

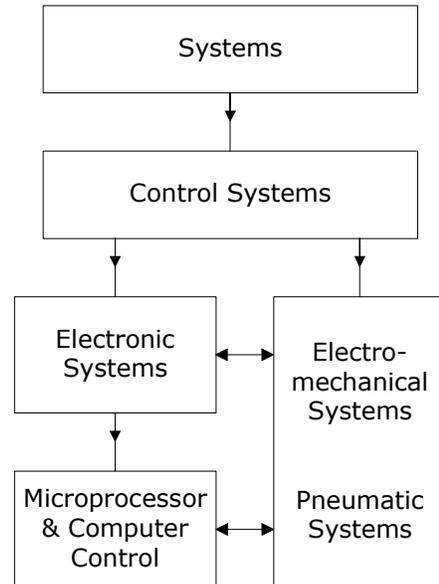
Systems and Control Module

for junior form Technology Education curriculum

Module Organisation

This module covers some basic aspects of systems and control shown in the diagram, but the main focus is on the design and make of control products. Control products are those that make use of electronics, electro-mechanical and/or pneumatic systems to achieve their function. Therefore, in order to make such designing and making effective, students need to develop an understanding of:

- ▶ The use of input-process-output model to describe systems
- ▶ The use of systems diagrams to represent this process
- ▶ How to use a system approach to both analysis and design products
- ▶ Type of control systems, : open-loop and closed-loop, sequential, electronics, electro-mechanical, pneumatic systems and the use of microprocessor in control
- ▶ How these type of system can be interconnected to achieve the desired outcomes.



Students also need to develop both specific skills and generic skills required to design and make 'control' products.

Core of Understand in the Systems and Control Module

- ▶ An Input-Process-Output model
- ▶ The language and principles of systems and control
 - open-loop control
 - closed-loop (feedback) control (ON/OFF only)
 - sequential control
 - ways of representing control systems: block diagrams, flow charts
- ▶ Processing is electronics or even microprocessors in many systems
- ▶ Electronic control can be used with:
 - electrical system
 - electro-mechanical systems (solenoids, motors, etc.)
 - pneumatic systems
- ▶ Sub-systems can be interconnected to achieve the desired outcome or function
- ▶ Common use of control systems in products