|  |  |  |
| --- | --- | --- |
|  | **Mutah University** **Detailed Syllabus Form** | Description: C:\Users\lamasat.lamasat-PC\Pictures\Picture1.png |

**First :**Course Information**:**

|  |  |
| --- | --- |
| * Course Number:0302352
 | * Course Title: Modern Physics (2)
 |
| * Credit Hours: 2
 | * College: Science
 |
| * Pre-requisite0302102
 | * Department: Physics
 |
| * Instructor: Dr. Amal Al-Maaitah
 | * Semester & Academic Year: first 2017/2018
 |
| * the time of the lecture: Sunday and Tuesday and Thursday 12-1
 | * Office Hours: Sunday 11-12, Tuesday 11-12 and Thursday 11-12
 |

**Second :**General CourseDescription

**................................................................................................................**This course will cover some of the modern concepts and theories of the physics of atoms and nuclei, such as, quantum theory of the Hydrogen atom , many- electron atoms, molecules, statistical mechanics, nuclear structure, and nuclear transformations.

**.........................................................................................................................................................................................................................................................................................................................................................................................................................**

**Third :** Course Objectives

**St**udents should know some of the modern concepts and theories of the physics of atoms and nuclei, such as, quantum theory of the Hydrogen atom, many- electron atoms, molecules, statistical mechanics, nuclear structure, and nuclear transformations.

* **....................................................................................................................................**
* **....................................................................................................................................**

 **Fourth:** Expected Learning Outcomes

* **S**tudents should have acquire the techniques of solving physics problems
* **...........................................................................................................S**tudents should have acquire the skills and techniques to connect the physical concepts together.
* **....................................................................................................................................**
* **....................................................................................................................................**

**Fifth :**Course PlanDistribution& Learning Resources

|  |  |  |
| --- | --- | --- |
| **Learning Resources** | **Topics to be Covered** | **Week****No.** |
| Concepts of Modern Physics/ Arthur Beiser | Quantum theory of the Hydrogen atom |  |
| Concepts of Modern Physics/ Arthur Beiser | Quantum theory of the Hydrogen atom. |  |
| Concepts of Modern Physics/ Arthur Beiser | Quantum theory of the Hydrogen atom |  |
| Concepts of Modern Physics/ Arthur Beiser | Many- electron atoms. |  |
| Concepts of Modern Physics/ Arthur Beiser | Many- electron atoms. |  |
| Concepts of Modern Physics/ Arthur Beiser | Many- electron atoms. |  |
| Concepts of Modern Physics/ Arthur Beiser | Molecules |  |
| Concepts of Modern Physics/ Arthur Beiser | Molecules |  |
| Concepts of Modern Physics/ Arthur Beiser | Statistical mechanics |  |
| Concepts of Modern Physics/ Arthur Beiser | Statistical mechanics |  |
| Concepts of Modern Physics/ Arthur Beiser | Statistical mechanics |  |
| Concepts of Modern Physics/ Arthur Beiser | Nuclear structure |  |
| Concepts of Modern Physics/ Arthur Beiser | Nuclear structure |  |
| Concepts of Modern Physics/ Arthur Beiser | Nuclear transformations |  |
| Concepts of Modern Physics/ Arthur Beiser | Nuclear transformations |  |
|  | Final Exam |  |

**Sixth :**Teaching Strategies and Methods

|  |  |
| --- | --- |
| **Teaching Strategies and Methods** | No |
| The concepts and laws will be presented to the students | **1** |
| Some examples will be solved and discussed with the students | **2** |
| Some experiments will be performed by the students to demonstrate the laws | **3** |
|  | **4** |
|  | **5** |

**Seventh :**Methodsof Assessment

|  |  |  |  |
| --- | --- | --- | --- |
| **Proportion of Final Evaluation** | **EvaluationMethods of**  | **Week & Date** | **No.** |
| **25%** | First Exam | **6/3/2018** | **1.** |
| **25%** | Second Exam | **17/4/2018** | **2.** |
| **50%** | Final Exam |  | **3.** |
|  |  |  | **4.** |
|  |  |  | **5** |
|  |  |  | **6** |
| **(100%)** |  | **Total** |

**Eighth :**Required Textbooks

**- Primary Textbook:**

Text Book

* **................................................................................................................................**Concepts of Modern Physics/ Arthur Beiser**....**

**-Secondary References**

1. Modern Physics From A to Z / James Rohlf
2. Modern Physics / K. Krane
3. Essential of Modern Physics / Acosta, Cowan and Graham
* **.**
* **....................................................................................................................................**
* **....................................................................................................................................**

**Ninth :**General Instructions

|  |  |
| --- | --- |
| **Additional Notes, Office hours, Incomplete Exams, Reports, Papers, …etc** | **No** |
| Home works **Chap 6** : 3, 7, 9,11, 12, 13, 15, 12, 15, 17, 19, 31. **Chap7** : 1, 3, 5, 7, 9, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35. **Chap 8** : 2, 4, 9, 10, 17, 20, 21, 25, 27. **Chap9** :1, 3, 7, 17, 19, 21, 23, 25, 27, 31, 33, 35. **Chap 11**: 1, 3, 5,7,11,13,15,17, 19, 21, 23, 25, 29. **Chap12:**1, 3, 5, 7, 9, 11, 21, 27, 31.  | **1** |
|  | **2** |
|  | **3** |
|  | **4** |
|  | **5** |