Mechatronics 421 (MEG 421)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Mechanical Engineering
	BEng Mechanical Engineering Engage
Prerequisites	No prerequisites.
Contact time	3 lectures per week, 1 practical per week
Language of tuition	English
Academic organisation	Mechanical and Aeronautical En
Period of presentation	Semester 2

Module content

Sensors: limit switches, encoders, thermocouples, strain gauges, CCD cameras, various sensors. Actuators: electric motors, pneumatic and hydraulic actuators, shape memory alloys. Signal conditioning: component interconnection, amplifiers, analogue filters, modulators and demodulators, analogue-digital conversion, sample-and-hold circuitry, multiplexers, software and hardware implementation of digital filters and Wheatstone bridge. Control: H-Bridge and PWM motor control, stepper motors, non-linear control of hydraulic and pneumatic actuators, PLCs, SCADA systems, industrial Fieldbus, micro-processor control.

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