

**St. Bonaventure College and High School**

**Subject: \_Physics \_Form: \_7 (EMI) \_\_ Teaching Schedule (2011-2012)**

Duration: 5/9/2011 - 19/1/2012

SP = Scheduled number of period

AP = Actual number of period

<b>Date</b>	<b>Topic</b>	<b>Focus/ Objective</b>	<b>SP</b>	<b>AP</b>	<b>Learning and teaching activities</b>	<b>Homework/ Test</b>	<b>Learning Resources</b>	<b>Civic Ed. concerned</b>
5/9 - 14/9	Current Electricity	-Electric current -Potential difference (p.d.) -Electromotive force (e.m.f.) -Resistance and Ohm's Law -Factors affecting resistance of a conductor -Resistor networks -Kirchhoff's Laws -Maximum power and efficiency -Potential divider /potentiometer	14		Determination of the drop in terminal p.d. of power supplies delivering current. Using different voltmeters to measure the terminal p.d. of a power supply with high internal resistance.	(B3) p.119 (10); p.129 (6); p.145 (10); p.152 (6); p.182 (10)  Joint test 1;  Revision test: Matter	Computer simulations (EM2001); Chapter 15	
15/9– 28/9	Electromagnetism	-Magnetic field and magnetic force -Magnetic forces on moving charge & current-carrying conductor -Hall effect -Measurement of magnetic fields -Magnetic fields due to currents -Definition of the ampere -Torque on current-carrying rectangular loop -Moving-coil galvanometer	20		Using a current balance to measure the magnetic fields. (a) between two magnadur magnets; (b) close to the end of a current-carrying coil; and (c) inside a flat solenoid carrying current.  Using a Hall probe or a search coil to investigate the magnetic fields (a) around a long straight wire; (b) at the center of a coil; (c) inside and around a slinky solenoid; (d) inside a solenoid, carrying current.	(B3) p.196 (4); p.201 (4); p.206 (4); p.232 (4); p.236 (2); p.248 (17)	Computer simulations (EM2001); Chapter 16; SBC Physics Homepage: <a href="#">Basics</a> <a href="#">functions of an oscilloscope</a>	

Date	Topic	Focus/ Objective	SP	AP	Learning and teaching activities	Homework/ Test	Learning Resources	Civic Ed. concerned
29/9 – 18/10	Electromagnetic Induction	-E.m.f. induced in a coil & moving straight conductor -Generator -Eddy currents -Self induction	20		Investigation of the factors affecting the induced e.m.f. in a coil.  Study of self-induction in a coil.	(B3) p.260 (6); p.265 (3, 4a); p.273 (6); p.292 (12, 13)  Joint test 2  Revision test: Wave	Computer simulations (EM2001); Chapter 17	
19/10 – 1/11	Alternating Current	-R.m.s. values -Transformer -Rectification of a.c. -Resistors, capacitors and inductors in a.c. circuits -Power in a.c. circuits -Resonance	20		Study of transformer action: (a) the effect of the flux linkage; (b) the relationship between voltage ratio and turn ratio; (c) the dependence of the current in the primary coil on the loading; (d) comparison between input and output power.  Rectification of an AC signal.  Study of the phase relationship between p.d. and current when a low frequency a.c. is passed through (a) a resistor; (b) a capacitor; and (c) an inductor.  Study of resonance in a parallel <i>LC</i> circuit using a CRO.	(B3) p.344 (6, 8); p.364 (13, 16, 27, 30)	Computer simulations (EM2001); Chapter 18	
2/11 – 10/11	Extra-nuclear Structure of the Atom	-Quantum theory -Photoelectric effect -Energy level -Energy level and spectra of hydrogen	10		Investigation of the properties of cathode rays using Teltron Maltese Cross and Deflection tubes. Measurement of e/m using Deflection tube.	(B4) p. 136 (4,5) ; p. 148 (10, 12) ; p. 162 (11, 12) ; p. 179 (33b)  Joint test 3	Computer simulations; Chapter 23;	

Date	Topic	Focus/ Objective	SP	AP	Learning and teaching activities	Homework/ Test	Learning Resources	Civic Ed. concerned
		-Fluorescence, X-rays and laser -Continuous spectra			Observation of various line spectra (e.g. hydrogen, sodium, mercury, neon) using a diffraction grating. Observation of absorption spectrum.		SBC Physics Homepage: <a href="#">Absorption and emission of radiation by an atom</a>  <a href="#">Hydrogen atom energy level diagram</a>  <a href="#">The laser Laser</a>	
11/11 – 2/12	Radioactivity	-Properties of $\alpha$ , $\beta$ and $\gamma$ radiations -Detectors -Natural nuclear transformations -Radioactive decay -Radiation hazards & uses of radioisotopes	10		Magnetic deflection of $\beta$ rays. Investigation of the absorption of $\alpha$ , $\beta$ and $\gamma$ radiations by different materials of various thickness.  Simulation of radioactive decay by throwing dice. Demonstration of random variation of count rate using GM counter and source.	(B4) p.208 (8, 9); p.221 (23, 29)  Mid-term test	Computer simulations; Chapter 24	
5/12 – 12/12	Conservation of Energy and Mass	-Mass-energy relationship -Energy release in fission and fusion -Conservation of energy	8			(B4) p. 233 (5) ; p. 238 (4,5) ; p. 257 (15)  Joint test 4	Computer simulations; Chapter 25	Nuclear energy debates
16/12 – 19/1	Overall revision & drilling of AL past papers	AL past paper	28				AL past papers 07-11	
2/2 – 13/2	AL Mock Exam	21/2 – 24/2 Evaluation			19/4 HKAL EXAM			

