Physics

PHYS 121 Basic Physics (4 credit, 3 lecture, 2 lab)

IAI P1 900L

Topics include: the concepts and methods of physics; mechanics; heat and thermodynamics; electricity and magnetism, and modern physics. Laboratory required. **Pre-Requisite:** MATH 109 or equivalent.

PHYS 221 General Physics I (5 credit, 4 lecture, 2 lab)

IAI P2 900L

Topics include: mechanics (kinematics; Newton's Laws; work and energy; impulse and momentum; rotational dynamics; gravitation and Kepler's laws; and harmonic motion) and fluids (fluid statistics and dynamics). Laboratory required. **Pre-Requisite:** MATH 162 Calculus & Analytic Geometry I.

PHYS 222 General Physics II (5 credit, 4 lecture, 2 lab)

IAI EGR 912

Topics include: Electricity and magnetism (charge; electric field and potential; current, resistance, capacitance, dielectrics and inductance; electromotive force; direct current circuits, alternating current circuits, RLC circuits, laws of Gauss, Ampere and Faraday; and magnetic properties) Maxwell's equations; electromagnetic waves; optics, interference, diffraction. Laboratory required. **Pre-Requisite:** PHYS 221 General Physics I

PHYS 224 Modern Physics (5 credit, 4 lecture, 2 lab)

Topics include special relativity; time dilation, length contraction, and mass-energy equivalence. General relativity; equivalence principle, gravity wells, cosmology. Quantum mechanics; free particle, particle in a box, harmonic oscillator, and the hydrogen atom. Atomic and nuclear physics; atomic spectra, MNR. Laboratory required. **Pre-Requisite:** PHYS 221 General Physics I, MATH 222 Calculus & Analytic Geometry III, and previous or concurrent enrollment in PHYS 222.

PHYS 241 Statics (3 credit, 3 lecture, 0 lab)

IAI EGR 942

Topics include: Static equilibrium of particles and rigid bodies, analysis of forces in trusses, frames, beams and cables, determination of centroids and moment of inertia, friction, virtual work. **Pre-Requisite:** MATH 221 Calculus and Analytical Geometry II and PHYS 221 General Physics I or concurrent enrollment.

Physics

PHYS 242 Dynamics (3 credit, 3 lecture, 0 lab)

Topics include: kinematics of particles in rectilinear and curvilinear motions; Newton's second law, energy and momentum applied to a particle or system of particles; kinematics of rigid body motion; application of Newton's second law, energy and momentum to the motion of a rigid body; mechanical vibrations. **Pre-Requisite:** PHYS 241 Statics