

01.05.24

## Revision topics:

### **Electronic and programmable components:**

- Graphical conventions for communicating concepts: circuit diagrams, block diagrams and flowcharts.
- Symbols and components
- The 'systems' approach – input; process; output.
- Control component, semiconductors such as transistors IC and programmable microcontrollers
- Ohms law  $V=IxR$
- Resistor colour codes

### **Mechanical systems:**

- Types of motion
- Levers
- Cam and follower
- Crank and slider
- Rack and pinion
- Spur gears
- Bevel gears
- Worm gears
- Pulley and belt
- Lifting pulleys
- Mechanical Advantage
- Velocity Ratio
- Rotational Velocity

### **Smart and new materials:**

- Thermochromic materials
- Photochromic materials
- Shape memory alloy
- Quantum Tunnelling Composite
- Kevlar
- Nomex
- Rhovyl
- Polymorph

### **New and emerging technologies:**

- Product life cycle
- Technology Push / Market Pull
- Planned obsolescence
- 6Rs and the impact of manufacturing on the environment
- Carbon footprint
- Sustainability

### **Materials:**

- Woods – soft and hardwoods
- Metals – Ferrous and non ferrous
- Papers and boards
- Polymers – Thermosetting and thermoforming
- Fibres and fabrics