factors effect on permeability -Cytoplasm	= = = = = = =	= = = = = = =
6	2	knowledge	Introduction to Cell Structure and Function - Cytoskeleton -Microfilaments, Intermediate Filaments, Microtubules, Flage and Cilia	= = = = = = =	= = = = = = =
7	2	knowledge	Eukaryotic cell organelles: -Mitochondria (morphology, structure), -lysosomes (types, function.(	= = = = = = =	= = = = = = =
8	2	knowledge	Eukaryotic cell organelles: -Golgi complex (morphology, function(	= = = = = = =	= = = = = = =
9	2	knowledge	Eukaryotic cell organelles: -Endoplasmie reticulum (smooth &rough) and their function. -Vesicles and Vacuoles -Ribosome (protein synthesis.(	= = = = = = =	= = = = = = =
10	2	knowledge	Eukaryotic cell organelles: -The nucleus, nuclear envelope	= = = = = = =	= = = = = = =
11	2	knowledge	Eukaryotic cel organeles: Chromosome structure-changes (duplication, translocation, inversion(	= = = = = = =	= = = = = = =
12	2	knowledge	DNA Replication and protein synthesis -The structure of the DNA	= = = = = = =	= = = = = = =
13	2	knowledge	DNA Replication and protein synthesis -Transcription	= = = = = = =	= = = = = = =

14	2	knowledge	DNA Replication and protein synthesis -Translation	= = = = = = =	= = = = = = =
15	2	knowledge	introduction to Reproduction at the Cellular Levels -The Cel Cycle -Mitosis	= = = = = = =	= = = = = = =

11. Course Evaluation

Distribution of a score out of 100 according to the student's choice for daily preparation, daily, oral, and monthly exams, editing, reports, etc.
40 marks for annual work (15 first month exams in theory + practical + 15 second month exams in theory + practical) + 5 marks for important assignments and reports + 5 stages of assignments for theory and press reports
60 marks (25 marks final exam + 35 marks theoretical exam)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Not found
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Elizabeth o Grady, Jason Cashmore, Marsha, Carol Wismer(2018). Principles of Biology- An introduction Biological Concepts . second Edition. Peter Raven (2016) Biology. Elven Edition. VJ. Bekish, Yu.T. Nikulin (2006) Practical Book on Medical Biology.
Electronic References, Websites	

Course Description Form

1. Course Name:
General Chemistry
2. Course Code:
3. Semester / Year:
Semester 1
4. Description Preparation Date:
2023−2024
5. Available Attendance Forms:
Daily attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours (theoretical) + 2 hours (practical)
7. Course administrator's name (mention all, if more than one name)
Name: Assist Let. Ghasaq Farouq Hammeed Email: ghasaq@sawauniversity.edu.iq
8. Course Objectives

Course Objectives	- Introducing the student to chemistry - How to deal with chemicals - Detecting and separating substances and preparing standard solutions - Developing mathematical problem solving skills - Writing reports and data - Use laboratory tools and equipment
9. Teaching and Learning Strategies	
Strategy	1- Lecture, use of the blackboard and presentation 2- Demonstration (using graphs, pictures and educational films using a data projector) 3- Interactive discussion

1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	knowledge	Atom,molecular structure, chemical bonding	-Lecture, use of the blackboard and presentation -Demonstration (using graphs, pictures and educational films using a data projector) -Interactive discussion	Theoretical, practical/oral and written examinations (daily, monthly and midterm exam) and scientific reports
2	4	knowledge	Liquid mixture,buffer solusion	====	====
3	4	knowledge	Quantitative,qualitative analysis	====	====

4	**4**	knowledge	Molar,normal analysis	**====**	**====**
5	**4**	knowledge	Acids,base example	**====**	**====**
6	**4**	knowledge	Oxidation,reduction	**====**	**====**
7	**4**	knowledge	Hydrocarbon,alkene	**====**	**====**
8	**4**	knowledge	Alcohol.ketone,aldehyde, carboxylic acids	**====**	**====**
9	**4**	knowledge	carbohydrate	**====**	**====**
10	**4**	knowledge	Amine aryl amine	**====**	**====**
11	**4**	knowledge	biochemistry	**====**	**====**
12	**4**	knowledge	protein	**====**	**====**
13	**4**	knowledge	Suger,starches,fibers	**====**	**====**
14	**4**	knowledge	isomers	**====**	**====**
15	**4**	knowledge	electrochemistry	**====**	**====**

2. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

3. Learning and Teaching Resources

Required textbooks (curricular books, if any)	not available
Main references (sources)	1-Solutions for General Chemistry: Principles and Mod Applications 11th Ralph H. Petrucci, F. Geoffrey Herrin Jeffry D. Madura, Carey Bissonnette 2- Solutions for CHEMISTRY: The Molecular Nature Matter and Change 7th Martin S. Silberberg, Patricia Amateis
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Websites available on Google Chrome

Course description

Educational institution	Sawa private university
scientific department	radiology
Course Title	General Physics
Available attendance forms	one course
Semester/year	First 2023-2024
Number of study hours (total)	90
The date this description was prepared	3/4/2024

1. Course objectives

1. Learn the standard units of measurements.
2. Define the Electricity & Magnetism.
3. Know the Gravitation and Kinetic Energy.
4. Define the Work-energy relation.
5. Know the Conservative and neoconservative forces.
6. Define Momentum, Impulse and Collisions.
7. Define Periodic Motion.
8. State and explain the Dynamics of Rotational Motion.
9. Define the heat and pressure.

2. LEARNING OUTCOMES: By the end of this course, students will be able:

1. Provided with the foundations of scientific knowledge and skills in the technical field of radiology and its techniques .
2. Prepared to fully complete this rare specialty
3. It is used to work in radiology departments in Iraqi hospitals, where it can contribute and have an effective role in... Managing all scientific activities related to the management of medical devices.
4. Knowing and understanding how central radiation therapy for a patient works. Knowing and understanding how radiation devices work.

B - The skills objectives of the course.

1. He thinks on a correct scientific basis
2. Able to self-learn in his field of specialization
3. . He works to solve technical problems in a scientific and intellectual manner in his field of specialization

3. Teaching and learning methods
Presentation of lecture in PowerPoint format Show explanatory videos Presentation of sources at the end of a lecture
4. Evaluation methods
The exams. Students take exams, experiments, and conduct seminars
5. Graduation goals
1. Access to a greater amount of scientific sources. 2. Presenting the topics recently raised globally through a presentation with everyone's participation through it. 3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities
6. Teaching and learning methods
Books, manuals and practical application
7. Transferable general and qualifying skills (other skills related to employability and personal development).
1-Access to a greater amount of scientific sources. 2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.

3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method
1	4	Standered	**Standard units of measurements**	Theoretical	Tests
2	4	Humorous	**- Electricity** **–Magnetism**	Theoretical	Tests
3	4	Ulna	**Mechanics**	Theoretical	Tests
4	4	Radiuos and hands	**Newton's Laws of Motion** **Gravitational field** **Weight** **Friction** **force and acceleration**	Theoretical	Tests
5	4	Joint	**Momentum** **Impulse** **-Impulse and Collisions** **Impulse-momentum relation** **-Law of conservation of momentum**	Theoretical	Tests
6	4	Chest	**Work** **Energy** **Types of energy** **Energy Conservation**	Theoretical	Tests

7	4	Spines	**Work-energy relation** **Power** **Conservative and neoconservative forces** **Gravitational potential energy**	Theoretical	Tests
8	4	Pelvic	**Periodic Motion**	Theoretical	Tests
9	4	Lower limb	**Dynamics of Rotational Motion** **Moment of inertia** **Angular position, angular ,velocity** **angular acceleration** **Torque**	Theoretical	Tests
10	4	=	**Torque-angular acceleration relation** **Static equilibrium** **Rotational kinematics** **Work done by a torque**	Theoretical	Tests
11	4	=	**Rotational kinetic energy** **Angular momentum** **Static equilibrium experiments** **Rotational motion problems**	Theoretical	Tests
12	4	Cranium	**Damped and Driven oscillation** **Periodic Motion experiment**	Theoretical	Tests
13	4	=	**Gravitational potential energy** **Escape velocity**	-	-

14	4	=	**Heat, temperature** **Latent heat –** **Specific Heat** **Methods of heat transferring –**	-	-
15	4	=	**Gases** **Pressure volume, laws of pressure**	-	-

9. Reference

1. Radhi Al-Qurayshi and H. Qasim. AL-Mosawi "Radiation Physics and its applications in diagnostic radiological techniques", Middle Technical University (MTU), Iraq, (2015).
2. RF Farr and PJ Allisy-Roberts "Physics for Medical Imaging", Saunders, 4th edition (2001).
3. . 3-Stewart Carlyle Bushong, "Radiologic Science for Technologists Physics, Biology, and Protection" Elsevier, Inc., 7th edition, 2017.

Course description

Educational institution	Sawa private university
scientific department	radiology
Course Title	Physics of atom
Available attendance forms	one course
Semester/year	First 2023-2024
Number of study hours (total)	90
The date this description was prepared	3/4/2024

1. Course objectives

1. Define the atomic and Nuclear Structure.
2. Learn the types of the ionization radiation.
3. Know the mechanism of radiation interaction with matter.
4. Define the interaction scatter radiation with matter.
5. Discuss the types of attenuation coefficient.
6. Define nanotechnology science, types of nanomaterials synthesis, and their applications.
7. To inform students as to the importance of renewable energy in the energy mix required for generation within nations.
8. The students will acquire sharp knowledge on nanotechnology based alternate source of energy.
9. The students may work on advanced materials for renewable and green energy.

2. LEARNING OUTCOMES: By the end of this course, students will be able:

1. Provided with the foundations of scientific knowledge and skills in the technical field of radiology and its techniques .
2. Prepared to fully complete this rare specialty
3. It is used to work in radiology departments in Iraqi hospitals, where it can contribute and have an effective role in... Managing all scientific activities related to the management of medical devices.
4. Knowing and understanding how central radiation therapy for a patient works. Knowing and understanding how radiation devices work.

B - The skills objectives of the course.

1. He thinks on a correct scientific basis
2. Able to self-learn in his field of specialization
3. . He works to solve technical problems in a scientific and intellectual manner in his field of specialization

3. Teaching and learning methods

Presentation of lecture in PowerPoint format
Show explanatory videos
Presentation of sources at the end of a lecture

4. Evaluation methods

The exams. Students take exams, experiments, and conduct seminars

5. Graduation goals

1. Access to a greater amount of scientific sources.
2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.
3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

1-Access to a greater amount of scientific sources.
2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.
3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method
1	4	Standered	.**Atomic and Nuclear Structure**	Theoretical	Tests
2	4	Humorous	**Radioactive Decay** **Radioactive materials** **Activity** **Half life**	Theoretical	Tests
3	4	Ulna	**Types of radiation**	Theoretical	Tests
4	4	Radiuos and hands	**Classification of Radiation** **Electromagnetic Energy**	Theoretical	Tests
5	4	Joint	**Wave Model: Visible Light** **Particle Model: Quantum Theory Matter and energy** **Interactions of photons with matter** **Mechanisms of Energy Loss**	Theoretical	Tests

6	4	Chest	**Incoherent scattering** **Pair and triplet production** **Compton scattering by free electrons** **Scattering and energy transfer coefficients** **stopping power**	Theoretical	Tests
7	4	Spines	**Photon Attenuation Coefficients**	Theoretical	Tests
8	4	Pelvic	**Interactions of electrons with matter**	Theoretical	Tests
9	4	Lower limb	**Introduction of Nanomaterials**	Theoretical	Tests
10	4	=	**Synthesis Routes** **Bottom-Up Approaches** **Top-Down Approaches** **Applications of nanomaterials in medicine & biology**	Theoretical	Tests
11	4	=	**Nanotechnology in renewable energy systems** **Energy sector products using nanomaterials**	Theoretical	Tests
12	4	Cranium	**Nanotechnology to Hydrogen Production**	Theoretical	Tests
13	4	=	**Nanomaterials for the Conversion of Carbon Dioxide into Renewable Fuels and Value-Added Products**	-	-

14	4	=	**Nanomaterials and Direct Air Capture of CO2**	-	-
15	4	=	**Solar energy technology**	-	-

9. Reference

1. Perry Sprawls, "Physical principles of medical imaging", 2nd Edition 1996
2. Allisy-Roberts PJ, Williams J. Farr's "physics for medical imaging". Elsevier Health Sciences; 2007 Nov 14
3. Chris Guy & Dominic flytche "An Introduction to The Principles of Medical Imaging" Revised Edition, Imperial College Press, London, (2005).
4. Sang Hyun Cho, Sunil Krishnan, MD, "Cancer Nanotechnology Principles and Applications in Radiation Oncology". In: Imaging in medical diagnosis and Therapy, William R. Hendee Series Editor; Taylor & Francis Group, LLC (2013).

نموذج وصف المقرر

Course Description :

The most significant aspects of the course and the learning objectives that the student should accomplish are outlined in this course description, which also shows if the student has taken full use of the available learning possibilities. A connection to the program description is required.

1. المؤسسة التعليمية	Sawa University
2. القسم العلمي / المركز	Department of English Language
3. اسم / رمز المقرر	Grammar and Medical Terms الرمز
4. أشكال الحضور المتاحة	Whole Year
5. الفصل / السنة	First Year
6. عدد الساعات الدراسية (الكلي)	90
7. تاريخ إعداد هذا الوصف	25/3/2024
8. أهداف المقرر	
1 Study the basics of English Language as fundamental tool . 2 Study the medical terminology and how to read and translate 3 Study the sounds and pronunciation and its relation to medical terms	

10.مخرجات المقرر وطرائق التعليم والتعلم والتقييم

أ- الأهداف المعرفية

1Analyzing the basics of English language and parts of speech
2 Understanding the best way in translating

3 Reconstructed medical terms in easier way to translate it perfectly
4 Study of how can the reader understand Medical terms

ب - الأهداف المهاراتية الخاصة بالمقرر.

1 Clarify the English language and its basics briefly .
2 Study the differences between medical language and classical one.
3 Explain the practical side of member functions, purpose, and use.
4. Helping the reader to understand the construction of English Phrase.

طرائق التعليم والتعلم

1 Using whiteboard with some instructions
2 Demonstration (using the data show's instructional images and diagrams)
3 Engaging dialogue
4 Independent learning

طرائق التقييم

1 Student involvement in the lecture, seminars, and brief examinations. .
2 The theoretical subject is examined every three months. .

ج- الأهداف الوجدانية والقيمية

1. Pressuring students to find intellectual answers to problems in Language.
2. Hold intellectual contests including confrontations in English.
3. Placing students in a practical setting to motivate them to present more .
4. Pressuring students to compete with one another to advance in the course in order to receive grades and moral recognition.

طرائق التعليم والتعلم

1 Motivated the students to present a seminar in front of their classmates.

.

2 Using Educational behavior to attract the student to the lesson.
طرائق التقييم
Theoretical and Practical tests.
د - المهارات العامة والتأهيلية المنقولة (المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي). 1. Having more access to scientific sources. 2. Using a presentation that involves everyone's involvement to convey the issues that have lately come up internationally. 3. To help students grow as people and enhance their personalities, assign discussion circle leaders and have them give talks on scientific subjects.

1. بنية المقرر					
الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم
1	2	**Cardinal numbers , years , prices**	Grammar	Talk and make advantage o ckboard and recitation monstration (make use mages and diagrams) ucating via Datashow gaging conversation on self-education an open classroom on Google, rows	امتحانات نظرية وعملية /شفهية وتحريرية (يومية وشهرية) وتقارير علمية
2	2	**Phonetic of Alphabet letters and punctuation**	Grammar	Use data show to make Students listening to The sounds	======
3	2	**Arrange words and make full sentence**	Parts of speech	lk and make advantage of Blackboard and recitation monstration (make use of images and diagrams) Educating via Datashow Engaging conversation on	======

	self-education In an open classroom on Google, rows				
======	Write some Sentences and Making a question	Grammar	**Question Words**	2	4
======	----------	Grammar	**Abbreviation**	2	5
======	Writing full Sentences	Grammar	**Simple present tense**	2	6
======	----------	Grammar.	**Simple past tense**	2	7
======	----------	Grammar	**Present Continues**	2	8
======	----------	Grammar	**Possession**	2	9
======	Clarify the topic orally	Conjunction words	**Pronunciation**	2	10
======		Grammar	**Pronounces (all types)**	2	11
======	Teaching medical Term construction	Medical term	**Medical Terminology**	2	12
======	The way of Reading medicine	Medical term	**Language of medicine**	2	13
======	----------	----------, .	**Medical Terms**	2	14
======	Sounds of Medicine	----------	**Spelling of Medical Terms**	2	15
======	----------	----------:	**Pronunciation of medical terms**	2	16
======	tudy how to write Medical term	---------	**Suffixes and prefixes and root**	2	17
======	k and make antage of kboard and recitation onstration (make of images and diagrams) cating via Datashow aging conversation self-education	----------	**Body Structure**	2	18

19	2	**Planes of the body**	----------	----------	======
20	2	**Orienation and directional terms**	----------.	----------	======
21	2	**Body positions**	----------	----------	======
22	2	**Body Cavities**	----------	----------	======
23	2		.		======

2. تقييم المقرر

A student's mark is distributed out of 100 based on the activities they are assigned, which include daily preparation, oral, written, and monthly tests, as well as reports. ....

3. مصادر التعلم والتدريس

الكتب المقررة المطلوبة (المنهجية أن وجدت)	----------
المراجع الرئيسة (المصادر)	As mentioned below
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....).	Some scientific Websites
المراجع الإلكترونية ، مواقع الانترنيت	Google Chrome

11. البنية التحتية

1- الكتب المقررة المطلوبة	
2- المراجع الرئيسية (المصادر)	As mentioned above
ا- الكتب والمراجع التي يوصى بها (المجلات العلمية , التقارير ,....)	As mentioned above
ب - المراجع الالكترونية, مواقع الانترنيت	Some Academic websites like Academia and Research gate

12. خطة تطوير المقرر الدراسي

Course description

Educational institution	Sawa private university
scientific department	radiology
Course Title	Skeletal anatomy
Available attendance forms	two course
Semester/year	First 2023-2024
Number of study hours (total)	90
The date this description was prepared	3/4/2024

1. Course objectives

- ❖ Identify the anatomy of each body bones and how it works, describe its connection to the body's organs, nerves, and blood supply, and how to distinguish between them

2. LEARNING OUTCOMES: By the end of this course, students will be able:

1. Determine the structure and function of the skeletal system
2. Explain its role in the body
3. Differentiating between types of bones
4. Study of muscles, their types and functions
5. Identify the upper and lower skeletal system and the rib cage

B - The skills objectives of the course.

Study of the skeletal system, the bones that are connected to it, the muscles that are connected to the bones, and the bones of the face and skull

3. Teaching and learning methods
Presentation of lecture in PowerPoint format Show explanatory videos Presentation of sources at the end of a lecture
4. Evaluation methods
The exams. Students take exams, experiments, and conduct seminars
5. Graduation goals
1. Access to a greater amount of scientific sources. 2. Presenting the topics recently raised globally through a presentation with everyone's participation through it. 3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities
6. Teaching and learning methods
Books, manuals and practical application
7. Transferable general and qualifying skills (other skills related to employability and personal development).
1-Access to a greater amount of scientific sources. 2. Presenting the topics recently raised globally through a presentation with everyone's participation through it. 3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities
8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method
1	4	Standered	**Surface anatomy and anatomical position**	Theoretical	Tests

2	4	Humorous	**Sckeletal of upper limbs**	Theoretical	Tests
3	4	Ulna	**Humerous** **Radius and ulna**	Theoretical	Tests
4	4	Radiuos and hands	**The hands**	Theoretical	Tests
5	4	Joint	**Joints types and mechanical of movement**	Theoretical	Tests
6	4	Chest	**Sckeleton of chest**	Theoretical	Tests
7	4	Spines	**Vertebrae :** **Cervical, thoracic ,lumber, sacum and coccyx**	Theoretical	Tests
8	4	Pelvic	**Sckeleton of lower limbes pelvic girdl**	Theoretical	Tests
9	4	Lower limb	**Femur** **Tibia and fibula**	Theoretical	Tests
10	4	=	**The foot**	Theoretical	Tests

11	4	=	**Muscles of lower limbes**	Theoretical	Tests
12	4	Cranium	**Bones of skull**	Theoretical	Tests
13	4	=	**Facial bones**	-	-
14	4	=	**Para nasal nones**	-	-

9. Reference

1. Sugand, K., Abrahams, P., & Khurana, A. (2010). The anatomy of anatomy: a review for its modernization. Anatomical sciences education, 3(2), 83-93.
2. Martini, F., Timmons, M. J., Tallitsch, R. B., Ober,

Course description

Educational institution	Sawa private university
scientific department	radiology
Course Title	Skeletal anatomy
Available attendance forms	two course
Semester/year	2023-2024
Number of study hours (total)	90
The date this description was prepared	3/4/2024

1. Course objectives

- ❖ Identify the anatomy of each body systems and how it works, describe its connection to the body's organs, nerves, and blood supply, and how to distinguish between them

2. LEARNING OUTCOMES: By the end of this course, students will be able:

1. Determine the structure and function of the systems in the human body
2. Explain its role in the body
3. Differentiate between types of devices
4. Study of the body's systems, their types and functions
5. Identify each device and compare them

B - The skills objectives of the course.

Study every system and the organ that it have and the properties.

3. Teaching and learning methods

Presentation of lecture in PowerPoint format
Show explanatory videos
Presentation of sources at the end of a lecture

4. Evaluation methods

The exams. Students take exams, experiments, and conduct seminars

5. Graduation goals

1. Access to a greater amount of scientific sources.
2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.
3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

1-Access to a greater amount of scientific sources.
2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.
3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method
1	4	BR	**The mid brain hemisphere and vantricles**	Theoretical	Tests

2	4	BR	**The hind brain :the cebrum punes Medulla oblongata**	Theoretical	Tests
3	4	BR	**Menigies and spinal meneigies**	Theoretical	Tests
4	4	BR	**Cranial nerves**	Theoretical	Tests
5	4	Spines	**Lumber and sacral pluxes**	Theoretical	Tests
6	4	Lungs	**Respiratory system**	Theoretical	Tests
7	4	Coronary	**Cardiovascular system**	Theoretical	Tests
8	4	Stomach	**Digestive system**	Theoretical	Tests
9	4	Bowel	**Small and large intestine**	Theoretical	Tests
10	4	Bowel	**Liver ,pencrease and spleen**	Theoretical	Tests

11	4	Bladder	**Urinary system**	Theoretical	Tests
12	4		**The breast**	Theoretical	Tests
13	4		**The reproducted system Femal**	-	-
14	4		**Male**	-	-

9. Reference

1. Sugand, K., Abrahams, P., & Khurana, A. (2010). The anatomy of anatomy: a review for its modernization. Anatomical sciences education, 3(2), 83-93.
2. Martini, F., Timmons, M. J., Tallitsch, R. B., Ober,

Course description form

Course description:

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the program description.

Sawa National University / College of Health and Medical Technologies	1. Educational institution, **.1**
Radiology	Scientific Department/Center **.2**
Physiology 1/code	Name/code of the course **.3**
courses/daily attendance	Available forms of attendance: **.4**
First Semester/2023-2024	Semester/Year **.5**
160	Number of study hours (total): **.6**
2024/4/16	The date this description was prepared **.7**

Course objectives **1 .8**

1- Study the functions of the body's organs in detail.
2- Know the internal and external structure and shape of the body's members.
3- Distinguish between the functions of the body's organs.

Course outcomes and teaching, learning and evaluation methods **.10**

A.Cognitive objectives

1- Conducting the necessary medical analyzes and knowing the structure and function of body parts.
2- Understanding and studying the basic body organs.

.1

B.Course-specific skills objectives.

1-Clarify the mechanism of action of the body's systems.
2-Explain and work the practical side of member functions, purpose, and use.

.1

Teaching and learning methods

1- Lecture, use of the blackboard, and delivery
2- Demonstration (using diagrams and educational pictures using the datashow)
3- Interactive discussion
4- Self-education

-1

Evaluation methods

1. Student contributions during the lecture, presentation of seminars
2. Rapid exams with short time
3. Quarterly exams for theoretical and practical subjects.

C- Emotional and value goals

1. Urging students to solve intellectual questions.
2. Conduct intellectual competitions related to scientific material.
3. Putting students in a scientific and practical environment
4. Urging students to compete with each other to achieve advanced positions within the academic subject to obtain grades and moral awards.

.1

Teaching and learning methods

Books, notebooks, and the use of the Internet

Evaluation methods

Practical and theoretical tests

D - Transferable general and qualifying skills (other skills related to employability and personal development). 1. Access to a greater amount of scientific sources. 2. Presenting the topics recently raised globally through a presentation with everyone's participation through it. 3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities .1

Course structure .1					
Evaluation method	**Teaching method**	**Unit name**	**Education outcomes**	**Hours**	**Week**
Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Introduction to the respiratory system**	Knowledge	4	1
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**The study of the alveoli**	Knowledge	4	2
======	Knowledge Introduction to the respiratory system	**The study of the**	Knowledge	4	3

	Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**lungs**			
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Introduction to the renal system**	Knowledge	4	4
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using	**Study of the kidneys**	Knowledge	4	5

	Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Study of the body fluids**	Knowledge	4	6
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical,	**Introduction to the endocrine system**	Knowledge	4	7

	practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Study the endocrine system**	Knowledge	4	8
======	المحاضرة واستخدام Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Study the endocrine system**	Knowledge	4	9

======	المحاضرة واستخدام Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Hearing study and examination**	Knowledge	4	10
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Vision study and examination**	Knowledge	4	11
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation	**Oral structure . study**	Knowledge	4	12

	Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Oral structure .**	Knowledge	4	13
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion	**Study of the structure and functions of the gastrointestinal tract**	Knowledge ١	4	14

	self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Study of the structure and functions of the gastrointes .tinal tract**	Knowledge	4	15

Course evaluation .2

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

40 annual endeavor marks (10 first month exams + 10 second month exams + 2.5 daily exams + 2.5 daily and monthly student attendance and evaluations)

60 marks (20 marks final practical exam + 40 marks final theoretical exam)

Learning resources .3

Learning package in medical physiology –Designed by Dr. Rawaa adnan 2009-2010 Edition KD	Required textbooks

1- Elatine N.Marteb,R.N. (2006) . Essentials of Human Anatomy and Physiology(eight edition). 2- Memmler,Ruth Lundeen . (1990). structure and function of the human body (fourth edition) 3- Gerard j.Tortora , Nichdas p. Anagnostakos . (1987). Principles of anatomy and physiology (fifth edition)	Electronic references

Infrastructure .11	
Essentials of Medical Pharmacology Seventh Edition KD TRIPATHI MD Ex-Director-Professor and Head of Pharmacology, 2013 MEDICAL PHARMACOLOGY &THERAPEUTICS Fifth Edition Derek G. Waller BSc (HONS), DM MBBS (HONS), FRCP, University of Southampton, Southampton, United Kingdom	Required books -1
	-2

Course development plan .12
Add more technical skills through introducing more laboratory and analytical tests

Course description form

Course description:

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the program description.

Sawa National University / College of Health and Medical Technologies	1. Educational institution, **.1**
Radiology	Scientific Department/Center **.2**
Physiology 1/code	Name/code of the course **.3**
courses/daily attendance	Available forms of attendance: **.4**
First Semester/2023-2024	Semester/Year **.5**
160	Number of study hours (total): **.6**
2024/4/16	The date this description was prepared **.7**

Course objectives **1 .8**

1- Study the functions of the body's organs in detail.
2- Know the internal and external structure and shape of the body's members.
3- Distinguish between the functions of the body's organs.

Course outcomes and teaching, learning and evaluation methods **.10**

A.Cognitive objectives

1- Conducting the necessary medical analyzes and knowing the structure and function of body parts.
2- Understanding and studying the basic body organs.

.1

B.Course-specific skills objectives.

1-Clarify the mechanism of action of the body's systems.
2-Explain and work the practical side of member functions, purpose, and use.

.1

Teaching and learning methods

1- Lecture, use of the blackboard, and delivery
2- Demonstration (using diagrams and educational pictures using the datashow)
3- Interactive discussion
4- Self-education

-1

Evaluation methods

1. Student contributions during the lecture, presentation of seminars
2. Rapid exams with short time
3. Quarterly exams for theoretical and practical subjects.

C- Emotional and value goals

1. Urging students to solve intellectual questions.
2. Conduct intellectual competitions related to scientific material.
3. Putting students in a scientific and practical environment
4. Urging students to compete with each other to achieve advanced positions within the academic subject to obtain grades and moral awards.

.1

Teaching and learning methods

Books, notebooks, and the use of the Internet

Evaluation methods

Practical and theoretical tests

D - Transferable general and qualifying skills (other skills related to employability and personal development). 1. Access to a greater amount of scientific sources. 2. Presenting the topics recently raised globally through a presentation with everyone's participation through it. 3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities .1

Course structure .1					
Evaluation method	**Teaching method**	**Unit name**	**Education outcomes**	**Hours**	**Week**
Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Cell physiology**	Knowledge	4	1
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Nerve and muscle Microanatomy**	Knowledge	4	2
======	Knowledge Introduction to the respiratory system	**Nerves(types of**	Knowledge	4	3

	Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**nerves lungs**			
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Nerve (Types of muscles**	Knowledge	4	4
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using	**Nervous System**	Knowledge	4	5

	Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Nervous System**	Knowledge	4	6
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical,	**Nervous System**	Knowledge	4	7

	practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Red blood cells**	Knowledge	4	8
======	المحاضرة واستخدام Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**White blood cells**	Knowledge	4	9

======	المحاضرة واستخدام Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Blood groups on**	Knowledge	4	10
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Blood coagulation on**	Knowledge	4	11
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation	**Cardiovascular . system**	Knowledge	4	12

	Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Study of blood vesselse .**	Knowledge	4	13
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion	**Study of veins and arteries**	Knowledge ١	4	14

	self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports				
======	Knowledge Introduction to the respiratory system Lecture and use Blackboard and recitation Demo (Use diagrams and pictures Educational using Datashow) Interactive discussion self education Open rows on Google class room: Theoretical, practical/oral and written exams (daily and monthly) and scientific reports	**Cardiovascular . system**	Knowledge	4	15

Course evaluation .2

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.
40 annual endeavor marks (10 first month exams + 10 second month exams + 2.5 daily exams + 2.5 daily and monthly student attendance and evaluations)
60 marks (20 marks final practical exam + 40 marks final theoretical exam)

Learning resources .3

Learning package in medical physiology –Designed by Dr. Rawaa adnan 2009-2010 Edition KD	Required textbooks

1- Elatine N.Marteb,R.N. (2006) . Essentials of Human Anatomy and Physiology(eight edition). 2- Memmler,Ruth Lundeen . (1990). structure and function of the human body (fourth edition) 3- Gerard j.Tortora , Nichdas p. Anagnostakos . (1987). Principles of anatomy and physiology (fifth edition)	Electronic references

Infrastructure .11	
Essentials of Medical Pharmacology Seventh Edition KD TRIPATHI MD Ex-Director-Professor and Head of Pharmacology, 2013 MEDICAL PHARMACOLOGY &THERAPEUTICS Fifth Edition Derek G. Waller BSc (HONS), DM MBBS (HONS), FRCP, University of Southampton, Southampton, United Kingdom	Required books -1
	-2

Course development plan .12
Add more technical skills through introducing more laboratory and analytical tests

Course description

Educational institution	Sawa private university
scientific department	Radiology and Ultrasound
Course Title	Computer principles
Available attendance forms	Two course
Semester/year	Second/2023-2024
Number of study hours (total)	42+ First semester 42 Second Semester
The date this description was prepared	3/4/2024

1. Course objectives

To provide the student with the skills of dealing with basic office applications, creating office files and documents, and using operating systems

As well as the basics of working with the digital environment

2. LEARNING OUTCOMES: By the end of this course, students will be able:

A- Cognitive objectives

- - By giving theoretical classroom lectures and urging students to read a specific book in the subject, in addition to assigning students research assignments and/or office reports at the level of the first year of study.

B. The skills objectives of the course.

- The student's ability to operate a computer
- The extent of the student's ability to apply some basics
- Concerning computer priorities

To be able to apply application programs such as word processors, - Excel, etc

3. Teaching and learning methods

- Participation during the lecture.
- Semester and final exams and other classroom activities.
- Discussion with students
  - Adopting the homework method for students to solve exercises while evaluating their solutions in the classroom

4. Evaluation methods

- Participation during the lecture
- Discussion with students

Theoretical, practical, midterm and final tests in addition to reports -

5. Graduation goals

Guiding the student how to use the computer in a manner compatible - with his cultural level
.Directing the student how to deal with social sites -
- Building a generation capable of keeping pace with modern life and its electronic requirements

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

Enabling the student to practice office work using a computer -
- Enabling the student to deal with the computer, manage the Windows system, and be able to write articles, reports, and research..

8. Course structure

weak	Hour	Required learning outcomes	Computer basics and computer concepts Areas of computer use, its features, and classification in terms of size, purpose of use, and type of data.	Teaching method	Evaluation method
2+1		Study, knowledge and practical application	The physical components of the computer and the software entity of the computer Desktop, Start menu and taskbar components	Theoretical	Tests

			Folders, files and icons Performing operations on windows and desktop backgrounds		
4+3	4	Study, knowledge and practical application	Personal computer, software security concept, and software licenses Ethics of the electronic world, computer security and privacy Computer software licenses and their types, intellectual property, electronic hacking, malware The most important steps necessary to protect against hacking operations and the harmful effects of computers on health	Theoretical	Tests
6+5	4	Study, knowledge and practical application	Control of the operating system, its components and combinations Delete and install programs	Theoretical	Tests
8+7	4	Study, knowledge and practical application	Some common conditions and settings in the computer Managing the printer, setting the time and date, maintaining the initial disks.	Theoretical	Tests
10+9	4	Study, knowledge and practical application	Microsoft 2010 Run Microsoft 2010 program The program interface Main tabs	Theoretical	Tests

1+112	4	Study, knowledge and practical application	home tab View tab Page Layout tab	Theoretical	Tests
1+134	4	Study, knowledge and practical application	Insert objects and tables Set of text and symbols Plugin objects in WordPress	Theoretical	Tests
Second Semester	4	Study, knowledge and practical application	Computer operating systems Operating Systems OS	Theoretical	Tests
2+1	4	Study, knowledge and practical application	Windows environment	Theoretical	Tests
4+3	4	Study, knowledge and practical application	Windows system settings	Theoretical	Tests
6+5	4	Study, knowledge and practical application	(Icons)	Theoretical	Tests
8+7	4	Study, knowledge and practical application	Files and folders (Files and Folders)	Theoretical	Tests

10+9	4	Study, knowledge and practical application	Firewall and antivirus	Theoretical	Tests
1+112	4	Study, knowledge and practical application	Control Panel	Theoretical	Tests

9. Reference

1. Computer Basics and Office Applications Book, Part One, written by A.M.D. Ziad Muhammad Abboud and others – – – 2014.
2. Computer and ready-made software book Basic Skills, written by Dr. Muhammad Bilal Al-Zoghbi and others – – – 2013.

نموذج وصف المقرر

وصف المقرر: يمكن الاستفادة مما يلي:

يوفر وصف المقرر هذا إيجازاً مقتضياً لأهم خصائص المقرر ومخرجات التعلم المتوقعة من الطالب تحقيقها مبرهناً عما إذا كان قد حقق الاستفادة القصوى من فرص التعلم المتاحة. ولابد من الربط بينها وبين وصف البرنامج.؛

1. المؤسسة التعليمية	جامعة ساوة
2. القسم العلمي / المركز	التربية
3. اسم / رمز المقرر	اديان مزهر محمد
4. أشكال الحضور المتاحة	سنة كاملة
5. الفصل / السنة	- المرحلة - الأولى
6. عدد الساعات الدراسية (الكلي)	30
7. تاريخ إعداد هذا الوصف	17\9\2023
8. أهداف المقرر 9. الرصد والتحقيق والتحليل لحالة حقوق الانسان 10. اصدار التقارير بشان قضايا حقوق الانسان 11. معرفة حقوق الانسان في القوانين 12. منع انتهاكات حقوق الانسان	

10. مخرجات المقرر وطرائق التعليم والتعلم والتقييم

طرائق التعليم والتعلم
دراسة حقوق الانسان في القوانين
طرائق التقييم
الاختبارات النظرية والكوزات اليومية والتقارير العلمية
ج- الأهداف الوجدانية والقيمية ج1- اعداد خريجات قادرات على فهم حقوق وواجبات الانسان التمكين والاسهام وتعزيز حقوق الانسان لدى الافراد والدولة
طرائق التعليم والتعلم
الكتب والملازم والتطبيق النظري
طرائق التقييم
الاختبارات النظرية

د - المهارات العامة والتأهيلية المنقولة (المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي).

د1- قدرة الطالبات على كتابة التقارير الخاصة بحقوق الانسان

11. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة / أو الموضوع	طريقة التعليم	طريقة التقييم
1	12	**مفهوم حقوق الانسان**	**مفهوم حقوق الانسان**	نظري	الاختبارات
2	12	**الحق الطبيعي – والحق الوضعي**	**الحق الطبيعي – والحق الوضعي**	نظري	الاختبارات
	12	**حقوق الانسان في القانون**	**حقوق الانسان في القانون**		
3	12	**تعريف حقوق الانسان**	**تعريف حقوق الانسان**	نظري	الاختبارات
4	12	**صفات حقوق الانسان**	**صفات حقوق الانسان**	نظري	الاختبارات
5	12	**الحقوق الاساسية وغير الاساسية**	**الحقوق الاساسية وغير الاساسية**	نظري	الاختبارات
6	12	**الحقوق الفردية والحقوق الجماعية**	**الحقوق الفردية والحقوق الجماعية**	نظري	الاختبارات
7	12	**الحقوق الاقتصادية والاجتماعية والثقافية**	**الحقوق الاقتصادية والاجتماعية والثقافية**	نظري	الاختبارات
8	12	**طائفة حقوق التضامن**	**طائفة حقوق التضامن**	نظري	الاختبارات
9	12	**فئات حقوق الانسان**	**فئات حقوق الانسان**	نظري	الاختبارات
10	12	**التطور التاريخي لحقوق الانسان –المرحلة العرفية– المرحلة القانونية –المرحلة الدستورية**	**التطور التاريخي لحقوق الانسان –المرحلة العرفية– المرحلة القانونية –المرحلة الدستورية**	نظري	الاختبارات
11	12	**حقوق الانسان في الحضارات القديمة**	**حقوق الانسان في الحضارات القديمة**	نظري	الاختبارات
12	12	**قانون اورنمو – قانون لبت عشتار– قانون مملكة اشنونا – قانون حمورابي**	**قانون اورنمو – قانون لبت عشتار– قانون مملكة اشنونا – قانون حمورابي**	نظري	الاختبارات
13	12	**حقوق الانسان في الحضارات القديمة الاخرى – الحضارة اليونانية – الحضارة الفرعونية**	**حقوق الانسان في الحضارات القديمة الاخرى – الحضارة اليونانية – الحضارة الفرعونية**	نظري	الاختبارات
14	12	**حقوق الانسان في العصور الوسطى**	**حقوق الانسان في العصور الوسطى**	نظري	الاختبارات

15	12	حقوق الانسان في الشرائع لسماوية – الديانة اليهودية – الديانة المسيحية – الشريعة الاسلامية	حقوق الانسان في الشرائع لسماوية – الديانة اليهودية – الديانة المسيحية – الشريعة الاسلامية	نظري	الاختبارات
16	12	حقوق الانسان في الاسلام –حقوق عامة – حقوق خاصة	حقوق الانسان في الاسلام –حقوق عامة – حقوق خاصة	نظري	الاختبارات
17	12	خصائص ومميزات حقوق الانسان	خصائص ومميزات حقوق الانسان	نظري	الاختبارات
18	12	القواعد الضامنة والحاكمة التي كفلها التشريع الاسلامي لحفظ وصيانة حقوق الانسان	القواعد الضامنة والحاكمة التي كفلها التشريع الاسلامي لحفظ وصيانة حقوق الانسان	نظري	الاختبارات
19	12	حقوق الانسان في مجتمعات عصر النهضة والعصور الحديثة والمعاصرة	حقوق الانسان في مجتمعات عصر النهضة والعصور الحديثة والمعاصرة	نظري	الاختبارات
20	12	مساهمة المفكرين في نظرياتهم لحقوق الانسان – هوبز– جون لوك – روسو – فولتير – مونتيسكو	مساهمة المفكرين في نظرياتهم لحقوق الانسان – هوبز– جون لوك – روسو – فولتير – مونتيسكو	نظري	الاختبارات
21	12	ميثاق عصبة الامم لحقوق الانسان 1914-1918	ميثاق عصبة الامم لحقوق الانسان 1914-1918	نظري	الاختبارات
22	12	ميثاق الامم المتحدة لحقوق الانسان 1945	ميثاق الامم المتحدة لحقوق الانسان 1945	نظري	الاختبارات
23	12	الاعلان العالمي لحقوق الانسان عام 1948	الاعلان العالمي لحقوق الانسان عام 1948	نظري	الاختبارات
24	12	حقوق الانسان الاساسية التي وردت في الاعلان العالمي لحقوق الانسان	حقوق الانسان الاساسية التي وردت في الاعلان العالمي لحقوق الانسان	نظري	الاختبارات
25	12	العهد الدولي للحقوق المدنية والسياسية	العهد الدولي للحقوق المدنية والسياسية	نظري	الاختبارات

26	12	**العهد الدولي للحقوق الاجتماعية والاقتصادية والثقافية**	**العهد الدولي للحقوق الاجتماعية والاقتصادية والثقافية**	نظري	الاختبارات
27	12	**المواثيق الدولية لحقوق الانسان – المواثيق الاقليمية لحقوق الانسان**	**المواثيق الدولية لحقوق الانسان – المواثيق الاقليمية لحقوق الانسان**	نظري	الاختبارات
28	12	**الميثاق العربي لحقوق الانسان واعلان المؤتمر الاسلامي عام 1990**	**الميثاق العربي لحقوق الانسان واعلان المؤتمر الاسلامي عام 1990**	نظري	الاختبارات
29	12	**المنظمات غير الحكومية المدافعة عن حقوق الانسان**	**المنظمات غير الحكومية المدافعة عن حقوق الانسان**	نظري	الاختبارات
30	12	**منظمة العفو الدولية**	**منظمة العفو الدولية**	نظري	الاختبارات
31	12	**اللجنة الدولية للصليب الاحمر**	**اللجنة الدولية للصليب الاحمر**	نظري	الاختبارات
32	12	**المنظمة العربي لحقوق الانسان**	**المنظمة العربي لحقوق الانسان**	نظري	الاختبارات

12. البنية التحتية	
1- الكتب المقررة المطلوبة حقوق الانسان الاستاذ الدكتور حميد حنون خالد	
2- المراجع الرئيسية (المصادر)	نفس المذكورة اعلاه
ا- الكتب والمراجع التي يوصى بها (المجلات العلمية , التقارير ,....)	المصادر المذكورة اعلاه تفي بالغرض
ب - المراجع الالكترونية, مواقع الانترنيت	

13. خطة تطوير المقرر الدراسي
نعتمد على مفردات من اللجنة القطاعية

Course description

Educational institution	Sawa private university
scientific department	Radiological Technique
Course Title	Radiation Physics
Available attendance forms	One course
Semester/year	Second/2023-2024
Number of study hours (total)	90
The date this description was prepared	15/4/2024

1. Course objectives

- *Providing students with knowledge of the basic concepts of the Radiation Physics Students' knowledge of the imaging equipment's and imaging processing* .

- Students' *ability to conduct patient imaging and use* equip*ment* and imaging processing

2. LEARNING OUTCOMES: By the end of this course, students will be able:

Cognitive objectives

1.Describe and illustrate the basic physics of the ray projection.
2.Describe the scan-and step slice acquisition method and the general characteristics of the data sets it produces.
3.Describe the helical/spiral volume acquisition method and the general characteristics of the data set it produces.
4.Describe and illustrate the general concept of the back-projection method of image reconstruction.
5.Explain the reconstruction methods.
Illustrate the concept of voxels that are formed during image reconstruction.

6.Describe and illustrate the general range of CT numbers for tissue and materials in a human body.
Explain how windowing contributes to high contrast sensitivity.

3. Teaching and learning methods

Presentation of lecture in PowerPoint format
Show explanatory videos
Presentation of sources at the end of a lecture

4. Evaluation methods

The exams. Students take exams, experiments, and conduct seminars

5. Graduation goals

Preparing graduates capable of understanding imaging processing in CT scan imaging for the patient

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

Students' ability to use CT scan, how to do the scan for the patient , and produce imaging and able to illustrate the image.

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method
1		Introduction and overview	Introducing students to CT scan	Theoretical	Tests

2	4	Basic Physics	Projected ray Radiation attenuation Energy Dependence	Theoretical	Tests
3	4	CT numbers: Accuracy & uniformity	Hounsfield unit, scale	Theoretical	Tests
4	4	CT image Windowing	Window width and level	Theoretical	Tests
5	4	Data Acquisition	basic concepts for data acquisition sampling	Theoretical	Tests
6	4	Data Acquisition GeometriesData acquisition in:	- first generation Scanners - second generation Scanners - third generation Scanners - fourth generation scanners	Theoretical	Tests
7	4	Fifth generation Scanners	- Spiral-Helical Geometry - Dual source CT Scanner	Theoretical	Tests
8	4	CT scan	Multislice Computed Tomography (MSCT)	Theoretical	Tests
9	4	Data Processing	Image reconstruction Views	Theoretical	Tests

10	4	Data Flow in a CT Scanner	- Sequence of Events	Theoretical	Tests
11	4	Image processing	Image Display, Storage, and Communication	Theoretical	Tests
12	4	Format the CT image,	image matrix Voxel	Theoretical	Tests
13	4	Field Of View (FOV) in CT: :	Display field of view (DFOV) Scan field of view (sFOV)	Theoretical	Tests
14	4	CT scan	Basic CT scan Physics	Theoretical	Tests
15	4	Image	Image axes	Theoretical	Tests

9. Reference

1. M. Radhi Al-Qurayshi and H. Qasim. AL-Mosawi "Radiation Physics and its applications in diagnostic radiological techniques", Middle Technical University (MTU), Iraq, (2015).

2. W. R. Hendee and E. R. Ritenour "Medical Imaging Physies", 4" Edition, Wiley-Liss, Inc.,
(2002).

3. Stewart Carlyle Bushong, "Radiologic Science for Technologists Physics, Biology, and
Protection" Elsevier, Inc., 7' edition, 2017.

4. Chris Guy & Dominic ffytche, "An Introduction to The Principles of Medical Imaging", Imperial College Press, 2005.

5. Perry Sprawls, "Physical principles of medical imaging", 2" Edition 1996.

Euclid Seeram, " Computed tomography: physical principles, clinical applications, and quality control 4" edition, Elsevier Inc. 2016..

Course description

Educational institution	Sawa private university
scientific department	Radiological Technique
Course Title	Radiological procedures
Available attendance forms	One course
Semester/year	Second/2023-2024
Number of study hours (total)	90
The date this description was prepared	15/4/2024

1. Course objectives

- *Providing students with knowledge of the Special radiological procedures of biliary and reproductive system*
- *Students' knowledge of the procedures and how to prepare patient for them and what the contraindication and indication .*
- Students' *ability to* avoid the complication for these procedures

2. LEARNING OUTCOMES: By the end of this course, students will be able:

A- Cognitive objectives

A1- Introduction to the Special radiological procedures of biliary and reproductive system
A2- Knowing the Technique and Equipment for each procedure
A3- To teach the students how to perform the radiological examination of the biliary and reproductive

B. The skills objectives of the course.
B1 - Knowledge of procedure, contrast media that used
B2 - How to do the procedure and prepare patient for it

3. Teaching and learning methods

Presentation of lecture in PowerPoint format
Show explanatory videos
Presentation of sources at the end of a lecture

4. Evaluation methods

The exams. Students take exams, experiments, and conduct seminars

5. Graduation goals

Preparing graduates capable of conducting various radiological procedures of biliary and reproductive system

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

Students' ability to use radiological procedures of biliary and reproductive system ,indication ,contraindication, technique and complication

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method
1		hepatobiliary system	Methods of imaging of hepatobiliary system	Theoretical	Tests

2	4	liver, gall bladder and biliary system	U/S of the liver, gall bladder and biliary system	Theoretical	Tests
3	4	liver and biliary tree	CT for the liver biliary tree	Theoretical	Tests
4	4	liver	MRI of the liver	Theoretical	Tests
5	4	biliary system	Intraoperative & postoperativeT-tube ,cholangeography	Theoretical	Tests
6	4	biliary system	Biliary drainage	Theoretical	Tests
7	4	urinary tract	Methods of imagings of urinary tracts, excretion urography	Theoretical	Tests
8	4	urinary tract	CT scan of the urinary tract.	Theoretical	Tests
9	4	urinary tract	MRI of the urinary tract.	Theoretical	Tests
10	4	urinary tract	Micturating cystourethrography	Theoretical	Tests

11	4	urinary tract	Ascending urethrography in the male	Theoreti cal	Tests
12	4	urinary tract	Retrograde pylouretrography Hystrosalpingography	Theoreti cal	Tests
13	4	urinary tract	Precutaneous nephrostomy & nephrolithotomy.	Theoreti cal	Tests
14	4	reproducti ve system	Methods of imagings of male & femals reproductive system.	Theoreti cal	Tests
15	4	reproducti ve system	CT & MRI of the reproductive system.	Theoreti cal	Tests

9. Reference

1.Watson, N. & Jones, H. chapman& Nakielnys "Guide to Radiological procedures", 7 edition, Elsevier Health Sciences, 2017.

Course description

Educational institution	Sawa private university
scientific department	radiology
Course Title	CT scan techniques
Available attendance forms	One course
Semester/year	Second/2023-2024
Number of study hours (total)	90
The date this description was prepared	3/4/2024

1. Course objectives

- ❖ Identifying the regular x-ray device, the most prominent cases that have occurred in the past, and studying the components of the device and its various types

2. LEARNING OUTCOMES: By the end of this course, students will be able:

1. Determine the structure and function of the helical separator
2. Explain his role in examinations
3. Differentiate between different types of tests
4. Study the factors that increase its superior diagnostic ability
5. Identify the most prominent factors that contribute to the inaccuracy of tests
6. How to control problems facing examinations

B - The skills objectives of the course.
Studying the characteristics of each examination and the main components of the device, explaining the function of each component and its role in producing x-rays, and how to capture the signal from the patient, store it, and transform it into digital data interpreted in an

accurate scientific manner.

3. Teaching and learning methods

Presentation of lecture in PowerPoint format
Show explanatory videos
Presentation of sources at the end of a lecture

4. Evaluation methods

The exams. Students take exams, experiments, and conduct seminars

5. Graduation goals

Preparing graduates capable of working with xray equipments and knowing about the problem that occur during the study of patients and know about the combonent of equipments

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

1-Access to a greater amount of scientific sources.
2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.
3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method

1	4		**History of Computed Tomography** **Limitations of conventional radiography**	Theoretical	Tests
2	4		• **Basic principles of CT Scanners : Generations of CT** **– First-generation** **– Second-generation** **– Third-generation** **– Fourth-generation** **– Fifth-generation CT , electron beam (EBCT)**	Theoretical	Tests
3	4		**Helical/spiral CT Scanners: Requirements for Volume Scanning** **slip-ring teccnolgy** **dual source**	Theoretical	Tests
4	4		**Interpolation Algorithms** **– Pitch**	Theoretical	Tests
5	4		**Multislice Computed Tomography (MSCT) (multidetector-row) CT**	Theoretical	Tests
6	4		• **CT system design: (SSCT & MSCT)**	Theoretical	Tests
7	4		**X-Ray imaging system (gantry):** **– X-Ray Tube , X-Ray tubes in MSCT (Straton x-ray tube)**	Theoretical	Tests
8	4		**Collimation,** **– Filtration** **– Detector: Detector Characteristics & types**	Theoretical	Tests

9	4		**Control Console** **• Computer system: image display, recording, storage, and communication system.**	Theoretical	Tests
10	4		**:Reconstruction methods** **□ Backprojection reconstruction** **□ Filtered Backprojection**	Theoretical	Tests
11	4		**□ Iterative reconstruction** **:CT image quality** **□ Image contrast** **□ Spatial resolution**	Theoretical	Tests
12	4		**Image noise**	Theoretical	Tests
13	4		**:Image artifacts** **Types and causes** **Common artifacts and correction techniques**	-	-
14	4		**Positron Emission** **(Tomography/CT (PET/CT** **Single-Photon Emission/ CT** **((SPECT/CT**	-	-
15	4		**□ Advanced technical CT** **:applications** **□ CT Angiography** **□ Cardiac CT Imaging** **□ CT fluoroscopy**	-	-

9. Reference

1. Stewart Carlyle Bushong, ***"Radiologic Science for Technologists Physics, Biology, andProtection"*** Elsevier, Inc. , 7th edition, 2017.

2. Chris Guy & Dominic ffytche, ***"An Introduction to The Principles of Medical Imaging"*** ,Imperial College Press, 2005.

3. Perry Sprawls, ***"Physical principles of medical imaging"***, 2nd Edition 1996.

4. J. Hsieh, ***"Computed Tomography: Principles, Design, Artifacts, and Recent Advances"***,2nd ed.Wiley Inter-science, Bellingham, Washington, USA, (2009)

Course description

Educational institution	Sawa private university
scientific department	radiology
Course Title	Convetional x ray equipments
Available attendance forms	One course
Semester/year	first/2023-2024
Number of study hours (total)	90
The date this description was prepared	3/4/2024

1. Course objectives

- ❖ Identifying the regular x-ray device, the most prominent cases that have occurred in the past, and studying the components of the device and its various types

2. LEARNING OUTCOMES: By the end of this course, students will be able:

1. Determine the structure and function of the helical separator
2. Explain his role in examinations
3. Differentiate between different types of tests
4. Study the factors that increase its superior diagnostic ability
5. Identify the most prominent factors that contribute to the inaccuracy of tests
6. How to control problems facing examinations

B - The skills objectives of the course.
Studying the characteristics of each examination and the main components of the device, explaining the function of each component and its role in producing x-rays, and how to capture the signal from the patient, store it, and transform it into digital data interpreted in an

accurate scientific manner.

3. Teaching and learning methods

Presentation of lecture in PowerPoint format
Show explanatory videos
Presentation of sources at the end of a lecture

4. Evaluation methods

The exams. Students take exams, experiments, and conduct seminars

5. Graduation goals

Preparing graduates capable of working with xray equipments and knowing about the problem that occur during the study of patients and know about the combonent of equipments

6. Teaching and learning methods

Books, manuals and practical application

7. Transferable general and qualifying skills (other skills related to employability and personal development).

1-Access to a greater amount of scientific sources.
2. Presenting the topics recently raised globally through a presentation with everyone's participation through it.
3. Have students lead discussion circles as well as provide presentations on scientific subject topics to develop and strengthen their personalities

8. Course structure

weak	Hour	Required learning outcomes	Name of the unit/subject	Teaching method	Evaluation method

1	4	Control room	**X ray console And operating console**	Theoretical	Tests
2	4	Power	**High voltage generator**	Theoretical	Tests
3	4	Cathode and anode	**X ray tube design**	Theoretical	Tests
4	4	Disorder	**X ray tube failure causes and results**	Theoretical	Tests
5	4	Decreasei ng the low energy	**Filters and scatter and how to reduce scatter radiation**	Theoretical	Tests
6	4	=	**Grid and its types focus , linear and crossed**	Theoretical	Tests
7	4	=	**CR mechanism**	Theoretical	Tests
8	4	=	**DDR mechanism**	Theoretical	Tests
9	4	Resolutio n	**Image quality Noise Contrast Resolution**	Theoretical	Tests

10	4	Mammo	**Mammography types and equipments**	Theoretical	Tests
11	4	New design	**Flouroscoopy**	Theoretical	Tests
12	4	Measure bone density	**DXA scan bone desity scan**	Theoretical	Tests

9. Reference

Stewart Carlyle Bushong, "Radiologic Science for Technologists Physics, .Biology, and Protection" Elsevier, Inc. , 7th edition, 2017

Chris Guy & Dominic ffytche, "An Introduction to The Principles of .2

.Medical Imaging" , Imperial College Press, 2005

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J. Hsieh, "Computed Tomography: Principles, Design, Artifacts, and .4

Recent Advances", 2nd ed. Wiley Inter-science, Bellingham, Washington, (USA, (2009

5. Euclid Seeram, " Computed tomography : physical principles, clinical applications, and quality control" 4th edition, Elsevier Inc. 2016.