

Kuwait Bilingual School

Fourth Quarter syllabus 2016-2017

April 4<sup>th</sup> –April 30<sup>th</sup>, 2017

Subject: physics II

Grade: 12

| Cycle # | Cycle of           | NGSS Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Concept & Knowledge                                                                                                                                                                                                         | Skills                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Resources                                                                                                                                                                                                                                                                                                                                                                                           |
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| 19      | 2/4<br>To<br>16/4  | <ul style="list-style-type: none"> <li>➤ Use mathematical representations of Newton’s Law of Gravitation and Coulomb’s Law to describe and predict the gravitational and electrostatic forces between objects.</li> <li>➤ Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.</li> <li>➤ Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.</li> </ul> | <b>Magnetism</b> <ul style="list-style-type: none"> <li>• Magnetic Field Due to a Long Straight Wire</li> <li>• Force between Two Parallel Wires</li> <li>• Solenoids and Electromagnets</li> <li>• Ampère’s Law</li> </ul> | <ul style="list-style-type: none"> <li>• Determine the magnitude of the magnetic field produced by both a long straight current-carrying wire and a current loop. Use the right hand rule to determine the direction of the magnetic field produced by the current.</li> <li>• Explain what is meant by ferromagnetism, including the concept of domains and the Curie temperature.</li> <li>• State the conventions adopted to represent the direction of a magnetic field, the current in a current-carrying wire and the direction of motion of a charged particle moving through a magnetic field.</li> <li>• Apply the right hand rule to determine the direction of the force on either a charged particle traveling through a magnetic field or a current-carrying wire placed in a magnetic field.</li> </ul> | <b>Chapter 20 Magnetism</b><br><a href="http://wps.prehall.com/esm_giancoli_physicsppa_6/17/4358/1115659.cw/index.html">http://wps.prehall.com/esm_giancoli_physicsppa_6/17/4358/1115659.cw/index.html</a><br>↓<br><a href="http://wps.prehall.com/esm_giancoli_physicsppa_6/17/4358/1115659.cw/index.html">http://wps.prehall.com/esm_giancoli_physicsppa_6/17/4358/1115659.cw/index.html</a><br>↓ |
| 20      | 17/4<br>To<br>30/4 | <ul style="list-style-type: none"> <li>➤ Use mathematical representations of Newton’s Law of Gravitation and Coulomb’s Law to describe and predict the gravitational and electrostatic forces between objects.</li> <li>➤ Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a</li> </ul>                                                                                                                                                                                                                     | <b>Magnetism</b> <ul style="list-style-type: none"> <li>• Torque on a Current Loop; Magnetic Moment</li> <li>• Applications: Galvanometers, Motors, Loudspeakers</li> <li>• Mass Spectrometer</li> </ul>                    | <ul style="list-style-type: none"> <li>• Determine the torque on a current loop arranged in a magnetic field and explain galvanometer movement.</li> <li>• Explain how a mass spectrograph can be used to determine the mass of an ion and how it can be used to separate isotopes of the same element.</li> <li>• Explain how galvanometers work.</li> <li>• Explain how motors work.</li> <li>• Design a motor.</li> <li>• Explain how loudspeakers work.</li> </ul>                                                                                                                                                                                                                                                                                                                                                | <b>Chapter 20 Magnetism</b><br><a href="http://wps.prehall.com/esm_giancoli_physicsppa_6/17/4358/1115659.cw/index.html">http://wps.prehall.com/esm_giancoli_physicsppa_6/17/4358/1115659.cw/index.html</a><br>↓                                                                                                                                                                                     |

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|  |  | <p>changing magnetic field can produce an electric current.</p> <p>➤ Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.</p> | <ul style="list-style-type: none"><li>• Ferromagnetism: Domains and Hysteresis</li></ul> | <ul style="list-style-type: none"><li>• Design a loudspeaker.</li><li>• Explain how mass spectrometer work.</li></ul> | <p><a href="http://wps.prenhall.com/esm_giancoli_physicsppa_6/17/4358/1115659_cw/index.html">http://wps.prenhall.com/esm_giancoli_physicsppa_6/17/4358/1115659_cw/index.html</a></p> <p><u>1</u></p> |
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