



NED University of Engineering and Technology

Department of _____
Programme _____

Course Profile

COURSE CODE& TITLE PH-129 Applied Physics	SEMESTER ☐ SPRING ☐ FALL	CREDIT HOURS TH ☒ 3 ☐ 2 ☐ 1 ☐ 0 PR ☐ 3 ☐ 2 ☐ 1 ☒ 0
PREREQUISITE COURSE(S) NIL	DATE OF COURSE CONTENT APPROVAL	APPLIED FROM BATCH 2025

MAPPED SUSTAINABLE DEVELOPMENT GOAL(s) (SDG(s)) SDG-04 Quality Education SDG -09: Industry, Innovation, Technology and Infrastructure
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COURSE CONTENTS Vectors & Mechanics: Review of vectors, Newton Laws and their Applications, Frictional Forces and determination of Co-efficient of Friction, Work-Energy Theorem, applications of law of Conservation of Energy, Angular Momentum, Centre of Mass. Waves and Oscillations: Simple Harmonic Oscillator, Damped Harmonic Oscillation, Forced Oscillation and Resonance, Types of Waves and Superposition Principle Optics and Lasers: Huygens Principle, Two-slit interference, Single-Slit Diffraction, Types of Lasers, Applications of Laser. Modern Physics: Planck's explanations of Black Body Radiation Photoelectric Effect, De-Broglie Hypothesis, Electron Microscope, Atomic structure, X-rays, Radioactive Decay and Radioactive Dating, Radiation Detection Instruments Electrostatics and Magnetism: Electric field due to different Charge Distribution, Electrostatic Potential Applications of Gauss's Law, Lorentz Force Ampere's Law, Magnetism, Magnetization, Magnetic Materials. Electrical Elements and Circuits: Review of electric current, voltage, power, and energy, Ohm's law, inductance, capacitance, Basic Electrical circuits, Electromechanical systems. Semiconductor Physics and Electronics: Energy levels in a Semiconductor, Hole concept, P-N junction, Diodes, Transistors, Basic Electronic circuits (e.g. rectifier). Thermodynamics: Review of Laws of Thermodynamics, conduction, convection, and radiation. Thermal conductivity, specific heat, and overall heat transfer coefficients. Heating, Ventilation and Air Conditioning (HVAC).

COURSE LEARNING OUTCOMES (CLOs) WITH PROGRAMME LEARNING OUTCOMES (PLO) MAPPINGS			
CLO No.	CLO Statement	Taxonomy level	Mapped PLO
At the end of the course, the student will be able to:			
1	DISCUSS principle of physics; and explain the concept of classical and modern physics to solve related problems	C 2	PLO-1
2	USE the concept of Classical Physics for engineering problems	C3	PLO-2
3	APPLY the concept of Modern Physics to solve physical problems	C 3	PLO-2

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F/QSP 11/17/02

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REMARKS (if any):

Recommended by: _____
(Chairperson/Date)

Approved by: _____
(Dean/Date)