

## 5.0 Introduction

1 What is an (A)SM chart?

- state machine :
  - often used to control a digital system that carries out a step-by-step procedure or algorithm.
- state diagram (state graph) :
  - has traditionally been used to specify the operation of the controller state machine
- (algorithmic) state machine chart (A)SM chart) :
  - a special type of flowchart
  - may be used to describe the behavior of a state machine.
  - often used to design the control unit of a digital system

## 2 Implementation Units of a Control Unit

- **hardwiring**

- inspect the state diagram / SM chart, write the logic equations for the control outputs & next states and implement the state machine using gates & FFs

- **microprogramming**

- build a special computer for executing the algorithmic flowchart describing the controller of a (complex) digital system.