Dalhousie University
AGRI5705 (Module Course)
Course Syllabus

Dalhousie University, Faculty of Agriculture
AGRI5705:   Graduate Module Course

Module Title: Introduction to Sensors, Microcontrollers and Applied Electronics

Instructor:
Scott Read, Senior Instructor
Engineering Department, Faculty of Agriculture, Dalhousie University
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Dates module will be offered:
2024 Winter Semester, from February 5th- March 19th
Meet once per week for 2hr lecture/lab session
Location and time TBD - Instructor preference Monday 10 – 12pm

Module Content and Learning Objectives
This module will be an introduction to microcontrollers and programing to control various sensors and hardware. The module is intended for students with minimal to no electronics or programing background. The learning outcomes of this module will be for students to gain an understanding of the following.
- Differentiate between analog and digital sensors and how they communicate with microcontrollers.
- Programing languages, embedded C or python, to control the functions of microcontrollers.
- Hands on skills in hardware fabrication and circuitry

To achieve these learning outcomes students will be taught via a combination of lecture, lab exercise and assignments. The information learned will culminate in the student's preparation of a final project that exhibits the skills learned.

Method of Evaluation and Distribution of Marks:

Students in this module will be evaluated based on the grading deliverables of professionalism, assignments, final project programing and a presentation/demonstration of the final project. Participation in the course will be evaluated based upon attendance to lecture and laboratory sessions and the student's participation. During the learning period, 2-3 assignments will be given based upon milestones related to the programing or hardware required for the final project.
The final project will be for the student to create a sensor data logger that incorporates a digital or analog sensor of there choosing, a microprocessor and method of data storage

over time. The project will be graded based upon originality, programming, and function. Students will be required to create and give a 10 -15min. presentation outlining their projects components, programing methods and datalogging capabilities. During the presentation they will be required to demonstrate the function of their project.

Marking Scheme
- **10% Participation**
- **20% Assignments**
- **40% Data logging project**
- **40% Project Presentation and Demonstration**

Restrictions on Enrolment:

Enrolment cap – 5 students
No prerequisite courses required.
Enrolment must be approved by instructor after consultation to determine background in programing and electronics.