

## Module 3 (30% of AS marks)

### Practical Assignments

Details of how the projects are marked appear in the Specification

<http://www.wjec.co.uk/al-spec-electronics-07-e.pdf> This is included on your memory stick in the top level.

There are **two parts**:

- **Ladder logic** (p41 of the above document shows mark allocation)
- **PIC programming** (p42 mark allocation)

Both are related and the assignment set in each part are similar.

Both are marked out of 20 marks.

The eventual aim of this unit is to teach you the skills needed to analyse a problem, break it down and enable it to be programmed onto a PIC chip.

INPUT - PROCESS - OUTPUT

### Part 1 - Ladder Logic

This is a programme which begins to introduce how to programme PIC chips. It uses a programme developed by Nottingham Trent University to learn how to programme a PIC chip. However, the first half of the module (the ladder logic section), you only need to design ladders to solve problems and to test them using the computer only. It is out of 20 and you should aim for a **very high score**.

#### Tasks

You can score marks by doing up to a maximum of 3 tasks.

- Design a counting system e.g. for cars entering a car park
- Design a sequence programme e.g. for controlling a light sequence.
- Design a burglar alarm system

### Part 2 – PIC Programming

You will have to learn a programming language to enable you to write a programme to solve a problem and then to actually write that programme onto a PIC chip using a computer and the LD electronics boards.

It is out of 20 marks again and you need to aim for a **high mark**.

The three problems that you can tackle are similar to the ones in Ladder logic but you should choose a different context e.g. if you choose a disco light sequence in Ladder logic you could choose a traffic light sequence in PIC.