

**No.Acad/27(179)/10014****Dated: 20-10-2022****NOTIFICATION**

In pursuance to powers delegated to the Academic Council by Syndicate vide its Resolution No.Syn-186.4(b) dated 26-10-2018, it is hereby notified that the Academic Council vide its Resolution No. AC-157.3(viii) dated 15-09-2022 has approved two new courses entitled “PH-113 Introduction to Applied Physics” and “PH-128 Applied Physics to be offered in Undergraduate Programmes at Department of Physics; applicable from Batch-2022, as under:

<b>PH-113: INTRODUCTION TO APPLIED PHYSICS</b>			
	<b>Cr. Hrs.</b>	<b>Contact Hrs.</b>	<b>Exam Marks</b>
<b>Th.</b>	2	2	100
<b>Pr</b>	-	-	-
<p><b>Introduction:</b> Types of Errors and Error Calculation, Graphical Techniques.  <b>Mechanics:</b> Newton Laws and their Applications, Law of Conservation of Mechanical Energy.  <b>Electrostatics and Magnetism:</b> Essential Laws, Electric field, Magnetic field.  <b>Waves and Oscillations:</b> Simple Harmonic Oscillator, Damped Harmonic Oscillation, Forced Oscillation and Resonance, Type of Waves and Superposition Principle, Wave Speed on a stretched string.  <b>Optics and Laser:</b> Huygen’s Principle, Two-slit interference, Single-Slit Diffraction, Resolving power of Optical instrument, Principles for laser action, Types of lasers, Applications of laser.  <b>Modern Physics:</b> Planck’s explanations of Black Body Radiation, Photoelectric Effect, Compton Effect, De-Broglie hypothesis, Electron microscope, Atomic Nucleus and Properties of Nucleus, Radioactive Decay and Dating, Nuclear Reactions and Nuclear Reactor.</p>			
<b>Recommended book(s) for the approved course</b> (Author’s name, “Title”, edition, publisher, publication year).			
<b>Text book(s)</b>			
1. D. Halliday, R. Resnick and Krane, “Physics”, John Wiley & Sons, volume 1 and 2, 11 <sup>th</sup> ed. 2020.			
<b>Reference Book(s)</b>			
1. R. A. Serway and J. W. Jewett, “Physics for Scientists and Engineers”, Golden Sunburst Series, 10th ed. 2019.			

PH-128: APPLIED PHYSICS			
	Cr. Hrs.	Contact Hrs.	Exam Marks
Th.	3	3	100
Pr	-	-	-

**Introduction:** Types of Errors and Error Calculation, Graphical Techniques.  
**Vectors:** Coordinate Systems, Review of vectors, Vector Differentiation (Ordinary and Partial Differentiation), Vector Integrations: Line Integrals.  
**Mechanics:** Motion under Constant Acceleration, Newton's Laws and their Applications, Frictional Forces, Work-Energy Theorem, Law of Conservation of Mechanical Energy, Angular Momentum.  
**Electrostatics and Magnetism:** Essential Laws, Electric field around conductors, Magnetic field, Magnetic force on current, Hall effect, Field of rings and coils, Magnetic dipole, Diamagnetism, Paramagnetism and Ferromagnetism.  
**Semiconductors:** Energy levels in a semiconductor, Hole concept, Intrinsic and Extrinsic regions, law of mass action, p-n junction, Transistor  
**Waves and Oscillations:** Simple Harmonic Oscillator, Damped Harmonic Oscillation, Forced Oscillation and Resonance, Type of Waves and Superposition Principle, Wave Speed on a stretched string.  
**Optics and Laser:** Huygen's Principle, Two-slit interference, Single-Slit Diffraction, Resolving power of Optical instrument  
Principles for laser action, Types of lasers, Applications of laser.  
**Modern Physics:** Planck's explanations of Black Body Radiation, Bohr's atomic model, Photoelectric Effect, Compton Effect, Atomic Spectra, Reduced Mass, De-Broglie hypothesis, Electron microscope, Atomic Nucleus and Properties of Nucleus, Radioactive Decay and Dating, Radiation detection instruments, Nuclear Reactions and Nuclear Reactor.

**Recommended book(s) for the approved course**  
(Author's name, "Title", edition, publisher, publication year).

**Text book(s)**  
1. D. Halliday, R. Resnick and Krane, "Physics", John Wiley & Sons, volume 1 and 2, 11th ed. 2020.

**Reference Book(s)**  
1. R. A. Serway and J. W. Jewett, "Physics for Scientists and Engineers", Golden Sunburst Series, 10th ed. 2019.  
2. Electronic Devices, Thomas L. Floyd, Pearson, 2019.

  
**REGISTRAR**

To,  
Chairperson, Department of Physics

Copy to:-

- 1- Dean (ISH)
- 2- Controller of Examinations
- 3- Director, I.T. Department
- 4- Mr. Muhammad Riaz  
Sr. D.E.O (Academic)

Copy for information to:-

- 1- PS to the Vice Chancellor
- 2- PA to Pro-Vice Chancellor
- 3- Director QEC/MR ISO 9000