Program Specification

Program Name: Medical Physics	
Qualification Level : Bachelor of science	
Department: Physics	
College: Applied Science	
Institution: Umm Al-Qura University	

Content

A. Program Identification and General Information

1. Program Main Location:

College of Applied Sciences at Umm Al-Qura University in Makkah Al-Mukarramah in its parts Al-Abdiyyah and Al-Zahir

2. Branches Offering the Program:

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3. Reasons for Establishing the Program:

(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

- Medical physics is one of the most important basic sciences for studying natural phenomena related to matter and energy and their application in medicine. Physics leads technological progress in various fields, which affects society, the environment, and modern technologies used in industry, medicine and agriculture, which affects the economy, human development and human civilization.
- Physics is based on experiments, measurements and mathematical analysis in order to find physical laws represented in mathematical relationships that link the phenomenon to its cause.
- Physics helps to understand the universe around us. The study of physics depends on developing critical thinking and problem-solving skills. Physicists are also diverse, which opens a wide range of future jobs in the fields of matter and energy, especially new and renewable energy.

The medical physics program aims to

- Awareness of students with a broad understanding of basic physics, theoretical and experimental and their application in the field of medicine.
- Develop skills for critical thinking, problem solving and scientific communication
- Prepare students who are able to work well in research centers and graduate studies.
- Awareness of professional and social responsibility and the impact of the physics profession on society.

4. Total Credit Hours for Completing the Program: (206)

5. Professional Occupations/Jobs:

- Work as a researcher in research centers
- Work as a university professor in universities and institutes
- Work in the ministry of health as a medical physicist.
- Work as radiation protection officer
- Work as a teacher in the Ministry of Education
- Work as a product quality controller, machine operator or data analyst in the industry sector
- Work in the offices of Saudi Standards, Metrology and Quality Organization
- Work in the Saudi Electricity Company
- Work in water stations
- Work in the Ministry of Environment
- Joining the Ministry of Defense

6. Major Tracks/Pathways (if any):		
Major track/pathway	**Credit hours** (For each track)	**Professional Occupations/Jobs** (For each track)
1.		
2.		
3.		
4.		

7. Intermediate Exit Points/Awarded Degree (if any):	
Intermediate exit points/awarded degree	**Credit hours**
1.	
2.	
3.	

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

- **Vision:**

  Achieving leadership in medical physics at the local and international levels and actively participating in the community institutions.

- **Mission**:

  Innovation and excellence in higher education and scientific research in medical physics, the graduation of students highly skilled scientifically and technically, and the contribution to the service and development of the community.

2. Program Goals:

1. Achieving leadership in higher education, scientific research and community service.
2. Upgrade the graduate's level through the achievement of comprehensive quality standards.
3. To prepare advanced and innovative educational programs that qualify the graduates to keep up with the requirements of the knowledge society and labor market.
4. To provide students with basic knowledge and skills in physics.
5. To promote scientific research and to qualify specialized scientific and professional cadres to contribute to carrying out distinguished scientific and practical research.
6. To serve community organizations through effective partnerships.
7. To form partnerships with research centers and prestigious global universities.
8. To attract distinguished scientific and administrative cadres.

3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

- **Vision of College of Applied Science:**

  Upgrade college students' academic level and quality
  Develop students' research skills and employ modern technical developments
  Promote cooperation among faculty members within college and hold scientific symposia

- **Mission of Faculty of Applied Science:**

  The college seeks to achieve the higher education objectives and provide university education and graduate studies; hone student skills; encourage faculty members to produce more scientific research to serve community; and expand the scope of scientific books translation and writing.

- **Objectives of College of Applied Science:**

  1. To support university education outputs for education, health, industrial, and commercial sectors with academic cadres that serve growth plans
  2. To link college specialties to job market needs through cooperation with public and private sectors for workshops
  3. To develop human resources and qualify them for applied sciences education to provide community with specialists with diploma or bachelor's degree.
  4. To collaborate with colleges of applied sciences in national and international universities.
  5. To develop behavioral skills (communication) for college students

	6. To evaluate training programs in light of latest developments, job market requirements and international experiences. **By comparing the mission and objectives of the program with the mission and objectives of the college, it can find there is a consistently between**

4. Graduate Attributes:

1. Familiar with the basics, concepts and scientific theories in Physics and the field of their application in medicine.
2. Able to apply physical laws in calculating and estimating physical quantities related to matter and energy.
3. Skilled in use mathematics in physics.
4. Skilled in therapeutic radiobiological physics as well as medical health physics.
5. Able to set up an experiment to measure physical quantities with high accuracy.
6. Able to conduct scientific research and use modern scientific research tools in explaining natural phenomena.
7. Able to use various resources for self-learning and scientific research, whether libraries - websites, etc.
8. Able to write scientific reports and make recommendations.
9. Able to communicate well with others in Arabic and English.
10. Able to work effectively within a scientific teamwork

5.Program learning Outcomes*

Knowledge and Understanding

K1	Demonstrate the basic concepts, quantities, phenomena, and principles of physics.
K2	Describe physical laws and quantities mathematically.
K3	Show the procedures for scientific theoretical treatments as well as empirical observations.

Skills

S1	Apply the laws of physics to calculate and estimate physical quantities.
S2	Explore physical phenomena by performing experiments using a variety of laboratory instruments, collecting and analyzing data, and interpreting their results.
S3	Effectively communicates physics concepts, processes, and results, both orally and in writing.

Values

V1	Apply standards of integrity and ethical behavior to improve the level of performance in all tasks related to physics.
V2	Works responsibly and effectively within the work team.
V...	

* Add a table for each track and exit Point (if any)

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	13	32	15.5%
	Elective	3	6	2.9%
College Requirements	Required	4	16	7.8%
	Elective			
Program Requirements	Required	37	134	65.05%
	Elective	2	6	2.9%
Capstone Course/Project		1	4	1.94%
Field Experience/ Internship		1	8	3.9%
Others				
Total		**59**	**206**	

* Add a table for each track (if any)

2. Program Study Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Level 1		Islamic Culture (1)	R		2	Institution
	7001-3-101-4	English Language B1	R		4	Institution
	MTH1101-4	Introduction to Calculus	R		4	College
	MTH3211-4	Algebra	R		4	Department
	PHY1001-4	General Physics (1)	R		4	College
Level 2	7001-3-102-4	English Language B2	R		4	Institution
		Technology	R		2	Institution
	Chem1001-4	General Chemistry	R		4	College
	MTH1104-4	Calculus	R	Introduction to Calculus	4	Department
	PHY1002-4	General Physics (2)	R	General Physics (1)	4	Department
Level 3		The Holy Qura'an (1)	R		2	Institution
	7001-3-103-4	English Language B3	R		4	Institution
		General Biology	R		4	College
	PHY1101-4	Theoretical Methods in Physics (1)	R	General Physics (2)	4	Department
	PHY1003-4	General Physics (3)	R	General Physics (2)	4	Department
Level 4		Islamic Culture (2)	R	Islamic Culture (1)	2	Institution
	PHY2311-4	Introductory Modern Physics	R	General Physics (3)	4	Department
	PHY2112-4	Theoretical Methods in Medical Physics	R	Theoretical Methods in Physics (1)	3	Department
	PHY2211-4	Electricity and magnetism (1)	R	General Physics (2)	4	Department
	PHYM2301-5	Medical Physics	R	General Physics (3)	5	Department
Level 5		Writing in Arabic language	R		2	Institution
	PHY2212-4	Electricity and magnetism (2)	R	Electricity and magnetism (1)	4	Department
	PHY2411-4	Fundamentals of Quantum Mechanics	R	Introductory Modern Physics	4	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
	PHY2213-4	Electromagnetism and Electromagnetic Waves	R	Theoretical Methods in Medical Physics	4	Department
	PHY2611-4	Introduction to Solid state physics	R	Introductory Modern Physics	4	Department
Level 6		The Holy Qur'an (2)	R	The Holy Qura'an (1)	2	Institution
	BIO2332-6	Anatomy and physiology	R	General Biology	6	College
	PHY2511-5	Introduction to Nuclear Physics	R	Fundamentals of Quantum Mechanics	5	Department
	PHY2612-5	Fundamentals of Electronics	R	Electricity and magnetism (2)	5	Department
Level 7		The Holy Qura'an (3)	R	The Holy Qur'an (1)	2	Institution
	PHYM3503-4	Medical Radiation Physics (1)	R	Introduction to Nuclear Physics	4	Department
	PHYM3303-3	Health Physics	R	Introduction to Nuclear Physics	3	Department
	PHYM3304-3	Instrumentation for Medical Physics	R	Fundamentals of Electronics	3	Department
	PHYM3305-3	Physics of Medical Laser	R	Fundamentals of Electronics	3	Department
	PHYM3501-3	Radiobiology		Anatomy and physiology	3	Department
Level 8		Islamic Culture (3)	R	Islamic Culture (2)	2	Institution
	PHYM3601-3	Physics of Nuclear Medicine (1)	R	Medical Radiation Physics (1)	3	Department
	PHYM3801-3	Physics of Radiation therapy (1)	R	Medical Radiation Physics (1)	3	Department
	PHYM3701-3	Physics of Medical Imaging (1)	R	Instrumentation for Medical Physics	3	Department
	PHYM3703-3	Physics of Medical Ultrasound	R	Medical Radiation Physics (1)	3	Department
	PHYM3504-4	Medical Radiation Physics (2)	R	Medical Radiation Physics (1)	4	Department
Level 9	PHYM3903-8	Co-op training	R	Department Approval	8	Institution
Level 10		Islamic Culture (4)	R	Islamic Culture (3)	2	Institution
	PHYM4602-4	Physics of Nuclear Medicine (2)	R	Physics of Nuclear Medicine (1)	4	Department
	PHYM4802-4	Physics of Radiation therapy (2)	R	Physics of Radiation therapy (1)	4	Department
	PHYM4702-4	Physics of Medical Imaging (2)	R	Physics of Medical Imaging (1)	4	Department
	PHYM4901-4	Computational Medical Physics (1)	R	Medical Radiation Physics (2)	4	Department
Level 11		The Holy Qura'an (4)	R	The Holy Qura'an (3)	2	Institution
		University Elective 1	E		2	Institution
	PHYM4803-3	Physics of Brachytherapy	R	(2) Physics of Radiation therapy	3	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
	PHYM4704-4	Quality Controls for medical physics	R	Physics of Medical Imaging (2)	4	Department
	PHYM4902-4	Computational Medical Physics (2)	R	Computational Medical Physics (1)	4	Department
	PHYM4401-3	Biomechanics	R	Physics of Medical Imaging (2)	3	Department
Level 12		University Elective 2	E		2	Institution
		University Elective 3	E		2	Institution
	PHYM4904-4	Graduation project	R	Department approval	4	Department
	PHYM4502-4	Radiation Protection and Detection	R	Quality Controls for medical physics	4	Department
		Department elective 1	E	Department approval	3	Department
		Department elective 2	E	Department approval	3	Department

* Include additional levels if needed
** Add a table for each track (if any)

3. Course Specifications
Insert hyperlink for all course specifications using NCAAA template

4. Program learning Outcomes Mapping Matrix
Align the program learning outcomes with program courses, according to the following desired levels of performance (**I = Introduced   P = Practiced M = Mastered**)

Course code & No.	Program Learning Outcomes										
	Knowledge and understanding				Skills				Values		
	K1	K2	K3	---	S1	S2	S3	---	V1	V2	----
General Physics (1)	I			I						I	
General Physics (2)	I	I		I	I						
Theoretical Methods in Physics (1)	I	I	I	I						I	
General Physics (3)	I	I		I	I						
Introductory Modern Physics	I	I			I	I					
Theoretical Methods in Medical Physics	I			I						I	
Electricity and magnetism (1)	I	I			I	I					
Medical Physics	I			I						I	
Electricity and magnetism (2)	I			I						I	
Fundamentals of Quantum Mechanics	I	I		I	I	I			I		
Electromagnetism and Electromagnetic Waves	I	I		I		I					I
Biomechanics	P	M		M		M			M	M	
Anatomy and physiology	I	I		I						I	
Introduction to Nuclear Physics	P		P		P	P		P	P	P	P
Fundamentals of Electronics	P	P		P	I	P				I	I
Quantum Mechanics (1)	I		I	I	I		I			I	I
Electromagnetism (1)	P		P		P	P		P	P	P	P

Course code & No.	Program Learning Outcomes										
	Knowledge and understanding				Skills				Values		
	K1	K2	K3	---	S1	S2	S3	---	V1	V2	----
Statistical Thermodynamics	P		P		P	P		P		P	P
Computational physics	P		P		P	P		P		P	P
Medical Radiation Physics (1)	P	P		P	I	P					
Health Physics		P	I	P	P				I		
Instrumentation for Medical Physics	P			P			P	P		P	
Physics of Medical Laser	P		P		P	P			P	P	P
Radiobiology	P		P		P	P			P	P	P
Co-op training		P	P		P	P					
Physics of Nuclear Medicine (2)	I			I							
Physics of Radiotherapy (2)	I	I		P	P		P			P	P
Physics of Medical Imaging (2)	I	I	P	P	P		P			P	P
Computational Medical Physics (1)	I			I					I		
Physics of Brachytherapy	I	I		I	I						
Quality Controls for medical physics	I	I	I	I					I		
Computational Medical Physics (2)	I	I		I	I						
Introduction to Solid state physics	I	I			I	I					
Graduation project	I			I					I		
Radiation Protection and Detection	I	I			I	I					
Department elective 1	I			I					I		
Department elective 2	I			I					I		

* Add a table for each track (if any)

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5. Teaching and learning strategies to achieve program learning outcomes
Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

1. **At the beginning of each chapter, the following are reviewed:**
   1) Review course objectives and content
   2) Review the distribution of grades and the timetable for exams
   3) Show how to collect the scientific material
   4) Clarify how to summarize scientific material in lectures
   5) Show how to cover missed lectures
   6) Professor's office hours.

2. **During the lectures, the following are reviewed:**
   1) Use the blackboard and PowerPoint during the lectures.
   2) The lecture begins with a brief idea of the topic.
   3) Demonstrate the basic principles.
   4) Discussing the phenomena with illustrations and graphs.
   5) Practice to solve problem and exercises.
   6) Use the brainstorming method during the lecture.

3. **During the course explanation throughout the semester, the following is done:**
   1) Giving students the opportunity to do research individually or as a group.
   2) Discuss the solutions of homework.
   3) Giving students the opportunity to do some experiments as possible.
   4) Students review the results.

5) Students write scientific reports.
6) Students discuss results and reports.
7) Students search for the required information on the Internet and use the library.
8) Encourage students to enhance self-learning and educational skills
9) Encourage students to work together and have small group discussion

6. Assessment Methods for program learning outcomes.

Describe assessment methods (Direct and Indirect) that can be used to measure achievement of program learning outcomes in every domain of learning.

Direct Assessment Methods

For course that contain practical part:

No.	Assessment task	Week due	Assessment percentage
1	Midterm Exam	10-11	20%
2	Practical Part		20%
3	Homework, Quizzes	Every week	10%
4	Final Exam	End of semester	50%
5	Total		100%

For other courses:

No.	Assessment task	Week due	Assessment percentage
1	Midterm Exam	10-11	30%
2	Homework, Quizzes, Report, Presentation	Every week	20%
3	Final Exam	End of semester	50%
4	Total		100%

i) Current students and Graduates
1) The entry-level skill-test to measure the level of skill and knowledge of students.
2) The exit exam to measure of the level of attainment of the learning outcomes.
3) The exit interview with the graduates to receive feedback on the program and their learning experience.
4) Questionnaire: Program Questionnaire, Course Questionnaire

ii) Independent Advisors and evaluators
1) A team of independent evaluators will be invited to evaluate the program on basis of an on-site visit to inspect the course files of all courses, as well as inspection of laboratories, equipment, class rooms and make interviews with faculty staff and students for a comprehensive evaluation of the program, facilities and the learning environment.
2) Peer review appraising progress and identifying changes that need to be made.
3) The reports of the evaluation team are discussed in the meetings of the committees, to find out how to use the results and recommendations of the evaluation team to make a plan for the required improvements to the program.

iii) Employers and Stakeholders.
1) Beginning with the fifth year of the commencement of this new program, every two-year interval a comprehensive survey of the employers and alumni will be carried out to collect data and information on the attainment of the program's educational objectives and outcomes.

D. Student Admission and Support:

1. Student Admission Requirements

The bachelor's degree is awarded to graduates of secondary schools in the various fields of scientific and theoretical specialties, which have been built according to a highly academic and professional academic plan. It is necessary for students to complete all the study modules allocated for each plan.

Admission to the BA Program:
1) The admissions system at Umm Al-Qura University is made once before the beginning of the academic year directly after the secondary school results are published, according to the period specified and announced on the website.
2) Apply via the **Unified Admission Portal** at Umm Al-Qura University website.
3) Preference is given to applicants who meet the stated conditions and standards and according to the capacity of the colleges of the university.
4) Passing personal interviews and admission tests for the departments that require this.
5) Confirmation of admission by students after the announcement of admission results.
6) The university number will be issued after the admission has been confirmed.

Admission Requirements to the BA Program:
1) The applicant should be a Saudi citizen or born to a Saudi mother (non-Saudis may apply for scholarship programs).
2) The applicant must be holding secondary school certificate (or an equivalent) from the Saudi Kingdom or abroad.
3) The secondary school certificate or its equivalent must be a recent one (not exceeding 5 years). For the Colleges of Medicine, Pharmacy, and Health Sciences, the secondary school certificate should not be more than 2 years old.
4) The student must pass the required admission tests (General Aptitude Test [GAT] and the Summative Assessment), organized by the National Center for Assessment, if required by the desired department.
5) The student must pass any other exam or interview required by the college (recitations, judicial studies, physical education, art education, Shari`ah, etc.)
6) The applicant must have not been dismissed from the UQU University or any other university for disciplinary reasons.

2. Guidance and Orientation Programs for New Students

The Student Guidance Center at UQU is a specialized guidance and counseling center that seeks to provide consultation, programs and services in comprehensive guidance and counseling. This is with the aim of helping the student to understand himself, define his problems, know his capabilities, and develop his skills to achieve psychological, educational, social, professional and family compatibility as well as his personal goals, in line with the teachings of the Islamic religion.

Services of The Student Guidance Center at UQU

1) Providing guidance and counseling services to all students through awareness and orientation programs that introduce the university, its colleges, and its support deanships, explain how the beneficiary can use these services, in cooperation and coordination with the college departments, and familiarize them with the changes that they may face in their university life and how to deal with them through the available programs at the centers.

2) Providing orientation programs for students in their settings (classrooms, college cafeterias, stadiums, activity halls, clubs, and student gatherings) to guide them. Reducing any negative phenomena and unacceptable issues which may emerge in the behavior of some students at the university.

3) Providing various information sources, such as educational tapes and illustrative aids, issuing specialized brochures and booklets related to the concept of psychological counseling, in cooperation with the relevant authorities of the Deanship of Student Affairs, and enabling students and beneficiaries to take advantage of this material to facilitate the task of their requesting counseling services.

4) Providing specialized counseling services through direct counseling between the service seeker and the psychologist (psychological counselor) on fixed dates determined by the student and the psychological counselor. The services are provided in an atmosphere of confidentiality and privacy to ensure the purpose of discussing the issues and problems that preoccupy the student. Radical solutions are then reached which are consistent with the personality of the person who has the problem, his circumstances, his abilities, and the university's potential, with the student choosing the solution that suits him.

5) Providing group counseling services for a number of students and beneficiaries at the university who share the same problem, consistent with their goals, interests, and issues. The service is provided to them at the same time and the same place, for everyone to contribute to presenting their case. They will be provided with the opportunity to learn the art of dealing with others and build self-confidence, and to learn effective communication skills, constructive dialogue, and the nature of collective participation. To achieve this, it may be necessary to sign a mandatory contract by the participants in the programs to preserve the true character of the principle of participation in this type of group psychological counseling.

6) Helping the students wishing to transfer from one department to another to choose the specialization appropriate to their abilities, potentials and aspirations for their practical future life by conducting standardized tests of tendencies, aptitudes and abilities using scientific methods, such as analyzing the personality of the individual and analyzing specialization requirements.

7) Enhancing and developing the students' capabilities using mentoring programs that include awareness lectures, courses, lessons, and workshops. These programs are periodically planned and implemented by the center to support and enhance the academic and social capabilities of the participants, in cooperation with specialists known for their scientific and professional competence and skills.

Department of Physics

1) At the bigging of the academic year, each faculty member will be assigned a group of students for counselling and advising.

2) A student will be required to meet his academic advisor at least twice a semester, the first visit being before the registration.

3) Each faculty member will be asked to post his office hours during which a student can visit for receiving counselling and advising.

3. Student Counseling Services
(academic, career, psychological and social)

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4. Special Support
(low achievers, disabled, gifted and talented)

General Objectives:
1) Serving students with disabilities (special needs) by receiving their suggestions and requests, discussing these suggestions with them, and referring them to the responsible officials in order to implement them or fulfill their requests.
2) Supporting and counseling students with disabilities and providing them with the necessary guidance in different fields.
3) Engaging students with disabilities in different student activities, events, and trips.
4) Coordinating with the external entities concerned with people with disabilities in order to provide different programs, books, and everything that serves this category of students.
5) Coordinating with the Academic Advising Department at the different colleges in relation to the interests of students with disabilities.

Duties: The unit gives great attention to offering a number of services to students with disabilities, including the following:
1) Issuing entry permits for their vehicles.
2) Allotting seats for those students in the students' means of transportation.
3) Allotting toilets for them at different facilities in the buildings of the university.
4) Allotting seats and tables for them in each classroom.
5) Allotting lounges for them in each college, provided with different supplies tailored to their needs, such as seats, tables, and drinking water.
6) Preparing their study schedules, taking into consideration that their classrooms should be close to each other.
7) Introducing them to student clubs and places for student activities, and tailoring these activities to their needs.
8) Engaging them in student meetings by inviting them and reviewing their opinions about the quality of the services offered to them.
9) Communicating with the centers and companies concerned with offering services to people with special needs in order to fulfill all their educational needs, such as devices, software, books, audios, videos, etc.
10) Giving them an exemption from paying the fees for all the student services and items offered in the rented shops inside the campus, and agreeing with the traders and investors on this matter.
11) Inviting them to participate in the summer centers held by the university.
12) Helping them to find jobs during the Hajj season at the entities working during this season as well as the different Tawafa companies.
13) Giving them precedence in the student recruitment programs.

E. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	Physics	All specialty		7	-	7
Associate Professors	Physics	All specialty		6	4	10
Assistant Professors	Physics	All specialty		18	10	28
Lecturers	Physics	All specialty		1	11	12
Teaching Assistants						
Technicians and Laboratory Assistants	Physics	All specialty		12	9	21
Administrative and Supportive Staff	Physics	All specialty		1	2	3
Others (specify)						

2. Professional Development

2.1 Orientation of New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

The department has an established process for recruiting new faculty members in the areas needed.
1) The positions are advertised with the specific requirements of qualification and experience.
2) The department has the policy not to offer a professorial rank to instructors without a doctoral degree in the discipline.
3) Qualifications are verified before appointments are made.

2.2 Professional Development for Teaching Staff

Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

1) A new faculty member will be given a copy of the Faculty Handbook that contains all information about the duties and responsibilities of the faculty, including the rights, privileges and code of conduct.
2) For the first two semesters, he will be assigned multi-section courses which are coordinated and courses that are within his area of specialty.
3) If necessary and desired, he will be assigned an experienced senior faculty member for receiving teaching help.
4) His student's evaluation will be closely monitored to see that there is no problem with his teaching.
5) He will be asked to attend the workshops on effective teaching and professional development conducted by the Academic Development Unit of the University.

F. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

1. Regarding the specifications of the textbook and references
1) Ease to obtain it and its availability at the library.
2) Clarity of the way scientific content is presented in a simple manner.
3) It covers all topics of the course.
4) It suits the learning outcomes of the course.

2. Black board, D2L eLearning
It is a website where each faculty member can demonstrate the scientific content of the course, and the student can access this website to obtain the scientific contents, and submit assignments, etc.

3. Websites
1. Physics is Beautiful | Free, interactive physics lessons
2. Khan Academy Physics | Physics videos
3. The Feynman Lectures on Physics
4. PhET Simulations | Online physics simulations
5. The Physics Classroom | Physics text book material online
6. Reddit • r/Physics | Physics forum, news and discussion
7. MIT Physics | Free online course material
8. Coursera | Online Physics Courses
9. Udemy | Online Physics Courses
10. EdX | Online Physics Courses
11. Physics.org | Physics News
12. Phys.org | Physics news
13. Physics World | Physics news
14. Wikipedia - Physics | Physics information
15. YouTube | Physics videos
16. PhysicsCentral.com
17. Elementary Einstein
18. CERN | Accelerating science
19. Physics tutorials
20. The Physics of the Universe
21. Practical physics
22. Physics Forums | Physics Forum
23. physics.org | Home
24. Page on physicscentral.com
25. Interactive Star Charts, Planets, Meteors, Comets, Telescopes
26. HubbleSite - Explore Astronomy
27. **Error! Hyperlink reference not valid.**
28. http://vlab.amrita.edu

2. Facilities and Equipment

(Library, laboratories, medical facilities, classrooms, etc.).

1- King Abdullah bin Abdul Aziz Library:

King Abdullah bin Abdul-Aziz Library at Umm Al-Qura University is a scientific, cultural, educational and social institution that aims to collect and develop information sources in various ways (purchases, dedications, exchanges, donations), and organize and restore them in the shortest possible time. It also aims to present these sources to the community of beneficiaries through a combination of traditional services, such as borrowing, references, periodicals, photocopying, and modern services, including ongoing briefings, selective broadcasting of information, and other specialized services. All these services are provided by efficient human cadres who are qualified, scientifically and technically, in the field of library and information science.
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Library Departments:
1) Library Administration
2) Beneficiary Services
3) Electronic Index

Library's Possessions:
1) Providing the sources of human knowledge that serve the different scientific specializations at the university.
2) Developing the library systems according to the modern advancements in the field of library services and information.
3) Providing information and library services to facilitate research and retrieval methods through publications, bibliographies, directories, indexes, etc.
4) Exchanging the university and deanship publications with universities and scientific institutions locally and internationally, and cooperating and coordinating with similar parties.
5) Preparing introductory programs to students and academic staff members about the services it offers, and training them on how to use the available sources of information and how they can benefit from its services.
6) Offering services to beneficiaries by responding to their inquiries and fulfilling their requests as soon as possible.
7) Preparing the suitable atmosphere for studying and research inside the library.

2- Laboratories:
The infrastructure (facilities, equipment and infrastructure) in the Physics Department at the College of Applied Sciences is one of the strengths of the Physics Department, as the infrastructure is sufficient to allow the department to provide an effective and high-quality educational process. The Department of Physics offers practical lessons in laboratories equipped with the best scientific equipment in various fields of physics, which provides a practical environment that enables students to acquire scientific and laboratory skills in the world of experimental physics, and a highly trained student graduates to bear responsibility after graduating from the university.

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)
UQU has separated safety from security for safety to become an independent and specialized department, playing its role and activating its tasks in creating a safe and secure educational environment in the university, under Allah's protection. Working to consolidate the concept of safety to make preserving lives and property inside and outside the university one of the top priorities of the university affiliates. This is with the use of modern scientific programs

and mechanisms which will be applied at all the university facilities, working as one integrated team to produce an educational environment provided with state of the art safety systems according to well thought-out goals, including:

1) Maintaining the safety of the affiliates and visitors of the main buildings of the university and all its branches by creating a safe university educational environment which is free of all risks of dangers.
2) Maintaining the safety of buildings, facilities, equipment and properties in the university.
3) Creating an integrated, effective and upgradable system to manage safety operations.
4) Contributing to raising the level of readiness to activate and implement safety plans and means in the university and its branches.
5) Working to create prevention mechanisms to avoid accidents and reduce the material losses resulting from them.
6) Working to activate an awareness role through visits, participation in events, establishing exhibitions, and provide training and awareness programs to introduce to the university affiliates and students the safety requirements that have to be adopted to protect themselves and those around them, according to basic safety standards.

G. Program Management and Regulations

1. Program Management
1.1 Program Structure
(including boards, councils, units, committees, etc.)

The management of the Program depends on the department board, committees as well as the tasks assigned to each faculty member.

ii) Work Mechanism of the Department Board
Department board is made up of all PhD, Associate and Full professors' staff. During department board meeting, all the topics are discussed, recommendations are made and then referred to the college board through the department head.
The department board discuss the following:
1) Study plan, curricula, textbooks, and references.
2) Appointing and promoting faculty members, lecturers, and teaching assistants.
3) Study of research projects.
4) Distributing lectures, exercises and training work to faculty members and teaching assistants.
5) Organizing and coordinating the department's work.
6) Forming permanent or temporary committees from among its members.
7) Teaching courses that fall within his specialization after being approved by the University Council.

ii) Responsibilities of the Department Chairman
  a) **Administrative affairs:**
    1) To head the department, supervise the organization of its affairs, call upon concerned individuals to attend its sessions, implement its decisions, and send the minutes of its sessions to the College dean.
    2) To achieve the goals and policies of the college and the university; and implement the College Board's decisions related to the department.

3) To supervise the strategic plan of the department and follow up its implementation.
4) To supervise the department's educational, research, administrative, and cultural affairs.
5) To coordinate and develop the department's relations, within UQU and outside.
6) To supervise the enhancement of the quality level and the development of its outputs.

b) Academic Affairs:
1) To implement the regulations of quality, academic accreditation and evaluation.
2) To supervise the students' activities in the department.
3) To monitor exams and control the system within the department.
4) To supervise the academic development process of the department's programs.
5) To supervise the recruitment of faculty members at the department.

iii) Committees of the Department include:
- Curriculum and Course Development Committee
- Quality and Academic Accreditation Committee
- Advisory Committee
- Postgraduate Studies Committee
- Committee of Scientific Research
- Laboratories Committee
- Safety Committee
- Events and Activities Committee
- Media Committee

1.2 Stakeholders Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

Umm Al-Qura university focus on showing transparency, mutual respect, tolerance, and a spirit of sharing while dealing with the stakeholders. The program aims to

1) Participating in achieving the objectives of higher education policy in Saudi Arabia.
2) Preparing graduates, forming their educational experiences and providing them with new skills that help them solve problems and requirements of the society.
3) Developing students' creative skills to help raise the level of scientific research in line with development materials and energy and meet the needs of community.
4) Preparing specialists to work in research centers and private reserves in the field of physics and work on their development.
5) Preparing cadres qualified to teach at the university and schools and work in the domains of physics.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

1) Guide of admission and registration at Umm Al-Qura University
   https://uqu.edu.sa/en/dadregis
2) Regulation of study and exams
   https://uqu.edu.sa/en/legald/74645
3) Employment Regulations

4) Disciplinary and Grievance Regulations
    https://uqu.edu.sa/en/studaff/App/FILES/11155
5) Student Rights Regulations
    https://uqu.edu.sa/en/studaff/App/FILES/11155

H. Program Quality Assurance

1. Program Quality Assurance System
Provide online link to quality assurance manual

2. Program Quality Monitoring Procedures
1) Student opinion polls.
2) Graduate opinion poll.
3) Poll the opinion of faculty members.

3. Arrangements to Monitor Quality of Courses Taught by other Departments.
1) Student opinion surveys by studying a course questionnaire.
2) Poll the opinion of faculty members.

4. Arrangements Used to Ensure the Consistency between Main Campus and Branches
(including male and female sections)
1) Establishing a coordination committee which join the main department and the rest of the branches.
2) Forming a committee to establish and update the program, including a member of the branches.

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes
1) The plan should include a mechanism and periods for measuring all program learning outcomes, but it is not required that all program learning outcomes are actually measured in one year. Rather, measurement periods should be distributed throughout the entire program cycle.
2) The target performance level should be determined in light of the actual performance in the same product of another batch of students, and by relying on a reference value in an external body.
3) The level of target performance can also be based on the standard values recognized, especially in majors with national and international standardized tests. It is also possible to rely in determining the target level of performance with the opinions of a group of academic and professional experts inside and outside the program.
4) It is necessary to take into account the diversification in the use of measurement methods and tools between tests and different performance evaluation methods such as observation, project evaluation, completion files ... etc.
5) It is better to focus mainly on direct measurement tools such as achievement tests, standardized professional tests and methods of performance evaluation. This does not

prevent the use of indirect measurement tools in a narrow range, such as opinion polls on measuring learning outcomes.

7. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	program leaders	Surveys	End of Academic year
Effectiveness of teaching & assessment	students, graduates, alumni	Surveys	End of Academic year
Learning resources	independent reviewers	Surveys	End of Academic year
Community Service	program leaders	Surveys	End of Academic year
Scientific Research	program leaders	Surveys	End of Academic year

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

8. Program KPIs*
The period to achieve the target (.........) year.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	4	Questionnaires, and Survey of the student and staff	End of Academic year
2	KPI-P-02	Students' Evaluation of quality of learning experience in the program	4	questionnaires	End of Academic year
3	KPI-P-03	Students' evaluation of the quality of the courses	4.5	questionnaires	End of Academic year
4	KPI-P-04	Completion rate	85%	Results of the students	End of Academic year
5	KPI-P-05	First-year students retention rate	80%	Results of the students	End of Academic year
6	KPI-P-06	Students' performance in the professional and/or national examinations	80%	Results of the students in such exams	End of Academic year
7	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	NA	questionnaires	End of Academic year
8	KPI-P-08	Average number of students in the class	40 in L	No. of student in class	End of Academic year
9	KPI-P-09	Employers' evaluation of the program graduate's proficiency	4	questionnaires	End of Academic year
10	KPI-P-010	Students' satisfaction with the offered services	4.5	questionnaires	End of Academic year
11	KPI-P-011	Ratio of students to teaching staff	11:1	No. of student to No. of Staff	End of Academic year
12	KPI-P-012	Percentage of teaching staff distribution	7 10 28	No. of prof. No. of Assoic. Prof. No. of Ass. Prof.	End of Academic year

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
13	KPI-P-013	Proportion of teaching staff leaving the program	0.0%	No. of Leaving staff	End of Academic year
14	KPI-P-014	Percentage of publications of faculty members	100%	Number of publications	End of Academic year
15	KPI-P-015	Rate of published research per faculty member	1:1	No. of publications to No. of staff	End of Academic year
16	KPI-P-016	Citations rate in refereed journals per faculty member	1	Average citation per publications	End of Academic year
17	KPI-P-017	Satisfaction of beneficiaries with the learning resources	4	questionnaires	End of Academic year
......					

* including KPIs required by NCAAA

I. Specification Approval Data

Council / Committee	
Reference No.	
Date	