ELEX 3525 Course Information

Instructor

Ed Casas. You can reach me by email at ecasas@bcit.ca[1], by phone at +1 604 432 8936 or by posting a question on the course website.

Course Website

Lecture notes, lab instructions, quizzes, exams and solutions will be available on the course website: https://learn.bcit.ca/d2l/home/866287.

The website also contains the latest schedule of lectures, labs, quizzes, exams and the course withdrawal deadline.

You can set up text or email notifications of updates by clicking on your name at the top right of any Learning Hub page and selecting Notifications. I recommend subscribing to News - new item available and optionally to Discussions - new post….

Getting Help

Please don't ask questions before or after a lecture. The break between lectures allows one instructor to pack up and leave and the next one to come in and set up. If you want to ask a question, your choices, in decreasing order of preference, are to ask:

- During a lecture.
- On the website under Activities / Discussions[2]. This allows everyone to benefit from the answer.
- By email if it's a personal matter such as marks or absences.
- During – preferably virtual – office hours.

[1] Don't include links in your email.
[2] Anonymously, if you wish.

Evaluation

Component	Weight
Labs	30%
Quizzes (3)	20%
Mid-Term Exams (2)	25%
Final Exam (1)	25%

Labs

The mark for each lab will be calculated as follows:

Component	Weight
pre-lab assignment	20%
completion of lab objectives	60%
complete and accurate lab report	20%

You will have approximately one week to prepare each pre-lab report. The purpose of the pre-lab assignment is to prepare for the lab so if the pre-lab report is not submitted before the start of the lab you will receive a mark of zero for that pre-lab.

The lab completion mark will depend on the lab. It may require demonstrating a working program or simulation results. In other cases it will require submitting screen captures or measurements. In these cases you must submit a lab report including the appropriate results to get the lab completion mark.

You will have at least one week after your lab to complete and submit your lab report. Lab reports submitted after the reports are collected or submitted in the wrong format will receive a mark of zero.

Please don't include a copy of your Pre-Lab Report in your Lab Reports. It's unnecessary material I have to download and skip.

Only parts of each pre-lab and lab report may be marked.

You do not have to pass the lab (practical) portion of the course to pass the course.

Quizzes

Quizzes will be held during the scheduled lecture times on the dates noted in the course schedule.

Exams

Two one-hour mid-term exams will held during the scheduled lecture times on the dates noted in the course schedule.

A three-hour final exam will be scheduled the final exam week.

Quizzes and exams will be "open book" – you may use any books or notes you wish. However, you may not use electronic devices (computer, cell phone, etc.) other than a calculator.

Marking

The marking scheme for each lab, quiz, and exam will be published on the website under Content / Course Information after the submission deadline.

Not all items in each submission may be marked. Typically each comment indicates an error for which a mark was deducted. Not all items in each report will be marked.

Marked labs, quizzes and exams will be returned by email.

Poor weather, transportation failures, power or network outages, family crises, forgetfulness, etc. may cause you to miss an evaluation for reasons beyond your control.

To accommodate this, your final lab and quiz marks will be computed as the truncated mean – the average after omitting the best and worst marks. This means that missing one quiz or one lab, by itself, will not affect your final mark. By omitting the highest and lowest marks your final grade should more accurately reflect your abilities.

Students can retrieve details of their marks from the **marks** document found under Content / Course Information. The password required is available in the Password row in the Grades page of the website.

Attendance and Absences

Do not come to campus if you feel unwell. If you were unable to complete a quiz, lab or exam because of illness please notify the program administrator, Gundi Minato, who will notify all affected instructors.

Absences due to a documented illness will not be counted in the calculation of your final mark. However, you must complete at least five labs and two exams to pass the course.

While recommended, you do not have to attend lectures. The instructor will try to run a Learning Hub Virtual Classroom simultaneously with each lecture and to make recordings available.

Lecture Notes and Other Resources

There is no textbook for this course. Instead, lecture notes will be provided for each topic.

These will include exercises to be completed during the lecture. The answers will then be posted.

The course website contains other resources including datasheets, and links to software and other online materials.

Previous versions of this course are archived at `http://people.ece.ubc.ca/edc`.

Optional References

The text Electronic Communications: A Systems Approach by Jeffrey Beasely is used in other Telecom program courses and covers some of the material in this course. However, you need not buy it for this course.

Andrew Tanenbaum's *Computer Networks*, and William Stallings' *Data and Computer Communications*, both published by Prentice-Hall/Pearson are readable introductions to data communication. Both are available in the BCIT Library.

Lab Access

You will be able to use the SW1–3575 lab outside scheduled lab times if you need to complete a lab. Touch your ID card to the reader to briefly unlock the door. After 5:30 PM you will need to enter a security code (yellow keypad symbol flashing). You can register a security code at the library.

However, **do not** enter the lab if the room is alarmed (red bell symbol on). During times that the lab is supposed to be available (7:30 AM to midnight) you may ask an instructor or call security to disable the alarm.

Equipment

You will need a USB flash ("pen/stick/thumb/key") drive to transfer data to and from lab instruments.

It should be formatted with the common MS-DOS FAT-32 file system (rather than vFAT or NTFS, for example). Encrypted drives will not work. The drive should be 8 GB or smaller but larger drives often work.

A calculator that can convert between decimal, binary and hexadecimal number bases will be useful. A calculator that can compute cumulative Gaussian probabilities (such as the Sharp EL-W516 or Casio FX-115ES/991ES commonly purchased by first-year students) will be useful for a few problems. In exams you may use any calculator but not a phone, tablet or computer.

For one or two labs you will need a small solderless prototyping board ("breadboard"). Other components will be supplied.

Document Preparation

Creating PDF Files

Submit documents in PDF format unless otherwise specified.

Word processors will export to PDF files. Most operating systems also allow you to "print" any document to a PDF file from their print dialogs. Please rotate, crop and scale any images appropriately.

You can also write your labs by hand and convert them to PDF. There are apps (Genius Scan, Microsoft Office Lens, Adobe Scan) that will convert your handwritten reports to PDF. Grayscale scans are easier to read than two-level.

Embedding Content

You'll need to include the following in your reports:

- Embed graphs and tables created in spreadsheets.
- Screen captures utilities (e.g. Windows' 'Snip' or 'Snip and Sketch' tools).
- Program listings. These must be single-spaced and use a monospaced font such as Courier. In a word processor you can apply a style such as "HTML Preformatted". You can also open your code with Notepad++ and use Plugins / NppExport / Copy RTF to clipboard and then paste into your word processor.

Units, Notation and Significant Figures

Numerical results without units are incomplete and will be marked incorrect.

Use SI units and engineering notation. For example, 1.2×10^{-5} F should be written as 12 µF.

You should be familiar with Significant Figures. For example, if your measurements have three significant figures don't give answers with 10 decimal places.

Cover Pages and Templates

Each submission *must* include the following on the first page, preferably on a separate cover page: the course number and name, the lab or assignment number and title, your name and BCIT ID, and the date the document was created.

You may find it helpful to create a document template that you can re-use for future submissions. One is available on the course web site.

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Submissions

Submit files to the correct folder under Activities / Assignments on the course website. You may use any file name. Don't add comments – we won't see them. You should receive an email confirmation; save it.

Double-check that you've used the correct folder and make sure your submissions can be viewed *in a web browser*. Files embedded in a PDF file will typically not be visible.

Submissions may be collected at some point after the submission deadline. You can update your submissions until they're collected. At that point the submission folder will be hidden. So if you're not finished by the deadline you should submit an incomplete version and update it later if it's still possible.

The website will not warn you if you submit the wrong file, submit it to the wrong folder, or if it's unreadable or unviewable. This happens every year. No allowances will be made for these types of mistakes.

This policy will seem harsh when you get no credit for something on which you've spent much effort. Unfortunately, it's necessary to run the course efficiently and equitably.

Important!

1. **If you submit the wrong file or to the wrong folder you will receive a mark of zero for that submission.**
2. **You must submit your reports *in PDF format* unless another file format is specified.**

Software

There is a range of free and useful PC software that we will use in the course that you can optionally install on your computer. This includes: the Notepad++ text editor, the Octave Matlab-compatible numerical analysis software, the Python scripting language, Audacity waveform editor, the Wireshark network protocol analyzer, and Intel's Quartus Prime FPGA synthesis and simulation software. Most are available, or have equivalents, for Mac and Linux systems. Most are also available through BCIT's AppsAnywhere.

You can also install some licensed software for free including Microsoft's Visual Studio and Mathwork's Matlab.

Academic Integrity

This course has a zero-tolerance policy on Academic Misconduct. Verifiable offences will result in the final mark being capped at 50% (the maximum penalty the course instructor can impose). A report will also be filed with the Student Life Office. The penalty for a second instance of Academic Misconduct is determined by the Associate Dean but is typically a failure in the course where the second offence occurred.

This policy applies to all graded activities (labs, quizzes, and exams). There are no exceptions.

Labs and exams in this course must be done *individually*. Students are encouraged to seek help from classmates but copying is not allowed. Instances of plagiarism will be dealt with according to BCIT policy 5104.

Here are some guidelines for this course:

Don't:

- divide up the work or work together on solutions
- submit a modified copy of someone else's solution
- ask to look at someone else's solution or show someone else your solution, not even in rough form
- write out a solution for someone else, not even on a white board

Do:

- help someone else come up with their own solution by asking them questions
- explain the question (but not the solution)
- explain material found in the lecture notes or other references
- share books, papers or links to useful reference material – unless finding this material is part of the assignment

Briefly, if a classmate asks for help, help them to find their own solution, do not show them yours. Instead, explain where to find the information they're lacking so they can find the answer themselves.

The reason for this distinction is that learning requires each student to solve problems on their own.

When copying is detected I can't tell who copied from whom and all students involved will be penalized.

Labs, quizzes and exams may be set up in a way that allows plagiarism to be detected. This may not be obvious to you.

Please ask if any of this is not clear. The penalties for Academic Misconduct are severe, and misunderstanding the course policies will not be accepted as an excuse.

Aside from the risk of penalties, academic misconduct is unfair to your peers and to yourself. Don't try to justify it by arguing that "everyone does it" (they don't).

Copyright and Plagiarism

Throughout your career you will use the work of others. This introduces two different risks: copyright infringement and plagiarism.

Whenever you use the work of others you should ask yourself two questions:

- Am I allowed to copy this material? In Canada this question is answered by Canadian copyright law and determines whether you would infringe copyright.
- Do I need to cite a source for this idea? For BCIT students this question is answered by section 8.1 of BCIT's policy on academic integrity and determines whether you would commit plagiarism.

Copyright law forbids copying others' work without permission although there are certain exceptions. In addition to the "fair dealing" exemptions, BCIT belongs to Access Copyright which gives you permission to copy and download material from most publishers.

Plagiarism means taking credit for the work of someone else. Briefly, you must reference the source of an idea if there's a possibility a reader could mistake it as your own.

You are expected to comply with these laws and policies. The BCIT Library has introductory material on copyright and avoiding plagiarism.

Distributing Course Materials

Lecture recordings are for students in the course and may not be redistributed.

Please ask before distributing other materials I've posted. I typically give permission under a CC BY-NC-ND Creative Commons license for my own work but this is not possible when the materials are owned by others, such as BCIT.

Quiz

Are the following true or false?

- I can submit assignments prepared using MS Word.
- I can submit `.docx` files.
- I must pass the lab portion of the course to pass the course.
- If I miss a lecture I must get a note.
- If I missed a lab because I was sick I should e-mail the instructor a medical certificate.
- The instructor prefers that I ask questions by e-mail.
- My marks will be available under Grades on the course website.
- It's OK to work together on labs.
- Plagiarism could harm your professional reputation.
- Plagiarism could result in criminal charges and a fine.