Form: Course Syllabus	Form Number	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
	Number and Date of Revision or Modification	
	Deans Council Approval Decision Number	2/3/24/2023
	The Date of the Deans Council Approval Decision	23/01/2023
	Number of Pages	06

1.	**Course Title**	Radiation Detection and Measurements
2.	**Course Number**	0342765
3.	**Credit Hours (Theory, Practical)**	3 hours weekly (theory)
	Contact Hours (Theory, Practical)	3 (Theory)
4.	**Prerequisites/ Corequisites**	None
5.	**Program Title**	Physics
6.	**Program Code**	20
7.	**School/ Center**	Science
8.	**Department**	Physics
9.	**Course Level**	700-Graduate
10.	**Year of Study and Semester (s)**	1st Semester 2023/2024
11.	**Other Department(s) Involved in Teaching the Course**	None
12.	**Main Learning Language**	English
13.	**Learning Types**	☒Face to face learning ☐Blended ☐Fully online
14.	**Online Platforms(s)**	☐Moodle ☒Microsoft Teams
15.	**Issuing Date**	15/11/2024
16.	**Revision Date**	

17. Course Coordinator:

Name:	Contact hours:
Office number:	Phone number:
Email:	

18. Other Instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:
Name:
Office number:
Phone number:
Email:
Contact hours:

19. Course Description:

As stated in the approved study plan The course deals with: Radiation sources, interactions and energy deposition by ionizing radiation in matter, concepts, quantities and units in radiation physics, isotope production, measurement and activity, standards, spectrometry, measurement technique and detectors, precision, errors, detection limits, radioanalytical methods, principles and methods of radiation dosimetry, radiation dosimetry fundamentals, radiation detection instruments.

20. Program Intended Learning Outcomes: (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

1. **SO1:** to be able to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
2. **SO2:** to be able to formulate or design a scientific system, process, procedure or program to contribute achieving scientific desired needs.
3. **SO3:** to be able to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.

4. **SO4:** to be able to communicate his/her scientific contributions effectively with a range of audiences.
5. **SO5:** to be able to recognize and demonstrate social, ethical and professional responsibilities and the impact of technical and/or scientific solutions in global economic, environmental, and societal contexts.
6. **SO6:** to be able to function effectively independently and on teams for establishing goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

21. Course Intended Learning Outcomes: (Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1. Identify basic physics relevant to nuclear medicine (radiation sources types and features….)

2. Identify, use and implement basic principles of radiation protection

3. Derive, use and implement statistical models and the treatment of exp. data formulae

4. Identify and distinguish between the various detector techniques

Course ILOs	The learning levels to be achieved					
	Remembering	**Understanding**	**Applying**	**Analysing**	**evaluating**	**Creating**
1	✓	✓	✓	✓		
2	✓	✓	✓	✓		
3	✓	✓	✓	✓		
4	✓	✓	✓	✓		

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program ILOs / Course ILOs	ILO (1)	ILO (2)	ILO (3)	ILO (4)	ILO (5)	ILO (6)
1	✓				✓	
2	✓				✓	
3	✓				✓	
4	✓				✓	

23. Topic Outline and Schedule:

Week	Lecture	Topic	ILO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully	Platform Used	Synchronous / Asynchronous	Evaluation Methods	Learning Resources
1 2 3	1.1-1.6	BASIC PHYSICS FOR NUCLEAR MEDICINE	1, 5					
	1.2							
	1.3							
4 5 6	2.1							
	2.2							
	2.3							
7 8 9	3.1-3.3	RADIATION PROTECTION	1, 5					
	3.2							
	3.3							
10	4.1							

11 12	4.1-4.7	STATISTICS AND THE TREATMENT OF EXP. DATA						
	4.3							
13	6.1-6.4, 7.1-7.5	GENERAL CHARACTERISTICS OF DETECTORS	1, 5					

24. Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	ILO/s Linked to the Evaluation activity	Period (Week)	Platform
First Exam	25		1-4	6	On campus
Second Exam	25		1-4	11	On campus
Final Exam	50		1-4	15	On campus

25. Course Requirements:

(e.g.: students should have a computer, internet connection, webcam, account on a specific software/platform…etc.):

NA

26. Course Policies:

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

27. References:

A- Required book(s), assigned reading and audio-visuals:

Nuclear Medicine Physics, a Handbook for Teachers and Students, IAEA

B- Recommended books, materials, and media:

1- Leo, W.R., *"Techniques for nuclear and particle physics experiments"*
2- *James E. Turner*, "Atoms, Radiation, and Radiation Protection"
3- Glenn E Knoll, " Radiation Detection and Measurement "

28. Additional information:

Name of the Instructor or the Course Coordinator: ……Khalifeh AbuSaleem……	Signature: ……..…… ……	Date: …15/11/2024…..…… ……
Name of the Head of Quality Assurance Committee/ Department …… ….	Signature: ……..…… ……	Date: ……..……
Name of the Head of Department …… ….	Signature: ……..…… ……	Date: ……..……
Name of the Head of Quality Assurance Committee/ School or Center	Signature:	Date: ……..……

…….	……...……	
Name of the Dean or the Director	Signature:	Date:
…….	……...……	……...……