Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority
Department of Quality Assurance and Academic Accreditation
Accreditation Department

Program Description Guide and Academic Course for the Medical Physics Department

2024

Introduction |

The educational program is a coordinated and organized package of courses that include procedures and experiences organized in the form of academic vocabulary whose main purpose is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market, which is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program>
The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that are being worked on to acquire for students based on the objectives of the academic program, and the importance of this description is evident because it represents the cornerstone in obtaining program accreditation and is written jointly by the teaching staff under the supervision of the scientific committees in the scientific departments

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

Concepts and terminology

Academic Program Description: The description of the academic program 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 student to achieve, proving whether he has made the most of the available learning opportunities. It is derived .from the description of the program

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

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

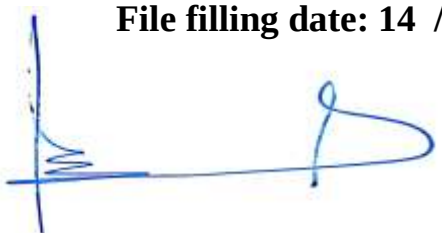
Curriculum Structure: All courses/subjects included in the academic program according to the approved (learning system (semester, yearly, track

Bologna) whether it is a requirement (ministry, university, college and scientific department) with the number of study units

Learning Outcomes: A compatible set of knowledge, skills and values acquired by the student 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 member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals. That is, describe all classroom and extra-curricular activities to achieve the learning outcomes of the progrm

University Name
Faculty/Institute: Elm City University College
Scientific Department: Department of Medical Physics Sciences
Academic or Professional Program Name: Academic Program of the Department of Medical Physics Sciences
Final Certificate Name: Bachelor of Science in Medical Physics
Academic System: Semester
Date of preparation of the description:14 / 4/2021
File filling date: 14 /4/2024



Signature:
Head of Department Name: : Eng. Dr. Walid Nassar
Date: 7 / 4 / 2024 .

Signature:
Scientific Associate Name: Asst.Prof.Dr.Saeed slman kamoon
Date: 7 / 4 / 2024 .

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department: Khawlah saadoon Taher
Date : 7 / 4 / 2024 .
Signature :

Approval of the Dean
Prof.Dr.Faris abdulkarem khazaal
10 / 4 / 2024 .

Academic Program Description Form

Program Vision
The Department of Medical Physics at the University College of Elm City is keen to consolidate the scientific excellence of the students of the department and to emphasize modern information and knowledge in the various fields of medical physics, and the department also seeks to develop the skills and individual experiences of students to achieve a better career future, and thus the department contributes to the performance of the academic mission that the Department of Medical Physics aspires to. The department also aims at excellence and quality at the local and international levels in the fields of education, .scientific research and community service

Program Mission
Through its mission, the Department of Medical Physics seeks to prepare and prepare students who are scientifically and practically capable in the various fields of medical physics and focus on the aspect of teaching skills and meet quality standards in preparing and qualifying distinguished graduates at the local and regional levels through the development of programs and courses and interaction with Iraqi and international universities. As well as seeking to provide sober and advanced scientific research that serves the local, regional and international .environment

Program Objectives
Preparing female owners in the field of medical physics sciences, which is responsible for studying the country's need in

Development and progress and able to meet the needs of the labor market ،in the state health institutions and industrial sectors

And preparing an educated generation armed with science and adopting a sound basis and putting scientific knowledge sound to bring about radical changes

And the scientific method of thinking and analysis in the service of the goals of the country is able to pursue his higher studies and adapt

With the development of medical technologies in order to keep pace with .the expansion of human needs

The academic program aims to apply the principles and methods of -(.physics to diagnose diseases

The practice of modern medicine relies effectively on a significant .number of techniques and tools

And physical principles have led to the urgent need for accuracy in the methods of diagnosis and treatment and improve their performance

And to the continuous development of physical techniques and tools used in this to the emergence of physics specialization

.Medical

Preparing cadres to supply the Ministry of Health and the Ministry of -٢ Environment to work in the fields of diagnosis and treatment of patients of departments

.Cancerous tumors

Balance in focusing on the principles of theoretical and applied medical - physics, and work to provide students with tools

Analytical, experimental, computational, mathematical and methodological means to identify medical problems

Formulating and solving them and focusing on introducing modern

methods into the learning system that increase students' ability to

Design, creativity and innovation in the field of medical devices and .equipment

and provide self-education and continuing education

to the community and spread medical knowledge in the public and private sectors through short courses, workshops

Work, seminars, conferences, consultations, lectures. And upgrading the level of medical studies

In the scientific and research field and providing its various requirement .in proportion to the needs of the country

Providing a suitable academic climate for study and research to contribute to finding solutions to medical problems using technologies -٥

Appropriate and appropriate through courses that provide a strong foundation in the aspect of mathematics and health physics

And its medical applications in addition to the effective contribution to deepening and documenting the university's relationship with the community through

Implementation of consulting work, training and development of .teaching and administrative staff

Program Accreditation
No

Other external influences
Field visits, practical part, scientific consultations

Program Structure				
Program Structure	Number of Courses	Unit of study	Percentage	*Reviews
Requirements of the institution	70	80		
College Requirements	60			
Department Requirements				
Summer Training	30 days			
Other				

Notes may include whether the course is basic or optional

Program Description				
Year/Level	Course or Course Code	Course Name	Credit Hours	
			theoretical	practical
Second/P1	CHY 142	Medicinal Chemistry	3	2
Second/P1	MTH	Mathematics and	4	

	330	Stereoscopic Geometry		
Second/P1	MTH 380	Statistics and Probability 1	4	
Second/P1	PCS 229	Introduction to Medical Physics 1	2	
Second/P1	PCS 228	Electrical & Magnetic	3	
Second/P2	MTH 430	Dynamic Kinetic System Differential Equations	4	
Second/P2	PCS 227	Biological Physics	4	
Second/P2	PCS 230	Photons and optical equipment	4	
Second/P2	PCS 229	Introduction to Medical Physics 2	3	
Second/P2	MTH 380	Statistics and Probability 2	4	
3 rd / P1	BLG 311	Cell Life Science 1	3	2
3rd / P1	MTH 501	Numerical analyses	3	
3rd / P1	PCS 352	Nuclear physics	4	2
rd / P1	CPE 585	Medical facilities 1	2	
rd / P1	ELE 404	Medical Electrons	2	2
Third/P2	BLG 700	Medical anatomy	3	
Third/P2	PCS 335	Thermodynamics and Physics Statistics	3	2
Third/P2	PCS 350	Models in medical physics	3	2
Third/P2	CPE 585	Medical facilities 2	2	
Fourth / P1	BLG 600	Physiology	3	

Fourth / P1	**PCS 40A**	**Projects in Medical Physics**		
Fourth / P1	**PCS 354**	**The effect of radiation on biology**	**3**	
Fourth / P1		**training**		
Fourth / P1	**PCS 405**	**Medical Imaging**	**3**	
IV/P2	**MTH 820**	**Photometric analysis**	**3**	**2**
IV/P2	**PCS 40A**	**Projects in Medical Physics**		
IV/P2		**The effect of radiation on biology 2**	**3**	
IV/P2	**PCS 354**	**training**		
IV/P2	**EOE033**	**Laser in medicine**	**2**	**2**

Expected Learning Outcomes of the Program	
Didn'tyou know	
Raising the level of skill and ability to apply the principles of physics and mathematics	
Skills	
Adopting correct scientific methodologies for the transfer of knowledge Ability to work collectively as part of a team in different fields	
Values	
Developing students' abilities to understand and comprehend medical physics	

Teaching and learning strategies

A. Knowledge and understanding

A-1 Ability to analyze and think scientifically by applying laws in physics and mathematics

And adhere to the guidelines and instructions for any effectiveness in the organizational and administrative framework in implementing a project or facing a medical physical problem, solving and evaluating it, submitting a proposal or plan, reformulating, translating or .interpreting it

A-2The student should be able to speak and write in an influential scientific manner in .Arabic and English

A-3 To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the concepts .of quality management in health work

A-4 Adherence to the ethics of practicing the profession and the ability to demonstrate high professional competence in addition to commitment to personal appearance and .behavior

A-5 To protect the patient from the dangers of using medical devices, especially those related to the side

Radiation and minimizing damage to the .patient and workers in this field

B- Subject-specific skills

B1 - The ability to apply the principles of .medical physics

B2 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate .alternatives

B3 - Constructive medical discussions and .opinion

B 4 - Enable graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development .of the medical aspect

Teaching and learning methods

There are many teaching and learning methods used in the Department of Medical Physics Sciences, and the most important of these :methods are

Theoretical and practical lecture, discussion and dialogue, field visits to hospitals and ،medical centers

Summer training in government hospitals for the purpose of application to various medical ،devices, seminars on certain topics

Students' theoretical and practical research, library activities, which helps students to reach - :the following results

Scientific ability to distinguish between correct information and false information

Ease of scientific drafting and ease of correction.

The ability to know the physical basis for the work of various diagnostic and therapeutic medical devices.

Ability to relate physical and medical concepts and principle.

Evaluation methods
Scientific discussion, oral dialogue, semester and final exams. **Seminars.** **Homework.** **Practical activities and case studies.** **Writing and submitting reports and taking notes on the medical experience gained in field visits and summer training.** **Proficiency tests to determine the level of learner's acquisition of information and skills in a course that has been previously learned through answers to questions and paragraphs that represent the content of the course**

Faculty							
Faculty Members							
Academic Rank		Specialization		Special Requirements/Skills (if applicable		Preparation of the teaching staff	
		year	special				
						angel	lecturer

Professional Development
Closely follow the program • Ask many assignments that require external information •
Professional development of faculty members **The focus in the Department of Medical Physics Sciences is on continuous improvement, as the department always seeks to improve the scientific and administrative process and overcome all difficulties** **And the obstacles that hinder the educational program through .the development of human resources for personal development** **The following procedures illustrate the steps implemented or**

:under way in this area

Continuous improvement and development of faculty members . through training programs and workshops inside and outside the .department, university and country

Encouraging extracurricular activities such as holding . conferences, scientific seminars, personal and sports creations .locally, regionally and internationally

Encouraging faculty members to obtain the highest scientific . .and administrative ranks

Providing modern scientific sources and books for the . department's library to keep pace with the rapid progress in .medical sciences

Providing specialized software in medical physics and the . .necessary computers with Internet lines for all teachers

Acceptance Criterion
The Department of Medical Physics Sciences is subject to the mechanism of work of the Ministry of Higher Education and Scientific Research / Department of Private Education - Central ،Admission Department Where graduates of the preparatory school and the scientific branch are nominated for admission to the department based on graduation rates. All controls and laws related to central admission are implemented according to the directives of the Ministry

The most important sources of information about the program

The curriculum approved by the Ministry of Higher **Education and Scientific Research and .its guides** **Decisions and recommendations of the scientific committees, Faculty of Science City University / .Department of Quality Assurance** **.Courses in civil society organizations** **.Research on the Internet** **Personal experiences**

Program Development Plan
Search for up-to-date sources of reliable websites, as well as diversity in the methods of giving lectures and the use .of all modern means used in teaching

Program Skills Outline

				Learning outcomes required from the program											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Values			
				A ١	A ٢	A ٣	A ٤	B 1	B 2	B 3	B 4	C 1	C 2	C 3	C4
Second/P1	CHY 142	Medicinal Chemistry1	Essential		√	√	√	√	√	√	√		√	√	√
Second/P1	MTH 330	Mathematics and Stereoscopic Geometry1	Essential	√	√	√	√	√	√	√	√	√	√	√	
Second/P1	MTH 380	Statistics and Probability 1	Essential	√	√	√	√		√		√		√	√	√
Second/P1	PCS 229	Introduction to Medical Physics 1	Essential	√			√	√	√		√	√		√	
Second/P1	PCS 228	Electrical & Magnetic1	Essential		√		√			√	√	√	√	√	
Second/P2	MTH 430	Kinetic systems Dynamic 2	Essential		√		√	√	√	√	√	√		√	√
Second/P2	PCS 227	Biological Physics	Essential	√	√	√		√	√	√	√		√	√	√
Second/P2	PCS 23	Photons & Equip	Essential	√	√	√	√		√	√	√		√	√	√

	0	ment Optical												
Second/P2	PCS229	Roller to Physics 2	Essential	√	√	√		√		√	√		√	√	√
Second/P2	MTH380	Statistics and Probability	Essential	√	√			√	√	√	√	√	√	√	√
rd / P1	BLG311	Cell Life Science	Essential	√	√	√	√	√	√		√	√	√	√	√
rd / P1	MTH501	Numerical analyses	Essential		√			√		√		√	√		√
rd / P1	PCS352	Nuclear physics	Essential	√	√	√	√		√		√	√	√		
rd / P1	CPE585	Medical facilities	Essential				√	√	√	√		√		√	
rd / P1	ELE404	Medical Electrons	Essential	√		√			√		√	√	√	√	
Third/P2	BLG700	Medical anatomy	Essential		√	√		√	√		√		√		√
Third/P2	PCS335	Thermodynamics and Statistical Physics	Essential	√	√	√		√	√	√	√	√		√	√

Third/P2	**PCS 350**	**Models in physics Medical**	**Essential**	√	√	√	√	√	√	√	√	√	√	√	
Third/P2	**CPE 585**	**Medical facilities**	**Essential**	√	√	√		√		√	√	√	√	√	
Fourth / P1	**BLG 600***	**Physiology**	**Essential**	√	√	√			√	√	√		√	√	√
Fourth / P1	**PCS 40A*B**	**Projects in Medical Physics**	**Essential**	√	√		√	√	√	√	√		√	√	√
Fourth / P1	**PCS 354**	**The effect of radiation on biology**	**Essential**	√	√	√	√	√	√	√	√		√	√	√
Fourth / P1		**training**	**Essential**	√	√		√	√	√			√	√		
Fourth / P1	**PCS 405**	**Medical Imaging**	**Essential**	√	√		√				√	√	√	√	√
IV/P2	**MTH 820**	**Photometric analysis**	**Essential**	√	√	√	√	√	√	√	√	√	√	√	√
IV/P2	**PCS 40A*B**	**Projects in Medical Physics**	**Essential**	√	√	√	√	√	√	√	√	√	√	√	√

IV/P2		**The effect of radiation on biology**	**Essential**	√	√	√	√	√	√	√	√	√	√	√	√
IV/P2	**PCS 354**	**training**	**Essential**	√	√	√	√	√	√	√	√	√	√	√	√
IV/P2	**٠٣ ٣ EOE**	**Laser in medicine**	**Essential**	√	√	√	√	√	√	√	√	√	√	√	√

Curriculum 2024

Second stage

Course Name
Statistics and Probability
Course Code 2
MTH 380
Chapter..... Sunnah
Chapter Two.... Second .
Date of preparation of this description
٢٠٢١ / ٦ /٦
Available attendance formats
(Theoretical weekly attendance)
Total credit hours..... Number of Units
hours per year, 4 hours per week 60
Course Administrator Name

As shown below	Course Objectives

Providing the student with the skill of dealing with basic mathematical .formulas and laws
Preparing the student to receive and absorb advanced mathematics in the .later academic stages
Work to provide students with analytical, computer, mathematical and methodological tools and means to identify
.On practical problems
Providing a suitable academic climate for study and research to contribute to finding solutions to medical problems using techniques
Appropriate and appropriate through courses that provide a strong foundation in the aspect of mathematics and health physics
And its medical applications in addition to the effective contribution to deepening and documenting the university's relationship with the community through the implementation of
Consulting work, training and development of teaching and administrative

staff	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding** **A-1 Provide an academic environment conducive to study and research to contribute to finding solutions to medical problems using** **Appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and physics** **Health and its medical applications in addition to the effective contribution to deepening and documenting the university's relationship with the community** **Through the implementation of consulting work, training .and development of teaching and administrative staff** **B - Subject-specific skills** **B1 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives** **B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect**

Course Structure

The week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method

		Outcomes			
First and second	٤	Statistics and Probability	Statistics	theoretical	Exams
Third and fourth	٤	Statistics and Probability	Measures of central tendency	theoretical	Exam
Fifth and sixth	٤	Statistics and Probability	Measures of central tendency	theoretical	Exam
Seventh and eighth	٤	Statistics and Probability	Probability Laws	theoretical	Exam
Ninth and tenth	٤	Statistics and probability	Probability Laws	theoretical	Exam
Eleventh and twelfth	٤	Statistics and Probability	Continuous and discrete statistical distributions	theoretical	Exam
Thirteenth and fourteenth	٤	Statistics and Probability	Shredder theory	theoretical	Exam

Course Evaluation

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

Daily preparation	Daily exam	Oral exam	Monthly exam	report	Written exam	Total
5	5	5	10	5	70	١٠٠

Learning and Teaching Resources

.....Recommended books and references (scientific journals, reports https://journal.mauc.edu.iq/index.php/JMAUC

Book title or research
Author's Name
Type

١

Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq

Book

٢

Study of Parathyroid gland function in normal pregnant women in Tikrit city

.Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad A. Salih

search

٣

Suggested hybrid Transform Technique for image compression

Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood

search

٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

search

Using Laplace Transformation Technique to solve boundary value problems

/https://mauc.edu.iq

Course Name	
(Introduction to Medical Physics)	
Course Code	
PCS 229	
Chapter..... Sunnah	
Chapter One – Phase II	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance)	
Total credit hours..... Number of Units	
hours annually at 3 hours per week45	
Course Objectives	**As shown below**
Enable the student to identify the basic principles of medical physics as well as provide the student with the skill of dealing with the basic mathematical laws related to medical physics -2 - Introduce the student to the basic principles of medical imaging and radioisotope imaging as well as the basic principles of the subject of nuclear . medicine and radiotherapy	
استراتيجيات التعليم والتعلم	
Strategy	**A-1 Enable the student to obtain the intellectual framework of medical physics A2 – Enable the student to understand the principle of the work of the most important diagnostic devices A3 - Provide an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications. A4 - The student should be able to write in an influential scientific style in Arabic and English B - Skills specific to the subject B1 - Analysis of medical problems from the scientific side with a physical basis and reach their solution and the ability to h appropriate alternatives. B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the .medical aspect**

Course Structure					
week	Hours		Unit or subject name	Learning method	Evaluation method
First and second	٣	Introduction to Medical Physics	Introduction medical to Physics	theoretical	Exams
Third and fourth	٣	Introduction to Medical Physics	Interaction of radiation with matter	theoretical	Exams
Fifth and sixth	٣	Introduction to Medical Physics	X-ray ،radiation X-ray production	theoretical	Exams
Seventh and eighth	٣	Introduction to Medical ة Physics	X-ray interaction ،with matter Factor controlling x-ray beam	theoretical	Exams
Ninth and tenth	٣	Introduction to Medical Physics	ultrasound	theoretical	Exams
Eleventh and twelfth	٣	Introduction to Medical Physics	Nuclear medicine	theoretical	Exams
Thirteenth and fourteenth	٣	Introduction to Medical Physics	Radioactivity	theoretical	Exams
Fifteenth			Radiation detection devices	theoretical	Exams

Distributing the score out of 100 according to the tasks assigned to the student such as . daily preparation, daily, oral, monthly, written exams, reports .... Etc.						
Daily preparation	Daily exam	Oral exam	Monthly exam	report	Written exam	Total
٥	٥	٥	١٠	٥	٧٠	١٠٠

لا يوجد	الكتب المقررة المطلوبة (المنهجية أن وجدت)
	Required textbooks (methodology, if any)

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

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book

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Study of Parathyroid gland function in normal pregnant women in Tikrit city
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Using Laplace Transformation Technique to solve boundary value problems
search

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name1
Introduction to Medical Physics
Course Code 2
PCS 229

Chapter..... Sunnah	
Chapter Two – Phase II	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
Total credit hours..... Number of Units	
hours per year, 3 hours per week 45	
Course Administrator Name	
Course Objectives	**As shown below**
Enabling the student to identify the basic principles of medical - physics as well as providing the student with the skill of dealing with the basic mathematical laws related to medical physics. 2- Introducing the student to the basic principles of medical imaging and radioisotope imaging, as well as the basic principles of the ..subject of nuclear medicine and radiotherapy	
Teaching and learning strategies	
	A-1 Enable the student to obtain the intellectual framework of medical physics A 2 **- Enable the student to understand the principle of the work of the most important diagnostic devices A3** **- Provide an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications. A4** **- The student should be able to write in an influential scientific style in Arabic and English B –** **Skills specific to the subject B1 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives. B-2 Enabling graduates to keep pace with the research**

	development in the aspect of medical physics, .which contributes to the development of the medical aspect

Course Structure					
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	Introduction to Medical Physics	Introduction to Radiation therapy	theoretical	Exams
	٣	Introduction to Medical ة Physics	Type of radition therapy	theoretical	Exams
	٣	Introduction to Medical Physics	Sources of Ionizing Radiation	theoretical	Exams
	٣	Introduction to Medical Physics	Biologic basis for radiation therapy	theoretical	Exams
	٣	Introduction to Medical Physics	Techniques for Delivering Radiation Therapy	theoretical	Exams
	٣	Introduction to Medical Physics	Gamma ray	theoretical	Exams
	٣	Introduction to Medical Physics	Gamma Spectroscopy	theoretical	Exams
	٣	Introduction to Medical Physics	Biomedical laser application	theoretical	Exams
Course Administrator Name					

Course Objectives						
١٠٠	٧٠	٥	١٠	٥	٥	٥

Required textbooks (methodology	There isn't any

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

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search

Electronic References, Websites

/https://mauc.edu.iq

Course Name1	
(Photons and Optics)	
Course Code	
PCS 230	
Chapter..... Sunnah	
Chapter Two – Phase II	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
Total credit hours..... Number of Units	
60 hours	
Course Administrator Name	
Course Objectives	As shown below
١ The department seeks to prepare scientific and research cadres, including teaching, all of which seek to work in the state's research and educational institutions, as well as the department seeks to create a generation of scientists who seek to serve the country with multiple physical disciplines, including in medical physics, biological physics, electromagnetism, photons and optical equipment. The academic program aims to apply the principles and methods of physics to diagnose diseases and the practice of modern medicine depends effectively on an important number of techniques and tools and their treatment and physical principles has led to the urgent need for accuracy in the methods of diagnosis and treatment and improve their performance and to the continuous development of techniques and physical tools used in that to the emergence of the specialization of medical physics. 3- Preparing cadres to provide the Ministry of Health and the Ministry of Environment to work in the fields of diagnosis and treatment of patients of the departments of reviewing the performance of higher education institutions (Academic Program Review) This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he has made the most of the available learning opportunities. It must be ... linked to the description of	

Teaching and Learning Strategies	
Strategy	أ ١- The ability to analyze and think scientifically through the application of laws in physics and mathematics and adherence to the guidelines and instructions for any effectiveness in the organizational and administrative framework in implementing a project or facing a medical physical problem, solving and evaluating it, submitting a proposal or plan, reformulating, translating or interpreting it. A2- To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the importance of quality management in health work... B - Skills specific to the subject B 1 - constructive medical discussions and opinion. B2 - Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the medical aspect. Teaching and learning methods -1 Thinking and discussion style -2 Providing students with the necessary information about the types of teaching and learning methods and using them in teaching such as ... Lecture, discussion, questioning 3- Scientific ability to distinguish between correct information and wrong information. 4- Ease of scientific formulation and ease of correction. 5- The ability to know the physical basis for the work of various diagnostic and therapeutic .medical devices

بنية المقرر					
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First and second	٤	Biological physics	Introduction to the photonics and optical devices	Lecture	Daily and monthly exams
Third and fourth	٤	Photons and optics	Operation of optical devices	Lecture	Daily and monthly exams
Fifth and sixth	٤	Photons and optics	Operation of optical devices	Lecture	Daily and monthly exams
Seventh and eighth	٤	Photons and optics	Applications in technology sector	Lecture	Daily and monthly exams
Ninth and tenth	٤	Photons and optics	Geometric optics and laser system	Lecture	Daily and monthly exams
Thirteenth and fourteenth	٤	Photons and optics	Image formation and fiber optics	Lecture	Daily and monthly exams
Fifteenth	٤	Photons and optics	Diffraction and interference	Lecture	Daily and monthly exams
Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc					
Daily preparation	Daily exam				
٥	٥	٥	١٠	٥	٧٠	١٠٠
Learning and Teaching Resources					

Required textbooks (methodology, if	not

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

١ Book Title or Research Author Name Type
Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq

٢

Study of Parathyroid gland function in normal pregnant women in Tikrit city
Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad A. .Salih

٣

Suggested hybrid Transform Technique for image compression
Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood

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Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name
Stereoscopic mathematics and geometry
Course Code
MTH 330
Chapter..... Sunnah
Chapter One – Phase II
Date of preparation of this description
٢٠٢١/ ٦ /٦
Available attendance formats
Theoretical weekly attendance
hours per year, 4 hours per week ٦٠
Course Administrator Name

Course Objectives	As shown below

1- Providing the student with the skill of dealing with basic mathematical formulas and laws
-2 Preparing the student to receive and absorb advanced mathematics in the later academic stages
3 -Working to provide students with analytical, computer, mathematical and methodological tools and means to identify practical problems.
4- Providing a suitable academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff

Teaching and Learning Strategies

Strategy	**Providing an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong basis in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff A-2 The student should be able to speak and write in an influential scientific style in Arabic and English B - Skills for the subject .... B1 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives. B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical .aspect . .**
Course Structure	

week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٤	Mathematics and Engineering Stereoscopic	Derivatives and chain rule	theoretical	Exams
	٤	Mathematics and Engineering Stereoscopic	Binary integration and its applications	theoretical	Exams
	٤	Mathematics and Engineering Stereoscopic	Binary integration and its applications	theoretical	Exams
	٤	Mathematics and Engineering Stereoscopic	Binary integration and its applications	theoretical	Exams
	٤	Mathematics and Engineering Stereoscopic	Binary integration and its applications	theoretical	Exams
	٤	Mathematics and Engineering Stereoscopic	Physical applications	theoretical	Exams
	٤	Mathematics and Engineering Stereoscopic	Physical applications	theoretical	Exams
Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written .exams, reports .... Etc					

Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠
					no	
Learning and Teaching Resources						
...Recommended books and references (scientific journals, reports https://journal.mauc.edu.iq/index.php/JMAUC Book Title or Research Author Name Type ١ Development of semantic website using knowledge representation Dr.Jamal fadthel Tawfeq ٢ Study of Parathyroid gland function in normal pregnant women in Tikrit city Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad A. .Salih ٣ Suggested hybrid Transform Technique for image compression Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood ٤ Using Laplace Transformation Technique to solve boundary value problems Dunya Mohee Hayder بحث						

Electronic References, Websites
/https://mauc.edu.iq

Course Name
Differential equations
Course Code
MTH 430
Chapter..... Sunnah
Chapter Two.... Second
Date of preparation of this description
٢٠٢١ / ٦ /٦
Available attendance formats
(Theoretical weekly attendance
Total credit hours..... Number of Units
hours per year, 4 hours per week ٦٠
Course Administrator

Course Objectives	As shown below

Providing the student with the skill of dealing with formulas and basic mathematical laws.

- Preparing the student to receive and absorb advanced mathematics ٢ in the later academic stages.

Work to provide students with analytical, computer, mathematical and methodological tools and means to identify practical problems.

- Providing an appropriate academic climate for study and research ٤ to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and strengthening the university's relationship with the community through the implementation of consulting work, training .and teaching and administrative development

Teaching and Learning Strategies	
Strategy	A-1 Providing an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff. A-2 The student shall be able to speak and write in an influential scientific manner in Arabic and English B- Subject-specific skills B1- Analyzing medical problems from the scientific side with a physical basis and reaching their solution and the ability to propose appropriate alternatives. B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to .the development of the medical aspect .

Course Structure					
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٤	Differential equations	Methods of solving the first degree of ordinary differential equations	Lecture	Exams
	٤	Differential	Methods of		Exams

		equations	solving the first degree of ordinary differential equations	Lecture	
	٤	Differential equations	Methods for solving the linear degree system	Lecture	Exams
	٤	Differential equations	Methods for solving the first-class system	Lecture	Exams
	٤	Differential equations	Discontinuous dynamic system solution methods	Lecture	Exams
	٤	Differential equations	Numerical Applications for differential equations	Lecture	Exams
	٤	Differential equations	Linear Algebra Eigenvalue and Eigenvector	Lecture	Exams

Course Structure

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

٥	٥	٥	١٠	٥	٧٠	١٠٠

Required textbooks (methodology, if any)	**no**

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC
١ Book Title or Research Author Name Type
Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq

2

Study of Parathyroid gland function in normal pregnant women in Tikrit city
Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad A. .Salih

٣

Suggested hybrid Transform Technique for image compression
Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood

٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name	
Electrical & Magnetic	
Statistics and Probability	
PCS 228	
Chapter..... Sunnah	
Chapter One – Phase II	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
Total credit hours..... Number of Units	
hours per year, 3 hours per week ٤٥	
Course Administrator Name	
Course Objectives	As shown below
1 Enabling the student to identify the basic principles of medical physics as well as providing the student with the skill of dealing with the basic mathematical laws related to medical physics -2 The course aims to introduce the basics of electrical and electromagnetic in general and their importance in particular in the medical fields.	
Teaching and Learning Strategies	
Strategy	1- The ability to analyze and think scientifically through the application of laws in physics and mathematics and adherence to the instructions and instructions for any effectiveness in the organizational and administrative framework in implementing a project or facing a medical physical problem, solving and evaluating it, providing a proposal or interpretation. A2 - To be familiar with international medical physics standards , estimate the needs of the medical and health side, and apply the concepts of quality management in health work. B - skills specific to the subject B1 - constructive medical discussions and expressing opinion. B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development

	of the medical aspect.

Course Structure					
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	Electrical and magnetism	Basic principles of hydrostatic power Charges and electrostatic force	Lecture	Exams
	٣	Electrical and magnetism	Electric current and ampere's law	Lecture	Exams
	٣	Electrical and magnetism	For the electric field and the electric flux electromagnetic waves and the nature of the light	Lecture	Exams
	٣	Electrical and magnetism	Gauss's Law Faraday's Law and Electromagnetic Induction	Lecture	Exams
	٣	Electrical and magnetism	Voltage and electrostatic power		Exams
	٣	Electrical and magnetism	Properties of conductors Maxwell equations		Exams
	٣	Electrical and magnetism	Domain and overflow Magnetic		Exams

Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, .reports .... Etc						
Daily	Daily					

preparation	exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

Required textbooks (methodology, ((if any	no

...Recommended books and references (scientific journals, reports
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Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

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Course Name	
Biological physics	
Course Code	
PCS 227	
Chapter..... Sunnah	
Chapter Two.... Second	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
Total credit hours..... Number of Units	
Hours ٦٠	
Course Administrator Name	
Course Objectives	As shown below

1The department seeks to prepare scientific and research cadres, including teaching, all of which seek to work in the state's research and educational institutions, as well as the department seeks to create a generation of scientists who seek to serve the country with multiple physical disciplines, including in medical physics, biological physics, electromagnetism, photons and optical equipment.

-2 The academic program aims to apply the principles and methods of physics to diagnose diseases (Diagnosis) and treatment Therapy) and the practice of modern medicine depends effectively on an important number of techniques, tools and physical principles and has led to the urgent need for accuracy in the methods of diagnosis and treatment and improve their performance and to the continuous development of techniques and physical tools used in that to the emergence of the specialization of medical physics.

3Preparing cadres to supply the Ministry of Health and the Ministry of Environment to work in the fields of diagnosis and treatment of patients of oncology departments.

4 Balance in focusing on the principles of theoretical and applied medical physics, and work to provide students with analytical, experimental, computer, mathematical and methodological tools and means to identify, formulate and solve medical problems Walter ...

Strategy	أ ١ A- Knowledge and understanding A-1 Providing students with physical information and concepts. A-2 Preparing trained and qualified cadres to work in educational and medical institutions. A-3 The student should be able to speak and write in an influential scientific manner in Arabic and English. A-4 To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the concepts of quality management in health work. A-5 Adherence to the ethics of practicing the profession and the ability to demonstrate high professional competence in addition to commitment to personal appearance and behavior . A-6 To be interested in protecting the patient from the dangers of using medical devices, especially those related to the radiation aspect, and reducing damage to the patient and workers in this field. B - Subject-specific skills B1 - The student acquires the necessary skills to work in the fields of specialization of medical physics. B2 - The ability to apply the principles of medical physics B 3 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives . B 4 - Constructive medical discussions and opinion

Course Structure					
The week	Hours	Required Learning Outcomes	The name of the unit or the topic	Learning method	Evaluation method
	٤	Biological Physics	Biomechanics .principles Physics of hearing and vision	Lecture	Exams

	٤	Biological Physics	Fluid mechanics and human circulatory .system Viscosity and viscoelasticity in biological fluids	Lecture	Exams
	٤	Biological Physics	Thermodynamic s of biochemical reactions and .metabolism Random molecular motion in gases .and solutions Electrolytes	Lecture	Exams
	٤	Biological Physics	Molecular and ionic interactions in solutions	Lecture	Exams
	٤	Biological Physics	Membrane's structure and properties.	Lecture	Exams
	٤	Biological Physics	Diffusion and osmosis in biological organisms	Lecture	Exams
	٤	Biological Physics	Electrochemistry of cells. Action potential and electrical activity of neurons	Lecture	Exams

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, . reports .... etc						
Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

Required textbooks (methodology, ((if any	no

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

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Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name

Medicinal Chemistry
CHY 142
Chapter..... Sunnah
Date of preparation of this description
٢٠٢١/ ٦ /٦
Weekly - theoretical and practical)
Total credit hours..... Number of Units
hours with 45 theoretical hours with 30 practical hours ٧٥
Course Administrator Name

Course Objectives	**As shown below**

1 The course aims to introduce the basics of chemistry in general and its importance in particular in the medical fields.
2- Preparing female owners in the field of medical physics sciences, which is responsible for studying the country's need for development and progress and is able to meet the needs of the labor market in the state's health institutions and industrial sectors, and preparing an educated generation armed with science and adopting it as a sound basis for radical changes and puts scientific knowledge and scientific method in thinking and analysis in the service of the country's goals, able to pursue its higher studies and adapt to the development of medical technologies in order to keep pace with the expansion of human needs.
3- The academic program aims to apply the principles and methods of physics to diagnose and treat diseases * Therapy * and the practice of modern medicine depends effectively on a significant number of techniques and tools.

Teaching and Learning Strategies

Strategy	

	A-1 The ability to analyze and think scientifically through the application of laws in physics and mathematics and adherence to the guidelines and instructions for any effectiveness in the organizational and administrative framework in the implementation of a project or confronting a medical physical problem, solving and evaluating it, submitting a proposal or plan, reformulating, translating or interpreting it . A-2 To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the concepts of quality management in health work. B- Subject-specific skills B-1 Constructive medical discussions and opinions. B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect.

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣ hours theoretical + 2 hours	Medicinal Chemistry	Introduction to Chemistry Medical	Lecture	Exam

	practical				
	3 hours theoretical + 2 hours practical	Medicinal Chemistry	Pharmacology	Lecture	Exam
	3 ٣ hours theoretical + 2 hours practical	Medicinal Chemistry ١	Pharmacology	Lecture	Exam
	3 hours theoretical + 2 hours practical	Medicinal Chemistry	Cell life	Lecture	Exam
	3 hours theoretical + 2 hours practical	Medicinal Chemistry	Biochemistry	Lecture	Exam
	٣ hours theoretical + 2 hours	Medicinal Chemistry	Biochemistry	Lecture	Exam

	practical				
	3 hours theoretical + 2 hours pract	Medicinal Chemistry	Partial Biology	Lecture	Exam
Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... Etc.					
Daily preparation	Daily exam				
٥	٥	٥	١٠	٥	٧٠	١٠٠
no					

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC
Book Title or Research Author Name Type

١

Development of semantic website using knowledge representation

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Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course
Third stage

Course Description Form

Course Name	
Numerical analyses	
Course Code	
MTH501	
Chapter..... Sunnah	
((First Semester - Third Stage))	
The history of preparation of this descriptio	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
((Number of Credit Hours (Total) / Number of Units (Total	
hours per year, 3 hours per week ٤٥	
Course administrator's name (if more than one name)	
Course Objectives	**As shown below**
Providing the student with the skill of dealing with basic mathematical ١formulas and laws. 2. Preparing the student to receive and absorb advanced mathematics in the later academic stages. Working to provide students with analytical, computer, mathematical and methodological tools and means to identify practical problems. 3- Providing an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics, health physics and their medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and .administrative staff	
Teaching and Learning Strategies	
Strategy	**A- Knowledge and understanding**

	A-1 Providing an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff **A-2 The student should be able to speak and write in an influential scientific style in Arabic and English.** **B - Skills specific to the subject B1 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives.** **B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect.** **Teaching and learning methods There are many teaching and learning methods used in the Department of Medical Physics Sciences, and the most important of these methods Theoretical and practical lecture, discussion and (:-are dialogue, field visits to hospitals and medical centers, summer training in government hospitals for the purpose of application to various medical devices, seminars on specific topics, theoretical and practical student research, library activities (which helps students to reach the following results:** **1- Scientific ability to distinguish between correct information and wrong information.** **Ability to link physical and mathematical analytical concepts and principles Evaluation** **methods 1. Scientific discussion, oral dialogue and examinations Quarterly and final . 2. Homework. 3. Proficiency tests to determine the level**

	of learner acquisition of information and skills in a course that has been learned through his answers to questions and paragraphs that represent the content of the course. C. Thinking skills C-1 Presenting the physical or mathematical problem and asking to think about possible solutions or developments. C-2 Encouraging the development of students' scientific thought in memorization and guessing and stimulating it towards critical thinking and thinking at a stage before remembering. Teaching and learning methods -1 The ability to learn simple and deep in ...

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	Numerical analyses	Methods for finding roots	Lecture	Exams
	٣	Numerical analyses	Methods for finding roots	Lecture	Exams
	٣	Numerical analyses	Numerical methods for finding derivatives	Lecture	Exams
	٣	Numerical analyses	Numerical methods for finding derivatives	Lecture	Exams
	٣	Numerical analyses	Numerical methods to find integrals	Lecture	Exams
	٣	Numerical analyses	Numerical methods for solving linear and nonlinear systems	Lecture	Exams
	٣	Numerical analyses	Numerical methods	Lecture	Exams

			of rounding		

Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc.						
Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

Learning and Teaching Resources	
((Required textbooks (methodology, if any	

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

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Using Laplace Transformation Technique to solve boundary value problems

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Electronic References, Websites

/https://mauc.edu.iq

Course Name	
Medical Electronics	
Course Code	
ELE404	
Chapter..... Sunnah	
((Chapter One – Third Stage))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
weekly theoretical and practical	
((Number of Credit Hours (Total) / Number of Units (Total	
hours by 30 theoretical + 30 practical ٦٠	
(Course administrator's name (if more than one name	
Course Objectives	**As shown belowما**
1- Enabling the student to identify the basic components of medical devices and electronic devices associated or related to some medical devices, as well as providing the student with the skill of dealing with the basic mathematical laws related to medical electronics. **Enable the student to understand the principle of the work of the basic electronic components involved in all electronic and medical devices.** **3- Work to provide students with analytical, mathematical and methodological tools and means to identify practical problems.**	
Teaching and Learning Strategies	
	- Knowledge and understanding أ **A-1 Enable the student to obtain the intellectual framework** **of the subject of medical electronics** **A-2 Enable the student to understand the principle of the work of the most important basic components of medical electronic devices** **A-3 Provide an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics** **and their medical applications.** **A4 - The student should be able to write in an influential scientific style in** **Arabic and English B - Skills specific to the subject** **B- 1 Analysis of medical problems from the scientific**

	side with a physical basis and reach their solution and the ability to propose appropriate alternatives B-2 Students solve problems related to the types of devices used B- 3 Enable graduates to keep pace with research development in the aspect of medical physics, which contributes to the development of the medical aspect. Teaching and learning method s -1 The multiplicity of teaching and learning methods used in the Department of Medical Physics Sciences, the most important of which are: theoretical and practical lecture, discussion -2 Sudden daily tests and continuous weekly. -3 A...

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٢ theoretical + 2 practical weekly	Medical Electronics	Semiconductor diodes	Theoretical and practical	Daily and monthly exams
	2 theoretical + 2 practical weekly	Medical Electronics	JFET	Theoretical and practical	Daily and monthly exams
	2 theoretical + 2 practical weekly	Medical Electronics	Mosfet Integrated circuit	Theoretical and practical	Daily and monthly exams
	2 theoretical + 2 practica	Medical Electronics	،Op-Amp differential Op Amp	Theoretical and practical	Daily and monthly exams

	l weekly				
	2 theoretical + 2 practical weekly	Medical Electronics	Addition، subtraction Op Amp، differentiation and integration Op-amp	Theoretical and practical	Daily and monthly exams
	2 theoretical + 2 practical weekly	Medical Electronics	Decoder and encoder	Theoretical and practical	Daily and monthly exams
	2 theoretical + 2 practical weekly	Medical Electronics	Microprocessor power supply	Theoretical and practical	Daily and monthly exams

Course Evaluation

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

Daily preparation	Daily exam						
٥	٥	٥	١٠	٥	٧٠	١٠٠	

مصادر التعلم والتدريس

no	(Required textbooks (methodology, if any
	Learning and Teaching Resources

...Recommended books and references (scientific journals, reports

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Book Title or Research Author Name Type

١

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Electronic References, Websites
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Course Name	
Medical Equipment	
Course Code	
CPE585	
Chapter..... Sunnah	
((Chapter II – Phase III))	
The history of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
((Number of Credit Hours (Total) / Number of Units (Total	
30 Hours	
Course administrator's name (if more than one name	
Course Objectives	**As shown below**
Study of basic physics principles . 2. Study of techniques for using X-rays in radiography. Discussion of fluorescence imaging and its medical applications . 4. Discussion of breast cancer and mammography. 5. Study of nuclear radiation monitoring devices. 6. Discussion of types of radiation reagents and radiation doses. 7. Discussion of optical methods of medical imaging.	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 Providing an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and documenting the university's relationship with society through the implementation of consulting work, training and the development of teaching and administrative staff. A2 To be familiar with the standards of international medical physics, estimate the needs of the medical and health side, and apply the concepts of quality management in health**

	work. **A-3 Adherence to the ethics of practicing the profession and the ability to demonstrate high professional competence in addition to commitment to personal appearance** **and behavior.** **A4 To be interested in protecting the patient from the dangers of using medical devices, especially those related to the radiation aspect** **, and reducing damage to the patient and workers in this field of knowledge.** **B - Subject-specific skills B1 - The ability to apply the principles of medical physics. B-2 Analysis of medical problems from the scientific side with a** **physical basis and reach their solution and the ability to propose** **appropriate alternatives B3 - Medical discussions coffee ...**

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	2	Medical Equipment	This course presents both the basic physics together with the practical technology associated with such methods as X ray	Lecture	Daily, quarterly and final exams

			computed tomography ((CT		
	2	Medical Equipment	magnetic resonance imaging (MRI)	Lecture	Daily, quarterly and final exams
	2	Medical Equipment	functional MRI fMRI) and) spectroscopy، ultrasonic) echocardiography	Lecture	Daily, quarterly and final exams
	2	Medical Equipment	Doppler ،(flow nuclear medicine Gallium,) PET, and SPECT scans) as well as optical methods such as bioluminescence	Lecture	Daily, quarterly and final exams
	2	Medical Equipment	optical tomography ، fluorescent confocal microscopy, two photon microscopy and atomic force microscopy	Lecture	Daily, quarterly and final exams
	2	Me	Functional	Lec	Daily, quarterly and final exams

		dical Equipment	Organization of the Peripheral Nervous System, Electro neuro-gram (ENG)	ture	
	٢	Medical Equipment	Electromyogra (m (EMG	Lecture	Daily, quarterly and final exams

Course Evaluation

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

Daily preparation	Daily exam						
٥	٥	٥	١٠	٥	٧٠	١٠٠	

(Required textbooks (methodology, if any	لا يوجد
Learning and Teaching Resources	

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC
١ Book Title or Research Author Name Type
Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq

٢
Study of Parathyroid gland function in normal pregnant women in Tikrit city
.Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad A. Salih

٣
Suggested hybrid Transform Technique for image compression
Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood

٤ **Using Laplace Transformation Technique to solve boundary value problems** **Dunya Mohee Hayder**
Electronic References, Websites **/https://mauc.edu.iq**

Course Name	
Medical Equipment	
Course Code	
CPE 585	
Chapter..... Sunnah	
(Chapter One Stage Three)	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available Forms of Attendance	
Theoretical weekly attendance	
(Number of Credit Hours (Total) / Number of Units (Total	
hours ٣٠	
Course administrator's name (if more than one name is mentioned	
Course Objectives	**As shown below**
1- Study of basic physics principles. Study of techniques for the use of X-rays in radiography .3. Discussion of fluorescence imaging and its medical applications .4. Discussion of breast cancer and mammography .5. Study of nuclear radiation monitoring devices. 6. Discussion of types of radiation detectors and radiation doses. 7. Discussion of optical methods of medical imaging	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 Providing an appropriate academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff. A-2 To be familiar with international l medical physics standards, estimate the needs of the medical and health side, and apply the concepts of quality management in health**

	work. A-3 Adherence t o the ethics of practicing the profession and the ability to show high professional competence in addition to commitment to personal appearance and behavior . A-4 To be interested in protecting the patient from the dangers of using medical devices, especially those related to the radiation aspect, and reducing damage to the patient and workers in this field of knowledge. B Subject-specific skills B1 Ability to apply the principles of medical physics. B2 Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives. B3 Medical Discussions ...Banna

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	
	٢	Medical Equipment	This course presents both the basic physics together with the practical technology associated with such methods as X-ray computed tomography (CT)	Lecture	Daily, quarterly and final exams
	٢		magnetic resonance ،(imaging (MRI functional MRI fMRI) and) spectroscopy	Lecture	Daily, quarterly and final exams
	٢		Ultrasonic	Lecture	Daily,

			echocardiogra) phy, Doppler flow), nuclear medicine Gallium)		quarterly and final exams
	۲		PET, and SPECT scans) as well as optical methods such as bioluminescenc e	Lecture	Daily, quarterly and final exams
	۲		optical ،tomography fluorescent confocal ،microscopy two-photonmicroscopy and atomic force microscopy	Lecture	Daily, quarterly and final exams
	۲		Functional Organization of the Peripheral Nervous System, Electro neuro-gram (ENG)		Daily, quarterly and final exams
	۲		Electromyogra (m (EMG		Daily, quarterly and final exams

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

Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

(Required textbooks (methodology, if any	no

Learning and Teaching Resources

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

١ Book Title or Research Author Name Type
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٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name	
Cell Life Science	
Course Code	
BLG 311	
Chapter..... Sunnah	
Chapter One – Third Stage	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
(Theoretical and practical weekly attendance)	
((Number of Credit Hours (Total) / Number of Units (Total	
hours by 45 hours theoretical + 30 hours practical ٧٥	
(Course administrator's name (if more than one name	
Course Objectives	**As shown below**
The course aims to introduce the subject of cell life science and deals with the division and types of cells and their contents and the contents of cells and the internal structures of cell s and the mechanism of their work. -2 The academic program aims to apply the principles and methods of physics to diagnose and treat diseases (Therapy) and the practice of modern medicine depends effectively on an important number of techniques, tools and physical principles and has led to the urgent need for accuracy in the methods of diagnosis and treatment and improve their performance and to the continuous development of techniques and physical tools used in that to the emergence of the specialization of .medical physics	
Teaching and Learning Strategies	
Strategy	**- Knowledge and understanding A-1 The ability to analyze and think scientifically by applying laws in physics and mathematics and adhering to the guidelines and instructions to the effectiveness in the organizational and administrative framework in implementing a project or facing a problem or plan or reformulating a medical physical, solving and evaluating it, and providing a suggestion, translation or interpretation A-2 The student should have been able to speak and write in an influential scientific manner in Arabic and English.**

	B - skills specific to the subject **B1 - constructive medical discussions and expressing opinion.** **B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect.** **Teaching and learning methods This is done by testing students in theory and orally, classroom and home activities, training / acquainting them with prior experiences, presenting a problem or issue in a video or workshop and requesting to address it or improve its performance or develop it and encourage the taking of notes and scheduled comparison, for example: -1 Case study (pathological can be diagnosed and treated) in providing a description that includes scientific facts about the problem of medical physics and asks students to analyze some information, diagnose the problem ...**

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	Cell Life Science	General definitions	Lecture	Daily, quarterly and final exams
	٣	Cell Life Science	Cell's organelles and their functions	Lecture	Daily, quarterly and final exams
	٣	Cell Life Science	Cell membrane	Lecture	Daily, quarterly and final exams
	٣	Cell Life Science	structure	Lecture	Daily, quarterly and final exams
	٣	Cell Life Science	Cell membrane	Lecture	Daily, quarterly and final exams
	٣	Cell Life	transport	Lecture	Daily, quarterly and

		Science			final exams
	٣	Cell Life Science	Nuclear envelope	Lecture	Daily, quarterly and final exams

Course Evaluation

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

Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

Learning and Teaching Resources

(Required textbooks (methodology, if any	no

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

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٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
https://mauc.edu.iq

Course Name	
Anatomy	
Course Code	
BLG 700	
Chapter..... Sunnah	
((Chapter II – Phase III))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available Forms of Attendance	
Theoretical weekly attendance	
((Number of Credit Hours (Total) / Number of Units (Total	
hours per year, 3 hours per week45	
(Course administrator's name (if more than one name is mentioned	
Course Objectives	**As shown below**
1 The course aims to introduce anatomy in terms of terms and different body structures in terms of external description and location, in addition to mentioning the function if necessary. -2 The academic program aims to apply the principles and methods of physics to diagnose and treat diseases (Therapy) and the practice of modern medicine depends effectively on an important number of techniques, tools and physical principles and has led to the urgent need for accuracy in the methods of diagnosis and treatment and improve their performance and to the continuous development of techniques and physical tools used in that to the emergence of the specialization of medical physics.	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 The ability to analyze and think scientifically through the application of laws in physics and mathematics and adherence to the guidelines and instructions to effectively in the organizational and administrative framework in the implementation of a project or face a physical medical problem, solve and evaluate it and provide a suggestion or translation or interpretation A-2 The student should have been able to speak and book in an influential scientific manner in Arabic and English. B - skills specific to the subject B1 - constructive medical discussions and expressing opinion.**

	B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect. **Teaching and learning methods This is done by testing students theoretically and orally, classroom and home activities, training / acquainting them with prior experiences, presenting a problem or issue in a video or workshop and requesting to address it, improve its performance or develop it, and encourage the taking of notes and scheduled comparison, for example:** **1- A case study (pathological that can be diagnosed and treated) in providing a description that includes scientific facts about the problem of medical physics and asks students to analyze some information, diagnose the problem and describe the physical solution to it.**

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	anatomy	General definitions	Lecture	Exams
	٣	anatomy	Nervous system	Lecture	Exams
	٣	anatomy	Skeletal system	Lecture	Exams
	٣	anatomy	Integumentary system	Lecture	Exams
	٣	anatomy	Urinary system	Lecture	Exams
	٣	anatomy	Digestive system	Lecture	Exams
	٣	anatomy	Endocrine system	Lecture	Exams

Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... Etc.						
Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

(Required textbooks (methodology, if any	no
Learning and Teaching Resources	

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq

٢

Study of Parathyroid gland function in normal pregnant women in Tikrit city

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Suggested hybrid Transform Technique for image compression

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٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
https://mauc.edu.iq

Course Name
Thermodynamics
Course Code

PCS 335	
Chapter..... Sunnah	
((Chapter Two – Phase III))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
(Number of Credit Hours (Total) / Number of Units (Total	
hours by 45 hours theoretical + 30 hours practical ٧٥	
Course administrator's name (if more than one name)	
Course Objectives	**As shown below**
1Preparing cadres in the field of medical physics sciences, which is responsible for studying the country's need for development and progress and is able to meet the needs of the labor market in the state's health institutions and industry sectors, and preparing an educated generation armed with science and adopting it as a sound basis for radical changes and puts scientific knowledge and scientific method in thinking and analysis in the service of the country's goals, able to pursue its higher studies and adapt to the development of medical technologies in order to keep pace with the expansion of human needs. 2- Providing a suitable academic climate for study and research To contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff.	
Strategy	**Knowledge and understanding A--1 The student should be able to speak and write in an influential scientific manner in Arabic and English A-2 The student should be familiar with international medical physics standards and guess the concepts of quality management in health work. A-3 Adherence to the ethics of practicing the**

	profession and the ability to show high professional competence and the needs of the medical and health side in addition to commitment to personal appearance and behavior . A-4 To protect the patient from the dangers of using medical devices and to be particularly interested in the radiation aspect and reduce damage to the patient and workers in this field B - Skills specific to the subject B1 - Analysis of medical problems from the scientific side with a physical basis and reach a solution and the ability to propose appropriate alternatives. B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect. Teaching and learning methods There are many teaching and learning methods used in the Department of Medical Physics Sciences, and the most important of these methods are: theoretical and practical lecture, discussion and dialogue, field visits to hospitals and medical centers, summer training in the hospital ...

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣ Theoretical2 practical	Thermodynamics	Thermodynamics zeroth law and temperatu ،re thermodynamic systems	Theoretical .+Practical	Exams
	٣	Thermody	variables,	Theoretical	Exams

	Theoretical2 practical	namics	state ،equations thermometry	.+Practical	
	٣ Theoretical2 practical	Thermodynamics	First law of Thermody ،namics work, heat	Theoretical .+Practical	Exams
	٣ Theoretical2 practical	Thermodynamics	Phase transformations	Theoretical .+Practical	Exams
	٣ Theoretical2 practical	Thermodynamics	Second law of Thermody ،namics irreversible processes, entropy	Theoretical .+Practical	Exams
	٣ Theoretical2 practical	Thermodynamics	Kinetic theore of gases	Theoretical .+Practical	Exams
	٣ Theoretical2 practical	Thermodynamics	Introduction to statistical mechanics	Theoretical .+Practical	Exams
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written .exams, reports .... Etc					
Daily preparation	Daily exam				

١٠٠	٧٠	٥	١٠	٥	٥	٥
no	(Required textbooks (methodology, if any					

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

Development of semantic website using knowledge representation

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٢

Study of Parathyroid gland function in normal pregnant women in Tikrit city
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٣

Suggested hybrid Transform Technique for image compression
Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood

٤

Using Laplace Transformation Technique to solve boundary value problems
Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name
Models in medical physics
Course Code
PCS 350
Chapter..... Sunnah

((Chapter Two – Phase III))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
(Theoretical and practical weekly attendance)	
(Number of Credit Hours (Total) / Number of Units (Total	
hours by 45 hours theoretical + 30 hours practical ٧٥	
(Course administrator's name (if more than one name	
Course Objectives	**As shown below**
Preparing female owners in the field of medical physics sciences, which is responsible for studying the country's need for development and progress and is able to meet the needs of the labor market in the state's health institutions and industry sectors, and preparing an educated generation armed with science and adopting a sound basis and scientific method of thinking and analysis in the service of the country's goals, able to pursue its higher studies and adapt to the development of medical technologies in order to keep pace with the expansion of human needs. **Preparing cadres to provide the Ministry of Health and the Ministry of Environment to work in the fields of diagnosis and treatment of patients of cancer departments** **3- Providing a suitable academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and strengthening the university's relationship with the community through the implementation of advisory work, training and the development .of teaching and administrative staff**	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding** **A- 1The student should be able to speak and write in an influential scientific style in Arabic and English** **A-2 To be familiar with international medical physics standards, estimate the needs of the medical and health side,** **and apply the concepts of quality management in**

	health work. **A-3 Adherence to the ethics of practicing the profession and the ability to show high professional competence in addition to a commitment to personal appearance and behavior.** **A-4 To be interested in protecting the patient from the dangers of using medical devices and to be especially interested in the radiation aspect and to reduce damage to the patient and workers in this field.** **B - Skills specific to the subject** **B1 - Analysis of medical problems from the scientific side with a physical basis and reach a solution** **and the ability to propose appropriate alternatives.** **B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics,** **which contributes to the development of the medical aspect** **. Teaching and learning methods There are many teaching and learning methods used in the Department** **of Medical Physics Sciences** **, and the most important of these methods are: theoretical and practical lecture, discussion and dialogue, field visits to hospitals and medical .... centers, summer training in the hospital**

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	Model	Basics of	Theoretical+Pr	Exams

	theoretical + 2 practical	s in medical physics	scientific programming	.actical	
	3 theoretical + 2 practical	Models in medical physics	Common computational methods	Theoretical+Pr.actical	Exams
	3 theoretical + 2 practical	١ Models in medical physics	Common computational methods	Theoretical+Pr.actical	Exams
	3 theoretical + 2 practical	Models in medical physics	Examples from Medical physics	Theoretical+Pr.actical	Exams
	3 theoretical + 2 practical	Models in medical physics	Examples from biolegical physics	Theoretical+Pr.actical	Exams
	3 theoretical + 2 practical	Models in medical physics	Examples from biolegical physics	Theoretical+Pr.actical	Exams
	3 theoretical + 2 practical	Models in medical physics	Random number generation	Theoretical+Pr.actical	Exams

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... Etc.						
١٠٠	٧٠	٥	١٠	٥	٥	٥
Learning and Teaching Resources						
no	**(Required textbooks (methodology, if any**					
Recommended books and references (scientific journals, ...reports **https://journal.mauc.edu.iq/index.php/JMAUC** **١ Book Title or Research Author Name Type** **Development of semantic website using knowledge representation** **Dr.Jamal fadthel Tawfeq** **٢** **Study of Parathyroid gland function in normal pregnant women in Tikrit city** **Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad .A. Salih** **٣** **Suggested hybrid Transform Technique for image compression** **Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood** **٤** **Using Laplace Transformation Technique to solve boundary value problems** **Dunya Mohee Hayder** **بحث**						
/Electronic References, Websites https://mauc.edu.iq						

Course Name
Nuclear physics
Course Code
PCS 352
Chapter..... Sunnah
((Chapter One – Third Stage))
Date of preparation of this description
٢٠٢١ / ٦ /٦
Available attendance formats

(Weekly theoretical and practical attendance)
(Number of Credit Hours (Total) / Number of Units (Total
hours by 60 hours theoretical + 30 hours practical90
Course (Course administrator's name (if more than one name

Course Objectives	**As shown below**

Preparing female owners in the field of medical physics sciences, which is responsible for studying the country's need for development and progress and is able to meet the needs of the labor market in the state's health institutions and industry sectors, and preparing an educated generation armed with science and adopting it as a sound basis for radical changes and puts scientific knowledge and scientific method in thinking and analysis in the service of the country's goals, able to pursue its higher studies and adapt to the development of medical technologies in order to keep pace with the expansion of human needs

. 2- Preparing cadres to supply the Ministry of Health and the Ministry of Environment to work in the fields of diagnosis and treatment of patients of oncology departments.

Providing a suitable academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of mathematics and health physics and their medical applications, in addition to actively contributing to deepening and strengthening the university's relationship with the community through the implementation of consulting work, training and the development of teaching and ..administrative staff

Teaching and Learning Strategies

Strategy	**Knowledge and understanding** **A- 1The student should be able to speak and write in an influential scientific manner in Arabic and English** **. A-2 To be interested in international medical physics standards,** **guess the needs of the medical and health side, and apply the concepts of quality management in health work** **. A-3 Adherence to the ethics of practicing the profession and the** **ability to show high professional competence in addition to commitment to personal appearance and behavior** **. A-4 To be interested in protecting the patient from the dangers** **of using medical devices, especially radioactive devices, and reducing damage to the patient and workers in this field.** **B - skills specific to the subject B1 - constructive medical discussions and expressing opinion.** **B-2 Enabling graduates to keep pace with the research development in** **the aspect of medical physics, which contributes to the development of** **the medical aspect** **. B-3 - Ability to apply the principles of medical physics** **. Teaching and learning methods There are many teaching and learning methods used in the Department** **of Medical Physics Sciences, and the most important of** **these methods are: theoretical and practical lecture, discussion** **and dialogue, field visits to hospitals and medical centers,** **summer training in government hospitals for the purpose of application to various medical devices, ...**

Course Structure

The we	Hours	Required Learni	Unit or subject name	Learning method	Evaluation method

ek		ng Outcomes			
	٤ Theoretical +2¬ Practical	Nuclear physics	Introduction to nuclear physics	Theoretical+Pr.actical	Exams Daily and quarterly and final
	٤ Theoretical +2¬ Practical	Nuclear physics	Nuclear structure and binding energy	Theoretical+Pr.actical	Exams Daily and quarterly and final
	٤ Theoretical +2¬ Practical	Nuclear physics	Nuclear decays	Theoretical+Pr.actical	Exams Daily and quarterly and final
	٤ Theoretical +2¬ Practical	Nuclear physics	Radioactivity and nuclear reaction	Theoretical+Pr.actical	Exams Daily and quarterly and final
	٤ Theoretical +2¬ Practical	Nuclear physics	Interaction of radiation with matter	Theoretical+Pr.actical	Exams Daily and quarterly and final
	٤ Theoretical +2¬ Practical	Nuclear physics	Introduction to dosimetry and dose calculation	Theoretical+Pr.actical	Exams Daily and quarterly and final
	٤ Theoretical +2¬ Practical	Nuclear physics	Dose calculation	Theoretical+Pr.actical	Exams Daily and quarterly and final

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

Daily preparation	**Daily exam**							
٥	٥	٥	١٠	٥	٧٠	١٠٠		

Learning and Teaching Resources	
(Required textbooks (methodology, if any	**no**

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

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٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites **/https://mauc.edu.iq**

المرحلة الرا
بعة

Course Name
Medical Imaging
Course Code
PCS ٤٠٥
Chapter..... Sunnah
((Chapter One))
The history of preparation of this description
٢٠٢١ / ٦ /٦
Available attendance formats
Theoretical weekly attendance

(Number of credit hours (total) / number of units (total	
hours per year, 3 hours per week ٤٥	
(Course administrator's name (if more than one name	
Course Objectives	**As shown below**
1- Studying the principles of penetrating body radiation and its use in radiological diagnosis .2- Studying radiography using X-rays and processing radiographs .3- Studying the use of radioisotopes in radiography .4. Discussing positron emission tomography and single-photon emission tomography .5- Studying computed tomography and its medical applications .6- Studying diagnostic ultrasound. 7 Discussing the reconstruction of medical images, information collection system and image processing.	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 Providing a suitable academic climate for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and strengthening the university's relationship with the community through the implementation of advisory work, training and the development of teaching and administrative staff. 2- The student should be able to speak and write in an**

	influential scientific manner in Arabic and English A-3 To be familiar with international medical physics standards, guess the needs of the medical and health side, and apply the concepts of quality management i health work. A-4 Adherence to the ethics of practicing the profession and the ability to demonstrate high professional competence in addition to commitment to personal appearance and behavior. A-5 To be interested in protecting the patient from the dangers of using medical devices, especially those related to the radiation aspect, and reducing damage to the patient and workers in this field . B - Subject-specific skills B-1 Ability to apply the principles of medical physics . B2 - Analysis of medical problems from the scientific side with a physical basis and ...

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	
	٣	Medical Imaging	Diagnostic radiology with X rays, X-ray transmission computed tomography	Lecture	Daily and monthly exams
	٣	Medical Imaging	The physics of radioisotope imaging, emission computed tomography	Lecture	Daily and monthly exams
	٣	Medical Imaging	clinical applications of radioisotope	Lecture	Daily and monthly exams

			imaging		
	٣	Medical Imaging	Diagnostic ultrasound, clinical applications and biological aspects of diagnostic ultrasound.	Lecture	Daily and monthly exams
	٣	Medical Imaging	Nuclear magnetic resonance	Lecture	Daily and monthly exams
	٣	Medical Imaging	nuclear magnetic resonance pulse sequences and relaxation processes and their measurement؛ image acquisition and reconstruction.	Lecture	Daily and monthly exams
	٣	Medical Imaging	The mathematics of image formation and image processing	Lecture	Daily and monthly exams

Course Evaluation

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

Daily preparatio	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

no (Required textbooks (methodology, if any
Recommended books and references (scientific journals, reports...

https://journal.mauc.edu.iq/index.php/JMAUC

١ Book Title or Research Author Name Type
Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq

٢

Study of Parathyroid gland function in normal pregnant women in Tikrit city
Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and .Dr. Jawad A. Salih

٣

Suggested hybrid Transform Technique for image compression
Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood

٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites
/https://mauc.edu.iq

Course Name	
Photometric analysis	
Course Code	
MTH ٨٢٠	
Chapter..... Sunnah	
((Chapter Two))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
(Weekly – Theoretical & Practical)	
(Number of Credit Hours (Total) / Number of Units (Total	
hours by 45 hours theoretical + 30 hours practical ٧٥	
(Course administrator's name (if more than one name is mentioned	
Course Objectives	**As shown below**
1 Explain how to represent continuous and intermittent images. 2 Sampling and reconstruction. 3 Clarification. Spatial domain and intensity of transitions . 4 Wrap. Image enhancement/restoration. Edge detection, feature extraction, hash	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 Providing an appropriate academic climate for stud and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and strengthening the university's relationship with the community through the implementation of consulting work, training and the development of teaching and administrative staff . 2- The student should be able to speak and write in an influential scientific manner in Arabic and**

	English **A-3 To be familiar with international medical physics standards, guess the needs of the medical and** **health side, and apply the concepts of** **quality management in health work** **. A-4 Adherence to the ethics of practicing the profession and the ability to demonstrate high professional** **competence in addition to commitment to personal appearance and behavior.** **A-5 To be interested in protecting the patient from the dangers of using medical devices, especially those related to the radiation aspect,** **and reducing damage to the patient and** **workers in this field. B - Subject-specific skills B-1 Ability to apply the principles of medical physics.** **B2 - Analysis of medical problems** **from the scientific side with a physical basis and … access to**

Course Structure					
The	**Hours**	**Required**	**Unit or**	**Learnin**	**Evaluation**

week		Learning Outcomes	subject name	g method	method
	hours ٣ theoretical + 2 hours practical	Photometric analysis	Continuous and discrete image representatio.n	Theoretical + Practical	Daily and monthly exams
	3 hours theoretical + 2 hours practical	Photometric analysis	Sampling and reconstruction	Theoretical + Practical	Daily and monthly exams
	3 hours theoretical + 2 hours practical	Photometric analysis	Quantization	Theoretical + Practical	Daily and monthly exams
	3 hours theoretical + 2 hours practical	Photometric analysis	domain Spatial	Theoretical + Practical	Daily and monthly exams
	3 hours theoretical + 2 hours practical	Photometric analysis	And intensity transformati.ons	Theoretical + Practical	Daily and monthly exams
	3 hours theoretical + 2 hours practical	Photometric analysis	. Convolution	Theoretical + Practical	Daily and monthly exams
	3 hours theoretical + 2	Photometric analysis	Image enhancement /res	Theoretical + Practical	Daily and monthly exams

	hours practical		toration. Edge detection, feature ،extraction segmentation.		

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written .exams, reports .... Etc								
Daily preparation	Daily exam							
٥	٥	٥	١٠	٥	٧٠	١٠٠		

no	(Required textbooks (methodology, if any
	Learning and Teaching Resources
	Recommended supporting books and references .... (scientific journals, reports https://journal.mauc.edu.iq/index.php/JMAUC Book Title or Research Author Name Type ١ Development of semantic website using knowledge representation Dr.Jamal fadthel Tawfeq ٢ Study of Parathyroid gland function in normal pregnant women in Tikrit city Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and .Dr. Jawad A. Salih ٣ Suggested hybrid Transform Technique for image compression Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood ٤

Using Laplace Transformation Technique to solve boundary value problems **Dunya Mohee Hayder**
Electronic References, Websites **/https://mauc.edu.iq**

Course Name	
Physiology	
Course Code	
BLG ٦٠٠	
Chapter..... Sunnah	
((Chapter One))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
((Number of Credit Hours (Total) / Number of Units (Total	
hours per year, 3 hours per week ٤٥	
(Course administrator's name (if more than one name is mentioned	
Course Objectives	**As shown below**
1 The course aims to introduce the subject of physiology in terms of terms and different body structures in terms of external description in a simplified manner and location in addition to mentioning the function that relates to each member of the different body systems. -2 The academic program aims to apply the principles and methods of physics to diagnose and treat diseases (Therapy) and the practice of modern medicine depends effectively on an important number of techniques, tools and physical principles and has led to the urgent need for accuracy in the methods of diagnosis and treatment and improve their performance and to the continuous development of techniques and physical tools used in that to the emergence of the specialization of medical physics.	
Teaching and Learning Strategies	
	Knowledge and understanding A-1 The ability to analyze and think scientifically through the application of laws in physics and mathematics and adherence to the guidelines and instructions to effectively in the organizational and administrative framework in the implementation of a project or face a medical physical problem, solve and evaluate it and provide a suggestion or translation or interpretation A-2 The student should have been able to speak and write in an influential scientific style in

	Arabic and English. **B - skills specific to the subject** **B1 - constructive medical discussions and expressing opinion.** **B-2 Enabling graduates to keep pace with the research development in the aspect of medical physics, which contributes to the development of the medical aspect. Teaching and learning methods** **This is done by testing students in theory and orally, classroom and home activities, training / informing them** **of previous experiences, presenting a problem or issue in** **a video or workshop and requesting to address it, improve** **its performance or develop it, and encourage note-taking and** **scheduled comparison, for example** **1- A diagnosis and treatment of a medical condition (in providing a description that includes scientific facts about the problem of** **medical physics and asks students to analyze some information, diagnose the** **...problem and describe the physical solution to it.**

					Course Structure
The	**Hour**	**Required**	**Unit or**	**Learnin**	**Evaluation**

week	s	Learning Outcomes	subject name	g method	method
	٣	Physiology	General definitions	Lectures	Daily and monthly exams
	٣	Physiology	Nervous system	Lectures	Daily and monthly exams
	٣	Physiology	Muscular system	Lectures	Daily and monthly exams
	٣	Physiology	Integumentary system	Lectures	Daily and monthly exams
	٣	Physiology	Urinary system	Lectures	Daily and monthly exams
	٣	Physiology	Digestive system	Lectures	Daily and monthly exams
	٣	Physiology	Immunity system	Lectures	Daily and monthly exams

Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written .exams, reports .... etc						
Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠
(Required textbooks (methodology, if any						لا يوجد

Recommended books and references (scientific ...journals, reports https://journal.mauc.edu.iq/index.php/JMAUC Book Title or Research Author Name Type
١ Development of semantic website using knowledge representation Dr.Jamal fadthel Tawfeq
٢ Study of Parathyroid gland function in normal pregnant women in Tikrit city Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and .Dr. Jawad A. Salih
٣ Suggested hybrid Transform Technique for image compression Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood
٤ Using Laplace Transformation Technique to solve boundary value problems Dunya Mohee Hayder بحث
Electronic References, Websites /https://mauc.edu.iq

Course Name	
The effect of radiation on biology	
Course Code	
PCS354	
Chapter..... Sunnah	
((Chapter One))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
Theoretical weekly attendance	
(Number of Credit Hours (Total) / Number of Units (Total	
hours per year, 3 hours per week ٤٥	
(Course administrator's name (if more than one name	
Course Objectives	**As shown below**
Study the basic principles of physics and chemistry of radiation reactions. 2- Study of linear energy transfer and relative biological effect in addition to discussing the types of radiation doses. Study of radiation chemistry and study of the properties and interaction of free radicals and oxidizing agents with human cells .4. Discuss the interaction of radiation with the components of the cell directly and indirectly and study the repair of cells after irradiation .5. Study the effect of radiation on human cells and discuss the theory of the target of cells and types of cellular damage .6. Discuss the physical effects of radiation on early humans Late genetic influences and genetic mutation 7 survival curves of cells after irradiation and its importance study the effects of heat on human tissues.	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 Providing students with physical information and concepts. A-2 Providing an academic climate suitable for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of**

	advisory work, training and the development of teaching and administrative staff. A-3 The student should be able to write in an influential scientific style in Arabic and English. A-4 To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the concepts of quality management in health work. A-5 Adherence to the ethics of practicing the profession and the ability to show high professional competence in addition to commitment to personal appearance and behavior. A-6 Protect the patient from the dangers of using medical devices, especially those related to the radiation aspect, and reduce damage to the patient and workers in this field. B - Subject-specific skills B-1 Ability to apply the principles of medical physics. B2 - Analysis of medical problems from the scientific ... side of the basis

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٣	The effect of radiation on biology	Introduction to basic physics and chemistry of radiation interactions	Lectures	Daily and monthly exams
	٣	The effect of radiation on biology	free radicals	Lectures	Daily and monthly exams
	٣	The effect of radiation on biology	oxidation and reduction	Lectures	Daily and monthly exams

	٣	The effect of radiation on biology	Subcellular and cellular effects	Lectures	Daily and monthly exams
	٣	The effect of radiation on biology	Killing repair	Lectures	Daily and monthly exams
	٣	The effect of radiation on biology	Sensitization And protection	Lectures	Daily and monthly exams
	٣	The effect of radiation on biology	Measurement methods	Lectures	Daily and monthly exams

Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... Etc.						
Daily preparation	Daily exam					
٥	٥	٥	١٠	٥	٧٠	١٠٠

Learning and Teaching Resources	
(Required textbooks (methodology, if any	no

Recommended books and references (scientific ...journals, reports

https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research Author Name Type

١

Development of semantic website using knowledge representation

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٢

Study of Parathyroid gland function in normal pregnant women in Tikrit city

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Suggested hybrid Transform Technique for image compression

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٤

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

Electronic References, Websites

/https://mauc.edu.iq

Course Name	
The effect of radiation on biology	
Course Code	
PCS ٣٥٤	
Chapter..... Sunnah	
((Chapter Two))	
Date of preparation of this description ٤	
٢٠٢١ / ٦ /٦	
Available Forms of Attendance	
Theoretical weekly attendance	
(Number of Credit Hours (Total) / Number of Units (Total ٦	
hours per year, 3 hours per week ٤٥	
(Course administrator's name (if more than one name is mentioned ٧	
Course Objectives	**As shown below**
Study the basic principles of physics and chemistry of radiation interactions .2- Study of linear energy transfer and relative biological effect, in addition to discussing the types of radiation doses .3- Study of radiochemistry and study of the properties and interaction of free radicals and oxidizing agents with human cells .4. Discuss the interaction of radiation with the components of the cell directly and indirectly and study the repair of cells after irradiation .5. Study the effect of radiation on human cells and discuss the theory of the target of cells and types of cellular damage .6. Discuss the physical effects of radiation on early humans Late genetic influences and genetic mutations 7 survival curves of cells after irradiation and its importance study .the effects of heat on human tissues	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding**

	A-1 Providing students with physical information and concepts. A-2 Providing an academic climate suitable for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community through the implementation of advisory work , training and the development of teaching and administrative staff. A-3 The student should be able to write in an influential scientific style in Arabic and English. A-4 To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the concepts of quality management in health work. A-5 Adherence to the ethics of practicing the profession and the ability to show high professional competence in addition to commitment to personal appearance and behavior. A-6 Protect the patient from the dangers of using medical devices, especially those related to the radiation aspect, and reduce damage to the patient and workers in this field. B - Subject-specific skills B-1 Ability to apply the principles of medical physics. B2 - Analysis of medical problems from the scientific side of the basis ...

Course Structure					
The	Hour	Require	Unit or	Learni	Evaluation method

week	s	d Learning Outcomes	subject name	ng method	
	٣	The effect of radiation on biology	Survival curves and their significance	Exams	Daily and monthly exams
	٣	The effect of radiation on biology	Modification of the radiation response	Exams	Daily and monthly exams
	٣	The effect of radiation on biology	Tissue ،effects genetic and carcinogenic effects	Exams	Daily and monthly exams
	٣	The effect of radiation on biology	،mutations hazards. Effects of heat on tissue	Exams	Daily and monthly exams
	٣	The effect of radiation on biology	Thermal dosimetry	Exams	Daily and monthly exams
	٣	The effect of radiation on biology	Biology of Thermal Potentiation of Radiotherapy	Exams	Daily and monthly exams
	٣	The effect of radiation on biology	High temperature thermal therapy	Exams	Daily and monthly exams

Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... Etc.						
الكلي	امتحان تحريري	تقرير	امتحان شهري			
١٠٠	٧٠	٥	١٠	٥	٥	٥

no	(Required textbooks (methodology, if any
	Learning and Teaching Resources
	Recommended books and references (scientific ...journals, reports https://journal.mauc.edu.iq/index.php/JMAUC Book Title or Research Author Name Type ١ Development of semantic website using knowledge representation Dr.Jamal fadthel Tawfeq ٢ Study of Parathyroid gland function in normal pregnant women in Tikrit city Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. .Jawad A. Salih ٣ Suggested hybrid Transform Technique for image compression Dr.Ismael Hadi challoob , Rasha Riyadh Mahmoo ٤ Using Laplace Transformation Technique to solve boundary value problems Dunya Mohee Hayder
	Electronic References, Websites /https://mauc.edu.iq

Course Name	
Laser in medicine	
Course Code	
Chapter..... Sunnah	
((Chapter Two))	
Date of preparation of this description	
٢٠٢١ / ٦ /٦	
Available attendance formats	
(Weekly – Theoretical & Practical)	
(Number of Credit Hours (Total) / Number of Units (Total	
hours with 30 hours theoretical and 30 hours practical ٦٠	
(Course administrator's name (if more than one name is mentioned	
Course Objectives	**As shown below**
1 Study of the basic principles of lasers- -2 Study of the basic components of lasers -3 Study of laser types -4 Use of photodynamic therapy to treat cancer -5 Study of laser in ophthalmology -6 Discussion of eye refractive index surgery and study of myopia, farsightedness and quantification -7 Optical and holographic communication	
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding A-1 Providing students with physical information and concepts. A-2 Providing an academic climate suitable for study and research to contribute to finding solutions to medical problems using appropriate and appropriate techniques through courses that provide a strong foundation in the aspect of health physics and its medical applications, in addition to actively contributing to deepening and documenting the university's relationship with the community**

	through the implementation of advisory work, training and the development of teaching and administrative staff. A-3 The student should be able to write in an influential scientific style in Arabic and English. A-4 To be familiar with international medical physics standards, estimate the needs of the medical and health side, and apply the concepts of quality management in health work. A-5 Adherence to the ethics of practicing the profession and the ability to show high professional competence in addition to commitment to personal appearance and behavior. A-6 Protect the patient from the dangers of using medical devices, especially those related to the radiation aspect, and reduce damage to the patient and workers in this field. B - Subject-specific skills B-1 Ability to apply the principles of medical physics . B2 - Analysis of medical problems from the … scientific side of the basis

Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	٢ theoretical + 2 practical weekly	Laser in medicine	Review of elementary quantum ،physics Schrodinger equation, concept of coherence	Lectures	Exams
	2 theoretical + 2	Laser in medicine	absorption	Lectures	Exams

	practical weekly				
	2 theoretical + 2 practical weekly	Laser in medicine	spontaneous emission and stimulated emission processes	Lectures	Exams
	2 theoretical + 2 practical weekly	Laser in medicine	Main components of Laser, principle of Laser action	Lectures	Exams
	2 theoretical + 2 practical weekly	Laser in medicine	introduction to general lasers and their types. Three four level & ،Lasers CW & Pulsed Lasers, ،atomic ionic, molecular	Lectures	Exams
	٢ 2 theoretical + 2 practical weekly	Laser in medicine	excimer, liquid and solid state Lasers and systems	Lectures	Exams
	2 theoretical + 2 practical weekly	Laser in medicine	short pulse generation and Measurement	Lectures	Exams
Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc .					
Daily preparation	Daily exam				

١٠٠	٧٠	٥	١٠	٥	٥	٥

no	(Required textbooks (methodology, if any

...Recommended books and references (scientific journals, reports
https://journal.mauc.edu.iq/index.php/JMAUC

Book Title or Research	Author Name	Type
١		
Development of semantic website using knowledge representation	Dr.Jamal fadthel Tawfeq	
٢		
Study of Parathyroid gland function in normal pregnant women in Tikrit city	Prof Dr. Mossa M. Marbut, , Mena D. Mustafa, and Dr. Jawad A. .Salih	
٣		
Suggested hybrid Transform Technique for image compression	Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood	
٤		
Using Laplace Transformation Technique to solve boundary value problems	Dunya Mohee Hayder	

Electronic References, Websites

/https://mauc.edu.iq