Phy Sc 10. Introduction to Physical Science (3) (See Phy Sc 10)

55. Sound (3)

For music students and others interested in the physical basis of music. Vibrations and spectra of various musical instruments; harmony and discord, the tempered scale; acoustics; reproducing instruments; hearing.

102A-B. Modern Physics (3-3)

Prerequisite: Chem 1A or 2A-B. (A) Theoretical and experimental aspects of atomic nature of matter, measurement of electronic charge, conduction of electricity in gases, radiation, photo-electric effect, atom models and spectroscopy. (B) Natural and artificial radioactivity, cosmic rays, fission, fusion, properties of nuclear radiations and their detection.

105A-B. Analytical Mechanics (3-3)

(A) Analytical and vector treatment of the fundamental principles of statics, kinematics, and dynamics. (B) Advanced dynamics; harmonic motion, central force fields and Lagrange's equations.

107A-B. Advanced Electricity and Magnetism (3-3)

Prerequisite: Physics 105A. (A) Mathematical analysis of electrostatics and magnetostatics, Gauss' law, solutions of Laplace's equation, images, theory of conduction, magnetic potentials. (B) Motion of ions in electric and magnetic fields, electromagnetic induction, Maxwell's equations and wave propagation, electron theory and magnetic properties.

110. Physical Optics (3)

Theory of optical phenomena; wave theory of light with applications to optical instruments; interference and diffraction phenomena, dispersion, polarization.

110L. Physical Optics Laboratory (1) (3 lab hours)

115. Introduction to Quantum Mechanics (3)

Prerequisite: Physics 102A, 105A, 110, Math 119. Historical background, postulates, meaning and methods of quantum mechanics; applications to atomic phenomena.

120. Electrical Measurements (3)

Prerequisite: Physics 4A-B-C, Math 6. Theory, operation and use of direct and alternating current measuring instruments. (2 lecture, 3 lab hours)

126. Physical Electronics: Tubes (2)

Electron ballistics, thermionic emission, diode and multielement tube characteristics, rectification, elementary amplifier theory, gas tubes, special tubes.

126L. Physical Electronics Laboratory: Tubes (1) (3 lab hours)

127. Physical Electronics: Circuits (2)

Prerequisite: Physics 126, 126L. Audio and RF amplifiers, oscillators, feedback, modulation, detection, application of tubes to control techniques, solid state and transistor theory.

127L. Physical Electronics Laboratory: Circuits (1) (3 lab hours)

130A-B. Advanced Laboratory (2-2)

Prerequisite: Physics 102A-B, 105A-B; senior physics major. Advanced experiments in mechanics, electricity and magnetism, atomic and nuclear physics. Opportunity for at least one individual project. (6 lab hours)