

PHYS_V 319 201 2024W2 Electronics Laboratory

Course Syllabus Spring 2025

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Labs: T, W, Th 2-6 pm,

Lecture: Tuesday 11:30-12:30

Text: Introduction to Embedded Systems Using Microcontrollers and the MSP430.

Available for download from the UBC library at

<http://webcat2.library.ubc.ca/vwebv/holdingsInfo?bibId=7372090>. We won't follow this text, but it's a great reference.

Web Page: The lab manual and many other helpful links can be found on the course web page at http://www.phas.ubc.ca/~kotlicki/Physics_319

Introduction:

In this course, you will learn how to program a microcontroller and have it interact with the world via devices like sensors, motors and displays. For the first 6 weeks, you will follow a lab manual to get started on the basics of learning how to program the devices. The remainder of the course is project-based. You will need to choose a project, acquire the parts needed, build the circuitry required, and write the code for your microcontroller to make it work.

You will have to program the devices from your own computer. We will do our best to help you with any problems during the lab time.

Grading Scheme:

To pass the course you have to:

1. Submit all three reports and check all the required parts (show them working to the TAs or instructor)
2. Present the final project and submit the final report.

If any of these elements are missing, your grade will be lower of 45% or total of the points.

Marking:

- A Lecture test 20%
- Activities 5%
- Programs and lab reports in first 6 weeks 20%
- Project proposal 3%
- Status report 2%
- Project quality and functionality 20%
- Presentation 10%
- Final report 20%

Late report submissions - 10% of the grade will be subtracted per day down to 50%. We often wave it for good reasons.

Week of Classes	Week of	Lab	Lecture	Due
1	06-Jan-24	No labs	1	
2	13-Jan-24	Lab 1	2	
3	20-Jan-24	Lab 2	3	
4	27-Jan-24	Lab 3	4	Lab 1 and 2 report before lab 3,
5	03-Feb-24	Lab 4	5	
6	10-Feb-24	Lab 5	6	Lab 3 and 4 report before lab 5
7	17-Feb-24	No labs	No lecture	Midterm break

8	24-Feb-24	Lab 6	test	project plans to discuss during the lab 6
9	03-Mar-24	Project	8	Lab 5 and 6 report before lab 8
10	10-Mar-24	Project	9	
11	17-Mar-24	Project	10	
12	24-Mar-24	Project	Project help	Progress report
13	31-Mar-24	Project	Project help	
14	07-Apr-24	Project Presentations		
	14-Apr-24			Final report due on Canvas

Use of Generative Artificial Intelligence

Students are permitted to use artificial intelligence tools, including generative AI, to gather information, review concepts or to help produce assignments or codes. However, students are ultimately accountable for the work they submit, and any content generated or supported by an artificial intelligence tool must be cited appropriately. You have to include in your notes the original text you used to be refined or enriched and all the prompts or commands you used to communicate with AI. Only the resulting text or program will be marked but all the original input has to be visible in the notes.

Use of AI tools is not permitted during the lecture test.

General rules and regulations:

The info below is copied from [Guidance for Course Syllabi in the Faculty of Science](#)

Academic concession

You may need to request an academic concession for medical reasons, on compassionate grounds, or in certain cases of conflicting responsibilities. Please refer to UBC's policy on Academic Concession for details.

To apply for an academic concession, please inform your instructor as soon as possible.

If you are ill

Please don't come to class if you have an illness that could be transmitted to your classmates (e.g., a respiratory infection). In this class, the marking scheme is intended to provide flexibility so that you can prioritize your health and still succeed. Please inform your instructor if you are ill; you will not lose participation marks if you miss a small number of classes due to illness. If you are ill for a long period of time, please contact your instructor to discuss, and apply for an academic concession. More information about UBC's framework for preventing communicable disease is [here](#).

Academic Integrity and Copyright

What is academic integrity?

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work; nor should you help others to do the same. For example, it is prohibited to: share your past assignments and answers with other students; work with other students on an assignment when an instructor has not expressly given permission; or spread information through word of mouth, social media, websites, or other channels that subverts the fair evaluation of a class exercise, or assessment.

Why is academic integrity important?

The course teaching team, UBC, and the scholarly community at large share an understanding of the ethical ways that we use to produce knowledge. A core practice of this shared value of academic integrity is that we acknowledge the contributions of others to our own work, but it also means we produce our own contributions that add to the scholarly conversation: we don't buy or copy

papers or exams, or have someone else edit them. We also don't falsify data or sources, or hand in the same work in more than one course.

As a student, your number one task is to learn new things. Just like your professors, however, you are a member of a university scholarly community. As a part of this community, you are responsible for engaging with existing knowledge and contributing ideas of your own. Academics—including you!—build knowledge through rigorous research that expands on the contributions of others, both in the faraway past and around the world today. This is called scholarship. Academic integrity, in short, means being an honest, diligent, and responsible scholar. This includes:

- * Accurately reporting the results of your research, e.g., when collecting data in a lab.
- * Taking exams without cheating.
- * Completing assignments independently or acknowledging collaboration when appropriate. Collaboration through group work is an effective way to learn. I will clearly indicate when you should collaborate, for example during in-class group work and on some online homework assignments.
- * Creating and expressing your own original ideas.
- * Engaging with the ideas of others, both past and present, in a variety of scholarly platforms such as research journals, books by academics, lectures, etc.
- * Explicitly acknowledging the sources of your knowledge, especially through accurate citation practices.

What should I know about sharing course materials?

We are working hard to provide all the materials you need to succeed in this course. In return, please respect our work. All assignment instructions, quiz questions and answers, discussion questions, announcements, PowerPoint slides, audio/video recordings, Canvas modules, and any other materials provided to you by the Teaching Team or in the textbook are for use in this course by students currently enrolled [course/section]. It is unacceptable to share any of these materials beyond our course, including by posting on file-sharing websites (e.g., CourseHero, Google Docs). It is unacceptable to copy and paste sentences from the textbook (e.g., definitions) into for-profit software (e.g., Quizlet) for use in studying. Respect the Teaching Team and textbook authors' intellectual property, and follow copyright law.

What happens when academic integrity is breached?

Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred for consideration for academic discipline. Careful records are kept to monitor and prevent recurrences. Any instance of cheating or taking credit for someone else's work, whether intentionally or unintentionally, can and often will result in at minimum a grade of zero for the assignment, and these cases will be reported to the Head of the Department of [department] and Associate Dean Students of the Faculty of Science.

What support is available?

To help you learn your responsibilities as a scholar, please read and understand UBC's expectations for academic honesty in the UBC Calendar: "Academic Honesty," "Academic Misconduct," and "Disciplinary Measures,". Read and reflect on the Student Declaration and Responsibility. For written assignments and help with plagiarism and citation, see the Centre for Writing and Scholarly Communication. Additional resources for learning with integrity can be found on the UBC Academic Integrity Website.

Collaboration and Working with Others

There is nothing wrong about discussing the lab work with others and giving each other advise. However the assignments are individual, and you are expected to complete these by working individually and writing in your own words. It is unacceptable to have others write assignments on your behalf, to write assignments on others' behalf, to copy other students' work, or to allow other students to copy your work.