

## Course Schedule for SCPH211

Week	Date	Chapter	Sections	Sample Problems	Check Points	Homework
1	Sun.	<b>Chapter 21: Electric Charge</b>	-Electric Charge -Conductors and Insulators -Coulomb's Law		1	<b>Questions:</b> 1,7  <b>Problems:</b> 3,4,5,25,36
	Tues.		-Shell Theorem -Spherical Conductors	-Finding the net force due to two other particles	2,3	
	Thur.		-Charge Is Quantized -Charge Is Conserved	-Mutual electric repulsion in a nucleus	4	
2	Sun.	<b>Chapter 22: Electric Fields</b>	- The Electric Field - Electric Field Lines	-Net electric field due to three charged particles	1	<b>Problems:</b> 2,4,5,6,15,34,35,43,56

2		<b>Chapter 22: Electric Fields</b>	- The Electric Field Due to a Point Charge			
	Tues.		-The Electric Field Due to a Line of Charge -The Electric Field Due to a Charged Disk		2,3,4	
	Thur.		-A Point Charge in an Electric Field -Solving Problems			
3	Sun.	<b>Chapter 23: Gauss's Law</b>	-Flux -Flux of an Electric Field	-Flux through a closed cylinder, uniform field -Flux through a closed cube, nonuniform field	1	<b>Questions: 1,4,8</b>  <b>Problems: 2,6,10,17,22,33,49</b>
	Tues.		- Gauss' Law - Gauss' Law and Coulomb's Law	-Relating the net enclosed charge and the net flux -Enclosed charge in a	2,3	

3				nonuniform field		
	Thur.		<ul style="list-style-type: none"> <li>- A Charged Isolated Conductor</li> <li>- The External Electric Field</li> <li>- Applying Gauss' Law: Cylindrical Symmetry</li> </ul>	-Spherical metal shell, electric field and enclosed charge		
4	Sun.	<b>Chapter 23: Gauss's law</b>	<ul style="list-style-type: none"> <li>- Applying Gauss' Law: Planar Symmetry</li> <li>-Nonconducting Sheet</li> <li>- Two Conducting Plates</li> <li>-Applying Gauss' Law: Spherical Symmetry</li> </ul>	Electric field near two parallel charged metal plates		
	Tues.	<b>Chapter 24: Electric Potential</b>	<ul style="list-style-type: none"> <li>- Electric Potential Energy</li> <li>- Electric Potential</li> <li>- Work Done by an Applied Force</li> <li>- Equipotential</li> </ul>	-Work and potential energy in an electric field	1,2	<b>Problems: 2,5,12,13,21,35,42,65</b>

			Surfaces			
	Thur.	<b>Chapter 24: Electric Potential</b>	<b>24-5</b> Calculating the Potential from the Field  <b>24-6</b> Potential Due to a Point Charge  <b>24-7</b> Potential Due to a Group of Point Charges	<b>-Finding the potential change from the electric field</b>  <b>-Net potential of several charged particles</b>  <b>-Potential is not a vector, orientation is irrelevant</b>	<b>3,4</b>	
5	Sun.	<b>Chapter 24: Electric Potential</b>	<b>24-12</b> Potential of a Charged Isolated Conductor  <b>24-10</b> Calculating the Field from the Potential  <b>24-11</b> Electric Potential Energy of a System of Point Charges	<b>-Finding the field from the potential</b>  <b>-Potential energy of a system of three charged particles</b>	<b>5-6</b>	

5	Tues.	<b>Chapter 25: Capacitance</b>	-Capacitance -Charging a Capacitor  -Calculating the Capacitance -Calculating the Electric Field -Calculating the Potential Difference		1	Questions: 1,7,10,11  Problems: 2,3,9,25,29,31,40
	Thur.			Review before Mid Exam		

**Week 6**

**(Mid Term Exams)**

7	Sun.	<b>Chapter 25: Capacitance</b>	-A Parallel-Plate Capacitor  -Capacitors in Parallel and in Series  -Energy Stored in an Electric Field	-Capacitors in parallel and in series  Potential energy and energy density of an electric field	2,3	
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7	Tues	<b>Chapter 26: Current &amp; Resistance</b>	-Electric Current -The Directions of Currents -Drift Speed		1,2	
	Thur.	<b>Chapter 26: Current &amp; Resistance</b>	-Current Density -Resistance and Resistivity -Calculating Resistance from Resistivity	A material has resistivity, a block of the material has resistance	3	Questions: 2,5,6  Problems: 1,8,11,17,42
8	Sun.	<b>Chapter 26: Current &amp; Resistance</b>	-Ohm's Law -Power in Electric Circuits	-Rate of energy dissipation in a wire carrying current	4	
	Tues.	<b>Chapter 27: Circuits</b>	-“Pumping” Charges -Work, Energy, and Emf -Calculating the Current in a Single-Loop Circuit -Energy Method -Potential Method		1	Questions: 2,5,10  Problems: 1,5,18,19,57

	Thur.	Chapter 27: Circuits	<ul style="list-style-type: none"> <li>- Other Single-Loop Circuits</li> <li>-Internal Resistance</li> <li>-Resistances in Series</li> </ul>		2	
9	Sun.	Chapter 27: Circuits	<ul style="list-style-type: none"> <li>-Potential Difference Between Two Points</li> <li>-Potential Difference Across a Real Battery</li> <li>- Grounding a Circuit</li> </ul>	-Single-loop circuit with two real batteries		
	Tues.	Chapter 27: Circuits	<ul style="list-style-type: none"> <li>-Power, Potential, and Emf</li> <li>-Multiloop Circuits</li> <li>--Resistances in Parallel</li> </ul>	-Resistors in parallel and in series	4	
	Thur.		- RC Circuits			

		<b>Chapter 27: Circuits</b>	<ul style="list-style-type: none"> <li>-Charging a Capacitor</li> <li>-The Time Constant</li> <li>-Discharging a Capacitor</li> </ul>		5	
10	Sun.	<b>Chapter 28: Magnetic Field</b>	<ul style="list-style-type: none"> <li>-What Produces a Magnetic Field?</li> <li>-The Definition of B</li> <li>- Finding the Magnetic Force on a Particle</li> <li>- Magnetic Field Lines</li> </ul>	<b>-Magnetic force on a moving charged particle</b>	1	
		<b>Chapter 28: Magnetic Field</b>	<ul style="list-style-type: none"> <li>- A Circulating Charged Particle</li> <li>- Magnetic Force on a Current-Carrying Wire</li> </ul>	<b>- Magnetic force on a wire carrying current</b>	4	
	Thur.	<b>Chapter 29: Magnetic Field</b>	<ul style="list-style-type: none"> <li>- Magnetic fields due to current</li> <li>- Force Between two parallel currents</li> </ul>		5	
11	Sun.	<b>Chapter 29: Magnetic Field</b>	<ul style="list-style-type: none"> <li>- Ampere's Law</li> <li>- Solenoids</li> </ul>			



	<b>Tues.</b>			<b>Review all chapters</b>		
	<b>Thur.</b>			<b>Review all chapters</b>		
<b>12</b>	<b>Sun. to Thur.</b>	<b>Laboratory exams</b>				
<b>13</b>	<b>Sun. to Thur.</b>	<b>Final exams</b>				