

# Course Syllabus

**PC/CP221: Analog Electronics I**

**Physics and Computer Science Department, Faculty of Science, Waterloo Campus**

**Winter | 2021**

Instructor InformationName: Dr. Maher Ahmed | Office Location N2076B

Contact Information: Phone 519-884-0710 ext. 2826, lab ext. 2417, Email mahmed@wlu.ca

Weekly Office Hours: by Appointment

Lab InstructorName: Mr. Terry Sturtevant

Contact Information: Email tsturtevant@wlu.ca | Office Location N2092A

Weekly Office Hours: by Appointment

Details of the lab will be available through my learning space

## Course Information

## Course Overview

DC and AC circuit theory, complex impedance, resonance, Norton and Thevenin Theorems, semiconductor diodes, bipolar transistors, the use of transistors for the construction of logic gates.

3 lecture hours, 2 lab hours

*Credit:* 0.50

*Prerequisite:* CP220/PC220 (recommended PC212)

## Course Outlines

First half of the term:

1 Introduction to Circuits, Currents, and Voltages

2 Resistive Circuits (DC circuits)

3 Inductance and Capacitance

4 Transients

5 Steady-State Sinusoidal Analysis (AC circuits)

6 Frequency Response, 7 Logic Circuits, 8 Computers

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2nd half of the term:

9 Diodes

10 Amplifiers:

11 Field-Effect Transistors

12 Bipolar Junction Transistors

13 Operational Amplifiers

14 Transformers

**Course location, meeting times and days**

(Please check in my learning space for the details since there is no physical meetings due to Corona Virus)

| **Section** | **Days** | **Times** | **Room** | **Instructor** |
| --- | --- | --- | --- | --- |
| Lecture A | MWF | 01:30 pm - 02:20 pm | N1058 | [Dr. Maher Ahmed](https://www.wlu.ca/academics/faculties/faculty-of-science/faculty-profiles/maher-ahmed/index.html) |
| Lab L1 | F | 02:30 pm - 04:20 pm | N2083 | Mr. Terry Sturtevant |

## Course Goals and Learning Outcomes

This course provides a comprehensive coverage of basic electrical and electronic concepts.

## Course Textbook

A digital version of the following textbook with tools to solve and submit the assignments will be available in my learning space.

Details will be posted in my learning space

[Pearson Education](https://www.prioritytextbook.com/brands/Pearson-Education.html), Electrical Engineering: Principles & Applications (7th Edition) Allan R. Hambley

## Tools and Learning Materials

## Student Evaluation

| **Assessment** | **Weighting** |
| --- | --- |
| 10 Assignments | 80% |
| Labs | 20% |
| **Total** | **100%** |

## Learning Activities, Assignments, Tests, Quizzes and Examinations

You will have **10 assignments** and no final exam. Approximately an assignment **is due every week**.

You will learn DC circuits, AC circuits, Diodes, Gates and Transistors circuits.

If a student misses an assignment (or submit the assignment after the due date) he/she will not get **any credit** unless he/she shows a strong reason for missing the assignment (e.g. doctor notes during the period of the assignment) then he/she will be given the average of his/her assignments marks.

## Weekly Schedule(s) (lecture)

| Week # | Topic, Theme or Unit of Study | Activities |
| --- | --- | --- |
| Week 1.2,3  Week 4,5,6  Week 7,8,9  Week 10,11,12 | DC circuits  AC circuits  Diodes and Gates  Transistors and Amplifiers | First 5 assignments    Next 5 assignments |

**Physics and Computer Science**

**General Regulations**

**Academic Calendars**

Students are encouraged to review the [Academic Calendar](https://students.wlu.ca/academics/calendars-and-policies/academic-calendars/index.html) for information regarding all important dates, deadlines, and services available on campus.

**Special Needs**

Students with disabilities or special needs are advised to contact Laurier’s [Accessible Learning Centre](https://www.wlu.ca/life-at-laurier/services-for-students/accessible-learning/index.html) for information regarding its services and resources.

**Plagiarism**

Wilfrid Laurier University uses software that can check for plagiarism. If requested to do so by the instructor, students are required to submit their written work in electronic form and have it checked for plagiarism.

**Academic Integrity**

Laurier is committed to a culture of integrity within and beyond the classroom. This culture values trustworthiness (i.e., honesty, integrity, reliability), fairness, caring, respect, responsibility and citizenship. Together, we have a shared responsibility to uphold this culture in our academic and nonacademic behaviour. The University has a defined policy with respect to academic misconduct. As a Laurier student you are responsible for familiarizing yourself with this policy and the accompanying penalty guidelines, some of which may appear on your transcript if there is a finding of misconduct. The relevant policy can be found at Laurier's [academic integrity](https://students.wlu.ca/academics/academic-integrity/index.html) website along with resources to educate and support you in upholding a culture of integrity. Ignorance is not a defense.

**Final Examinations**

Students are strongly urged not to make any commitments (i.e., vacation) during the examination period. Students are required to be available for examinations during the examination periods of all terms in which they register. Refer to the Handbook on Undergraduate Course Management for more information.

**Good2Talk**

A postsecondary school helpline that provides free, professional and confidential counselling support for students in Ontario. Call 1-866-925-5454 or through 2-1-1. Available 24-7.

[**Waterloo Student Food Bank**](http://yourstudentsunion.ca/service/food-bank/)

All students are eligible to use this service to ensure they're eating healthy when overwhelmed, stressed or financially strained. Anonymously request a package online 24-7. All dietary restrictions accommodated.

[**Waterloo Foot Patrol**](http://yourstudentsunion.ca/service/foot-patrol/)

519.886.FOOT (3668). A volunteer operated safe-walk program, available Fall and Winter daily from 6:30 pm to 3 am. Teams of two are assigned to escort students to and from campus by foot or by van.

[**Waterloo Student Wellness Centre**](https://students.wlu.ca/wellness-and-recreation/health-and-wellness/index.html)

519-884-0710, x3146. The Centre supports the physical, emotional, and mental health needs of students. Located on the 2nd floor of the Student Services Building, booked and same-day appointments are available Mondays and Wednesdays from 8:30 am to 7:30 pm, and Tuesdays, Thursdays and Fridays from 8:30 am to 4:15 pm. Contact the Centre at x3146, wellness@wlu.ca or @LaurierWellness. After hours crisis support available 24/7. Call 1-844-437-3247 (HERE247).

**WHAT YOUR STUDENTS NEED TO KNOW ABOUT DIGITAL TEXTBOOK ACCESS**

1. **Communication Schedule**

* An email from [digitaltextbookaccess@wlu.ca](mailto:digitaltextbookaccess@wlu.ca) will be sent to your students @mylaurier emailaddress on January 4, 2021 to advise that your course is participating in the Digital Textbook Access Program. Students who register after this date will receive an email within 24 hours of registration

1. **Opt-Out Information**

* Information re: opting out of the DTA program will be emailed to students @mylaurier email account on January 15th and January 21st (one week and 24 hours in advance of the opt out deadline of January 22nd
* Please advise students to read their @mylaurier emails for important information about the digital program and opting out instructions/deadlines

**Student Information re: Opting out**

* You are enrolled in a Digital Textbook Access (DTA) course.
* Access to these digital materials is free for the first 2 weeks of your course(s).
* The DTA model offers you the most affordable option for the digital resources.
* You need to opt out of the program if you do not choose to access the digital materials or you have sourced the materials elsewhere.
* If you do not opt out of the program, the charges will be applied to your LORIS account and will appear on your October invoice.
* THE OPT OUT DEADLINE FOR WINTER 2021 DTA COURSES is **January 22, 2021**
* If you drop the course prior to January 22, 2021 you will not be billed.

**PLEASE NOTE:**

* If a student opts out of the Digital Textbook Access program they lose access to BOTH THE   
  e-text AND THE courseware (MyLab, Mastering, ZAPS, etc).
* Students CANNOT opt back into the program after the opt-out deadline. Should a student opt-out and change their mind prior to the opt-out deadline, they should email [digitaltextbookaccess@wlu.ca](mailto:digitaltextbookaccess@wlu.ca).
* If a student chooses to opt-out of the digital textbook access program and requires the course materials in an alternate format they can email [digitaltextbookaccess@wlu.ca](mailto:digitaltextbookaccess@wlu.ca) for assistance.
* If a student has paid for the resources in a previous term, (Spring 2020 or Fall 2020) and is taking the course again this term OR are in a continuation course and the digital resources (etext and edition) have not changed they should email [digitaltextaccess@wlu.ca](mailto:digitaltextaccess@wlu.ca) prior to   
  January 22nd and indicate this in the email. The Bookstore will ensure they do not lose access to their resources provided they meet the necessary requirements.

1. **IMPORTANT INFORMATION IF YOU DO NOT OPT OUT**

* Students have been provided with a temporary license to the digital resources for their course. If they choose to remain opted in to the DTA program they will have to access their materials through their course in MyLearningSpace after the opt-out period.
* Clicking on the link in their course will convert their license for the digital resources from temporary to permanent.
* This step can be completed on or after January 27, 2020.

1. **Billing for Digital Textbook Access Resources**

* The charge(s) for the DTA resources will be billed to the students LORIS account after the opt out deadline
* The charge(s) show up as a line item with the code DBK
* The charges typically appear on the LORIS account approximately 4 weeks after the start of the term and include a payment deadline for the invoice.
* If the invoice is not paid by the deadline there will be a hold placed on the student account

1. **E-Reader Platform (for courses with etext)**

* Students will realize OPTIMUM functionality if they DOWNLOAD the *Bookshelf* e-reader from either the app store or web to their device(s) and access the e-text and e-tools in this manner rather than through wi-fi.
* Students are able to access their material on up to 4 devices (max 2 mobile, max 2 desktop)
* Optimum functionality is realized if *Bookshelf* is downloaded to either a Mac or PC laptop, but *Bookshelf*  functionality is available through the mobile e-reader as well.
* Once *Bookshelf* is downloaded the student will (in most cases) have perpetual access to the material in the e-text.
* *Bookshelf* offers a robust array of features that will enhance the student experience with the e-text. These features include but are not limited to;

Search Function | Highlighting | Copy & Paste | Text to Speech | Shared Notes

1. **Technical Support**

* The Vitalsource support team is ready to assist you and/or students with any questions related to the e-reader platform or access to the resources. Phone and email support are available 24/7
* Email [support@vitalsource.com](mailto:support@vitalsource.com).
* Call +1 (855) 200-4146

1. **Printing**

* Publishers set print parameters for their digital resources. These may include printing by section, page count etc.

**ACCESSING MyLearningSpace and Digital Resources**

1. How do I log into MyLearningSpace (MyLS)?
   1. Login to MyLS at <https://mylearningspace.wlu.ca>. This takes you to a single sign on page for MyLS where you can enter your credentials, which are the same as those used for wifi and (your Laurier) email.
   2. Information for Laurier students is available here: <https://students.wlu.ca/services-and-spaces/tech-services/accounts-and-passwords.html>.
   3. Once logged in then scroll down to My Courses
   4. Select the correct tile for your Course
   5. Scroll to content browser for DTA resources & the e-reader platform
   6. Please ensure you read the instructions thoroughly and **do not pay for access to the resources online through the Publisher website as your Laurier student account will be charged.**
   7. If your course is using an e-text resource that utilizes the Vitalsource *Bookshelf*  e-reader please ensure you download the e-reader to your device(s) – up to 4. You will realize all the features of the e-reader (notes, highlighting, text to speech etc) and be able to access your resources offline anywhere, anytime!

**IMPORTANT INFORMATION FOR ALL STUDENTS**

Paying for and opting out of Digital Textbook Access, i.e. Pearson

1. Billing for DTA resources
   1. The charges for the DTA resources will be billed to your LORIS Account after the opt out deadline
   2. The charges show up as a line item with the code DBK and the charge for the resources (including HST)
   3. The charges typically appear on your Laurier account approximately 4 weeks after the start of the term and an invoice payment deadline is included.
   4. You can pay your invoice as follows;
      1. Online Banking – set up as a bill payment and ensure you use your Laurier Student ID # as the Account # when setting up the payee online
      2. Service Laurier – you can pay your invoice at the Service Laurier office using debit card. (Please note: Service Laurier does not accept cash, credit card or cheque)
   5. If your invoice is not paid by the deadline and there are outstanding charges on your account there will be a HOLD applied to your account and your grades will not be released until the charges are paid.
2. Digital Textbook Access – Opting out
   1. PLEASE ENSURE YOU CHECK YOUR @mylaurier.ca email regularly during the first 2-3 weeks of your course.
      1. You will be sent a Welcome email outlining how the Digital Textbook Access program works approximately 1 week prior to the start of classes
      2. One week prior to the opt out deadline you will be sent the first communication about how to opt out if you do not want to continue using the DTA resources or you have secured the resources elsewhere.
      3. One day prior to the opt out deadline you will receive another communication regarding the opt out process and deadlines.
      4. The communications have an opt out link embedded in the email so it is as simple as clicking on this link and selecting the OPT OUT option.

**IMPORTANT INFORMATION IF YOU DID NOT OPT OUT**

* You have been provided with a temporary license to the digital resources for your course.
* If you chose to remain opted in to the DTA program you will have to access your materials through your course in MYLearningSpace after the opt out period.
* Clicking on the link in your course will convert your license for the digital resources from temporary to permanent.
* This step can be completed on or after January 27, 2021

Should any of your students identify that they are having issues accessing the resources after January 27th , you can direct them to follow this process and the issues should be resolved.

1. If you have questions about this process please email [digitaltextaccess@wlu.ca](mailto:digitaltextaccess@wlu.ca) and we will respond promptly.