

Faculty of Computers and Information Technology

Physics

Information :

Course Code : PH101

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Faculty of Computers and Information Technology

Instructor Information :

| Title | Name | Office hours |
|--------------------|---|--------------|
| Lecturer | Ahmed Samir Abdel Ghani Atia El Azerk | 1 |
| Lecturer | Nancy Naguib Abdellatif Elewa | 1 |
| Assistant Lecturer | Mohamed Essam Abd El Aziz Abd El Aal | 6 |
| Assistant Lecturer | Romisaa Gamal Mahmoud Abdelrhman | 2 |
| Assistant Lecturer | Noura Khedr Abdul raheem Ahmed | |
| Assistant Lecturer | Reham Milad Kamel Samaan | |
| Teaching Assistant | Bassel Yasser Mohamed Kamel | |
| Teaching Assistant | Nadia Mansour Metwally Ali Mourad | |
| Teaching Assistant | Mohamed Yahia Mohamed Abdelkader | |
| Teaching Assistant | Ahmed Abdelfattah Abdelaziz Abdelfattah | |
| Teaching Assistant | Ahmed Mohamed Abdelnaby Ali Shafay | |
| Teaching Assistant | Mohamed Fathy Salem Mohamed | |

Area Of Study :

Apply the basic concepts and theories of physics.
 Combine and evaluate different tools and facilities to study physics.
 Compare, evaluate and select methodologies from range of techniques to solve physics problems.
 Deal with the individual, social and environmental implications of the application of physics.
 Use effectively communication skills.

Description :

The objectives of the course is to provide the students with basic foundation on basics elements of Physics devices including concepts of Vectors, Coulomb's Law, Electrical Field, Electrical potential Energy, Electrical Current and Resistance, Kirchoff's Laws, Magnetic field and force, Ampere's Law, Quantization , Black body radiation, Photo electric effect, x-ray production, Compton scattering, and Bohr Model of Hydrogen Atom

Course outcomes :

a.Knowledge and Understanding: :

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|-----|---|
| 1 - | Discuss fundamental concepts and theories related to physics |
| 2 - | Describe the methodologies and practices used to solve the physics problems |
| 3 - | Discuss specifications for a give problem solution. |

b. Intellectual Skills: :

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| 1 - | Analyze the limitations and constrains for physics development |
| 2 - | Implement the solutions of physics in academic disciplines. |

c. Professional and Practical Skills: :

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| 1 - | Run computing methods to verify different physics laws |
| 2 - | Use different techniques to understand the nature of electric field, electric potential, and electric potential energy |
| 3 - | Realize the circuit analysis concepts to apply Kirchhoffs' Laws |

d. General and Transferable Skills: :

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| 1 - | Work in a team effectively and efficiently considering time and stress management |
| 2 - | Utilize effectively general computing facilities |
| 3 - | . Appreciate continuous professional development and lifelong learning |

ABET Course outcomes :

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|-----|--|
| 1 - | Apply the basic concepts and theories of physics. |
| 2 - | Combine and evaluate different tools and facilities to study physics. |
| 3 - | Compare, evaluate and select methodologies from range of techniques to solve physics problems. |

Course Topic And Contents :

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|--------------|---------|----------------------|
| Introduction to Vectors | 4 | 2 | 2 |
| Coulomb's law | 4 | 2 | 2 |
| Electrical field | 4 | 2 | 2 |
| Electric potential, Electric potential Energy | 4 | 2 | 2 |
| Capacitors | 4 | 2 | 2 |
| Electric current, Resistance | 4 | 2 | 2 |
| Kirchhoffs' Laws | 4 | 2 | 2 |
| Magnetic field and force | 4 | 2 | 2 |
| Mid-Term Exam | 2 | | |
| Ampere's Law | 4 | 2 | 2 |
| Quantization, Black body radiation, Photo electric effect | 4 | 2 | 2 |
| x-ray production, Compton scattering | 4 | 2 | 2 |
| Bohr Model of Hydrogen atom | 4 | 2 | 2 |
| Final Exam | 2 | | |

Teaching And Learning Methodologies :

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| Interactive Lectures including discussion |
| Tutorials |
| Practical Lab Sessions |
| Self-Study (Project / Reading Materials / Online Material / Presentations) |

Problem Solving

Course Assessment :

| Methods of assessment | Relative weight % | Week No | Assess What |
|------------------------|-------------------|---------|-------------|
| Assignments | 5.00 | 4 | |
| Final Exam | 40.00 | 14 | |
| Midterm Exam (s) | 20.00 | 9 | |
| Others (Participation) | 20.00 | 1 | |
| Quizzes | 10.00 | 5 | |
| Team Work Projects | 5.00 | 12 | |

Books :

| Book | Author | Publisher |
|--|-------------------|-----------|
| College Physics (Ebook) | Paul Peter Urone | OpenStax |
| Fundamental Physics and Physics Education Research (Ebook) | Burra G. Sidharth | springer |

Course Notes :

An Electronic form of the slides of the Lectures is available on the Students Learning Management System (Moodle)