

<b>COURSE TITLE</b>	<b>ELECTRONICS ENGINEERING</b> (Morning Classes)
<b>COURSE AIM</b>	This module is aimed at developing the participant's knowledge and understanding of the principles and applications of electronics engineering. It will provide the necessary grounding in the subject, which will enable the participant to undertake further studies.
<b>COURSE CONTENTS</b>	<ol style="list-style-type: none"> <li>1. <b>Health and Safety</b> The purpose of the use of the earth lead with equipment. The use of Isolating transformer (1:1 ratio transformer). Electricity in the workshop. Dangers of electricity: safe practices to follow in the workshop and in domestic environment.</li> <li>2. <b>Components symbols used in electronic circuits</b></li> <li>3. <b>Basic Electricity</b> Electric current, EMF, PD and Voltage. Resistance and Ohm's law. Meters and measurements. Potential divider. Electric power. Alternating current. Progress questions.</li> <li>4. <b>Components and circuits</b> Resistors. Capacitors. Inducers. CR and LR Circuits. Transformers. Switches. Progress questions.</li> <li>5. <b>Transducers</b> Microphones. Loudspeakers. Head-phones and earpieces. Heat and light sensors. Digital displays LED. Cathode-ray tube. Electric motors. Progress questions.</li> </ol>

**COURSE  
CONTENTS**

**6. Semi-conductor diodes**

Semi-conductors.  
Junction diode.  
Point contact.  
Zener.  
Progress questions.

**7. Transistors**

Types of transistors.  
PND or NPN.  
Forward and Reverse bias.  
Transistors as a switch.  
Field effect transistor.  
More about transistors.  
Integrated circuits.  
Progress questions.

**8. Digital electronics**

Binary numbers.  
Conversion of Binary to Decimal.  
Addition.  
Subtraction.  
Complements.  
Logic gates.  
AND. OR. NOT. NAND. NOR  
Boolean Expression.  
Truth Table.  
Combinational Logics.  
Progress questions.

**9. Power supplies**

Generation of electricity.  
Sources of EMF.  
Rectifier circuits (half wave, full wave and full wave bridge).  
Smoothing circuits.  
Stabilizing circuits.  
Power control.  
Progress questions.

**10. Measuring instruments**

Multimeters.  
Oscilloscops.  
Signal generators.  
Progress questions.

**11. Practice**

Soldering techniques to construct a project.  
Performing soldering exercises on printed circuits and videoboards.  
Use of Multi Meters to measure current voltage and resistance.  
Use of Oscilloscope to measure wave forms.

	<p><b>Practical Assignments</b></p> <p>The candidate should only be allowed to carry out the practical task when they have the necessary skills and feel confident to do so. To achieve a pass in a particular assignment, a candidate must be assessed by the tutor as satisfactory in each of the individual items constituting the total task.</p>
<b>DURATION</b>	180 hours – Held in the morning
<b>SCHEDULE</b>	Five times a week, mornings.
<b>VENUE</b>	At the ETC Training Complex in Hal Far.
<b>INTENDED FOR</b>	Mature adults who are highly motivated to pursue further studies and proficient in the English Language.
<b>FEE</b>	Nil
<b>CERTIFICATION</b>	Certificate of Achievement by ETC.

For further details please contact the ETC Training Complex, Hal Far on telephone number 22201100 or email: [etc@gov.mt](mailto:etc@gov.mt)