

*Republic of Iraq  
Ministry of Higher Education & Scientific Research  
Supervision and Scientific Evaluation Directorate  
Quality Assurance and Academic Accreditation  
International Accreditation Dept.*

## *Academic Program Specification Form For The Academic*

*University: Baghdad University  
College : Al –Kindy Medical College  
Number Of Departments In The College : 11  
Date Of Form Completion : 2021-2022  
Department Name: physiology  
Name of head of Department: Ekhlās Jawād amer  
Signature:*

*Dean 's Name:  
Mohamed Jalal Hussain*

*Date :     /     /*

*Dean 's Assistant For  
Scientific Affairs:  
Taghreed Al Haidari*

*Date :     /     /*

*The College Quality Assurance  
And University Performance  
Manager:*

*Aseel Sameer Mohamed*

*Date :     /     /*

*Quality Assurance And University Performance Manager*

*Date :     /     /*

*Signature*

# TEMPLATE FOR PROGRAMME SPECIFICATION

## HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

### PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Al-Kindy Medical college
2. University Department/Centre	Physiology
3. Programme Title	Medical Physics1/ MPH102(first year ,first semester) Medical physiology/PHYS 113(first year ,2 <sup>nd</sup> semester. Hemopoietic & Lymphatic System/ HLS 204 (second year ) Musculoskeletal System/MSK 205 (second year ) Cardiovascular System/CVS 210(second year ) Respiratory System/RSP 211(second year ) GIT, Liver, Biliary and Pancreas/GIT 212(second year ) Neurosciences/NCS 301(third year) Endocrine System/ENS 302(third year) Integumentary System/INS 303(third year) Renal System/REN 307(third year) Reproductive System/REP 308(third year)
4. Title of Final Award	Bachelor in Medicine and General Surgery
5. Modes of Attendance offered	Lectures ,discussions and practical
6. Accreditation	The Higher Accreditation Program of Iraqi Medical Colleges, supervised by the Ministry of Higher Education and WHO
7. Other external influences	None
8. Date of production/revision of this specification	15/2/2022

## 9. Aims of the Programme

The overall aim is that, the student will be familiar with :

- 1) Knowledge of the normal structure and function of the body and its major organ systems with emphasis on content applicable to clinical diagnostic imaging and/or radiation oncology.
- 2) Knowledge of the radiation safety practices and procedures including the determination of radiation shielding requirements.
- 3) Knowledge of the biological effects of radiation and its application for radiation safety and for radiation treatment.
- 4) knowledge of the physiology of some systems in the body which are dealt with in greater detail in the following years of the Medicine degree program.

## 10. Learning Outcomes, Teaching, Learning and Assessment Methods

### A. Cognitive goals

#### A- A1. Knowledge and Understanding

At the end of each subject , the student shall be able to:

A1: Familiar with the physical principles needed to understand how the body works.

A2. have an enhanced knowledge and appreciation of human physiology;

A3. Understand the functions of important physiological systems including the excitatory tissue like muscles and nerves and their action potential. Understanding the physiology of blood, blood groups and immune system.

A4. understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting and ascent to high altitude, and how they can sometimes fail;

### B. The skills goals special to the programme .

B1. Appreciate the difference between ionizing and non-ionizing electromagnetic radiation

B2. Be aware of the functional relationships between various organ systems of the body.

B3 Define feedback mechanisms and identify the various components of a control system.

B4 .Classify blood groups so as to identify the blood groups of patients and donors for the purpose of safe blood transfusion.

B5.Explain the mechanisms of haemostasis and blood coagulation so as to be aware by diseases arising from excessive bleeding or intravascular clotting.

### Teaching and Learning Methods

1-Lectures

2-Practical

3-Tutorial and discussions

4-Self directory learning

5-General and Transferable Skills (other skills relevant to employability and personal development) .

6. To equip themselves for teamwork.

7. Develop communication skills and etiquette with sense of responsibility

Assessment methods
<ol style="list-style-type: none"> <li>1- Written examination</li> <li>2- practical assessment</li> <li>3- daily activities</li> <li>4- final year examination</li> </ol>
<p>C. Affective and value goals</p> <ol style="list-style-type: none"> <li>C1. To equip themselves for teamwork.</li> <li>C2. Develop communication skills and etiquette with sense of responsibility.</li> <li>C3. Interpretation of laboratory data</li> </ol>
Teaching and Learning Methods
<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Small group discussion</li> <li>- Practical</li> <li>-Tutorial and discussions</li> <li>-Short teaching videos interpretation</li> <li>-Skill labs.</li> </ul>
Assessment methods
<ul style="list-style-type: none"> <li>-Data interpretation</li> <li>-practical assessment</li> </ul>

<p>D. General and Transferable Skills (other skills relevant to employability and personal development)</p> <ol style="list-style-type: none"> <li>D1.Ethics and values</li> <li>D2.Communication skills</li> <li>D3.Health promotion packages</li> </ol>
Teaching and Learning Methods
<ol style="list-style-type: none"> <li>1- Being a member of research team</li> <li>2- Knowledge component assessment in form of Theory examination</li> <li>3- Skill component assessment and practical Examination Attitude component assessment by special assessment format</li> <li>4- The examinations scheduled at the end of each semester as Progress test and the whole year assessed by the End of Year Examination</li> </ol>
Assessment Methods
<ol style="list-style-type: none"> <li>1- Written examinations and quizzes with daily activities</li> <li>2- Through observation of behaviors of the student during discussions and tutorial.</li> </ol>

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
First Level/ first year	MPH102	Medical Physics	3	Bachelor Degree Requires ( 6 ) credits
2ndLevel/ first year	PHYS 113	Medical physiology	3	
First Level/ second year	HLS 204	Haemopoitic and lymphatic Module	0.7	Bachelor Degree Requires ( 4.2) credits
First Level/ second year	MSK 205	Musculoskeletal system	0.6	
First Level/ second year	CVS 210	Cardiovascular System Module	0.8	
2nd Level/ second year	RSP 211	Respiratory System Module	1.0	
2nd Level/ second year	GIT 212	Digestive &HB system	1.1	
First Level/ third year	NCS 301	Neurosciences system	1.1	
First Level/ third year	ENS 302	Endocrine system	0.7	
First Level/ third year	INS 303	Integumentary System	0.4	
2nd Level/ third year	REN 307	Urinary system	0.7	
2nd Level/ third year	REP 308	Reproductive system	0.7	

### 13. Personal Development Planning

- 1- The ability to conduct research on various health problems related to physical phenomena
- 2- Able to be a community leader

### 14. Admission criteria .

Candidate from central admission to the Ministry of Higher Education

### 15. Key sources of information about the programme

- 1-Al-kindy Medical College
- 2-Ministry of Higher Education and Scientific Research.

Curriculum Skills Map

please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

				Programme Learning Outcomes															
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First/S1	MPY1 109	Medical physics		x	x	x	x	x	x	x	x	x	x	x		x	x	x	
First /S2	PHYS 115	Medical physiology		x	x	x	x	x	x	x	x	x	x	x		x	x	x	
Second/S1		Hematopoietic and lymphatic module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
		Musculoskeletal system module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
Second/S2		Respiratory system module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
		Digestive and HB System module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
		Cardiovascular system module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
Third /S1		Neurology system module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
		Endocrine system module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
		Integumentary module	Essential	x	x	x	x	x	x	x	x	x	x	x		x	x	x	
Third /S2		Reproductive system module	Essential	x	x	x	x	x	x	x	x	x	X	x		x	x	x	

		Urinary system module	Essential	x	x	x	x	x	x	x	x	x	X	x		x	x	x	
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## TEMPLATE FOR COURSE SPECIFICATION

### HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

#### COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Alkindy medical college
2. University Department/Centre	Physiology /medical physics
3. Course title/code	Medical Physics1/ MPH102(first year ,first semester) Medical physiology/PHYS 113(first year ,2 <sup>nd</sup> semester. Hemopoietic & Lymphatic System/ HLS 204 (second year ) Musculoskeletal System/MSK 205 (second year ) Cardiovascular System/CVS 210(second year ) Respiratory System/RSP 211(second year ) GIT, Liver, Biliary and Pancreas/GIT 212(second year ) Neurosciences/NCS 301(third year) Endocrine System/ENS 302(third year) Integumentary System/INS 303(third year) Renal System/REN 307(third year) Reproductive System/REP 308(third year)
4. Modes of Attendance offered	Lectures, practical, & tutorials and discussions
5. Semester/Year	1 <sup>st</sup> /S1 Medical Physics 1 <sup>st</sup> /S2 Medical physiology 2 <sup>nd</sup> /S1 Haemopoietic and lymphatic Module 2 <sup>nd</sup> /S1 Musculoskeletal system 2 <sup>nd</sup> /S2 Cardiovascular System Module 2 <sup>nd</sup> /S2 Respiratory System Module 2 <sup>nd</sup> /S2 Digestive &HB system 3 <sup>rd</sup> /S1 Neurosciences system 3 <sup>rd</sup> /S1 Endocrine system 3 <sup>rd</sup> /S1 Integumentary System 3 <sup>rd</sup> /S2 Urinary system



	3 <sup>rd</sup> /S2 Reproductive system
6. Number of hours tuition (total)	lectures(105),Discussions (62),practical(76)
7. Date of production/revision of this specification	15/2/2022
8. Aims of the Course	
<p>The overall aim is that, the student will be a familiar with :</p> <ol style="list-style-type: none"> <li>1) Knowledge of the normal structure and function of the body and its major organ systems with emphasis on content applicable to clinical diagnostic imaging and/or radiation oncology.</li> <li>2) knowledge of the physiology of some systems in the body which are dealt with in greater detail in the following years of the Medicine degree program</li> </ol>	

9. Learning Outcomes, Teaching ,Learning and Assessment Method
<p>B- Cognitive goals .</p> <p>A. Knowledge and Understanding</p> <p>A1. have an enhanced knowledge and appreciation of human physiology;</p> <p>A2. Understand the functions of important physiological systems including the excitatory tissue like muscles and nerves and their action potential. Understanding the physiology of blood, blood groups and immune system.</p> <p>A3. understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting and ascent to high altitude, and how they can sometimes fail/</p> <p>A4. be able to recognize and identify principal tissue structures</p> <p>A5.Understanding of the theory and practice of monitoring techniques in physiology and medicine and covers most of the commonly used methods in medical practice with the exception of those derived from imaging and radionuclide methods.</p> <p>A6: The types of equipment which are directly connected to patients</p> <p>B. The skills goals special to the course.</p> <p>B1. Be aware of the functional relationships between various organ systems of the body.</p> <p>B2. Explain the concept of the internal environment and its regulations by homeostatic mechanisms.</p> <p>B3. Describe the distribution and composition of body fluids.</p> <p>B4.Define feedback mechanisms and identify the various components of a control system.</p> <p>B5.Describes the blood cells, their formation and functions in order to investigation of anaemias, infections and leukaemias</p> <p>B6. Compare between plasma protein fractions, their origin and functions so as to understand disturbances of their production. .</p>
Teaching and Learning Methods

- 1- Lectures.
- 2- Small group teaching
- 3- Slides demonstration
- 4- Short teaching videos
- 5- Lab

#### Assessment methods

- 1- Written examinations
- 2- practical assessment
- 3- homework's
- 4- reports

- C. Affective and value goals
- C1. To equip themselves for teamwork.
  - C2. Develop communication skills and etiquette with sense of responsibility.
  - C3. Interpretation of laboratory data.

#### Teaching and Learning Methods

- Lectures
- Small group discussion
- Practical
- discussions
- Short teaching videos interpretation
- Skill labs.

#### Assessment methods

- 1- Data interpretation
- 2- practical assessment

- D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)
- D1.Ethics and values
  - D2.Communication skills
  - D3.Health promotion packages

10. Course Structure/Medical Physics -First year - First Semester

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
	1		Physics of cardiovascular system	Lectures	Quiz , attendance
	2		measurement of Young's modulus	Medical Physics lab	Reports , attendance & quiz
2	1		Bernoulli's principle	Lectures	Quiz , attendance
	1		physics of lungs	Lectures	Quiz , attendance
	2		The surface tension	Medical Physics lab	Reports , attendance & quiz
3	1		Measurement of lung volumes, physics of alveoli	Lectures	Quiz , attendance
	1		Electricity within the body.	Lectures	Quiz , attendance
	2		The specific heat capacity of a liquid by an electrical heating method	Medical Physics lab	Reports , attendance & quiz
4	1		Electrical signals from muscle ,heart and brain	Lectures	Quiz , attendance
	1		Physics of eye and vision	Lectures	Quiz , attendance
	2		Use of boyles law	Medical Physics lab	Reports , attendance & quiz
5	1		Physics of ear and hearing	Lectures	Quiz , attendance
	2		Infrared ,ultraviolet and microwaves in medicine	Discussion	Quiz , attendance
	2		Determine The focal length of a concave mirror	Medical Physics lab	Reports , attendance & quiz
6	1		Force in &on the body	Lectures	Quiz , attendance
	1		Skeleton design and bone strength	Lectures	Quiz , attendance
	2		Determine The focal length of convex lens using concave mirror	Medical Physics lab	Reports , attendance & quiz
7	1		Heat and Energy Requirements of People	Lectures	Quiz , attendance
	2		Calculate The wave length of sodium light using a diffraction grating	Medical Physics lab	Reports , attendance & quiz
8	1		Mechanical work and	Lectures	Quiz , attendance

			energy		
	۲		Light in medicine	discussion	Quiz , attendance
	۲		Investigation The velocity of sound by means of a resonance tube closed at one end	Medical Physics lab	Reports , attendance & quiz
۹	۲		DOSE AND EXPOSURE— MEASUREMENTS.	Discussion	Quiz , attendance
	۱		Power and energy effect on human body	Lectures	Quiz , attendance
	۲		Determine The internal resistance of a cell using a potentiometer	Medical Physics lab	Reports , attendance & quiz
۱۰	۲		SPECT and PET scans	Discussion	Quiz , attendance
	۱		Biological Effects of Radiation1	Lectures	Quiz , attendance
	۲		Using of cathode ray oscilloscope in the measurements of D.C. voltage	Medical Physics lab	Reports , attendance & quiz
۱۱	۱		Structure of the atomic nucleus	Lectures	Quiz , attendance
	۲		Radio nuclides in medicine.	Discussion	Quiz , attendance
	۲		Flow of water through a capillary tube to deduce the viscosity of water	Medical Physics lab	Reports , attendance & quiz
۱۲	۲		Physics of Nuclear Medicine.	Discussion	Quiz , attendance
	۱		Radioactivity of Nuclear Medicine.	Lectures	Quiz , attendance
	۲		Hooks law to verify the tension and compression	Medical Physics lab	Reports , attendance & quiz
۱۳	۱		Physics of Radiation Therapy.	Lectures	Quiz , attendance
	۲		The wavelength of He-Ne laser	Medical Physics lab	Reports , attendance & quiz
۱۴	۱		Physics of Diagnostic X-Rays	Lectures	Quiz , attendance
	۱		Interaction of x-ray with body	Lectures	Quiz , attendance
	۲		The refractive index of a liquid	Medical Physics lab	Reports , attendance & quiz
۱۵	۱		Radiation protection	Lectures	Quiz , attendance
	۲		Verifying of Ohms law	Medical Physics lab	Reports , attendance & quiz

10. Course Structure/Medical Physiology -First year - second Semester

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1		Cell as a living unit of the body and physiology of cell membrane	Lectures	Quiz , attendance
	2		Blood pressure	lab	Reports , attendance & quiz
2	1		Body fluid composition	Lectures	Quiz , attendance
	2		WBC and RBC	lab	Reports , attendance & quiz
3	1		Introduction to neuron physiology	Lectures	Quiz , attendance
	2		Vision	lab	Reports , attendance & quiz
4	1		Nerve action potential	Lectures	Quiz , attendance
	2		Body temperature	lab	Reports , attendance & quiz
5	1		Properties of action potential	Lectures	Quiz , attendance
	2		Blood typing	lab	Reports , attendance & quiz
6	1		synapses and neuromuscular junction	Lectures	Quiz , attendance
	2		Skin physiology	lab	Reports , attendance & quiz
	2		Aging of muscles and nerves	discussion	Quiz , attendance
7	1		Introduction to skeletal muscle cell physiology	Lectures	Quiz , attendance
	2		Physiology of taste and smell	lab	Reports , attendance & quiz
	2		The platelets, Hemostasis and blood coagulation	discussion	Quiz , attendance
8	1		Skeletal muscle contraction	Lectures	Quiz , attendance
	2		Thermoregulation	lab	Reports , attendance & quiz
	2		Cell, morphology and classification. The white blood cell	discussion	Quiz , attendance

9	1		Smooth muscle contraction and Nervous and hormonal control of smooth muscle contraction	Lectures	Quiz , attendance
	2		Muscle fatigue	lab	Reports , attendance & quiz
	2		The hemoglobin and red blood cell	discussion	Quiz , attendance
10	1		The immune system	Lectures	Quiz , attendance
	2		Regulation of Blood Flow and Pressure	lab	Reports , attendance & quiz
	2		Cardiac muscle contractions	discussion	Quiz , attendance
11	2		Sport physiology	lab	Reports , attendance & quiz
	2		Plasma exchange	discussion	Quiz , attendance
12	2		Physiological changes in pregnancy	lab	Reports , attendance & quiz
	2		Physiology of the liver	discussion	Quiz , attendance
13	2		Hearing physiology	lab	Reports , attendance & quiz
	2		Composition and function of the blood	discussion	Quiz , attendance
14	2		Introduction to respiratory system	lab	Reports , attendance & quiz
	2		Fluid derangement in the body	discussion	Quiz , attendance
15	2		Physiology of high altitude	lab	Reports , attendance & quiz
	2		Synaptic transmission	discussion	Quiz , attendance

#### 10. Course Structure/Medical Physiology –second year

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
	12		S1- Haemopoitic and lymphatic Module	Lecture and practical	Quiz , attendance ,Reports
	9		S1-Musculoskeletal system	Lecture and discussions	Quiz , attendance
	13		S2- Cardiovascular System Module	Lecture and practical	Quiz , attendance ,Reports
	17		S2- Respiratory System Module	Lecture and practical	Quiz , attendance ,Reports

	۱۶		S2- Digestive &HB system	Lecture and discussions	Quiz , attendance
10. Course Structure/Medical Physiology –third year					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
	۱۸		Neurology system module	Lecture and practical	Quiz , attendance ,Reports
	۱۲		Endocrine system module	Lecture and practical	Quiz , attendance ,Reports
	۶		Integumentary module	Lecture and practical	Quiz , attendance ,Reports
	۱۰		Reproductive system module	Lecture and practical	Quiz , attendance ,Reports
	۱۰		Urinary system	Lecture and practical	Quiz , attendance ,Reports

11. Infrastructure	
1. Books Required reading:	<p>1. Guyton and hall textbook of medical physiology 13<sup>th</sup> edition by John E. Hall - ELSEVIER</p> <p>2. Ganong’s review of medical physiology 25<sup>th</sup> edition- LANGE</p> <p>3- Medical physics by J.R. Cameron</p>
2. Main references (sources)	all
A- Recommended books and references (scientific journals, reports...).	<p>(introduction to medical imaging: physics, engineering and clinical applications ) by: Nadine Barrie Smith, Andrew Webb</p> <p>Radiation Physics for Medical Physicists Authors: Podgorsak, Ervin B.</p>
B-Electronic references, Internet sites...	Any trusted sites

## 12. The development of the curriculum plan

1. Preparing the necessary survey tools from scientific questionnaires, meetings, focus groups, and others.
2. Comparison between the objectives of the proposed program and the goals of similar programs in other universities
- 3- Determine the bodies in the public and private sectors who are recommended to contact to obtain their views on the program and the proposed plan model
- 4- Development of academic content by deleting, adding and replacing.
- 5- Using modern teaching methods according to the nature of the subject and the level of the learners from time to time.
- 6- Using modern orthodontic methods such as alternative and electronic orthodontics