

TABLE 2
PHYSICS 102 SYLLABUS FOR THE SPRING TERM, 2015-16

Approx Hrs +-.5	Chapter	Topics Covered (Text: College Physics, Serway and Vuille 10 th edition)	Sections or pages of Text Omitted 10 th ed
3	13	VIBRATIONS & WAVES. Hooke's Law, simple harmonic motion, elastic potential energy, reference circle, simple pendulum, transverse & longitudinal waves, superposition, interference, and reflection of waves.	13.6
2	14	SOUND. Characteristics of sound waves, Doppler effect (qualitative), standing waves, resonance, open and closed tubes, beats.	14.3-14.5 14.12,14.13
.5	21	ELECTROMAGNETIC WAVES. The Electromagnetic spectrum (only §21.12)	21.1-21.11, 21.13
2	22	REFLECTION AND REFRACTION OF LIGHT. Reflection, refraction, dispersion and prisms, total internal reflection.	22.6
3.5	23	MIRRORS AND LENSES. Plane mirrors, images formed by spherical mirrors (convex and concave), thin lenses. (Note: 6 th ed table 23.1 has second line reversed)	23.4, 23.7
.5	25	OPTICAL INSTRUMENTS. Camera, eye (omit defects), power of a lens, simple magnifier, compound microscope, telescope. Qualitative	25.6-25.7
4	15	ELECTRIC FORCES AND ELECTRIC FIELDS. Properties of electric charges, insulators, conductors, Coulomb's law, electric field, field lines.	15.9
2	16	ELECTRICAL ENERGY AND CAPACITANCE. Potential difference, electric potential, electron volt, potential energy, capacitance, series/parallel combinations of capacitors.	16.4,16.5 16.9-16.10
3	17	CURRENT AND RESISTANCE. Electric current, Ohm's law, resistance, resistivity, temperature variation of resistance, electrical energy and power, energy conversion.	17.8
3	18	DIRECT ELECTRIC CURRENTS. Sources of emf, resistances in series and parallel, simple circuits, measurement of resistance using voltmeter and ammeter, internal resistance of battery cells in series.	18.4,18.5 18.8
5	19	MAGNETISM. Magnetic fields, magnetic force on a current-carrying conductor, torque, galvanometer as an ammeter or voltmeter, motion of a charged particle in a magnetic field, magnetic field of a long straight wire, or between two parallel conductors, or of a current loop, solenoid	19.10 note: need to know about galvanometers See class notes
1	20	INDUCED VOLTAGES AND INDUCTANCES. Induced emf, magnetic flux, Faraday's law of induction, Lenz's law, motional emf, generators & motors (qualitative).	20.4-20.7
2	27	QUANTUM PHYSICS. Photoelectric effect	See left description
2.5	28	ATOMIC PHYSICS. Bohr's theory of the atom	See left description