



كلية الحاسبات و المعلومات



## Physics 2 Course Specifications

**Faculty:** Computer and Informatics

**Department:** Scientific Computing

**Program(s) on which the course is given :** Bachelor in Computer and Information Sciences

**Major or Minor element of programs :** All majors

**Department offering the program :** Scientific Computing

**Department offering the course :** Basic Sciences

**Academic year / Level :** 1<sup>st</sup> Year./B.Sc.

**Date of specification approval :**

### A. Basic Information

**Title:** Physics 2

**Code:** BSC 126

**Lectures:** 3 hrs/week

**Tutorial:** 2 hrs/week

**Practical:** 2 hrs/week

**Credit Hours:** ---

**Total:** 7 hrs/week

### B. Professional Information

#### 1. Overall Aims of Course:

The aim of the course is to provide the students with knowledge about the main topics of Electricity, Magnetism, Optics and Modern Physics. The course will convey the importance of these areas in physics and modern technology, and introduce the basic principles governing each area



## 2. Intended Learning Outcomes (ILOs):

### a. Knowledge and Understanding:

- a1. Show a critical understanding of the physical, electronic, architecture principles underlying hardware design.
- a2. Explain and illustrate the characteristics of wave motion.
- a3. Explain modern physics concepts relating to molecules, solids, and superconductivity.
- a4. Give account on the motion of charged particles in uniform magnetic fields and combined electric and magnetic fields and applications .

### b. Intellectual Skills :

- b1. Interpret ways in which mathematics is being applied in motion dynamics.
- b2. Establish criteria, and verify solutions.
- b3. To tackle simple problems in electrostatics.
- b4. To tackle simple problems in magnetism.
- b5. To solve simple problems involving optical interference and diffraction phenomena

### c. Professional and Practical Skills :

- c1- Use scientific visualization packages to visualize complex scientific data sets.
- c2- Give technical presentations.
- c3- Able to perform and handle scientific experiments

### d. General and Transferable Skills:

- d1. Apply improved problem solving skills to basic real world situations
- d2. Expressing and abstracting phenomena into scientific method.
- d3. Use current technology in laboratories.
- d4. Work within and contribute to a team, apply management skills such as co-ordination, project design and evaluation and decision processes.

### e. Attitude:

- e1. Illustrate the use of example, analogy, and counter-analogy in ethical argument.
- e2. Relationship Emphasis a successful with other students.



### 3. Contents:

Topic	No. of hours	Lecture	Tutorial/Practical
Optics: Superposition of waves, interference, diffraction and polarization I,	7	3	4
Optics: Superposition of waves, interference, diffraction and polarization II	7	3	4
Optics: Superposition of waves, interference, diffraction and polarization III	7	3	4
Optics: Superposition of waves, interference, diffraction and polarization IV	7	3	4
Optics: Superposition of waves, interference, diffraction and polarization V	7	3	4
Magnetic fields and Farady's law, electromagnetic waves I	7	3	4
Magnetic fields and Farady's law, electromagnetic waves II	7	3	4
Magnetic fields and Farady's law, electromagnetic waves III	7	3	4
Magnetic fields and Farady's law, electromagnetic waves IV	7	3	4
Magnetic fields and Farady's law, electromagnetic waves V	7	3	4
Selected topics: Introduction to modern physics and applications, molecules and solids, superconductivity I	7	3	4
Selected topics: Introduction to modern physics and applications, molecules and solids, superconductivity II	7	3	4
Selected topics: Introduction to modern physics and applications, molecules and solids, superconductivity III	7	3	4
Selected topics: Introduction to modern physics and applications, molecules and solids, superconductivity IV	7	3	4