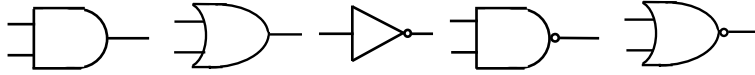


Logic

- explain the functions, AND, OR, NOT, NAND, and NOR gates;
- explain why the AND gate is not considered safe in all applications involving transport;
- recognise and draw the following symbols:



- construct truth tables for the above functions;
- solve simple logic problems using the logic functions in combination.

Microcontrollers/microprocessors

- understand the use of microcontrollers as programmable interface controllers (PIC) with variable input/output configurations;
- understand that microcontrollers may contain internal analogue to digital (A/D) conversion capabilities.

Transducers

- understand the use of the following transducers:
 - LDR
 - Photodiode
 - Thermistor
 - Microphone
- design and construct simple potential divider circuits using transducers.

Practical Applications

- design and make practical devices and systems;
- analyse simple electronic systems and recognise input, process and output circuits i.e. dividing circuits/systems into simpler sub-circuits/systems;
- understand the use of circuit simulation software to test sub-systems and complete circuits prior to physical testing.

Construction

- build circuits using a variety of techniques i.e. breadboarding and printed circuit production;
- mount components appropriately i.e. on circuit boards and control panels;
- understand the importance of correctly housing electronic circuits, i.e. shaping PCBs to fit in ergonomic cases, use of PCB mounting posts, ventilation holes to allow air circulation, etc., dust sealing, etc.;
- demonstrate the use of CAD/CAM in the design and construction of electronic devices i.e. PCB designing packages and vinyl cutter.