هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Radiation protection**
Course Code:	**MPHY6354**
Program:	**Medical Physics**
Department:	**Physics**
College:	**Science**
Institution:	**University of Bisha**
Version:	**1**
Last Revision Date:	**5 September 2023**

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:	2

2. Course type					
A.	University ☐	College ☐	Department☒	Track☐	Others☐
B.	Required ☐	Elective☐			

3. Level/year at which this course is offered:	**6th Level / 3rd year**
4. Course general Description	
This course covers the definition of fundamental radiometric and dosimetry quantities, define and apply “protection and operational quantities” related to radiation protection. on the definition of risk and countermeasures (i.e., biological protection) for sources of conventional radiation. explain the general principles and orientation towards the estimated radiometric and dosimetry quantities described.	
5. Pre-requirements for this course (if any):	
NA	
6. Co- requirements for this course (if any):	
NA	
7. Course Main Objective(s)	
- Provide a basic understanding of radiation and radioactive decay. - Explain the biological effects of exposure to radiation. - Demonstrate how radiation can be detected and dose measured - Provide the basis for radiation protection and keeping exposure to as Low as reasonable..	

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	2	100%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	

	Total	30

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Explain the Fundamental Units of External Dosimetry.	K1	Lecturing	Quizzes Homework Midterm exam Final exam
1.2	Describe the Ionizing Radiation Interaction in Tissues and the Absorbed Dose and Protection and Operational osimetric Quantities and Calibration	K.1		
1.3	Describe the Source Evaluation of the External Exposure.	K1		
2.0	Skills			
2.1	Solve problems in the radiation protection.	S1	Solve problems. Self-learning	Quizzes Homework Midterm exam Final exam
2.2	Communicate positively with others.	S4	Presentation Work group	Reports Presentation
3.0	Values, autonomy, and responsibility			
3.1	Exhibit self-learning skills independently.	V2	Self-learning	Reports Presentation
3.2	Ability to work in team effectively.	V3	Work group	Reports Presentation

C. Course Content

No	List of Topics	Contact Hours
1.	**Quantities and Fundamental Units of External Dosimetry** Dosimetry Quantities.	3
2.	Biological Damage and Relative Biological Effectiveness (RBE).	3
3.	Radiometric Quantities.	3

4.	**Ionizing Radiation Interaction in Tissues and the Absorbed Dose** Electrons and Heavy Charged Particles (HCP).	3
5.	Photons.	3
6.	Neutron Interaction with Matter.	3
7.	**Protection and Operational Dosimetric Quantities and Calibration** Deterministic Effects.	3
8.	Protections Quantities.	3
9.	**Source Evaluation of the External Exposure** Neutrons.	3
10.	Photons from Neutron Reactions. X-Ray Generators.	3
Total		30

Table: The matrix of consistency between the content and the learning outcomes of the course.

	Course Learning Outcomes						
	1.1	1.2	1.3	2.1	2.2	3.1	3.2
Topic 1	√			√	√	√	√
Topic 2	√			√	√	√	√
Topic 3	√			√	√	√	√
Topic 4		√		√	√	√	√
Topic 5		√		√	√	√	√
Topic 6		√		√	√	√	√
Topic 7		√		√	√	√	√
Topic 8		√		√	√	√	√
Topic 9			√	√	√	√	√
Topic 10			√	√	√	√	√

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework, quizzes, reports, and presentation.	1: 15	10 %
2.	First term exam	7: 8	20 %
3.	Second term exam	12:13	20 %
4.	Final exam	End of Semester	50 %

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Applied Physics of External Radiation Exposure Dosimetry and Radiation Protection, Rodolphe Antoni. Laurent Bourgois, Springer, Switzerland, 2017.
Supportive References	Introduction to Biological Physics for the Health and Life Sciences, 2nd Edition, by Kirsten Franklin et. All, Willey, 2019.
Electronic Materials	- Blackboard. - PowerPoint presentations. - Digital library of University of Bisha https://ub.deepknowledge.io/Bisha
Other Learning Materials	NA

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms
Technology equipment (projector, smart board, software)	Projector or smart board
Other equipment (depending on the nature of the specialty)	NA

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students.	Indirect (Questionnaire).
Effectiveness of students assessment	Students, Staff members, Program Leader.	Indirect (Questionnaire).
	Peer Reviewer.	Direct (Review exam)
Quality of learning resources	Students, Staff members, Program Leaders.	Indirect (Questionnaire).
The extent to which CLOs have been achieved	Students, Staff members, Program Leader.	Indirect (Questionnaire).
	Course coordinator.	Direct (Course Learning Outcomes Assessment).

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	College of Science Council
REFERENCE NO.	١
DATE	5 September 2023