**YEAR 11 PHYSICS OVERVIEW 2020**

**VANUATU SENIOR SECONDARY SCHOOL CERTIFICATE**

 **TERM 1 (Week 9) – 2 (Week 8)**

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| **TERM 1** | **STRAND**  | **SUB-TOPICS** | **LEARNING OUTCOMES** | **ASSESSMENTS** | **RESOURCES** |
| **Week s** |  |  |  | **Formative** | **Summative** |  |
| **Week 9** |  |  | -solve problems where torques act in opposition, and where equilibrium is established |  | Exercise 5.40 (2%) | p.35-37 |
| Review  | * above LO’S
 | QUIZ |  |  |
| -Mechanical energy | -define work-define power -define kinetic energy-define gravitational potential energy. |  |  | p. 61-67esa level 1 p.33-50video  |
|  | -define conservation of energy-calculate kinetic energy-calculate gravitational potential energy |  |  | p. 66-68video |
|  | -measure the extension and force on a spring or rubber band |  | Practical  | video |
| **Week 10** |  |  | -draw and label a graph of force vs extension-identify the slope of the graph of force vs extension as a spring constant |  |  |  |
|  | -identify the area under the graph of force vs extension as the energy-calculate the area under graph of force vs extension |  |  | Esa level 1p.43-44 |
|  | -solve complex problems involving conservation of energy |  |  |  |
|  | -solve complex problems involving workdone and power |  |  | p.47, 49-50 |
| Review | All above LO’S |  | **Strand 2 test (5%)** | Test papaer |
| **Week 11 &12** | **Strand 3**ELECTRICITYANDMAGNETIS | Electrical circuits | -Define electric circuit, voltage and current-Identify a circuit symbol-List symbols used to represent electrical components eg: battery, resistor, wire, ammeter, voltmeter |  |  | Yr11 txtbk p.136-141 |
|  | -Describe the function of ammeter, voltmeter and variable resistor-Draw circuit diagram for series or parallel circuit-Construct a simple series and parallel circuit |  | practical | Electricity kitYr11 p.141-143 |
| GOOD FRIDAY | PUBLIC HOLIDAY |  |  |  |
| EASTER MONDAY  | PUBLIC HOLIDAY |  |  |  |
|  | -Compare parallel and series circuit in terms of total resistance, current flow and voltage-Explain why ammeters and voltmeters are connected differently in circuits. |  |  | p. 144-146 |
| **Week** **13**27/04  |  M | -Ohm’s law and resistance | -Define resistance-State the factors affecting resistance of wire eg. Temp, length and thickness-Describe the influence of temperature on the resistance of wire |  |  | p. 138-140 |
|  | -Define ohmic conductor-Calculate the voltage, current or resistance using ohm’s law-Plot a graph of voltage vs current-Calculate the resistance given a voltage-current graph |  |  | Esa level 2 p.201-203 |
|  | -Calculate the total resistance in series combinations* Calculate the total resistance in parallel combination
 |  |  | Yr11 txtbk p. 142-144 |
| -Electrical energy and power | -Define power as energy per unit time in an electrical context-Calculate the power output using either P = VI, or P = V2/R or P = I2R -Calculate the electrical energy in kilowatt-hour |  |  | P. 145- 146 |
| **TWO** | **WEEKS** |  | **HOLIDAY.** |  |  |  |
| **TERM 2** | **STRAND**  | **SUB-TOPIC** | **LEARNING OUTCOME** | **SUMATIVE**  | **FORMATIVE**  | **RESOURCES** |
| **WEEK 1**18/05 | ELECTRICITYANDMAGNETISM | Review | -Above ILO’S-Calculate the cost of electricity |  | Exercise 15.90 (2%) | p.147p.150-153 |
|  | -Explain the UNELCO electricity bill by identifying the units of electricity used and confirming the calculation of the total bill -Describe the dangers of electricity |  |  | p. 147-149 |
|  | -List the renewable energy used in Vanuatu, eg. Windmill, hydroelectricity, solar-Explain how renewable energy sources are used to produce electrical energy-Discuss the need for use of renewable sources of energy in Vanuatu-Discuss the disadvantages of use of non-renewable energy sources in Vanuatu |  |  | Talk from renewable resource person |
|  | INTERNAL ASSESSMENT #1 |  | IA #1 (10%) |  |
|  | CONTINUE IA |  |  |  |
| **WEEK 2**25/05 |  | Magnetism and electromagnetism | -Use the right hand grip rule to identify the direction of a magnetic field around a wire carrying current.-Draw a magnetic field around a wire carrying current |  |   | Yr11 txtbk p.154-157video |
|  | -Use the modified right hand grip rule to identify the direction of a magnetic field around a solenoid-Draw a magnetic field around a solenoid Define electromagnet |  |  Exercise 16.80 (2%)  | p. 157-158p. 167-169 |
|  | -Explain the effect of increasing the current, the number of turns and the magnetic field on the strength of the electromagnet |  |  | p. 158-160video |
|  | **Public holiday** |  |  |  |
| **WEEK 3**1/06  | **Strand 4****L****I****G****H****T** **&** **W****A****V****E****S** |  | -Explain how electric bell, relay, reed switch or loud speakers work  |  |  | p.160 |
|  | * Above LO’S
 |  | **Strand 3 test (5%)** |  |
| -Propagation of light | -Introduction to light- what is light?-Define rectilinear propagation of light |  | Video quiz | Esa level 2 p.63p. 100 |
| -Reflection of light | -Define reflection-State the two examples of reflection-State the three laws of reflection-Determine angle of incidence or reflection |  |  | p.105-107 |
|  | -Describe the production of shadows, esclipes and pin hole camera in terms of rectilinear propagation of light-Explain the production of shadows in terms of rectilinear propagation of light |  |  | p. 101-104 |
| **WEEK 4**8/06  |  |  | -Discuss the application of rectilinear propagation of light in real life situations using diagrams and examples. |  |  | video |
|  | -Use a ray diagram to locate the image of an object in a plane mirror. | Activity 1- 4  |  | p. 106-110 |
|  | -Continue with ray diagrams |  |  | video |
|  | Internal assessment # 2 |  | Internal assessment # 1 (15%) |  |
|  | REVISION |  |  |  |
| **WEEK 5**15/06  |  | **Strand 1, 2 & 3** | **Mid** |  |  |  |
|  | **Year**  |  | **Exam (60%)** | Exam paper |
|  | **Revision** |  |  |  |
|  | **And** |  |  |  |
|  | **Exams** |  |  |  |
| **WEEK 6**22/ 06 |  | -Refraction of light | -Define refraction of light-State the angle of incidence or partial reflection of light entering a different optical medium-Identify the angle of reflection of a ray entering a different medium-State the angle of refraction of a ray entering a different medium-Describe how a light ray behaves when it enters an optical denser material  |  |  | p.111esa level 1 p. 123-124,128-129video |
|  | -Describe the relationship contain in the formula n1sinθ1 = n2sinθ2.-Calculate the value of an unknown in a situation involving n1sinθ1 = n2sinθ2. |  |  | Yr12 txtbkp.97-98video |
|  | -Plot and label a graph of n1sinθ1 against n2sinθ2.-Calculate values from graph (as the relative refractive index for two materials n1sinθ1 against n2sinθ2 |  |  | Yr12 p.99-101 |
|  | CORRECTION OF MID YEAR EXAM PAPER |  |  | MID-YR EXAMPAPER |
|  | CORRECTION OF MID YEAR EXAM PAPER |  |  |  |
| **WEEK 7**29/06 |  |  | -Solve problem that involve using n1sinθ1 = n2sinθ2 |  |  | Yr12.p.102VideoEsa level 2 p. 78-83 |
|  | -Explain the partial reflection that occurs as light rays are mainly refracted at the boundary between two media of different optical densities |  |  |  |
|  | -Explain the condition for critical angle within an optical denser medium when a ray meets a boundary with an optically less dense medium. |  |  |  |
|  |  |  | -Calculate the angle for a given pair of optical media and describe total internal reflection |  |  | Esa level 2 p. 81-82 |
|  |  |  |  |  |
| **WEEK 8**6/07 |  |  |  -Investigate/Discuss real life applications of light rays travelling across boundaries between different media and report on the results and processes |  |  | Yr11 txtbk. P.116-117 |
| Review  | -Above LO’S |  | Exercise 12.90 (2%) | Yr11 txtbk. p. 118-121 |
| Wave properties and propagation | -Define/identify amplitude, wavelength and frequency of waves-Describe the concepts of amplitude, wavelength and frequency of waves |  |  | p. 122- 125videoesa level 1p. 105-114 |
|  | - Use the relationship v = fλ to calculate an unknown in a given problem. |  |  | Esa level 2 p.47-54 |
|  | - Calculate the average displacement of vibrating particles involved in wave progress |  | Exercise 13.40 (2%) | Yr11 txt bk (Fiji)p.125 |