



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Nuclear Engineering Department**

NE312 Radiation Detection And Measurement Lab I

Second Semester 2018-2019

**Course Catalog**

1 Credit Hours. One credit hour (3 h lectures). Nuclear electronics, radiation detection and counting instrumentation, counting statistics, radiation survey, half-life and decay schemes.

**Text Book**

<b>Title</b>	Radiation Detection and Measurement Lab. I Manual.
<b>Author(s)</b>	Nuclear Engineering Department, JUST
<b>Edition</b>	1st Edition
<b>Short Name</b>	TB1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Ref#1	Radiation Detection and Measurement	Glenn F. Knoll	3rd Edition	

**Instructor**

Name	<b>Mr. Neil Abu Ennab</b>
Office Location	E2 L-2
Office Hours	Sun : 12:30 - 13:30 Sun : 14:30 - 15:30 Mon : 13:00 - 14:00 Tue : 11:30 - 12:30 Wed : 13:00 - 14:00 Thu : 12:30 - 13:30
Email	nrabuennab@just.edu.jo

**Class Schedule & Room**

Section 1:  
Lecture Time: Tue : 14:30 - 17:30  
Room: LAB

Section 2:  
Lecture Time: Thu : 14:30 - 17:30  
Room: LAB

### Prerequisites

Line Number	Course Name	Prerequisite Type
2003110	NE311 Ionizing Radiation & Measurement	Prerequisite / Study

### Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction	<b>experiment 1</b> From <b>TB1</b>
Week 2	Plotting a GM plateau	<b>experiment 2</b> From <b>TB1</b>
Week 3	Statistics of counting	<b>experiment 3</b> From <b>TB1</b>
Week 4	Resolving time	<b>experiment 4</b> From <b>TB1</b>
Week 5	Geiger tube efficiency	<b>experiment 5</b> From <b>TB1</b>
Week 6	Inverse square law	<b>experiment 6</b> From <b>TB1</b>
Week 7	Backscattering	<b>experiment 7</b> From <b>TB1</b>
Week 8	Absorption of gamma rays	<b>experiment 8</b> From <b>TB1</b>

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Ability to use the techniques, skills, and modern engineering tools necessary for engineering practices [11, 15, 17]	15%	midterm exam, Final exam
Ability to design and perform nuclear and radiation experiments to gather, analyze and interpret the results. [11, 13, 14, 16]	10%	midterm exam, Final exam
Ability to use oral, graphic and written communication effectively [11, 13, 16]	30%	midterm exam, reports, Final exam
Ability to practice leadership and learn and work independently and in multidisciplinary teams [11, 15]	10%	reports
The students will be able to have the knowledge on the theory and practice of radiation detection [11, 16, 17]	10%	midterm exam, Final exam
The students will be able to have the knowledge on how Geiger tube works and its characteristics (e.g. plateau, efficiency and resolving time) [17]	25%	midterm exam, Final exam

Relationship to Program Student Outcomes (Out of 100%)						
1	2	3	4	5	6	7
25.83		12.50	2.50	10	15.83	33.33

Evaluation	
Assessment Tool	Weight
midterm exam	30%
reports	30%
Final exam	40%

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