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

## **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

7/4/2024. Date : 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 marke 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 -\* 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 le	earning	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

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	n Structu	ire		
Progra m Structu re	Numbe r of Courses	Unit of study	Percent age	*Reviews
Require ments of the institutio n	70	80		
College Require ments	60			
Departm ent Require ments				
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		
	NATIT	Geometry		
Second/P1	MTH	Statistics and	4	
	380	Probability 1		
	PCS	Introduction to		
Second/P1	229	Medical Physics	2	
		1		
Second/D1	PCS	Electrical &	2	
Second/F1	228	Magnetic	5	
		Dynamic Kinetic		
	MTH	System		
Second/P2	430	Differential	4	
		Equations		
	PCS	Biological		
Second/P2	227	Physics	4	
		Photons and		
Second/D2	PCS	ontical	4	
Second/12	230	optical	4	
C 1/D2	PCS	Introduction to	2	
Second/P2	229	Medical Physics	3	
		2		
Second/P2	MTH	Statistics and	4	
	380	Probability 2	-	
3 rd / P1	BLG	Cell Life Science	3	2
510/11	311	1		-
3rd / D1	MTH	Numerical	3	
510/11	501	analyses	5	
3rd / D1	PCS	Nuclear physics	4	2
510/11	352	Nuclear physics	4	2
rd / P1	CPE	Medical facilities		
	585	1	2	
	AIA	Medical		
rd / P1		Flootrong	2	2
		Liections		
Third/P2	DLG 700	Medical anatomy	3	
	/00			
	PCS	I hermodynamics		
Third/P2	335	and Physics	3	2
		Statistics		
Third/P?	PCS	Models in	3	2
	350	medical physics		-
Third/D7	CPE	Medical facilities	2	
1111111112	585	2	4	
	BLG		~	
Fourth / P1	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

<b>Expected Learning Outcome</b>	s 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	

Te thing and learning strategies

A. Knowledge and understanding

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

An d adhere to the guidelines and instructions for any effectiveness in the organizational and ad ninistrative framework in implementing a project or facing a medical physical problem, solving and evaluating it, submitting a proposal or plan, reformulating, translating or .in erpreting it

A-2 The student should be able to speak and wr te in an influential scientific manner in .A1 abic 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-- Adherence to the ethics of practicing the profession and the ability to demonstrate high professional competence in addition to commitment to personal appearance and .be navior

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

Ra liation and minimizing damage to the .pa tient 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 sci ntific side with a physical basis and reach a sol ition and the ability to propose appropriate .alt ernatives

**B3** - Constructive medical discussions and .opinion

**B**<sup>2</sup> - Enable graduates to keep pace with the res earch development in the aspect of medical ph/sics, which contributes to the development .of the medical aspect

Tenching 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

Su nmer training in government hospitals for the purpose of application to various medical 'devices, seminars on certain topics

Stu dents' theoretical and practical research,lib 'ary activities, which helps students to reach- :t ne following results

Scientific ability to distinguish between correct information and false information

Ea .co	e of scientific drafting and ease of - rection
.co Th	ability to know the physical basis for the -
wo	rk of various diagnostic and therapeutic dical devices
Ab an	lity to relate physical and medical concepts . I 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

Facı	ılty									
Facu	ilty N	ſembe	ers							
Academic Rank		Specia	alization	Special Requireme (if applicat	Special Requirements/Skills (if applicable					
		year	special		staff					
						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

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 or 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																	
	Co		Bas	Knowledg CL:Uz								Values					
	ur	Cours	ic			e	r		SK		I		1	I	values		
Year/Level	se	e	or	A	A	A	A	B	B	B	B	C	C	C	<b>C4</b>		
	Со	Name	opt		۲	٣	2	1	2	3	4	1	2	3			
	de		al														
Second/P1	СН	Medic	Ess				$\checkmark$								$\checkmark$		
	Y	inal	ent														
	14	Chem	ial														
Second /D1	2 M	istry1 Moth	Eco	1		2	2	2	2	2	2	2	2	1			
Second/P1		Math emati	ESS ent	V	N	N	v	N	N	N	N	N	N	V			
	33	CS	ial														
	0	and															
		Stere															
		oscop															
		1C															
		etrv1															
Second/P1	Μ	Statis	Ess														
,	TH	tics	ent														
	38	and	ial														
	0	Prob															
		abilit															
Second/P1	PC	y I Intro	Ess														
Second, 11	S	ducti	ent														
	22	on to	ial														
	9	Medic															
		al															
		Physi															
Second/P1	PC	Electr	Ess														
,	S	ical &	ent								-						
	22	Magn	ial														
	8	etic1		-	,		,	1	1	,	1	,		,			
Second/P2		Kinet	Ess		Ν		ν	γ	γ	N	ν	γ		ν	N		
	111	IC systa	ent ial														
	0	ms	141														
		Dyna															
		mic 2		L,	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>			L,			
Second/P2	PC	Biolo	Ess	$$											$\vee$		
	S	gical	ent														
	22	rnysi	iai														
Second/P2	PC	Photo	Ess														
	S	ns &	ent														
	23	Equip	ial				L										

	0	ment													
		Optic													
		al													
Second/P2	PC	Rolle	Ess												
	S	r to	ent												
	22	Physi	ial												
	9	<b>cs 2</b>													
Second/P2	Μ	Statis	Ess					$\checkmark$				$\checkmark$			$\checkmark$
	TH	tics	ent												
	38	and	ial												
	0	Prob													
		abilit													
		У												<u> </u>	
rd / P1	BL	Cell	Ess												$\checkmark$
	G	Life	ent												
	31	Scien	ial												
	1	ce			,								,		1
rd / P1	Μ	Nume	Ess		V			V		V		V	V		$\checkmark$
	TH	rical	ent												
	50	analy	ial												
1 ( 2 (	1	ses	_	1		1			1						
rd / P1	PC	Nucle	Ess	γ	γ	γ	ν		γ		γ	ν	γ		
	S	ar	ent												
	35	physi	lal												
1 / D4		CS							./					./	
ra / P1	CP E	Medic	ESS				N	N	N	N		N		N	
	E	dl fagilit													
	50 E		lai												
rd / D1	5 FI	Modic	Fee			N					1	1	1		
Iu/II	F	al	ont	v		v			v		v	Ň	v	v	
	40	Flectr	ial												
	4	ons	lui												
Third/P2	BL	Medic	Ess												
	G	al	ent						,						
	70	anato	ial												
	0	my													
Third/P2	PC	Ther	Ess												
,	S	mody	ent												
	33	nami	ial												
	5	CS													
		and													
		Statis													
		tical													
		Physi													
		CS													

Third /D2	DC	Modo	Fee												
1 m u/1 2	S	ls in	ont	v	v	v	Ň	v	v	v	v	v	Ň	Ň	
	35	nhvsi	ial												
	0	rs physi	lui												
	Ŭ	Medic													
		al													
Third/P2	СР	Medic	Ess												
	E	al	ent												
	58	facilit	ial												
	5	ies													
Fourth / P1	BL	Physi	Ess												
,	G	ology	ent												
	60	0,	ial												
	0*														
Fourth / P1	PC	Proje	Ess												$\checkmark$
	S	cts in	ent												
	40	Medic	ial												
	<b>A*</b>	al													
	В	Physi													
		CS													
Fourth / P1	PC	The	Ess						$\checkmark$	$\checkmark$					$\checkmark$
	S	effect	ent												
	35	of	ial												
	4	radia													
		tion													
		on													
		biolo													
		gy		,	,		,	,	, -			, ·	,		
Fourth / P1		traini	Ess	γ	ν		ν	ν	ν			ν	ν		
		ng	ent												
	DC	36 1		. /	. /						./	./			
Fourth / P1	PC	Medic	ESS	N	N		N				N	V	N	N	N
	3	al Ia	ent												
	40 E	nnagi	lai												
IV /D2	л М	Dhoto	Fee	2	2	2	2	2	2	1	2	2	2	2	2
10/12	ТЦ	motri	LSS	v	N	v	Ň	v	v	v	v	v	v	Ň	v
	82	nieu i	ial												
	02	analy	141												
		sis													
IV/P2	РС	Proie	Ess												
	S	cts in	ent			[				'	<b>`</b>	<b>`</b>	`	`	
	40	Medic	ial												
	A*	al													
	B	Physi													
		CS													

IV/P2		The effect of radia tion	Ess ent ial	V	V	 V					V			
IV/P2	РС	on biolo gy traini	Ess	√		 	$\checkmark$				$\checkmark$			
,	S 35 4	ng	ent ial											
IV/P2	• " " EO	Laser in medi	Ess ent ial	V	V	 V	$\checkmark$							
	Ε	cine												

# **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

7.71/7/7

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

Teaching and Learning Strategies         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         Strategy       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 apysics, which contributes to the development of the medical aspect         Course Structure       The work         Required       Unit or       Learning Evaluation	staff					
Course Structure         Course Structure         The work         Unit or         Lamma Required         Unit or         Lamma Required         Unit or         Learning         Evaluation         Unit or         Learning         Evaluation         Unit or         Learning         Evaluation	Teaching and L	earning Str	ategies			
Course StructureThe weekHeureRequiredUnit orLearningEvaluation	Strategy	Knowledg A-1 Provia and resear problems Appropria that provi mathemat Health an effective c university Through t and devel B - Subject B1 - Analy with a phy propose a B-2 Enabl development contribute	e and u de an ac rch to co using ate and de a str ics and d its me ontribu 's relati the impl opment ct-specif ysis of n ysical ba ppropri ing grad ent in th es to the	nderstanding cademic envir ontribute to fi appropriate t ong foundatio physics edical applicat tion to deeper onship with t lementation o t of teaching a fic skills nedical proble asis and reach ate alternativ duates to keep ne aspect of m e development	onment conducin nding solutions in echniques throug on in the aspect of ions in addition hing and docume he community of consulting work a doministrative ems from the scient a solution and the es o pace with the r edical physics, wo of the medical a	ve to study to medical gh courses of to the enting the k, training ve staff entific side he ability to esearch which spect
The week   House   Acquire   One of   Dearning   Dearning	Course Structur	e Re	anired	I Init o	r Learning	Evaluation
Learning subject name method method	The week He	ours Le	arning	subject nam	e method	method

		-							
		Ou	tcomes						
First and second	٤	St Prob	Statistics and Probability		Statistic	es	theoretical		Exams
Third and fourth	٤	Statistics and Probability		I	Measures o centra tendenc	of al y	theoretical		Exam
Fifth and sixth	٤	Sta Prob	tistics and ability	ľ	Measures o centra tendenc	of al cy	the	oretical	Exam
Seventh and eighth	٤	St Prob	atistics and ability		Probabilit Law	y vs	the	oretical	Exam
Ninth and tenth	٤	St prob	atistics and ability		Probabilit Law	y vs	the	oretical	Exam
Eleventh and twelfth	ź	Statistics and Probability			Continuou and discret statistica istribution	ıs te al ıs	theoretical		Exam
Thirteenth and fourteenth	٤	f Statistics f and Probability				er 'y	the	oretical	Exam
<b>Course Evalu</b>	ation		v						
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								to the xams,	
Daily	Doily o	vom	Or	al	Monthly	ro	nort	Written	Total
preparation		лаш	exa	m	exam	10	μοιι	exam	IUtal
5		5		5	10		5	70	1
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									
To									

Development of semantic website using knowledge representation

### **Dr.Jamal fadthel Tawfeq**

### Book

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

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

search

## 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 N	ame
(Introduc	ction to Medical Physics)
Course C	ode
PCS 229	
Chapter.	Sunnah
Chapter (	One – Phase II
Date of p	reparation of this description
<b>T • T 1 / T /</b>	
Available	e attendance formats
Total area	dit hours Number of Units
Total cree	
hours and	nually at 3 hours per week45
Course O	hiectives As shown below
Enable th the studen medical p and radio . medicine	the student to identify the basic principles of medical physics as well as provide nt with the skill of dealing with the basic mathematical laws related to physics -2 - Introduce the student to the basic principles of medical imaging pisotope imaging as well as the basic principles of the subject of nuclear e and radiotherapy
معليم والمعلم	استرانيجيات ال
	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
Strategy	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

							Cour	se St	tructure
week	Hours		subje	Unit or ct name	Lear	ning me	thod	Eva	aluation method
First and second	٣	Introduction to Medical Physics	Intro mee	duction lical to Physics	theoretical		etical		Exams
Third and fourth	٣	Introduction to Medical Physics	Inte ra	eraction of idiation with matter		theore	etical		Exams
Fifth and sixth	٣	Introduction to Medical Physics	ra، pro	X-ray idiation X-ray duction		theore	etical		Exams
Seventh and eighth	٣	Introduction to Medical ة Physics	X-ray interaction with matter Factor controlling x-ray beam		theoretical		etical		Exams
Ninth and tenth	٣	Introduction to Medical Physics	ultr	asound		theore	etical		Exams
Eleventh and twelfth	٣	Introduction to Medical Physics	l m	Nuclear iedicine		theoretical			Exams
Thirteenth and fourteenth	٣	Introduction to Medical Physics	Radioactivity		theoretical		etical		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 prepa	ration	Daily	v exam Oral exam		Monthly exam	report	Writ exa	ten am	Total
	0		٥	٥	1.	0		۷.	1
-	YA								

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** 

Development of semantic website using knowledge representation

Dr.Jamal fadthel Tawfeq book

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

۲

#### Book

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 search

**Dunya Mohee Hayder** 

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

29

Course Name1

**Introduction to Medical Physics** 

Course Code 2

PCS 229

Chapter Sunnah					
Chapter Two – Phase II					
Date of preparation of this description	n				
Y · Y ) / 7 /7					
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 strategiesA-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		
<ul> <li>A-1 Enable the student to obtain the intellectual framework of medical physics A 2</li> <li>Enable the student to understand the principle of the work of the most important diagnostic devices A3</li> <li>Provide an appropriate academic climate for study and research to contribute to finding solutions to</li> </ul>	Teachi	ng and learning strategies
<ul> <li>medical physics A 2</li> <li>Enable the student to understand the principle of the work of the most important diagnostic devices A3</li> <li>Provide an appropriate academic climate for study and research to contribute to finding solutions to</li> </ul>	I	A-1 Enable the student to obtain the intellectual framework of
<ul> <li>Enable the student to understand the principle of the work of the most important diagnostic devices A3</li> <li>Provide an appropriate academic climate for study and research to contribute to finding solutions to</li> </ul>	1	medical physics A 2
the most important diagnostic devices A3 - Provide an appropriate academic climate for study and research to contribute to finding solutions to	-	- Enable the student to understand the principle of the work of
- Provide an appropriate academic climate for study and research to contribute to finding solutions to	t	the most important diagnostic devices A3
research to contribute to finding solutions to	-	- Provide an appropriate academic climate for study and
	1	research to contribute to finding solutions to
medical problems using appropriate and appropriate	1	medical problems using appropriate and appropriate
techniques through courses that provide a strong	t	techniques through courses that provide a strong
foundation in the aspect of mathematics and health physics	f	foundation in the aspect of mathematics and health physics
and their medical applications. A4	8	and their medical applications. A4
- The student should be able to write in an influential scientific	-	- The student should be able to write in an influential scientific
style in Arabic and English B –	S	style in Arabic and English B –
Skills specific to the subject B1 - Analysis of medical problems	5	Skills specific to the subject B1 - Analysis of medical problems
from the scientific side with a	f	from the scientific side with a
physical basis and reach a solution and the ability to propose	1	physical basis and reach a solution and the ability to propose
appropriate alternatives. B-	8	appropriate alternatives. B-
2 Enabling graduates to keep pace with the research		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									
Cours	rse 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 ۶ 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 Co	theoretical ourse Admini	Exams strator Name					

					Cours	se Objectives		
٥	0	٥	١.	٥	۷.	1		
Required textbooks (methodology There isn't any								
Re	commended books https://journa	s and refere al.mauc.edu	ences (scien 1.iq/index.p	tific j hp/J	journa MAU	als, reports C		
	<b>Book Title</b>	or Research	h Author N	ame	Туре			
Dev	elopment of seman	tic website	using knov	vledg	e repi	esentation		
	n	. T	4h al T6		-			
	D	r.Jamai fad boo	ok	q				
Stud	y of Parathyroid g	land functio Tikrit	on in norm city	al pr	egnan	t women in		
Prof	f Dr. Mossa M. Ma	rbut, , Men .Sal	a D. Musta ih	afa, a	nd Dr	. Jawad A.		
Su	ggested hybrid Tra Dr.Ismael Hadi	ansform Tec challoob ,	chnique foi Rasha Riya	: ima adh N	ge cor Iahm	npression ood		
٤								
Using Laplace Transformation Technique to solve boundary value problems								
Dunya Mohee Hayder search								
Electronic References, Websites								
		/https://ma	uc.edu.iq					

Course Name1

(Photons and Optics)

Course Code

PCS 230

Chapter..... Sunnah Chapter Two – Phase II

Date of preparation of this description

1.11/7/7

**Available attendance formats** 

Theoretical weekly attendance

Total credit hours..... Number of Units

60 hours

**Course Administrator Name** 

**Course Objectives** 

As shown below

The department seeks to prepare scientific and research cadres, V 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

							بنية المقرر
The week	Hour s	Required Learning Outcome s	Unit subje nai	or ] ect me	Learn metho	in g od	Evaluation method
First and second	٤	Biologica l physics	Introduc n t photon and optic device	tio to he ics cal ces	Lectu	re	Daily and monthly exams
Third and fourth	٤	Photons and optics	Operati optic devic	on of cal ces	Lectu	re	Daily and monthly exams
Fifth and sixth	ź	Photons and optics	Operati optic devic	on of cal ces	Lectu	re	Daily and monthly exams
Seventh and eighth	٤	Photons and optics	Applicati s technolo sect	on in gy tor	Lectu	re	Daily and monthly exams
Ninth and tenth	ź	Photons and optics	Geomet opt and las syste	ric ics ser em	Lectu	re	Daily and monthly exams
Thirteent h and fourteent h	٤	Photons and optics	Ima formati and fib opt	nge on oer ics	Lectu	re	Daily and monthly exams
Fifteenth	٤	Photons and optics	Diffracti a interferer	on nd nce	Lectu	re	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							
					exa	ms,	reports etc
	Daily	Daily					
prepa	ration	exam					
	0	0	0	1.	0	۷.	1
Learning and Teaching Resources							

Required textbooks (methodology, if	not
Recommended books and reference	ces (scientific journals, reports
https://journal.mauc.edu.i	q/index.php/JMAUC
\ Book Title or Desearch	Author Nama Typa
Dook The of Research	sing knowledge representation
Development of semantic website us	ing movieuge representation
Dr.Jamal fadth	el Tawfeq
	-
4	
Study of Parathyroid gland function	in normal pregnant women in
11KFIUC Prof Dr. Mosso M. Marbut – Mana	lly D Mustafa and Dr. Jawad A
Salih	D. Mustala, and DI. Jawau A.
•••••••••	
٣	
Suggested hybrid Transform Tech	nique for image compression
Dr.Ismael Hadi challoob , Ra	asha Riyadh Mahmood
4	
•	
Using Laplace Transformation Tech	nique to solve boundary value
problem	ns
•	
Dunya Mohee	Hayder
Electronic Referen	ces, Websites
/https://mau	c.edu.iq
**Course Name** 

Stereoscopic mathematics and geometry

**Course Code** 

MTH 330

Chapter..... Sunnah

**Chapter One – Phase II** 

**Date of preparation of this description** 

Available attendance formats

Theoretical weekly attendance

hours per year, 4 hours per week **``** 

**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** 

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		
	ź	Mathematics and Engineering Stereoscopic	Physical applications	theoretical	Exams		
	ź	Mathematics and Engineering Stereoscopic	Physical applications	theoretical	Exams		
	Course Evaluation						
Dis	Distributing the score out of 100 according to the tasks assigned to						

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



### 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

1.11/7/7

**Available attendance formats** 

(Theoretical weekly attendance

Total credit hours..... Number of Units

hours per year, 4 hours per week <sup>\,</sup>

**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 <sup>\*</sup> 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 <sup>±</sup> 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						
Strate	gy	A-1 Providi study and r finding solu appropriate through cou the aspect of health phys addition to to deepenin relationship through the training and the develop A-2 The student influential s Arabic and Analyzing r scientific sid solution and propose app graduates to development contributes	ng an appropria esearch to contr ations to medical e and appropriat inses that provid f mathematics a ics and their me actively contribu- g and document o with the comm e implementation d ment of teaching t shall be able to ccientific manner English B- Subj nedical problem le with a physical the ability to propriate alterna- o keep pace with at in the aspect o to	ate academi ibute to problems of te technique le a strong and dical applie unity n of consult g and admin speak and r in ect-specific s from the al basis and atives. B-2 1 n the resear f medical p	c climate for using es foundation in cations, in versity's ing work, nistrative staff. write in an skills B1- reaching their Enabling ch hysics, which		
		.the develop	oment of the med	lical aspect			
		.the develop	oment of the med	lical aspect	Course Structure		
The week	Hours	.the develop Required Learning Outcomes	Unit or subject name	lical aspect Learning method	Course Structure Evaluation method		
The week	fours	.the develop	Unit or subject name Methods of solving the first degree of ordinary differential equations	lical aspect Learning method Lecture	Course Structure Evaluation method Exams		

Dist		student such as daily preparation, daily, oral, monthly, written exams, reports Etc						
<b>Engenvector</b> <b>Course Structure</b> <b>Distributing the score out of 100 according to the tasks assigned to the</b>							ourse Structure s assigned to the	
	£	Differential equations	Algebra Eigenvalue and Eigenvector		Lectu	re	Exams	
	£	Differential equations	Numerical Applications for differential equations		Lectu	re	Exams	
	ź	Differential equations	Discontinuous dynamic system solution methods		Lectu	re	Exams	
	ŧ	Differential equations	Methods for solving the first-class system		Lectu	re	Exams	
	٤	Differential equations	Methods for solving the linear degree system		Lectu	re	Exams	
			or or diffe equ	dinary rential ations				
		equations	ng the	Lectu	re			

#### **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

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

|--|

Electrical & Magnetic

**Statistics and Probability** 

PCS 228

Chapter..... Sunnah

**Chapter One – Phase II** 

Date of preparation of this description

7.71/7/7

Available attendance formats

Theoretical weekly attendance

Total credit hours..... Number of Units

**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** 

	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
Strategy	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>B-2</b> 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			
Cours	e Evalua	ation						
Distri studer .repor	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						
	Duny Duny							

preparation	exam						
0	0	0	1.	0	٧.	1	
Required tex	tbooks (me	thodology, ((if any				no	
Recomm h Developm	ended bool https://journ <sup>\</sup> Book Tit ent of sema I	ks and referent nal.mauc.edu le or Resear ntic website Dr.Jamal fad	ences (scien u.iq/index.p ch Author N using know Ithel Tawfee	tific j hp/JN Name vledge	ourna MAU( Type e repre	lls, reports	
۲ 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 ۳ Suggested hybrid Transform Technique for image compression							
Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood ź Using Laplace Transformation Technique to solve boundary value problems							
Dunya Mohee Hayder							
المراجع الإلكترونية ، مواقع الانترنيت https://mauc.edu.iq/							

#### **Course Name**

**Biological physics** 

Course Code PCS 227

I CS 221

Chapter..... Sunnah

Chapter Two.... Second

Date of preparation of this description  $7 \cdot 71/7/7$ 

Available attendance formats

Theoretical weekly attendance

**Total credit hours..... Number of Units** 

Hours **``** 

**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 ...

		11					
		A- Knowledge and understanding A-1 Providing					
		students with physical information and concepts.					
		A-2 Prepa	ring trained and qu	ualified cad	res to work in		
		education	al and medical insti	itutions.			
		A-3 The s	student should be a	ble to speak	and write in		
		an influen	tial scientific mann	er in			
		Arabic ar	nd English. A-4 To	be familiar	with		
		internatio	nal medical physics	s standards	, estimate the		
		needs of the	he medical and heal	lth side, and	d apply the		
		concepts o	of quality managem	ent in heal	th work.		
		A-5 Adhe	erence to the ethics	of practicin	ig the		
		profession	and the ability to o	demonstrat	e high		
		profession	al competence in a	ddition to c	ommitment to		
Strate	gy	personal a	ppearance and beh	avior			
		. A-6 To b	. A-6 To be interested in protecting the patient from				
		the dange	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							
The		Required	The name of the	Learning	Evaluation		
week	Hours	Learning	unit or the tonic	method	method		
		Outcomes	unit of the topic	memou	memou		
			Biomechanics				
	,	Biological	.principles				
	£	Physics	Physics of	Lecture	Exams		
		, ~- ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	hearing and				
			vision				

	ź	Biological Physics	Fluid mechanics and human circulatory .system Viscosity and viscoelasticity in biological fluids		Lectu	ıre	Exams
	٤	Biological Physics	Thermodynamic s of biochemical reactions and .metabolism Random molecular motion in gases .and solutions Electrolytes		Lectu	ıre	Exams
	٤	Biological Physics	Molecular and ionic interactions in solutions		Lectu	ire	Exams
	ŧ	Biological Physics	Mem struct pro	Membrane's structure and properties.		ire	Exams
	٤	Biological Physics	Diffus os bi or	Diffusion and osmosis in biological organisms		ıre	Exams
	ź	Biological Physics	Electrochemistry of cells. Action potential and electrical activity of neurons		Lectu	ire	Exams
Disti stude	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						
prepa	Daily ration	Daily exam					
	٥	0	٥	١	. 0	۷.	1

<b>Required textbooks (methodology,</b>	
((if any	no
Recommended books and refere	ences (scientific journals, reports
https://journal.mauc.edu	ı.iq/index.php/JMAUC
<b>\ Book Title or Resear</b>	ch Author Name Type
Development of semantic website	using knowledge representation
Dr.Jamal lad	thei Tawieq
Y CALLER ALL LE AL	
Study of Parathyroid gland functi Tikrif	on in normal pregnant women in
Prof Dr. Mossa M. Marbut, , Mer	na D. Mustafa, and Dr. Jawad A.
.Sal	lih
٣	
Successful babaid Tura of sum To	- h :
Dr.Ismael Hadi challoob.	Rasha Rivadh Mahmood
,	v
4	
•	
Using Laplace Transformation Te	echnique to solve boundary value
prob	ems
Dunya Moh	ee Hayder
Flectronic Refer	ences. Websites
/https://ma	uc.edu.iq
_	

**Medicinal Chemistry** 

CHY 142

Chapter..... Sunnah

Date of preparation of this description

Weekly - theoretical and practical) Total credit hours..... Number of Units hours with 45 theoretical hours with 30 practical hours Vo

**Course Administrator Name** 

As shown below

**Course Objectives** 

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

		and effe of a j . A-2 B-2 d .co	<ul> <li>A-1 The ability to analyze and think scientifically through the application of laws in physic: 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 i</li> <li>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 medica discussions and opinions</li> <li>B-2 Enabling graduates to keep pace with the research development in the aspect of medical aspec</li> </ul>					
		Require						
Th	Нолг	d	Linit or	Loorning				
we	S	g	subject name	method	Evaluation method			
ek		Outcom es						
	٣ hours	Modioin						
	theor	al	Introduction to Chemistry	Locturo	Fyom			
	etical	Chemist	Medical	Lecture	Exam			
	hours	I y						

practi cal				
3 hours theor etical + 2 hours practi cal	Medicin al Chemist ry	Pharmacolog y	Lecture	Exam
3 <sup>r</sup> hours theor etical + 2 hours practi cal	Medicin al Chemist ) ry	Pharmacolog y	Lecture	Exam
3 hours theor etical + 2 hours practi cal	Medicin al Chemist ry	Cell life	Lecture	Exam
3 hours theor etical + 2 hours practi cal	Medicin al Chemist ry	Biochemistry	Lecture	Exam
<pre></pre>	Medicin al Chemist ry	Biochemistry	Lecture	Exam

	practi									
	cal									
	3 hours theor etical + 2 hours pract	Me Che	dicin al emist ry		Partial Biology		ll y	Lectu	ıre	Exam
	Course Evaluation									
Dist	istribut udent sı	ing t uch a	he sco Is dail	re o y pi	out of 1 reparat	00 e ion	icco , dai	rding to ly, oral,	the moi	tasks assigned to the nthly, written exams, .reports Etc
Da prep ati	ily Dar ex	aily am								
	0	٥		0	١	•	٥	۷.		1
										no

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

Development of semantic website using knowledge representation

#### **Dr.Jamal fadthel Tawfeq**

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

۲

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 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 7.71/7/7 **Available attendance formats** Theoretical weekly attendance ((Number of Credit Hours (Total) / Number of Units (Total hours per year, 3 hours per week  $\mathfrak{so}$ **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 **\formulas 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** A- Knowledge and understanding 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 should be able to speak and write in an
influential scientific style
in Arabic and English.
<b>B</b> - Skills specific to the subject <b>B1</b> - Analysis of medical
problems from the scientific side with a physical basis and
reach a solution and the ability to propose appropriate
alternatives.
<b>B-2 Enabling graduates to keep pace with the research</b>
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 method
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								
Cours	e Struct	ure							
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							
				С	ours	e E	valu	ation	
Distribu	Distributing the score out of 100 according to the tasks assigned to the								
student	such as daily	preparation,	daily, oral,	monthl	<b>y, w</b>	ritte	en ex	xams,	
	-	·			.r	epo	orts .	etc	
Daily	Daily								
preparation	exam								
٥	٥			٥	1.	٥	۷.	1	
Learning and Teaching Re							Reso	urces	
	((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** 

Development of semantic website using knowledge representation

**Dr.Jamal fadthel Tawfeq** 

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 Electronics** 

**Course Code** 

**ELE404** 

Chapter..... Sunnah

(( Chapter One – Third Stage))

Date of preparation of this description

7.71/7/7

Available attendance formats

weekly theoretical and practical

((Number of Credit Hours (Total) / Number of Units (Total

hours by 30 theoretical + 30 practical <sup>1</sup> ·

(Course administrator's name (if more than one name

Course Objectives As shown below

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 <sup>j</sup>				
	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 weekly3 A						
Th e wee k	Hours	Require d Learnin g Outcom es	Unit or subject name	Learnin g method	Evaluation method			
	theoreti cal + 2 practica l weekly	Medical Electron ics	Semiconduc tor diodes	Theoreti cal and practica l	Daily and monthly exams			
	2 theoreti cal + 2 practica l weekly	Medical Electron ics	JFET	Theoreti cal and practica l	Daily and monthly exams			
	2 theoreti cal + 2 practica l weekly	Medical Electron ics	Mosfet Integrated circuit	Theoreti cal and practica l	Daily and monthly exams			
	2 theoreti cal + 2 practica	Medical Electron ics	Op-Amp، differential Op Amp	Theoreti cal and practica l	Daily and monthly exams			

l woold								
theore cal + practic l weekl	2 ti Medical 2 Electron a ics y	<ul> <li>'Addition subtraction</li> <li>'Op Amp</li> <li>differentiati</li> <li>on</li> <li>and</li> <li>integration</li> <li>Op-amp</li> </ul>	Theoreti cal and practica l	Daily and monthly exams				
theore cal + practic l weekl	2 ti Medical 2 Electron a ics y	Decoder and encoder	Theoreti cal and practica l	Daily and monthly exams				
theore cal + practic l weekl	2 ti Medical 2 Electron a ics y	Microproce ssor power supply	Theoreti cal and practica l	Daily and monthly exams				
<b>Course Eval</b>	lation							
Distributing	the score ou	t of 100 accord	ling to the t	asks assigned to				
the student s	uch as daily	preparation, d	laily, oral, 1	nonthly, written				
.exams, repo	rts Etc							
Daily preparati on	Daily exam							
011	0	0 1	. 0	۷۰ ۱۰۰				
				مصادر التعلم والتدريس				
	(Required t	textbooks (met	hodology, i	f any no				
	Lea	rning and Tea	ching Reso	urces				
Recomme	nded books	and references	s (scientific	journals, reports				
ht	https://journal.mauc.edu.iq/index.php/JMAUC							
	Book Title o	r Research Au	thor Name	Туре				
Development of semantic website using knowledge representation								
Dr.Jamal fadthel Tawfeq								
		۲						

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

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

٣

٤

Using Laplace Transformation Technique to solve boundary value problems

**Dunya Mohee Hayder** 

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

<b>Course Name</b>							
Medical Equipment							
Course Code							
CPE585							
Chapter Su	unnah						
(( Chapter II -	– Phase III))						
The history of	f preparation of this description						
* • * 1 / ٦ /٦							
Available atte	endance formats						
Theoretical w	eekly attendance						
((Number of (	Credit Hours (Total) / Number of Units (Total						
30 Hours							
Course admin	nistrator's name (if more than one name						
<b>Course Objec</b>	tives As shown below						
Study of basic	e physics principles						
. 2. Study of to	echniques for using X-rays in radiography.						
Discussion of	fluorescence imaging and its medical applications						
. 4. Discussion	n of breast cancer and mammography.						
5. Study of nu	uclear radiation monitoring devices.						
6. Discussion	of types of radiation reagents and radiation doses.						
7. Discussion	of optical methods of medical imaging.						
<b>Teaching and</b>	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						

<ul> <li>work.</li> <li>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.</li> <li>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.</li> <li>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 coffermine</li> </ul>							
The wee k	H ou rs	Re qui red Le arn ing Ou tco me	Unit or subject name	Lea rnin g met hod	Evaluation method		
	2	Me dic al Eq uip me nt	This course presents both the basic physics together with the practical technology associated with such methods as X ray	Lec ture	Daily, quarterly and final exams		

		. –					
		computed					
		tomography					
		((C1					
	Med	magnetic					
2	ical Fau	resonance	Lec	Daily quartarly and final avame			
-	ipm	imaging	ture	Dany, quarterry and iniar exams			
	ent	(MRI)					
		functional					
		MRI					
	Med	fMRI) and)					
	ical	spectroscop	Lag				
2	Equ	- ·y	Lec	Daily, quarterly and final exams			
	ipm	ultrasonic	ture				
	ent	)					
		echocardiog					
		raphy					
		Doppler					
		(flow					
		nuclear					
	Med	medicine					
		Gallium, )					
		PET, and					
	ical	SPECT	Lec				
2	Equ	scans) as	ture	Daily, quarterly and final exams			
	ent	well as					
		optical					
		methods					
		such as					
		bioluminesc					
		ence					
		optical					
		tomography					
		······································					
		fluorescent					
	Med	confocal					
	ical	microscopy.	Lec				
2	Equ ·	two photon	ture	Daily, quarterly and final exams			
	ipm ent	microscopy					
		and					
		atomic force					
		microsconv					
2	Me	Functional	Lec	Daily, quarterly and final exams			
		dic	Organizatio	ture			
---	--	---	--	--	--	---	---
		al	n of the				
		Eq	Peripheral				
		uip	Nervous				
		me	System,				
		nt	Electro ne				
			uro-gram				
			(ENG)				
		Me					
		dic					
		al	Electromyo	Loc			
	۲	Eq	gra	tura	Daily, quarterly a	nd fina	l exams
		uip	(m (EMG	ture			
		me					
		nt					
					Cou	ırse Eva	aluation
Dist	ribut	ing th	e score out of	100 ac	cording to the tasks	assigne	d to the
stud	ent s	uch as	s daily prepara	tion, d	laily, oral, monthly,	written	exams,
						. report	ts etc
Dail		ail					
Dall	y D	У					
rotio	a (	exa					
ratio		m					
	0	٥	٥	۱.	0	۷.	1
	0	٥	0	۱.	0	۷.	1
	0	•	ہ Required texth	۱، books (	ہ ا methodology, if any	<b>V</b> •	۱۰۰ لا يوجد
	•	•	ہ Required texth Learnin	۱۰ books ( g and	ہ methodology, if any Teaching Resources	<b>V</b> •	۱۰۰ لا يوجد
Rec	o	o ( nende	ہ Required texth Learnin d books and re	۱۰ books ( g and b ference	o methodology, if any Teaching Resources es (scientific journa	V.	۱۰۰ لايوجد rts
Rec	o comm ://jou	ہ (nende	ہ Required texth Learnin d books and re mauc.edu.iq/in	۱۰ pooks ( g and ference dex.ph	o methodology, if any Teaching Resources es (scientific journa p/JMAUC	V ·	۱۰۰ لايوجد rts
Rec 1ttps: Boo	o comm ://jou ok Ti	o ( nendeo urnal.i tle or	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth	۱۰ pooks ( g and ference dex.ph nor Na	o methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type	V •	۱۰۰ لا يوجد rts
Rec https: \ Boo Devel	o comm ://jou ok Ti	• (nendeournal.) the or ent of	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth semantic webs	۱۰ pooks ( g and ference dex.ph nor Na site usi	o methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre	V . Is, repo	۱۰۰ لا يوجد rts
Rec nttps: \ Boo Devel	o comr ://jou ok Ti lopm	o (nended urnal.1 tle or ent of	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth 'semantic webs	۱۰ pooks ( g and ference dex.ph nor Na site usi	o methodology, if any <u>Teaching Resources</u> es (scientific journa p/JMAUC me Type ing knowledge repre	V . Is, repo	۱۰۰ لا يوجد rts
Rec https: \ Boo Devel Dr.Ja	omm comm ://jou ok Ti lopm	• (nended urnal.) tle or ent of fadthe	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth semantic webs el Tawfeq	۱۰ <u>g and </u> ference dex.ph nor Na site usi	o methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre	V .	۱۰۰ لا يوجد rts on
Rec https: \ Boo Devel Dr.Ja	o comm ://jou ok Ti lopm	o ( nended urnal.1 tle or ent of fadth	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth 'semantic webs el Tawfeq	۱۰ pooks ( g and ' ference dex.ph nor Na site usi	o Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre	V . Is, repo esentatio	۱۰۰ لا يوجد rts
Rec https: \ Boo Devel Dr.Ja	omm ://jou ok Ti lopm	• (nended urnal.i tle or ent of fadth	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth 'semantic webs el Tawfeq	۱۰ pooks ( g and ference dex.ph nor Na site usi	Image: constraint of the second sec	V . Is, repo	۱۰۰ لا يوجد rts
Rec https: ) Boo Devel Dr.Ja	o comm ://jou ok Ti lopm	o (nended urnal.i tle or ent of fadth	ہ Required texth Learnin d books and re mauc.edu.iq/in Research Auth 'semantic webs el Tawfeq	۱۰ pooks ( g and ference dex.ph nor Na site usi	o methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre	V . Is, repo esentatio	۱۰۰ لا يوجد rts
Rec https: \ Boc Devel Dr.Ja Y Study	o comm ://jou ok Ti lopm umal	• ( nended urnal.1 tle or ent of fadth fadth	Required texth Learnind books and re mauc.edu.iq/in Research Auth ' semantic websel Tawfeq	۱۰ pooks ( g and ference dex.ph nor Na site usi	methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre-	V . Is, repo esentation	۱۰۰ لا يوجد rts on
Rec https: Devel Dr.Ja Study Prof	o comm ://jou ok Ti lopm umal v of P Dr. 1	o ( nended urnal.i tle or ent of fadth fadth Parath Mossa	Provident contract of the second contract of the sec	<u>روالی م</u> <u>oooks (</u> <u>g and </u> ference dex.ph nor Na site usi site usi notion Mena	methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre- ing knowledge repre- ng bing knowledge repre-	V . Is, reported esentation	۱۰۰ لا يوجد rts on n in Tikı A. Salił
Rec https: \ Boc Devel Dr.Ja Y Study .Prof	o comm ://jou ok Ti lopm lopm umal	• ( nended irnal.i tle or ent of fadth Parath Mossa	Provide stateRequired texthLearnind books and remauc.edu.iq/inResearch Auth'semantic websel Tawfeqel TawfeqM. Marbut, , Take	۱۰ <u>g and </u> ference dex.ph nor Na site usi site usi	methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre- ing knowledge repre- ng Lowledge repre-	V . Is, repo esentation t women Jawad	۱۰۰ لا يوجد rts on n in Tikı A. Salił
Rec https: ) Boc Devel Dr.Ja Study Prof	omm ://jou ok Ti opm amal	o ( nended urnal.i tle or ent of fadth Parath Mossa	Prequired texth         Learnin         d books and re         mauc.edu.iq/in         Research Auth         'semantic webs         el Tawfeq         wyroid gland fu         M. Marbut, , '	۱۰ pooks ( g and ference dex.ph nor Na site usi	methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre- ing knowledge repre- D. Mustafa, and Dr.	V . Is, repo esentation t women Jawad	ر بر لا يوجد rts on n in Tikı A. Salif
Rec https: <sup>1</sup> Boc Devel Dr.Ja 7 Study Prof 7 Sugge	o comm ://jou ok Ti lopm umal v of P Dr. I	• ( nended urnal.i tle or ent of fadth Parath Mossa	Prequired texth         Learnin         Learnin         d books and re         mauc.edu.iq/in         Research Auth         'semantic webs         el Tawfeq         wyroid gland fu         M. Marbut, , i	γ. pooks ( g and ference dex.ph nor Na site usi site usi Mena f	methodology, if any Teaching Resources es (scientific journa p/JMAUC me Type ing knowledge repre- ing knowledge repre- ng knowledge repre-	V . Is, repo esentation t women Jawad	۱۰۰ لا يوجد rts on n in Tikı A. Salił
Rec https: \ Boc Devel Dr.Ja Y Study Prof Sugge Dr.Is	o comm ://jou ok Ti lopm umal umal Dr. I ested mael	o ( nended urnal.i tle or ent of fadth Parath Mossa hybr Hadi	Preduction         Required texth         Learnin         d books and remauc.edu.iq/in         Research Auth         'semantic webs         el Tawfeq         'wroid gland fu         M. Marbut, , 'mathematic of the second seco	ν pooks ( g and ference dex.ph for Na site usi site usi nction Mena	Imethodology, if any         Teaching Resources         es (scientific journal         p/JMAUC         me Type         ing knowledge represent         D. Mustafa, and Draw         que for image comprate         vadh Mahmood	V . Is, report esentation t women Jawad	۱۰۰ لا یوجد rts on n in Tikı A. Salif

Using Laplace Transformation Technique to solve boundary value problems

Dunya Mohee Hayder

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

Medical Fau	inment	
Course Code		
$\frac{\text{Course cour}}{\text{CPE 585}}$		
Chanter S	Sunnah	
Chapter O	ne Stage Three)	
Date of prep	aration of this description	
$\frac{1}{7 \cdot 71} / 7 / 7$		
Available Fo	rms of Attendance	
Theoretical y	weekly attendance	
(Number of (	Credit Hours (Total) / Number of Units (Total	
hours <b>~</b> •		
Course admi	inistrator's name (if more than one name is mentioned	
Course Obie	ectives As shown below	
.4. Discussion .5. Study of r 6. Discussion	n of breast cancer and mammography nuclear radiation monitoring devices. n of types of radiation detectors and radiation doses.	
.4. Discussion .5. Study of r 6. Discussion 7. Discussion Teaching and	n of breast cancer and mammography nuclear radiation monitoring devices. n of types of radiation detectors and radiation doses. n of optical methods of medical imaging d Learning Strategies	

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. <b>B3</b> Medical Discussions
Banna

Cours	se Struct	ure			
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	
	۲	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
	۲		magnetic resonance ،(imaging (MRI functional MRI fMRI) and) spectroscopy	Lecture	Daily, quarterly and final exams
	۲		Ultrasonic	Lecture	Daily,

			echocardiogra)		n		terb	v and
			phy. Doppler		Ч	fii	nal e	xams
			flow), nuclear					
			medicine					
			Gallium)					
			PET. and SPECT					
			scans) as well					
			as optical				Ι	Dailv.
	۲		methods such	Lecture	q	uar	terl	v and
			as		-	fiı	nal e	xams
			bioluminescenc					
			e					
			optical					
			<i>tomography</i>					
			fluorescent					
			confocal					
			(microscopy				Ι	Dailv.
	۲		two-	Lecture	a	nar	- terl	v and
			photonmicroscopy	Locure	1	fii	nal e	xams
			and				iui c	
			atomic force					
			microscony					
			meroscopy					
			Functional					
			Organization of					
			the Perinheral					
			Nervous				Ι	Daily,
	۲		System.		q	uar	terl	y and
			Electro neuro-			fiı	nal e	xams
			gram					
			(ENG)					
							T	Dailv
	۲		Electromyogra		n	nar	terly	v and
			(m (EMG		Ч	fii	nal e	y and yams
					I			
Distrib	outing th	e score out	of 100 according to th	e tasks ass	igne	d to	the	
studen	t such a	s daily pren	aration, daily, oral, m	onthly. wr	itten	exa	ams.	
.report	ts Etc	;	······································	·				
	Daily	Daily						
prepar	ration	exam						
	٥	٥		٥	1.	٥	۷.	1
	•							
		(Required	l textbooks (methodolo	ogy, 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 Development of semantic website using knowledge representation

**Dr.Jamal fadthel Tawfeq** 

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

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** 

Cell Life Science

**Course Code** 

BLG 311

Chapter..... Sunnah

Chapter One – Third Stage

Date of preparation of this description

7.71/7/7

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 Vo

(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	<ul> <li>Knowledge and understanding<sup>1</sup></li> <li>A-1 The ability to analyze and think scientifically by applying laws in physics <ul> <li>and mathematics and adhering to the guidelines and</li> <li>instructions to the effectiveness in the organizational and</li> <li>administrative framework in implementing a project or</li> <li>facing a problem or plan or reformulating a medical</li> <li>physical, solving</li> <li>and evaluating it, and providing a suggestion, translation</li> <li>or interpretation</li> <li>A-2 The student should have been able to speak and</li> <li>write in an influential scientific manner in Arabic and</li> </ul> </li> </ul>
----------	--

<ul> <li>B - skills specific to the subject</li> <li>B1 - constructive medical discussions and expressing opinion.</li> <li>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.</li> <li>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</li> </ul>									
Cours	se Struct	ure							
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 Cell Science mem		Lecture	Daily, quarterly and final exams				
	٣	Cell Life	structure	Lecture	Daily, quarterly and				
	۳ ــــــــــــــــــــــــــــــــــــ	Cell Life Science	Cell membrane	Lecture	Daily, quarterly and final exams				
	٣	Cell Life	transport	Lecture	Daily, quarterly and				

		Science					fiı	nal e	vams				
		Cell Life	Nuclear		Dai	Daily, quarterly an final exan							
	٣	Science	envelope	Lecture									
Course Evaluation													
D	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	uly Daily											
prepa	ration	exam											
	٥	٥			٥	1.	0	۷.	1				
				Learning	and Tea	achir	ıg I	Reso	urces				
		(Required	l textbooks (m	nethodology	, if any				no				
F	Recomm	nended boo	ks and referen	ices (scienti	fic jouri	nals,	rep	orts					
		https://jour	nal.mauc.edu.	iq/index.ph	p/JMAU	JC							
				A (1 ) ) ]	T								
		Book Title	e or Research	Author Na	те Тур	e							
n		4 C		• 1 1	,			<b>.</b>					
De	evelopn	ient of sema	intic website u	ising knowl	edge rep	orese	enta	tion					
		T	)	hal Tarreford									
		I	Jr.Jamai iadu V	her rawreq									
Stu	idv of F	Parathyroid	aland function	n in normal	nragna	nt w	om	on ir					
Stu	iuy of I	aratifyrolu	Tikrit	n ni norma vitv	i pi egna	m w	om		L				
Prof	Dr Mo	ssa M Mar	hut Mena D	Mustafa g	and Dr	Iawa	h he	A Se	lih				
.1101			۳ کا Ult, ۲	• Wiustala,		Jawa	<b>uu</b> 1	1. 50	• • • • • • • • • • • • • • • • • • • •				
S	uggeste	ed hybrid T	ransform Tecl	hnique for i	mage co	mpr	ess	ion					
	D	Ismael Ha	di challoob . R	asha Rivad	lh Mahr	nood							
			ŧ	,									
Usi	ing Lap	olace Transf	formation Tec	hnique to s	olve bou	nda	ry v	alue	•				
	-		proble	ms									
			-										
			Dunya Mohe	e Hayder									
	I	Electronic R	eferences, We	bsites									
	https://mauc.edu.iq												

Course Name	
Anatomy	
Course Code	
BLG 700	
Chapter Sunnah	
((Chapter II – Phase III))	
Date of preparation of this description	
Y • Y 1 / 7 /7	
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 ObjectivesAs 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	
Knowledge and understanding	
A-1 The ability to analyze and think scientifically through the explication of lowerin physics and	
infough the application of laws in physics and	
mathematics and adherence to the guidelines and instructions to effectively in the organizational and	
instructions to effectively in the organizational and	
auministrative	•
Stratogy a physical modical problem	C
solve and evaluate it and provide a suggestion or	
translation or interpretation	
$\Lambda_{-2}$ The student should have been able to sneak and	
hook in an influential scientific manner in Arabic and	Ь
English R - skills sneeific to the subject	u
B1 - constructive medical discussions and evorossing	
opinion.	

	B-2 Ena	bling graduate	s to keep	pace with the					
	research	n development	in the asp	ect					
of medical physics, which contributes to the									
development of the medical aspect.									
	Teachin	g and learning	methods '	This is done by					
	testing s	tudents theore	tically	-					
	and ora	lly, classroom	and home	activities, training /					
	acquain	ting them with							
	prior ex	periences, pres	senting a p	problem or issue in a					
	video								
	or work	shop and requ	esting to a	ddress it, improve its					
	perform	ance							
	or devel	op it, and enco	urage the	taking of notes and					
	schedul	ed comparison	, for exam	ple:					
	1- A cas	e study (pathol	logical tha	t can be diagnosed					
	and trea	ted) in providi	ing a desci	ription that includes					
	scientifi	c facts about th	ne problen	n of medical physics					
	and ask	s students to a	nalyze som	ne information,					
	diagnos	e the problem a	and descri	be the physical					
	.solutior	n to it							
				<b>Course Structure</b>					
	Require								
	h ,								

Evaluation method	Learni ng method	Unit or subject name	d Learnin g Outcom es	Hour s	The wee k
Exams	Lecture	General definitions	anatom y	٣	
Exams	Lecture	Nervous system	anatom y	٣	
Exams	Lecture	Skeletal system	anatom y	٣	
Exams	Lecture	Integumenta ry system	anatom y	٣	
Exams	Lecture	Urinary system	anatom y	٣	
Exams	Lecture	Digestive system	anatom y	٣	
Exams	Lecture	Endocrine system	anatom	٣	

					(	Cou	rse Ev	alua	tion
Distribut	ting the sc	ore out of	f 100 acco	rding	to th	e tas	sks ass	igne	ed to
the stude	ent such as	s daily pre	eparation	, daily	, oral	l, mo	onthly	, wri	itten
					.exa	ms,	repor	ts	. Etc
Daily	Daily								
preparatio	Daily								
n	UX4111		T						
٥	٥	٥	1.		٥		۷.		1
							1		
	(Require	d textboo	ks (metho	odolog	gy, if a	any			no
	L	earning a	nd Teach	ing R	esour	ces			
Recomm	ended boo	ks and re	ferences	scien	tific j	ourr	nals, re	epor	rts
h	ttps://jour	nal.mauc	.edu.iq/in	dex.p	hp/JN	ИАЦ	JC		
	Book Titl	e or Rese	arch Aut	hor N	ame 🛛	Гуре	•		
			١						
Developme	ent of sem	antic web	site using	know	vledge	e rep	resent	tatio	n
	]	Dr.Jamal	fadthel T	awfee	q				
		1 10	۲ 						
Study of Pa	rathyroid	gland fu	nction in	norm	al pre	egna	nt woi	nen	ın
		Ti	krit city		0	10	-		
Prof Dr. M	lossa M. N	larbut, , I	Mena D. I	Vlusta	ifa, ar	nd D	r. Jaw	ad A	<b>A</b> .
			.Salih						
a da				0	•			•	
Suggested	l hybrid 'l	ransform	Techniq	ue for	imag	ge co	mpres	ssion	1
Dr.	Ismael Ha	di challoo	b, Rasha	a Riya	idh M	lahn	100 <b>d</b>		
<b></b>	T	e							
Using Lapl	ace Trans	formation	n Techniq	ue to	solve	bou	ndary	val	ue
		рі	roblems						
		D							
		Dunya N	lonee Ha	yder					
		Deferre	og <b>XX</b> 7-1-9	405					
		Keierenc	es, webs	tes					
	http	s://mauc.	edu.1q				]		

Course Name Thermodynamics Course Code **PCS 335** 

Chapter..... Sunnah

((Chapter Two – Phase III))

Date of preparation of this description

7.71/7/7

Available attendance formats

**Theoretical weekly attendance** 

(Number of Credit Hours (Total) / Number of Units (Total

hours by 45 hours theoretical + 30 hours practical <sup>v</sup> • 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.

	Knowledge and understanding
	A1 The student should be able to speak and write
	in an influential scientific manner in Arabic and
	English
Strategy	
	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

1	
	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>B-2</b> 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

	Course Structure						
T he we ek	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
	۳ Theore tical2 practic al	Thermody namics	Thermody namics zeroth law and temperatu 're thermodyn amic systems	Theoretical .+Practical	Exams		
	٣	Thermody	variables,	Theoretical	Exams		

Theore	e namic	s state	.+Practical	
tical2	2	<b>equations</b>		
practic	2	thermomet		
	1	rv		
		- 5		
٣	•	First law		
Theore		of		
tical?	Thermod	y Thermody	Theoretical	Exams
nractio	namic	s (namics	.+Practical	
practic		work host		
	L	work, neat		
		Discou		
Ineore	Thermod	v Phase	Theoretical	
tical2	namic	transform	.+Practical	Exams
practio	2	<sup>2</sup> ations	•••=========	
	1			
		Second		
		law of		
		Thermody		
Ineore	Thermod	v 'namics	Theoretical	-
tical2	namic	s irreversibl	+Practical	Exams
practio		Α		
	l	nrocossos		
		processes,		
		entropy		
,		<b>T</b> Z <b>•</b> 4•		
Ineore	Thermod	V Kinetic	Theoretical	<b>F</b>
tical2	namic	theore of s	.+Practical	Exams
practio	2	gases	•••	
a				
Y	<b>^</b>	Introducti		
Theore	Thormod		Theoretical	
tical2				Exams
practic	e namic	s statistical	.+Practical	
	1	mechanics		
Distribut	ting the score	out of 100 acc	ording to the t	asks assigned to
the stude	ant such as do	ily nrenaration	n daily aral n	nonthly writton
	ni such as ua	my preparation	i, uaiiy, vi al, ll	ronorte Eta
Doily			.c.ams	
Dally	Daily			
preparatio	exam			
n				

0	٥		٥			
(Red	mired textbo	oks (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						
Developm	ent of seman	tic website using knowledg	e repr	esentation		
	Dı	.Jamal fadthel Tawfeq				
۲ 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 ۳ Suggested hybrid Transform Technique for image compression						
لانتان المعادية بالمعادية بالم معادية بالمعادية بلمعادية بلمعادية بالمعادية بالمعادية بالمعادية بالمعادية						
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

7.71/7/7

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 Vo

(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			

41	•		1	
tneoret	s in	scientific	.actical	
ical $+2$	medic	program		
practic	al	ming		
al	physic			
	S			
	Model			
3	sin	Common		
theoret	modio	computat	Theoretical	
ical $+2$	metric	computat	Theoretical+FT	Exams
practic		lonal	.actical	
ı al	physic	methods		
	S			
	1			
2	Model			
3	s in	Common		
theoret	medic	computat	Theoretical+Pr	
ical + 2	al	ional	actical	Exams
practic	al mh-vaio	IUIIAI	.actical	
al	physic	methods		
	S			
3	Model			
J	s in	Examples		
theoret	medic	from	<b>Theoretical+Pr</b>	
1cal + 2	al	Medical	actical	Exams
practic	nhysic	nhysics	incolour	
al	physic	physics		
	Madal			
3	wiodei			
theoret	s in	Examples		
ical $+2$	medic	from	Theoretical+Pr	Exams
nractic	al	biolegical	.actical	Linumb
practic	physic	physics		
al	S			
-	Model			
3	s in	Examples		
theoret	medic	from	Theoretical_Pr	
ical + 2		hiological		Exams
practic			.acucal	
al	pnysic	pnysics		
 	S			
3	Model			
theoret	s in	Random		
	medic	number	<b>Theoretical+Pr</b>	<b>T</b>
1cal + 2	al	generatio	.actical	Exams
practic	physic	n		
al	Physic c			
	3			

Distributin	g the sco	ore out of	100 acco	rding to t	he ta	asks a	assigned
to the st	udent su	ch as dail	ly prepara	ation, dai	ly, o	ral, n	nonthly,
			.wri	tten exan	ns, r	eport	<u>s Etc</u>
٥	٥	٥	1.	٥		۷.	1 • •
			Learnin	g and Te	achi	ng Re	esources
(R	equired	textbooks	s (method	lology, if	any		no
Recomn	nended b	ooks and	l referenc	es (scient	ific j	ourn	als,
		•••	reports				
http	os://jouri	nal.mauc	.edu.iq/in	dex.php/.	JMA	UC	
<u>ا</u> ۱	Book Tit	le or Res	earch Au	thor Nam	е Ту	pe	
Deve	lopment	of seman	tic websi	te using k	now	ledge	
	-	repr	esentation	n A			
	L	<b>)r.Jamal</b>	fadthel 1	awteq			
C4 d of Do		J _ l J f.	۱ دهنه د.				
Study of Pal	ratnyrold	ו giand ii דייד	INCLION IN	normal	preg	nant	women
Drof Dr. M	occo M I	III I Marbut	Mono D	Muctofo	ond	ים ו	Iowod
	ussa ivi. 1	viai Dui, ,	Solib	Iviustala	, and	<i>I D</i> 1.	Jawau
		•1	<b>1.</b> Sann W				
Suggested h	Suggested hybrid Transform Technique for image compression						
Dr.Ismael Hadi challoob . Rasha Rivadh Mahmood							
Using Laplace Transformation Technique to solve boundary							
8•P	value problems						
	Dunya Mohee Hayder						
		v	بحث	•			
/Electi	ronic Ref	ferences,	Websites	https://m	nauc	.edu.i	q
· · · · · · · · · · · · · · · · · · ·							

Course NameNuclear physicsCourse CodePCS 352Chapter..... Sunnah((Chapter One – Third Stage))Date of preparation of this descriptionY · Y Y / Y /YAvailable 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	Knowl A- 1Th an influ Englisl . A-2 T physics guess and ap health . A-3 A profess ability addition behavi . A-4 T the dan of usin devices and wo B - skill medica B-2 En research the devices and discuss and discuss	edge and un e student sl uential scien h 'o be interes s standards the needs of ply the con- work dherence to sion and the to show hig on to commi- or 'o be interes ngers g medical d s, and reduc orkers in the lls specific t abling grad ch developm ect of medi- velopment of edical aspec Ability to a s hing and learn timent lical Physics methods are sion alogue, field s, of applic	nderstanding hould be able to sp ntific manner in A sted in internation f the medical and h cepts of quality man b the ethics of prace ch professional con- timent to personal sted in protecting f levices, especially f cing damage to the is field. o the subject B1 - ns and expressing of luates to keep pac- nent in cal physics, which of et pply the principles arning methods Th- ning methods used s Sciences, and the e: theoretical and particular d visits to hospital in government hos- ation to various m	beak and write in rabic and al medical health side, anagement in cticing the npetence in appearance and the patient from radioactive patient constructive opinion. e with the contributes to s of medical here are many in the e most important practical lecture, s and medical
	and di	alogue, fiel	d visits to hospital	s and medical
centers,				
summer training in government hospitals for the				spitals for the
purpose of application to various medical devices,				
				<b>Course Structure</b>
Th	Requir	Unit or		
. TT			Dorning	Evaluation

ek		ng Outco mes			
	٤ Theoret ical +2¬ Practic al	Nuclea r physic s	Introduc tion to nuclear physics	Theoretical+Pr .actical	Exams Daily and quarterly and final
	f Theoret ical +2¬ Practic al	Nuclea r physic s	Nuclear structure and binding energy	Theoretical+Pr .actical	Exams Daily and quarterly and final
	€ Theoret ical +2¬ Practic al	Nuclea r physic s	Nuclear decays	Theoretical+Pr .actical	Exams Daily and quarterly and final
	f Theoret ical +2¬ Practic al	Nuclea r physic s	Radioact ivity and nuclear reaction	Theoretical+Pr .actical	Exams Daily and quarterly and final
	t Theoret ical +2¬ Practic al	Nuclea r physic s	Interacti on of radiation with matter	Theoretical+Pr .actical	Exams Daily and quarterly and final
	۶ Theoret ical +2¬ Practic al	Nuclea r physic s	Introduc tion to dosimetr y and dose calculati on	Theoretical+Pr .actical	Exams Daily and quarterly and final
	f Theoret ical +2¬ Practic al	Nuclea r physic s	Dose calculati on	Theoretical+Pr .actical	Exams Daily and quarterly and final

Distributi	41		100	1			•	1 4
the studen	ng the sco t such as	ore out of daily pre	100 accor paration.	ding to the daily, or a	ie task d. moi	ks as nthl <sup>,</sup>	ssigr v. w	ied to ritten
			<b>F</b> ,	.ex	ams, r	epo	rts.	Etc
Daily preparation	Daily exam							
٥	٥	٥	۱.	٥		۷.		۱
			Learn	ing and 7	<b>Feachi</b>	ng l	Reso	ources
	(Require	ed textboo	oks (metho	odology, i	f any			no
Development Study of Par Prof Dr. Mos	c of seman D athyroid sa M. Ma	ntic websi r.Jamal fa gland fun in Ti arbut, , M .S	te using k adthel Ta Y nction in 1 krit city lena D. M Salih	nowledge wfeq normal pi ustafa, ar	e repro	esen nt w Jav	tatio ome vad	on en A.
Suggested h Dr.Isı Using Laplac	ybrid Tra nael Had e Transfo	ansform 7 i challoob ormation '	Fechnique , Rasha t Technique	e for imag Riyadh M e to solve	ge com [ahmo bound	pre od dary	ssio v val	n



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



**Course Name** 

**Medical Imaging** 

**Course Code** 

PCS to

Chapter..... Sunnah

(( Chapter One))

The history of preparation of this description

7.71/7/7

Available attendance formats

Theoretical weekly attendance

## (Number of credit hours (total) / number of units (total hours per year, 3 hours per week <sup>£ o</sup>

(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 L	earning 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

				(	<b>Course Structure</b>
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
	۴	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

		1						
			imaging					
			Diagnostic					
			ultrasound,					
			clinical					
	u,	Medical	applications and	Tastana		]	Daily	and
	,	Imaging	biological	Lecture	m	ontl	hly e	xams
		00	aspects				·	
			of diagnostic					
			ultrasound					
			Nuclear					
	÷	Medical	magnotio	Locturo		]	Daily	v and
	,	Imaging	magnetic	Lecture	ma	ontl	hly e	xams
			resonance				-	
			nuclear					
			magnetic					
			resonance pulse					
			sequences and					
			relaxation					
	w,	Medical	processes and	Taatuura		]	Daily	and
	,	Imaging	their	Lecture	ma	ontl	nly e	xams
			<b>imeasurement</b>				·	
			image					
			acquisition					
			and					
			reconstruction					
			The					
			The					
		N	mainematics			-	D - 11-	
	٣	Medical	or image	Lecture			Dany	and
		Imaging	formation		mo	ontl	nly e	xams
			and image					
			processing					
				С	ours	e E	valu	ation
Dis	tributin	g the score	out of 100 according	g to the task	ks as	sigi	ned t	o the
stue	dent suc	h as daily p	preparation, daily, or	ral, monthl	y, wi	ritte	en ex	ams,
					.re	epo	rts	Etc
	Daily	Daily						
prep	oaratio	exam						
	٥	٥		٥	1.	٥	۷.	1
		(Required t	extbooks (methodol	ogy, if any				no
				v v				
R	ecomme	nded book	s and references (sci	entific				
		jouri	nals, reports					
			/ 1		1			

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

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

**Dr.Jamal fadthel Tawfeq** 

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

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

٣

Using Laplace Transformation Technique to solve boundary value problems

٤

**Dunya Mohee Hayder** 

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

Course Name		
Photometric anal	ysis	
Course Code		
MTH ^ ۲ ·		
Chapter Sunn	ah	
(( Chapter Two))		
Date of preparati	on of this description	n
7.71/7/7		
Available attenda	ance formats	
(Weekly – Theor	etical & Practical)	
(Number of Cred	it Hours (Total) / Nu	umber of Units (Total
hours by 45 hour	s theoretical + 30 ho	urs practical Vo
(Course administ	rator's name (if mor	e than one name is mentioned
Course Objective	2S	As shown below
1 Explain how to	represent continuou	s and intermittent images.
2 Sampling and r	econstruction.	8
3 Clarification. S	patial domain and in	itensity of transitions .
4 Wrap. Image ei	- nhancement/restorat	ion. Edge detection, feature
extraction, hash		-
<b>Teaching and Lea</b>	arning Strategies	
Strategy	Knowledge and une A-1 Providing an ar stud and research to con- medical problems u appropriate technic that provide a stron- the aspect of health applications, in add deepening and stren- relationship with the community through of consulting work of teaching and add . 2- The student sho	derstanding ppropriate academic climate for ntribute to finding solutions to using appropriate and ques through courses ng foundation in physics and its medical lition to actively contributing to ngthening the university's ne h the implementation , training and the development ministrative staff ould be able to speak and write entific manner in Arabic and

1.1

	Dequined Unit on Learnin Evaluation
Course Stru	icture
	from the scientific side with a physical basis and access to
	B2 - Analysis of medical problems
	workers in this field. B - Subject-specific skills B-1
	and reducing damage to the patient and
	the dangers of using medical devices, especially
	A-5 To be interested in protecting the patient from
	competence in addition to commitment to personal
	professional
	. A-4 Adherence to the ethics of practicing the profession and the ability to demonstrate high
	quality management in health work
	health side, and apply the concepts of
	physics standards, guess the needs of the medical
	A-3 To be familiar with international medical

wee k		Learning Outcome s	subject name	g method	method
	hours <sup>v</sup> theoreti cal + 2 hours practica l	Photomet ric analysis	Continuous and discrete image representatio .n	Theoreti cal + Practical	Daily and monthly exams
	3 hours theoreti cal + 2 hours practica l	Photomet ric analysis	Sampling and reconstructio n	Theoreti cal + Practical	Daily and monthly exams
	3 hours theoreti cal + 2 hours practica	Photomet ric analysis	Quantization	Theoreti cal + Practical	Daily and monthly exams
	3 hours theoreti cal + 2 hours practica l	Photomet ric analysis	domain Spatial	Theoreti cal + Practical	Daily and monthly exams
	3 hours theoreti cal + 2 hours practica l	Photomet ric analysis	And intensity transformati .ons	Theoreti cal + Practical	Daily and monthly exams
	3 hours theoreti cal + 2 hours practica l	Photomet ric analysis	Convolution	Theoreti cal + Practical	Daily and monthly exams
	3 hours theoreti cal + 2	Photomet ric analysis	Image enhancement /res	Theoreti cal + Practical	Daily and monthly exams

1.5

hours practica l		det	ration. Edge tection, feature raction ntation							
Distributing the student	g the score such as da	out of 10 ily prepa	0 accordi ration, da	ing to aily, o	o the oral, exan	tasl moi ns, r	ks a nthl epo	ssiį y, v	gned writt I	to zen Etc
Daily	Daily									
preparation	exam									
٥	٥	٥	۱.		٥		۷		١	• •
				0						
(Requir	ed textbool	ks (metho	odology, i	f any	7					no
Lear	rning and	Teaching	<u>Resource</u>	es						
Recommen	ded suppo	rting boo	ks and re	ferer	ices					
•••• h 44 a - //i a	(scientific	journals	, reports	<b>TN /TA</b> 1						
nttps://jour	rnal.mauc.	eau.1q/1n	aex.pnp/.							
DOOK III	le of Kesea		ior maine	стур	e					
Developmen	t of seman repro Dr.Jamal	tic websit esentation fadthel T Y	te using k 1 awfeq	nowl	edge	•				
Study of Pa pr Prof Dr. Mos	arathyroid egnant wo sa M. Mar .Dr. Jav	gland fu men in T but, , Me wad A. Sa ۳	nction in ikrit city ma D. Mu alih	norn 1stafa	nal 1, an	d				
Suggested hy Dr.Ismael Ha	ybrid Tran com adi challoo	sform Te pression b , Rasha t	echnique 1 Riyadh I	for ir Mahı	nage mooe	e dl				

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 1
Chapter Sunnah
((Chapter One))
Date of preparation of this description
Υ.ΥΥ/٦/٦
Available attendance formats
Theoretical weekly attendance
((Number of Credit Hours (Total) / Number of Units (Total
hours per year, 3 hours per week <sup>£</sup> °
(Course administrator's name (if more than one name is mentioned
Course Objectives As shown below
<b>1</b> 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
$\Lambda_{-1}$ The ability to analyze and think scientifically
through the application of laws in physics and
mothematics and
adherence to the guidelines and instructions to
autorence to the guidelines and fist activity to
enecuvery 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

۱.۷

of previous experiences, presenting a problem or issue in
a video or workshop and requesting to address it,
its performance or develop it, and encourage note- taking and
scheduled comparison, for example
<b>1- A diagnosis and treatment of a medical condition</b> (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.
wee
--
K
Cour
Dictri
the student such as daily preparation daily oral monthly written
.exams. reports etc
preparatio
n exam
0 0 0 1. 0

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

Book Title or Research Author Name Type

Development of semantic website using knowledge representation Dr.Jamal fadthel Tawfeq

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

Suggested hybrid Transform Technique for image compression

Dr.Ismael Hadi challoob , Rasha Riyadh Mahmood <sup>£</sup>

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

7.71/7/7

Available attendance formats

Theoretical weekly attendance

(Number of Credit Hours (Total) / Number of Units (Total

(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** 

Teaching and L				
	Knowledge and understanding			
	A-1 Providing students with physical information and concepts			
	concepts.			
	A-2 Providing an academic climate suitable for study			
	and research to contribute to finding			
	solutions to medical problems using appropriate			
Strategy	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
tooching 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>B</b> - Subject-specific skills
<b>B</b> 1 A hility to apply the principles of modical physics
D-1 Addity to apply the principles of medical physics.
<b>B2</b> - Analysis of medical problems from the scientific side of the basis
<ul> <li>using medical devices, especially those related to the radiation aspect, and reduce damage to the patient a workers in this field. B - Subject-specific skills</li> <li>B-1 Ability to apply the principles of medical physic</li> <li>B2 - Analysis of medical problems from the scientific</li> <li> side of the basis</li> </ul>

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

		-	-						
	٣	The effect of radiation on biology	Subcellular and cellular effects	Lectures	D	aily	and	l moi ex	nthly xams
	٣	The effect of radiation on biology	Killing repair	Lectures	D	aily	and	l moi ex	nthly xams
	٣	The effect of radiation on biology	Sensitization And protection	Lectures	D	aily	and	l moi ex	nthly xams
	٣	The effect of radiation on biology	Measurement methods	Lectures	D	aily	and	l moi ex	nthly xams
					С	ours	еE	valus	ation
Dist stud	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							
prena	ation	exam							
<u>r-cpu</u>					٥	۱.	٥	٧.	۱
-	Learning and Teaching Resources								
	(Required textbooks (methodology if any no								
(Acquired textbooks (includuology, if any								10	

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

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

Book Title or Research Author Name Type

Development of semantic website using knowledge representation

**Dr.Jamal fadthel Tawfeq** 

۲

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

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

٣

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 4

7.71/7/7

**Available Forms of Attendance** 

Theoretical weekly attendance

(Number of Credit Hours (Total) / Number of Units (Total ٦

(Course administrator's name (if more than one name is mentioned V

**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	
Knowledge and understanding	

Strategy

The	Course e Hour Require Unit or Learni Evaluation	Structure
	side of	the basis
	B2 - Analysis of medical problems from the	e scientific f the basis
	<b>B-1</b> Ability to apply the principles of medica	l physics.
	field. B - Subject-spec	cific skills
	reduce damage to the patient and work	ers in this
	especially those related to the radiation as	spect. and
	A-6 P natient from the dangers of using medica	rotect the
	commitment to personal appearance and	behavior.
	competence in a	ddition to
	profession and the ability to show high pr	ofessional
	A-5 Adherence to the ethics of prac	aur work. cticing the
	and apply the concepts of quality mana	gement in
	and he	alth side,
	physics standards, estimate the needs of th	e medical
	internation	al medical
	Arabic and English. A-4 To be fan	niliar with
	influential scienti	fic style in
	A-3 The student should be able to v	urite in an
	, training and the development of tea	ching and
		work
	community through the implementation of	f advisory
	documenting the university's relationshi	p with the
	addition to activaly contributing to doon	ll baning and
	aspect of health physics and its medical ap	plications,
	courses that provide a strong foundat	tion in the
	technique	s through
	medical problems using appropriate and ap	opropriate
	and research to contribute to finding so	olutions to
	A-2 Providing an academic climate suitable	e for study
		concepts.

wee	S	d	subject	ng	
k		Learnin	name	method	
		g			
		Outcom			
		es			
		I he	Survival		
	٣	radiatio	curves	Evoma	Daily and monthly
	'	r auratio	and their	Ezams	exams
		hiology	significance		
		The	Modificatio		
		effect of	n of		
	٣	radiatio	the	Exams	Daily and monthly
		n on	radiation		exams
		biology	response		
		The	Tissue		
		effect of	<b>'effects</b>		
	٣	radiatio	genetic and	Exams	Daily and monthly
		n on	carcinogeni		exams
		biology	C		
			effects		
		I ne	'mutations		
	٣	radiatio	Hazarus. Effocts	Fyome	Daily and monthly
	,	n on	of heat on	L'ams	exams
		biology	tissue		
		The			
		effect of			
	٣	radiatio	Thermal	Exams	Daily and monthly
		n on	dosimetry		exams
		biology			
		The	Biology of		
		effect of	Thermal		
	٣	radiatio	Potentiatio	Exams	Daily and monthly
		n on			exams
		biology	Kadiotnera		
			Py High		
		The	temneratur		
		effect of	e	-	Daily and monthly
	٣	radiatio	thermal	Exams	exams
		n on	therapy		<b>-</b> -D
		Diology			

Course Evaluation							
Distribu	ting the so	ore out of 100 according	to the	tasks	assigne	ed to	
the stude	the student such as daily preparation, daily, oral, monthly, written						
			.exam	is, rej	ports	. Etc	
			امتحا		امتعان		
			ن	تقر	المتحان	الكل	
			شهر	ير	ىخرىر	ي	
			ي		ي		
٥	٥	٥	1.	٥	٧.	1	
(Rec	uired tex	tbooks (methodology, if a	ny			no	
I	Learning a	and Teaching Resources					
Recom	mended b	ooks and references (scie	ntific				
	j	ournals, reports					
https://	journal.m	auc.edu.iq/index.php/JM	AUC				
Book	Title or <b>F</b>	Research Author Name T	ype				
		1	-				
Develop	nent of se	mantic website using kno	wledge				
	I	representation					
	Dr.Ja	mal fadthel Tawfeq					
		۲					
Study of	of Parathy	roid gland function in no	rmal				
	pregnan	t women in Tikrit city					
Prof Dr. Me	ossa M. M	arbut, , Mena D. Mustafa	a, and I	Dr.			
	••	lawad A. Salih					
		٣					
Suggeste	d hybrid '	<b>Fransform Technique for</b>	image	e			
		compression					
Dr.Isma	el Hadi ch	alloob , Rasha Riyadh M	ahmoo	•			
	É						
Using Laplace Transformation Technique to solve							
boundary value problems							
	Dun	ya Mohee Hayder					
	Electroni	c References, Websites					
	/htt	ps://mauc.edu.iq					

Course Name				
Laser in medicine				
Course Code				
Chapter Sunnah				
(( Chapter Two))				
Date of preparation	of this description			
2.21/2/2				
Available attendance	e formats			
(Weekly – Theoretic	cal & Practical)			
(Number of Credit H	Iours (Total) / Number of Units (Total			
hours with 30 hours	theoretical and 30 hours practical <b>\.</b>			
( Course administrat	tor's name (if more than one name is mentioned			
Course Objectives	As shown below			
1 Study of the basic -2 Study of the basic -3 Study of laser type -4 Use of photodynamic	principles of lasers- components of lasers es mic therapy to treat cancer			
-5 Study of laser in o	phthalmology			
-6 Discussion of eye	refractive index surgery and study of myopia,			
farsightedness and q	uantification			
-7 Optical and holog	raphic communication			
Teaching and Learn	ing Strategies			
	Knowledge and understanding			
	A-1 Providing students with physical information			
	and concepts.			
	A-2 Froviding an academic climate suitable for			
	study and research to contribute to finding			
	solutions to medical problems using appropriate			
dilu Stratogy appropriate techniques through courses that				
Strategy appropriate techniques inrough courses that				
	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 natient from the dangers of using
medical devices.
especially those related to the radiation aspect and
reduce damage to
the nations and workers in this field
$\mathbf{B}_{-}$ Subject specific skills $\mathbf{B}_{-1}$ A bility to apply the
D - Subject-specific skins D-1 Ability to apply the
<b>B2</b> A polygic of modical problems from the
. D2 - Analysis of medical problems from the
scientific side of the dasis

	Course Structure								
The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method				
	۲ 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				

11.

+ 2 practical weeklyLaser in medicinefour level & Lasers CW & Pulsed Lasers, ·atomicLecturesExams	2theoretical+ 2Laser inpracticalLaser inweeklyMedicineCW & PulsedLasers,·atomic	111	2introduction2general lasers41414151515161717171717171717171811 <th></th> <th></th> <th>ionic, molecular</th> <th></th> <th></th>			ionic, molecular					
2   general lasers     and     theoretical     .	general lasers and		introduction	2 theoretical + 2 practical weekly	Laser in medicine	general lasers and their types. Three four level & 'Lasers CW & Pulsed Lasers, 'atomic	Lectures	Exams			
+ 2 practical weeklyLaser in medicinefour level & LasersLecturesExamsCW & PulsedCW & PulsedImage: CW & PulsedImage: CW & PulsedImage: CW & PulsedImage: CW & Pulsed	2 theoretical + 2 practical weeklyLaser in medicinetheir types. Three four level & (Lasers CW & PulsedExams	111	2introduction2general laserstheoreticalLaser in+ 2Laser inpracticalmedicineweeklyCW & Pulsed			Lasers, •atomic ionic,					
2 Laser In four lovel & Lectures Exame	2their types.theoreticalThree2Laser infour loval&LocturesExame	1     1     1     1       2     1     1     1       3     1     1     1       4     1     1     1       4     1     1     1       5     1     1     1       4     1     1     1       5     1     1     1	2     introduction       theoretical     Laser in         1     1         1         1         1         1         1         1         1         1         1 <th>practical weekly</th> <th>medicine</th> <th>·Lasers CW &amp; Pulsed Lasers,</th> <th>Lectures</th> <th colspan="3">Exams</th>	practical weekly	medicine	·Lasers CW & Pulsed Lasers,	Lectures	Exams			
theoretical , . Three	2 their types	general lasers and 2 their types	2 introduction to general lasers and their types	theoretical + 2 practical	Laser in medicine	four level & 'Lasers	Lectures	Exams			
+ 2 practical weeklyLaser III medicineof Laser, principle of Laser actionLecturesExamsweeklyactionImage: second se	+ 2 practical weeklyLaser III medicineof Laser, principle of Laser actionLecturesExams	$\begin{vmatrix} +2 \\ medicine \end{vmatrix} = \begin{vmatrix} aser in \\ medicine \end{vmatrix} = \begin{vmatrix} oi \ Laser, \\ principle \end{vmatrix} = \begin{vmatrix} Lectures \\ Lectures \end{vmatrix} = Exams$	uieureurear I ogon in of I ogon	 weekly 2 theoretical	Logarie	processes Main components					
2 theoretical + 2 practical weeklyMain components of Laser, principle of LaserLecturesExams0Laser in medicineof Laser, principle of LaserLecturesExams	2 theoretical + 2 practical weekly1Main components of Laser, principle of Laser actionLecturesExams	2Main componentstheoretical + 2Laser in medicineof Laser, principleLecturesExams	2 Main components	theoretical + 2 practical weekly	Laser in medicine	emission and stimulated emission processes	Lectures	Exams			
theoretical + 2 practical weeklyLaser in medicineemission and stimulated emission processesLecturesExamsweekly	theoretical + 2 practical weeklyLaser in medicineemission and stimulated emission processesLecturesExamsweekly000 <td< td=""><td>theoretical + 2 practical weeklyLaser in medicineemission and stimulated emission processesLecturesExams2 theoretical + 2 practical2 Laser in of Laser, principleMain components of Laser, principleExams</td><td>theoretical + 2 practical weeklyLaser in medicineemission and stimulated emissionLecturesExamspractical weeklyprocessesExams2 theoreticalMain componentsExams</td><td>practical weekly 2</td><td></td><td>spontaneous</td><td></td><td></td></td<>	theoretical + 2 practical weeklyLaser in medicineemission and stimulated emission processesLecturesExams2 theoretical + 2 practical2 Laser in of Laser, principleMain components of Laser, principleExams	theoretical + 2 practical weeklyLaser in medicineemission and stimulated emissionLecturesExamspractical weeklyprocessesExams2 theoreticalMain componentsExams	practical weekly 2		spontaneous					

Recommended bo https://iou	1)	kequi	irea t	PYIN	MAZC	ima				
Recommended bo https://iou				CALD	JUKS	(IIIC	mou	ulogy	/ <b>, II</b>	any
https://jou	ooks and	l refei	rence	es (sci	ienti	fic jo	ourna	als, r	epo	rts
- <b>I J</b>	ırnal.ma	auc.ed	du.iq/	/inde	<b>x.ph</b>	p/JN	/IAU	Ċ	•	
Book Ti	tle or R	esear	ch Aı	uthor	r Nai	me ]	<b>vpe</b>			
			١				J			
evelopment of sen	nantic w	vebsit	te usii	ng kn	iowle	edge	repr	esen	tati	on
	Dr.Jan	nal fa	ıdthel	l Taw	vfeq					
					-					
udy of Parathyroi	d oland	funct	tion i	n noi	rmal	nre	onan	t woi	mer	ı in
uuy of Faraniyro	la Siana	Tikr	rit cit	y nor	IIIai	pre	511411		IIICI	
rof Dr. Mossa M.	Marbut	t, , Me	ena D	). Mu	stafa	a, an	d Dr	. Jav	vad	A.
		.Da	ann r							
Suggested hybrid	Transfo	orm T	echn	ique	for i	mag	e con	npre	ssio	n
Dr.Ismael H	ladi chal	lloob	, Ras	ha R	iyad	h M	ahm	ood		
			٤							
						_	_	_		_
sing Laplace Tran	sformat	tion 'I prol	l'echn blems	ique	to so	olve	boun	idary	v va	lue
		proc	orenne	,						
	Duny	ya Mo	ohee H	Hayd	er					
El	ectronic	: Refe	erence	es. W	vebsi <sup>*</sup>	tes				
				<b>,</b>						
	/http	ps://m	nauc.	edu.io	q					

