

Overview

In this unit your students should:

- understand the advantages of a sub-systems approach to circuit construction
- know the block diagram of a one-shot sequencer
- be able to analyse the behaviour of a one-shot sequencer

This should not require more than 3 hours of class time.

Hour	Suggested Activity
1	<p>Discuss their answers to question 1 of the One-shot Sequencers exercises.</p> <p>Get them to answer question 2 of the One-shot Sequencers exercises.</p> <p>As they finish, allow them to start the Multipulse monostable practical. This requires them to assemble a one-shot sequencer, assembling and testing each sub-system in turn. Insist that they follow each step to the letter, as the discipline will be useful for the impending coursework. They will have a chance to complete the practical next session.</p>
2	<p>Allow students to continue with the Multipulse monostable practical.</p> <p>As they demonstrate their final functioning circuit, let them go straight on to the Designing one-shot sequencers practical.</p> <p>Ask them to read through the markscheme for the digital circuits coursework before the next session.</p>
3	<p>Students should spend the first part of this session answering question 1 on page 119 of the text book. This should consolidate their understanding of one-shot sequencers.</p> <p>You could talk them through the coursework requirements for digital circuits.</p> <p>Ask them to revise Counting Pulses for a formal test next session.</p>

Model Answers

- 1 (a) Q is low, so the oscillator is turned off, with X jammed high. Z will be high, resetting the counter so that DCBA = 0000.
- (b) The rising edge allows the 1 at D to be copied to Q. This allows the oscillator to function, producing a series of falling edges at X. At the same time, Z goes low so that the counter can allow A to change on each falling edge.
- (c) The AND gate resets the flip-flop when CBA = 110, on the sixth falling edge at X. This turns off the oscillator and resets the counter, ending the series of pulses at P.

