**YEAR 11 PHYSICS OVERVIEW 2020**

**VANUATU SENIOR SECONDARY SCHOOL CERTIFICATE**

**TERM 1 (Week 9) – 2 (Week 8)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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. 61-67  esa level 1 p.33-50  video |
|  | -define conservation of energy  -calculate kinetic energy  -calculate gravitational potential energy |  |  | p. 66-68  video |
|  | -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 1  p.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**  E  L  E  C  T  R  I  C  I  T  Y  AND  M  A  G  N  E  T  I  S | 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 kit  Yr11 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 | E  L  E  C  T  R  I  C  I  T  Y  AND  M  A  G  N  E  T  I  S  M | Review | -Above ILO’S  -Calculate the cost of electricity |  | Exercise 15.90 (2%) | p.147  p.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.154-157  video |
|  | -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. 157-158  p. 167-169 |
|  | -Explain the effect of increasing the current, the number of turns and the magnetic field on the strength of the electromagnet |  |  | p. 158-160  video |
|  | **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.63  p. 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.111  esa level 1 p. 123-124,128-129  video |
|  | -Describe the relationship contain in the formula n1sinθ1 = n2sinθ2.  -Calculate the value of an unknown in a situation involving n1sinθ1 = n2sinθ2. |  |  | Yr12 txtbk  p.97-98  video |
|  | -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 EXAM  PAPER |
|  | CORRECTION OF MID YEAR EXAM PAPER |  |  |  |
| **WEEK 7**  29/06 |  |  | -Solve problem that involve using n1sinθ1 = n2sinθ2 |  |  | Yr12.p.102  Video  Esa 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- 125  video  esa 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 |