

Phys104 (General Phys. 2)

COURSE SYLLABUS

Text book

**Physics for Scientists and Engineers
(6th edition)- R. A. Serway& Jewett**

Chapter & Sections	Sections Contents	Examples	problems
23 <u>Electric Field</u> 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 <u>Gauss's Law</u> 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 <u>Electric Potential</u> 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 <u>Capacitance and Dielectrics</u> 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 <u>Current and Resistance</u> 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

<p>28 <u>Direct Current Circuits</u> 1, 2, 3</p>	<p>Electromotive Force, Resistors in Series and Parallel, Kirchhoff's Rules, RC Circuits.</p>	<p>1, 4, 6, 8, ,10</p>	<p>2, 6, 8, 9, 15, 20,21, 36, 40</p>
<p>29 <u>Magnetic Field</u> 1, 2, 4, 5</p>	<p>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)</p>	<p>1, 6, 7</p>	<p>7, 9, 12,14, 30, 37, 41</p>
<p>30 <u>Sources of the Magnetic Field</u> 1, 2, 3, 4,5, 6</p>	<p>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.</p>	<p>4, 8</p>	<p>4, 16,17, 31, 35, 63</p>
<p>31 <u>Faraday's Law</u> 1, 2</p>	<p>Faraday's Law of Induction, Motional emf.</p>	<p>1, 5</p>	<p>2, 5, 13, 20</p>
<p>32 <u>Inductance</u> 1, 3</p>	<p>Self-Inductance, Energy in a Mag. field .</p>	<p>1, 2</p>	<p>6,7, 9, 16, 29, 30, 31, 37</p>
<p>33 <u>Alternating Current Circuits AC</u> 1, 2, 3, 4, 5, 6, 7</p>	<p>AC Sources, Resistors – Inductors - Capacitors in an AC circuit, The RLC Series Circuit, Power in an AC Circuit, Resonance in a Series RLC Circuit.</p>	<p>1, 5, 6, 7</p>	<p>3, 10, 17,21,22 26, 32, 33, 37</p>

Course Evaluation

<i>Exam</i>	<i>Marks</i>	<i>Date</i>	<i>Notes</i>
1 st Midterm			
2 nd Midterm			
Lab Exp. Report & Exam			
Final	40		
TOTAL	100		

Course Coordinator: Prof. Magdy Ghannam

Office: AA16 (Tel. 76627)