Physics (PHY)

(Science, Engineering, & Arch Department)

PHY 101—General Physics 1
3 lect., 3 lab, 4 cr. (Fall/Spring/Summer I)
This course covers the concepts of classical physics from introductory mechanics through thermodynamics. Topics include: kinematics, Newton's Laws. particle dynamics, statics, fluid statics and dynamics, heat and thermodynamics. (G2A)
Prerequisite: MAT 102 or math placement test into MAT 121

PHY 102—General Physics 2
3 lect., 3 lab, 4 cr. (Fall/Spring/Summer II)
A continuation of PHY 101. A treatment of wave motion, harmonic motion and sound, electricity and magnetism, optics, relativity, quantum theory, atomic and nuclear physics. (G2A)
Prerequisite: C or better in PHY 101

PHY 103—Physics for Science and Engineering 1
3 lect., 3 lab, 4 cr. (Fall)
The science of measurement; vector analysis; rectilinear motion; Newton's laws and their application to particle dynamics, conditions for equilibrium; rotational kinematics and dynamics and angular momentum; conservation of energy; linear and angular momentum; introduction to relativistic kinematics. (G2A)
Pre/corequisite: MAT 205

PHY 104—Physics for Science and Engineering 2
3 lect., 3 lab, 4 cr. (Spring)
A continuation of PHY 103. Topics include: gravitational theory, atomic physics of Bohr atom; fluid statics and hydrodynamics; oscillations and simple harmonic motion; traveling waves; vibrating systems and sound; temperature and heat measurement, heat transfer, kinetic theory of gases; first and second law of thermodynamics; introduction to nuclear structure. (G2A)
Prerequisite: C- or better in PHY 103
Pre/corequisite: MAT 205

PHY 105—General Physics 1 with Calculus
3 lect., 3 lab, 4 cr. (Fall)
A calculus-based course in general physics. The course covers the concepts of classical physics from introductory mechanics through thermodynamics. Topics include: kinematics, particle dynamics, statics, fluid statics and dynamics, thermodynamics. (G2A)
Prerequisite: MAT 205

PHY 106—General Physics 2 with Calculus
3 lect., 3 lab, 4 cr. (Spring)
A continuation of PHY 105. A calculus-based treatment of wave motion, electricity and magnetism, optics, relativity, quantum theory, atomic and nuclear physics. (G2A)
Prerequisite: C or better in PHY 105
Pre/corequisite: MAT 206

PHY 108—Acoustics
2 lect., 2 lab, 3 cr. (Spring)
An introduction to the fundamentals of sound. Topics include: elementary principles of wave motion; analysis of musical sounds from varied sources including voices, instruments, oscillators, synthesizers, and recording media. Emphasis is placed on those factors which permit performer and listener to understand and control musical sounds. (G2A)
Prerequisite: MAT 092 or MAT 101 or placement into MAT 102 or higher or by permission of instructor

PHY 111—Architectural Physics
2 lect., 2 lab, 3 cr. (Fall)
An algebra based introductory course for students interested in architecture and building design. Topics include vectors, kinematics, stress and strain, statics, dynamics, energy, heat measurement, fluids, waves, electricity and sound. (G2A)
Prerequisite: MAT 107 or MAT 121 or higher is required.

PHY 203—Physics for Science and Engineering 3
3 lect., 3 lab, 4 cr. (Fall)

Treatment of electro and magneto-statics, Gauss' Law, Faraday's Law, Ampere's Law; resistance inductance and capacitance applied to circuits. Transient and steady state analysis of RC, RL and RLC circuits. Resonance, electromechanical analogues; Maxwell's equations, electromagnetic waves and light; geometric and physical optics, gratings and spectra, polarization. (G2A)
Prerequisite: C- or better in PHY 104
Pre/corequisite: MAT 207

PHY 204—Modern Physics
3 lect., 3 lab, 4 cr. (Spring)
Study of the development of physics since 1900. Study of waves in light and matter. Includes comparison of Galileo's and Einstein's relativity, relativistic kinematics and dynamics; wave-particle duality, black body radiation and Planck's constant; introduction to quantum theory and wave mechanics; introduction to molecular and solid state physics; atomic structure and the periodic table; nuclear reactions and energy. Elementary particles and the Standard Model; applications to cosmology. (G2A)
Prerequisite: PHY 102 or PHY 106 or PHY 203