

## **ENGN6627 Project: Robotic Arm Design**

**Due Date - Final Report : 3pm Monday 17th October (in tutorial)**

**Due Date - Literature Review : 10am Friday 2 September (at lecture)**

### **Task**

For this project, students will work together in teams of four or five to design a robotic manipulator arm adapted to operate in a particular, specialised environment. Students are free to choose the particular environment for which they wish to design their arm, however a number possibilities include:

- Underwater Arm
- Mining Arm
- Fruit Picking Arm
- Human Safe Arm
- Space Arm
- Clean Room Arm
- Medical Arm

The idea will be to design and specify all aspects of the robotic system, including the:

- arm itself (motors, joints, materials, desired kinematic and dynamic properties, etc.)
- the required sensing devices (odometry, force, vision, etc)
- the computing side of things (actuation and sensing control strategies, computational power requirements, hardware weatherproofing, etc)
- power system (power sources and requirements, recharging?, etc.)
- any specific design issues relevant to the particular application environment chosen

### **Report**

A report on the project worth 32% of the overall course mark is required by the due date above.

The report need not address all items listed above; this list has been provide

only as a guide. Indeed it may be beneficial to focus on the most interesting and relevant aspects of the design process for the particular application chosen.

The report has an absolute maximum upper limit of 50 pages in a reasonable sized font.

## **Literature Review**

A preliminary literature review will be required by the end of the 3rd teaching period.

The literature review should set out what has been achieved previously in the chosen area. Given this is a masters course, it is envisaged that students will research the academic literature to produce this literature review.

The literature review will be worth 8% of the overall course mark.