

Quiz 4 solution – ECGR4161

EE bionics: Control Systems for hydraulics, Pneumatics; motors, sensor (pressure, capacitive touch, nerve signals/muscle tensions), microprocessors, Digital Signal Processor, feedback (vibrating motor)

Mech EE bionics: springs (tendons), materials (carbon fibers, porous titanium, synthetic flesh), structural, gears, hydraulics and pneumatics

Software/Control in bionics: predictive algorithms, real-time processing, ability to learn, interpretation of sensor data, communications between processors

MechE challenges: size, organic/inorganic integration, weight (materials), size of power source, material strength, force versus size of motors (actuation)l.