ENGR 120/121

Design Labs

We acknowledge and respect the Lekwungen peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

University of Victoria

Lab rules

- Lab attendance is mandatory to pass the course
  - Attendance will be recorded at the beginning of a lab session
  - Late arrival is not permitted – student will be marked absent
- No food or drinks (including water) inside the lab
- Masks are recommended
- Lab stations must be cleaned before leaving the lab
- Please maintain respectful behaviour

Configuring motors and sensors - objectives

- Wire: Motors and touch sensors to the microcontroller
- Configure: Motors and sensors using ROBOTC software
- Create: Programs to control turn-on, turn-off and speed of the motors
- Observe: Values of sensor output in the debug environment

Project planning lab - Preparation

Each student team must bring the VEX kit to the lab

Please make sure that the battery is fully charged

In lab activities

Student teams will be following the steps given in the document *Configuring motors and sensors – lab manual.pdf* (uploaded on Brightspace) and creating programs to

- turn two motors simultaneously for five seconds
- turn-on a motor when a *button* is pressed and turn-off the motor when another *button* is pressed
- make a motor's shaft spin only once (i.e by about 360 degrees) when a *button* is pressed and if the motor is stationary. Pressing the *button* while the motor is spinning should have no effect.

In lab demo

Each team must demonstrate the functional codes to the TA

Note: *Your code must be commented properly.*

Submission requirements

Each team submits a copy of their final programs in Brightspace

- Programs corresponding to all the three exercises must be submitted in a single .pdf file.
- Only one submission per team is needed
- File name must be your group ID i.e. *Section-number_Group-number*
- The file can be uploaded on Brightspace by going to

Course Tools → Assignments → Configuring motors and sensors lab – week of Jan 30

Evaluation

Programs submitted on Brightspace will be evaluated using a rubric.

The rubric can be accessed from Brightspace by going to

Contents → Design labs → Configuring motors and sensors – week of Jan 30

In case you have any questions

Please contact your section's lab TA or the Super TA