

## What is "mechatronics" ?

"the interdisciplinary field dealing with the study and design of systems and devices that include **electronics, sensors, actuators, and control architectures**"

### "electronics" includes:

- basic components (resistors, capacitors, inductors)
- analog components (op amps, relays)
- semiconductor components (diodes, transistors, logic gates, flip-flops)

### "sensors" include:

- proximity (switches, photoelectric, capacitive, inductive)
- position and speed (potentiometer, encoder, LVDT, tachometer)
- force and strain (strain gage, load cell)
- temperature (thermocouple, RTD, thermistor)
- acceleration (piezoelectric accelerometer)
- flow and pressure

### "actuators" include

- solenoids and voice coils
- electric motors (ac, dc, servo, stepper, torque)
- hydraulic and pneumatic cylinder and motors
- "smart material" devices (piezoelectric, shape memory alloy)

### "control architectures" include

- logic circuits (combinational and sequential logic, PLA, PAL)
- PLC
- microprocessor, microcontroller, SBC, FC
- software, control algorithms