Phys104: General Physics 2

(Electricity and Magnetism)

COURSE SYLLABUS

Text book

Physics for Scientists and Engineers

(6th edition)- R. A. Serway **& Jewett**

Chapter & Sections	Sections Contents	Examples	problems
23 **Electric Field** **3, 4, 6, 7**	**Coulomb's Law, The Electric Field, Electric Field Lines, and Motion of Charged Particles in a Uniform Electric Field.**	**1,2, 3, 5, 8, 10, 11**	**4, 7, 10, 14, 20, 21, 42, 45, 46**
24 **Gauss's Law** **1,2, 3, 4**	**Electric Flux, Gauss's Law, and Application of Gauss's Law to Various Charge Distributions (Examples: 4,5,6,7,8) and Conductors in Electrostatic Equilibrium.**	**2, 3, 4, 5, 6, 7, 8**	**3,4,9,11, 21, 24, 31, 35, 37, 40,42,**
25 **Electric Potential** **1, 2, 3**	**Potential Difference and Electric Potential, Potential Diff. in a Uniform Electric Field, Electric Potential and Potential Energy Due to point Charges.**	**1,2, 3**	**2,3, 6,16,17,20**
26 **Capacitance and Dielectrics** **1, 2, 3, 4, 5**	**Definition & Calculating of Capacitance, Combinations of Capacitors, Energy Stored in a Charged Capacitor, Dielectrics.**	**1, 4, 6, 7**	**1, 7, 9, 18,21, 31,36, 47, 54**

27 **Current and Resistance** **1, 2, 4, 6**	**Electric Current, Resistance, Resistance and Temperature, Electric Power.**	**1, 2, 3, 6, 7, 8**	**1, 11, 12, 15, 16, 22, 32,33, 36, 49, 56**
28 **Direct Current Circuits** **1, 2 ,3**	**Electromotive Force, Resistors in Series and Parallel, Kirchhoff's Rules, RC Circuits.**	**1, 4, 6, 8, ,10**	**2, 6, 8, 9, 15, 20,21, 36, 40**
29 **Magnetic Field** **1, 2, 4, 5**	**Magnetic Fields and Forces, Magnetic Force Acting on a Current-Carrying Conductor(Up to equation 29.3), Motion of a Charged Particle in a Uniform Magnetic Field and its Applications (velocity selector)**	**1, 6, 7**	**7, 9, 12,14, 30, 37, 41**
30 **Sources of the Magnetic Field** **1, 2, 3, 4,5, 6**	**The Biot -Savart Law(Eq.30.5 only and without proof), Magnetic Force Between Two Parallel Conductors, Ampère's Law, Mag. Field of a Solenoid, Magnetic Flux, Gauss's Law in Magnetism.**	**4, 8**	**4, 16,17, 31, 35, 63**
31 **Faraday's Law** **1, 2**	**Faraday's Law of Induction, Motional emf.**	**1, 5**	**2, 5, 13, 20**
32 **Inductance** **1, 3**	**Self-Inductance, Energy in a Mag. field .**	**1, 2**	**6,7, 9, 16, 29, 30, 31, 37**
33 **Alternating Current Circuits AC** **1, 2, 3, 4, 5, 6, 7**	**AC Sources, Resistors – Inductors - Capacitors in an AC circuit,** **The RLC Series Circuit, Power in an AC Circuit, Resonance in a Series RLC Circuit.**	**1, 5, 6, 7**	**3, 10, 17,21,22 26, 32, 33, 37**

Course Evaluation

Exam	*Marks*	*Date*	*Notes*
1st Midterm	***15***		
2nd Midterm	***15***		
Lab Exp. Report & Exam	***30***		
Final	***40***		
TOTAL	**100**		

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