



Department of Basic and Applied Science  
Smart Village Campus

**BA113**

**Physics I**

**Fall 2013**

**Course Outline**

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<b>Office:</b>																		
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<b>Objective:</b>	<ul style="list-style-type: none"> <li>• The course gives the student the essential back ground in electricity, magnetism, and light, and to make him able to think critically.</li> <li>• Write technical reports, and interpret experimental results.</li> <li>• At the end of this course the student should be able to extend his knowledge over the required background, to think logically and analyze any problem.</li> </ul>																	
<b>Text:</b>	Physics for Scientists and Engineers with Modern Physics Jewett and Serway (9 <sup>th</sup> Edition)																	
<b>Grading:</b>	<u>Evaluating system</u> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">1- 7<sup>th</sup> Week Exam</td> <td style="width: 20%;"></td> <td style="width: 20%; text-align: right;">30 marks</td> </tr> <tr> <td>2- 12<sup>th</sup> Week Exam</td> <td></td> <td style="text-align: right;">20 marks</td> </tr> <tr> <td>3- Lab</td> <td></td> <td style="text-align: right;">10 marks</td> </tr> <tr> <td>4- Final Exam</td> <td></td> <td style="text-align: right;">40 marks</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="border-top: 1px solid black;"></td> <td style="text-align: right; border-top: 1px solid black;">100 marks</td> </tr> </table>			1- 7 <sup>th</sup> Week Exam		30 marks	2- 12 <sup>th</sup> Week Exam		20 marks	3- Lab		10 marks	4- Final Exam		40 marks	Total		100 marks
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<b>Lab Experiments</b>	<ol style="list-style-type: none"> <li>1. Ohm's law</li> <li>2. Non-linear relationship between voltage and current</li> <li>3. Measurement of resistance by meter bridge</li> <li>4. Resistances in series and in parallel</li> <li>5. Charging a capacitor (RC circuit)</li> <li>6. Polarization of light</li> <li>7. The photo-electric cell</li> <li>8. Measurements of wavelength of a laser beam using a double slit</li> </ol>																	

Week		E V E N T	
1	Sep. 22 <sup>nd</sup>	Lecture	Introduction
		Tutorial	
2	Sep. 29 <sup>th</sup>	Lecture	<b>Chapter (23) – Electric Fields</b> <ul style="list-style-type: none"> <li>• Properties of electric charges</li> <li>• Electrostatics and Coulomb's law</li> <li>• Charging by conduction &amp; induction</li> </ul>
		Tutorial	15, 16
		H.W.	11, 12
3	Oct. 6 <sup>th</sup>	Lecture	<b>Chapter (23) – Electric Fields</b> <ul style="list-style-type: none"> <li>• The electric field for multiple point charge distribution</li> <li>• Electric Field of continues charge distribution (rod, uniform ring, disk)</li> <li>• Motion of charged particle in uniform electric field</li> </ul>
		Tutorial	31, 38, 39, 51, 52
		H.W.	23, 25, 30, 37, 53
	Oct.13 <sup>th</sup>	<b>Holiday</b>	<b>Al-Adha Feast</b>
4	Oct. 20 <sup>th</sup>	Lecture	<b>Chapter (25) – Electric Potential</b> <ul style="list-style-type: none"> <li>• Electric potential energy and the potential difference</li> <li>• Electric potential &amp; potential energy due to point charge</li> </ul>
		Tutorial	3, 7, 14, 19, 22
		H.W.	4, 13, 16, 18, 21, 24
5	Oct.27 <sup>th</sup>	Lecture	<b>Chapter (26) – Capacitance &amp; Dielectrics</b> <ul style="list-style-type: none"> <li>• Parallel plate capacitor and combination of capacitors</li> <li>• Energy stored in a capacitor and Capacitors with a dielectric</li> </ul>
		Tutorial	1, 2, 19, 22, 23, 31, 43, 45 + <b>Quiz No. 1 (5 marks)</b>
		H.W.	3, 8, 13, 14, 15, 21, 26, 27, 32
6	Nov.3 <sup>rd</sup>	Lecture	<b>Chapter (27) – Current &amp; Resistance</b> <ul style="list-style-type: none"> <li>• Electric current</li> <li>• Resistance and resistivity</li> <li>• Resistance &amp; temperature</li> <li>• Electrical power</li> </ul>
		Tutorial	9, 11, 16, 21, 26, 31, 40, 43
		H.W.	5, 14, 17, 27, 29, 39, 41, 47
7	Nov.10 <sup>th</sup>	<b>Seventh (7<sup>th</sup>) Week Exam (25 marks)</b>	
8	Nov.17 <sup>th</sup>	Lecture	<b>Chapter (28) – Direct Current Circuits</b> <ul style="list-style-type: none"> <li>• Resistors in series and parallel</li> <li>• RC circuits</li> <li>• Kirchoff rules</li> </ul>
		Tutorial	1, 3, 5, 13, 17, 21, 22, 29, 33, 37, 39
		H.W.	2, 7, 15, 19, 32, 34, 36, 38
9	Nov.24 <sup>th</sup>	Lecture	<b>Chapter (29) – Magnetic Fields</b> <ul style="list-style-type: none"> <li>• Magnetic force and magnetic field</li> <li>• Torque on a current loop in a uniform magnetic field</li> </ul>
		Tutorial	6, 9, 13, 32, 46
		H.W.	7, 11, 19, 34, 35, 48
10	Dec.1 <sup>st</sup>	Lecture	<b>Chapter (30) – Sources of Magnetic Field</b> <ul style="list-style-type: none"> <li>• The Biot-Savart law</li> <li>• The magnetic field of a solenoid</li> </ul>
		Tutorial	3, 4, 23, 40 + <b>Quiz No. 2 (5 marks)</b>
		H.W.	5, 22, 41, 45
11	Dec.8 <sup>th</sup>	Lecture	<b>Chapter (31) – Faraday's law</b> <ul style="list-style-type: none"> <li>• Magnetic flux (<math>\phi</math>)</li> <li>• Faraday's law of induction and motional E.M.F</li> </ul>
		Tutorial	3, 25, 26
		H.W.	6, 23, 30, 34
12	Dec. 15 <sup>th</sup>	<b>Twelfth (12<sup>th</sup>) Week Exam (15 marks)</b>	
13	Dec.22 <sup>nd</sup>	Lecture	<b>Chapter (32) – Inductance</b> <ul style="list-style-type: none"> <li>• Self and Mutual Inductance</li> </ul>
		Tutorial	5, 9, 41
		H.W.	6, 8, 40
14	Dec.29 <sup>th</sup>	Lecture	<b>Chapter (32) – Wave Optics</b> The Young's Double slit experiment and Waves interference
		Tutorial	2, 4
15	Jan.5 <sup>th</sup>	<b>Revision</b>	
16	Jan. 12 <sup>th</sup>	<b>Final Exam</b>	

**Good Luck**

