هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Radiation Protection**
Course Code:	**2034224-3**
Program:	**Bachelor in Physics**
Department:	**Physics**
College:	**Science**
Institution:	**Taif University**
Version:	**2nd**
Last Revision Date:	**10/10/2023**

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: (8th / 4th Year)					
4. Course general Description:					
An extensive knowledge of radiation and its biological effects- applications – radiation protection – different types of radiation – units of radiation dosimetry.					
5. Pre-requirements for this course (if any):					
None					
6. Co-requisites for this course (if any):					
None					
7. Course Main Objective(s):					
Know the difference between different types of radiation and identify sources of radiation contamination. Know the biological effects of ionizing radiation. Learn some of the most interesting and important radiation protection techniques.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100%
2	E-learning	--	--
3	Hybrid • Traditional classroom • E-learning	--	--
4	Distance learning	--	--

3. 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		45

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	Identify sources of radiation contamination.	K4	Lecture Discussion	Written exam.
1.2	Specify the biological effects of ionizing radiation – application of radiation-radiation reactions.	K4	Lecture and Group discussion	Written exam.
2.0	**Skills**			
2.1	Apply advanced skills, techniques, practices and creativity with critical thinking in field of radiation physics.	S1	Lectures	Written exam and Homework reports
2.2	Formulate the application of radiation and radioactive isotopes.	S4	Groups discussion	Written exam
3.0	**Values, autonomy, and responsibility**			
3.1	Show responsibility for working independently and for continuous improvement of personal capacities.	V1	Group discussion	Homework reports and projects
3.2	Work effectively in groups and exercise leadership when needed.	V3	Groups discussion	Homework reports and projects

C. Course Content

No	List of Topics	Contact Hours
1.	**Radioactivity and radiation** ▪ Types of radiation. ▪ Ionization and excitation.	6

	▪ Ways of entry of radioactive contamination into the body. α– Decay, β– Decay, types of β– Decay and gamma radiation.	
2.	▪ Identify sources of radiation contamination. ▪ Study units of radiation dose. ▪ The absorbed Dose. The radiation weighting factor- the tissue weighting factor.	6
3.	**The biological effects of ionizing radiation.** ▪ The somatic effects of ionizing radiation. ▪ The hereditary effects of ionizing radiation. The radiation reactions.	6
4.	**Application of radiation and radioactive isotopes.**	6
5.	**Radiation exposures and dose limits.** ▪ **Maximum permissible Doses (MPD).** **Treatment of contaminated person.**	4
6	**Final Revision.**	2
Total		**30**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	Throughout Semester	20
2.	1st Periodic Exam	7	15
3.	2nd Periodic Exam	12	15
4.	Final Exam	16	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	1-Radiation Protection and Recovery-1st Edition, Alexander Hollander. 2- Basic of radiation protection for everyday use – How to achieve ALARA working tips and Guidelines, Leonie Munro, 2004.
Supportive References	Biological Effects of Radiation. By Alan Martin and Samuel A. Harbison, London. Champan and Hall LtD, 2003.
Electronic Materials	1. https://www.dropbox.com/sh/ 2. https://www.dropbox.com/sh/ A 4- http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html.

Other Learning Materials	Multi media / CD associated with the textbooks (when available).

2. Required Facilities and equipment

Items	Resources
facilities	A classroom with movable tables and chairs conducive to group discussion and teamwork.
Technology equipment	Data show, smart board
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Student Feedback on Effectiveness of Teaching	Students	Indirect
Evaluation of Teaching	Pear reviewer Program coordinator Departmental council Faculty council	Indirect
Improvement of Teaching	Program coordinator Relevant committee	Direct
Quality of learning resources	Students Instructor Faculty	Indirect
Extent of achievement of course learning outcomes,	Program coordinator Instructor	Direct
Course effectiveness and planning for improvement	Program coordinator Instructor	Indirect

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**PHYSICS DEPARTMENT COUNCIL**
REFERENCE NO.	**NO. 4-45**
DATE	**27/09/2023 (12/03/1445)**