

## National Diploma: ELECTRONICS ENGINEERING

Electronic Engineering comprises career in research, design production, installation, maintenance and repair.

### CAREER OPPORTUNITIES

- Radio and TV Technician
- Technician: Office Equipment, Photocopier and Fax machine
- Telecommunications Technician
- Instrumentation Technician
- Domestic Appliance Technician
- Cellphone Repairs
- Car Radio Installation
- TV & Aerial Installation

### COMPREHENSIVE eBOOKS AND ASSOCIATED DOCUMENTATION

You will receive four of our up-to-date technical eBooks to add to your library. Together these texts contain hundreds of pages of valuable know-how distilled from years of experience in presenting these programs throughout the world.

- Fundamentals of Industrial Electronics
- Practical Process Control
- Digital Signal Processing
- Best Practice in Industrial Data Communications

ENGINEERING: ELECTRONICS			
N4 (Any 4 of the subjects below)	N5 (Any 4 of the subjects below)	N6 (Any 4 of the subjects below)	
<p><b>1. Mathematics</b></p> <ul style="list-style-type: none"> <li>• Equations, Manipulation and Word Problems</li> <li>• Determinants</li> <li>• Complex Numbers</li> <li>• Trigonometry</li> <li>• Sketch Graphs</li> <li>• Limits and Differentiation</li> <li>• Integration</li> </ul> <p><b>2. Industrial Electronics</b></p> <ul style="list-style-type: none"> <li>• Alternating Current Theory</li> <li>• Direct Current Theory</li> <li>• Semi-Conductors (Diodes)</li> <li>• Power Supplies</li> <li>• Transistor and Amplifier Devices</li> <li>• Operational Amplifiers</li> <li>• Electronic Power Control</li> <li>• Transducer</li> <li>• Testing Equipment</li> </ul> <p><b>3. Digital Electronics</b></p> <ul style="list-style-type: none"> <li>• Number Systems and Codes</li> <li>• Logic Circuits and Systems</li> <li>• Basic Treatment of Interfacing Elements and Applications</li> </ul> <p><b>4. Communication Electronics</b></p> <ul style="list-style-type: none"> <li>• Network Theorems</li> <li>• Vectors</li> <li>• Frequency Response</li> <li>• Modulation</li> <li>• Demodulation</li> <li>• Communication Systems</li> <li>• Radiowave Propagation</li> </ul> <p><b>5. Industrial Instruments</b></p> <ul style="list-style-type: none"> <li>• Pressure and Vacuum Measurements, Including Electrical Methods</li> <li>• Level Measurement</li> <li>• Flow Measurement</li> <li>• Temperature Measurement</li> <li>• Telemetering</li> <li>• Automatic Control</li> </ul>	<p><b>1. Mathematics</b></p> <ul style="list-style-type: none"> <li>• Limits and Continuity</li> <li>• Differentiation</li> <li>• Application of Differentiation</li> <li>• Integration Techniques</li> <li>• Application of the Definite Integral</li> <li>• Differential Equations</li> </ul> <p><b>2. Industrial Electronics</b></p> <ul style="list-style-type: none"> <li>• Alternating Current Theory</li> <li>• Power Supply</li> <li>• Transistor Amplifiers</li> <li>• Operational Amplifiers</li> <li>• Integrated Circuits</li> <li>• Transducers</li> <li>• Electronic Phase Control</li> <li>• Test Equipment</li> <li>• Oscillators</li> </ul> <p><b>3. Digital Electronics</b></p> <ul style="list-style-type: none"> <li>• Number Systems and Codes</li> <li>• Logic Circuits and Systems</li> <li>• Interfacing Elements and Applications</li> </ul> <p><b>4. Communication Electronics</b></p> <ul style="list-style-type: none"> <li>• Resonating Circuits</li> <li>• Mutual Inductance</li> <li>• First Order Lag and Lead Coupling Circuit Response</li> <li>• Basics of 4 Terminal Passive Transmission Paths</li> <li>• Basics of Radio Communication</li> <li>A. Radiation of RF by Means of an Antenna</li> <li>B. Modulation</li> <li>C. Demodulation</li> <li>D. Block Diagrams</li> </ul> <p><b>5. Industrial Instruments</b></p> <ul style="list-style-type: none"> <li>• Flow</li> <li>• Analytical Instruments</li> <li>• Control (Hardware)</li> <li>• Temperature Measurement</li> <li>• Telemetering</li> <li>• Automatic Control</li> </ul>	<p><b>1. Mathematics</b></p> <ul style="list-style-type: none"> <li>• Differentiation</li> <li>• Integration Techniques</li> <li>• Partial Fractions</li> <li>• Differential Equations</li> <li>• Applications of the Definite Integral</li> <li>• Applications Where Differentiation and Integration Techniques are Combined</li> </ul> <p><b>2. Industrial Electronics</b></p> <ul style="list-style-type: none"> <li>• Transients</li> <li>• Transducers</li> <li>• Ultrasonic</li> <li>• X-Rays and Radio Activity</li> <li>• Automatic Inspection and Testing</li> <li>• Non-Destructive Testing</li> <li>• Electronic Safety Devices</li> <li>• Thyristor Power Supplies</li> <li>• Electronic Power Control</li> <li>• Programmable Logic Controller (PLC)</li> </ul> <p><b>3. Digital Electronics</b></p> <ul style="list-style-type: none"> <li>• Number Systems and Codes</li> <li>• Logic Circuits and Systems</li> <li>• Interfacing Elements and Applications</li> </ul> <p><b>4. Communication Electronics</b></p> <ul style="list-style-type: none"> <li>• Alternators and Filters</li> <li>• Transmission Lines</li> <li>• Antennas</li> <li>• Noise</li> <li>• Modulation and Demodulation</li> </ul>	<p><b>5. Industrial Instruments</b></p> <ul style="list-style-type: none"> <li>• Emission Spectroscopy</li> <li>• Gas Analysers</li> <li>• Calorimetry</li> <li>• Chromatography</li> <li>• Automatic Control</li> <li>• Control Valves</li> <li>• Process Reaction</li> <li>• Instrumentation of Plant</li> <li>• Explosion Hazard and Intrinsic Safety</li> </ul> <p><b>6. Control Systems</b></p> <p><b>A. General Theory Of Control Systems</b></p> <ul style="list-style-type: none"> <li>• Block Diagram Algebra</li> <li>• Transient Response</li> <li>• Bode Diagrams</li> <li>• Practical Control Systems</li> <li>• Root-Locus Diagrams</li> </ul> <p><b>B. Practical Control Systems</b></p> <ul style="list-style-type: none"> <li>• Transducers</li> <li>• Electronic Systems</li> <li>• Electrical Machines and Systems</li> <li>• Hydraulic Systems</li> <li>• Pneumatic Systems</li> <li>• Test and Testing Equipment</li> </ul>