



**Division of Construction Engineering Technology, HVAC, Industrial Electrical
Construction Industry Department**

[https://www.hccs.edu/programs/areas-of-study/construction-industry--
manufacturing/](https://www.hccs.edu/programs/areas-of-study/construction-industry--manufacturing/)

ELPT 1311: Basic Electrical Theory | Lecture | #19087

Fall 2020 | 16 Weeks (08.24.2020-12.13.2020)

Online | Tues 6:00 pm - 8:30 p.m.

3 Credit Hours | 80 hours per semester

Instructor Contact Information

Instructor:	Walter Adams	Office Phone:	713-718-6805
Office:	J.B. Whiteley, Room 201	Office Hours:	W 3-5:30 PM, TH 1 -3 PM
HCC Email:	walter.adams@hccs.edu	Office Location:	Central Faculty Area

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics.

Instructor's Preferred Method of Contact

I will respond to emails within 24 hours Monday through Friday; I will reply to weekend messages on Monday mornings.

What's Exciting About This Course

One of the most exciting aspects of learning electrical theory is how a light works. From there, my fascination on how little bitty electrons form the advanced grid work of technology and electricity that we all use every day. The secret to electricity is not in the making of it, but it is in the harnessing and directing it to do what we need and want it to do. That is what you are going to learn this semester. It will be exciting and fun, but always, we will have a safe environment to explore the beginning journey as you learn how to work safely with electricity.

My Personal Welcome

Welcome to Basic Electrical Theory. I am excited about this upcoming semester and being your instructor for the next 16 weeks. I love electricity and anything associated with that discussion. I am still fascinated by the light bulb, I really am. I will present the information in the most exciting way I know, so that you can grasp the concepts and apply them now and hopefully throughout your life. This is a very difficult class, but if you do the work and study,

you should be able to pass it. I realize that for some of you, this is your first time with a lot of these concepts, but I promise you can learn them whether you are going to become an electrical worker or just taking it because of your degree plan. I do recommend that you seek out a tutor the second that you are struggling in this class. As you read and wrestle with new ideas and facts that may challenge you, I am available to support you. The fastest way to reach me is by my HCC email. The best way to really discuss issues is in person and I'm available during posted office hours to tackle any questions you might have. Please visit me or contact me whenever you have a question.

Prerequisites and/or Co-Requisites

ELPT 1311 requires a college-level math class of ELPT 1315 Electrical Calculations or equivalent 1000 level math class. Other than that, you should just have a willingness to learn and explore your environment. Please carefully read and consider the repeater policy in the [HCCS Student Handbook](#).

Canvas Learning Management System

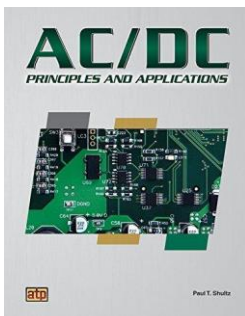
This section of ELPT 1311 will use [Canvas](https://eagleonline.hccs.edu) (<https://eagleonline.hccs.edu>) to supplement in-class assignments, exams, and activities. **There will be weekly videos to watch, assignments to tackle, and quizzes to do. It is your responsibility to keep up with deadlines. If you miss a deadline, it will be closed to you so make sure and stay up on your to do's for this class.** HCCS Open Lab locations may be used to access the Internet and Canvas. **USE [FIREFOX](#) OR [CHROME](#) AS THE INTERNET BROWSER.**

Scoring Rubrics, Sample Assignments, etc.

Look in Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course. <https://eagleonline.hccs.edu/courses/95222>

Instructional Materials

Textbook Information



The textbook listed below is **required** for this course.
"AC/DC Principles and Applications" (2016, 2nd edition)
 by Paul T. Shultz
 ISBN: 978-0-8269-1357-9

The workbook listed below is **recommended** for this course.
"AC/DC Principles and Applications Workbook"
 (2016, 2nd edition) by Paul T. Shultz
 ISBN: 978-0-8269-1358-6

It is for sale at the [HCC Bookstore](#).

Other Instructional Resources

Tutoring

HCC provides free, confidential, and convenient academic support, including writing critiques, to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the [HCC Tutoring Services](#) website for services provided.

Libraries

The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries' resources and services is the HCCS library web page at <http://library.hccs.edu>.

Supplementary Instruction

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at <http://www.hccs.edu/resources-for/current-students/supplemental-instruction/>.

Course Overview

ELPT 1311 is a course dealing with basic electrical theory, ohms laws, series, parallel, and series/parallel circuits, and practice of electrical circuits. In this course, we will cover the differences and calculations as applied to DC (direct current) and AC (alternating current) electricity.

Core Curriculum Objectives (CCOs)

ELPT 1311 is a building block class in your journey towards a qualified, skilled electrical worker, and this course should address the following core objectives:

- **Safety Above All:** Students will demonstrate the ability to choose the proper tool while practicing safety to ensure that all people in the surround work place area are safe from harm.
- **Communication Skills:** Students will demonstrate effective communication through visual, written, and spoken to develop themselves as qualified electrical workers
- **Critical Thinking:** Students will demonstrate critical thinking skills in choosing proper personal protection equipment and tools in order to accomplish tasks in a safe and proper manner.

Program Student Learning Outcomes (PSLOs)

Can be found at:

<https://www.hccs.edu/programs/areas-of-study/construction-industry--manufacturing/industrial-electricity/>

Course Student Learning Outcomes (CSLOs)

Upon completion of ELPT 1311, the student will be able to:

1. Explain atomic structure and basic values such as voltage, current, resistance, and power
2. Determine electrical values for combination circuits in direct current (DC) and alternating current containing resistance, inductance, and capacitance
3. Summarize the principles of magnetism
4. Calculate voltage drop based on conductor length, type of material, and size
5. Utilize electrical measuring instruments
6. Build a project by the end of the semester

Course Requirements

- Face-to-face sessions will be held on the HCC Central campus in the J.B. Whiteley Building Room 202
- This class will be a blend of individual and group activities in and out of class. Activities will consist of videos, laboratory exercises, and spreadsheets.
- You will also be required to have or buy the recommended tools/supplies for this course.
- You will be required to build circuits along with all of the math and measurement that go along with them.
- You will be required to build a working final project based on the knowledge that you have learned in this class along with an oral presentation.

Student Success

Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for written assignments. The assignments provided will help you use your study hours wisely. Successful completion of this course requires a combination of the following:

- Reading the textbook
- Attending class in person and/or online
- Completing assignments
- Participating in class activities

There is no short cut for success in this course; it requires reading (and probably re-reading) and studying the material using the course objectives as your guide.

Instructor and Student Responsibilities

As your Instructor, it is my responsibility to:

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through learner-centered instructional techniques
- Provide a description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness, and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments
- Arrange to meet with individual students before and after class as required

As a student, it is your responsibility to:

- Attend class in person and/or online
- Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me
- Read and comprehend the textbook
- Complete the required assignments and exams
- Ask for help when there is a question or problem
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments
- Attain a raw score of at least 50% on the departmental final exam
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

Assignments, Exams, and Activities

Online Chapter Quizzes

For each chapter that we cover in class, you will be responsible for complete a 10-question quiz online in canvas. You will have 1 week from the initial quiz is assigned to finish. These quizzes are to help you learn specific material and act as a study sheet for your midterm and final exams. If you will fail to do them, you will receive a grade of "0" on that quiz, and you will not be able to look at the correct answers to help study for the midterm and final exams. There will be no extension on these quizzes.

Lab/Assignments

To do the labs and assignments in this class, you will be responsible for purchasing all the tools and other items from the "Tool List" for this class. Failure to have the proper items needed for this class will result in you not being successful in passing this class. It is imperative that you finish your lab assignments in the timeframe for which are due, or you will receive a grade of "0". You will also have class assignments to take home and do. They will be reflected on Canvas under Class Assignments or Lab Assignments.

Midterm Exam

The Midterm Exam will be cumulatively based off everything you should know from the textbook, chapters 1 through 10, the labs and assignments, the video, and the lectures from class. You will be responsible for learning and knowing everything that we go over in class, so it is important for you to not miss any class or get with your lab partner to find out what you missed so you can do well on the midterm exam.

Final Exam

The Final Exam will be cumulatively based off everything that you should know from the textbook, chapters 11 through 22, the videos, and the lectures from class. You will be responsible for learning and knowing everything that we go over in class, so it is important for you to not miss any class or get with your lab partner to find out what you missed so you can do well on the final exam.

Final Project

Each student is responsible for doing an individual, final project. The final project will be something handmade, not from a kit. Each student will have to use the knowledge that they have attained in this class in order finish it. I will give you a couple of ideas, but it is the student's responsibility to submit their idea along with a schematic and sources cited for approval by the instructor. You will also have to submit your final project presentation in the form of a video. More to come on this subject later in the semester.

Grading Formula

Online Quizzes	10%
Labs/Assignments	15%
Midterm Exam	25%
Final Exam	25%
Final Project	25%
Course Bonus	10%
Total for class	110%

Grade	Total Points
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	<60%

HCC Grading Scale can be found on this site under Academic Information:
<http://www.hccs.edu/resources-for/current-students/student-handbook/>

Course Calendar

Week	Dates	Topic/What's due
1	Wed 08/26	Syllabus Canvas Introduction Tool List Chapter 1: Basic Concepts of Electricity Chapter 2: Electrical Safety Canvas Module 1 open
2	Wed 09/01	Chapter 3: Resistance Chapter 4: Voltage sources NEED BOOK, MULTIMETER, & ELEGOO KIT BY THIS CLASS Canvas Module 2 open Resistance Chart assignment
3	Wed 09/09	Chapter 5: The simple circuit & ohm's law Canvas Module 3 open Lab class Resistance Chart Due NEED CALCULATOR & TOOLS BY THIS CLASS

4	Wed 09/16	Chapter 6: DC series circuits Canvas Module 4 open Two series lab assignments given
5	Wed 09/23	Chapter 7: DC parallel circuit Canvas Module 5 open Two parallel lab assignments given Lab Class
6	Wed 09/30	Chapter 8: DC series/parallel circuit Canvas Module 6 open One combination lab assignment given Lab class
7	Wed 10/07	Chapter 9: Complex Network Analysis Techniques Chapter 10: Electromagnetism Canvas Module 7 open Lab class Final project introduced
8	Wed 10/14	Canvas Module 8 open Lab class All lab assignments due by this date
9	Wed 10/21	MIDTERM EXAM Canvas Module 9 open
10	Wed 10/28	Review midterm Chapter 11: DC circuit inductance Chapter 12: DC circuit capacitance Canvas Module 10 open
	10/30	Last Day to Withdrawal with a "W"
11	Wed 11/04	Chapter 13: AC fundamentals Canvas Module 11 open Surprise
12	Wed 11/11	Chapter 15: Resistive AC Circuits Chapter 16: Inductive AC circuits Canvas Module 12 open
13	Wed 11/18	Chapter 17: Capacitive AC Circuits Canvas Module 13 Open Surprise
14	Wed 11/25	Canvas Module 14 Open Chapter 20: Three-Phase AC Chapter 21: Transformers Chapter 22: AC Motors
15	Wed 12/02	Final Exam Canvas Module 15 open Must have videos posted before the weekend. (No exceptions)
16	Wed 12/09	Final Projects Canvas Module 15 Open

Syllabus Modifications

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

Instructor's Practices and Procedures

Missed Assignments

There will be no make up for missed assignments. I am allowing you a reasonable amount of time to get all labs and assignments done. Also, there will be no makeup exam so make sure to not miss exam days. Any missed assignment or exam will earn a grade of "0" on that exercise.

Academic Integrity

Students are responsible for conducting themselves with integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by college district officials against a student accused of scholastic dishonesty. "Scholastic Dishonesty" includes, but is not limited to, cheating on a test, plagiarism and collusion. Any instance of scholastic dishonesty may be reported to the Maxiant system. Possible punishments for scholastic dishonesty include a grade of "0" or "F" on the assignment, failure in the course, and/or recommendation for probation or dismissal from the college district. A recommendation for suspension or expulsion will be referred to the college Dean of Students for disciplinary disposition. Students have the right to appeal the decision.

Cheating, plagiarism, collusion, etc. will result in a grade of F for the course and a report will be filed with the Dean.

Here's the link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):

<http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/>

Attendance Procedures

You are encouraged to attend each class since regular attendance correlates with good grades. Be on time and attend the entire class. If you must be absent, you are, of course, responsible for the material covered in class in your absence (see the Course Calendar). Be advised that instructors must drop students who fail to attend class by the official date of enrollment ("Census Day"). In addition, instructors may drop students who miss 10 hours/4 days or 12.5% of class time.

Student Conduct

I expect students to conduct themselves professionally in their communications with me, classmates, and college staff and administration, whether in email or in class. Behavior inappropriate to the collegiate setting (including but not limited to abusive/derogatory/threatening/harassing language directed at the instructor or towards other students, staff or administrators) will not be tolerated and may result in removal from the course if severe and/or repeated. **To ensure privacy of your classmates, taking photos in class is strictly prohibited.**

Instructor's Course-Specific Information (As Needed)

We will adhere to a strict dress code in this class because of safety reasons. No shorts or sweat pants will be allowed in class. No flip flop or open toed shoes will be permitted. You must wear rubber soled boots or sneakers. At all times, all conductive materials to include earrings, rings, necklaces, and other type metal items must be removed during class. During labs, safety glasses will be worn and covering your eyes not on your head. Failure to wear safety glasses during labs or practicing unsafe behaviors in lab will be automatic expulsion from the class for the day, no exceptions.

Electronic Devices

The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for purposes other than student learning is strictly prohibited. If an instructor perceives such use as disruptive and/or inappropriate, the instructor has the right to terminate such use. If the behavior continues, the student may be subject to disciplinary action to include removal from the classroom or referral to the dean of student services. Cell phones will be on vibrate or off. If you need to take an emergency phone call, step out in the hall and do so. Cell phone are not calculators, so please get a scientific calculator for class.

Industrial Electrical Program Information

New Associates Degree in Electrical Technology Fall 2019

Please look forward to our upcoming associate degree in Electrical Technology which opens Fall 2019.

Scholarship information for Workforce Students

Extra money is always welcomed while you are in school. Below are the scholarships that I know about that you should apply for if you meet the criteria for that scholarship. Keep in mind that there are many, many more scholarships out there. Shame on you if you don't apply. It is free money.

- HCC Foundation Workforce Scholarship - \$1,000 award
<https://www.hccsfoundation.org/workforceschlp>
- Mike Rowe's Scholarship (You can also look for jobs on his website)
<https://www.mikeroweworks.org/>
- TEXVET.ORG – Various Veterans Scholarships for Texas Veterans
https://www.texvet.org/scholarships?distance%5Bpostal_code%5D=77004&distance%5Bsearch_distance%5D=50&distance%5Bsearch_units%5D=mile
- Home Depot School Scholarship - \$2,500 and opened to apply is 11/01/2019
<https://www.thdhomerfund.org/orangescholars/>
- Grainger Tool for Tomorrow Scholarship - \$2,000 and a bag full of tools
<https://www.grainger.com/images/TFT-Brochure.pdf>

Career Center/Job Placement

Make sure and take time to go to the Career Center, and let them help you with resume preparation, interview skills, and much more to help you once you are ready to enter the job market. Don't wait until you are fixing to graduate. For electrical, you can contact Gretchen Young. She is in the Learning Hub on Central Campus in room 115.

Tosha Gonsoulin – 713-718-6957 - <mailto:tosha.gonsoulin@hccs.edu>

HCC Policies

Here's the link to the HCC Student Handbook. <https://www.hccs.edu/resources-for/current-students/student-handbook/> In it, you will find information about the following:

- Academic Information
- Academic Support
- Attendance, Repeating Courses, and Withdrawal
- Career Planning and Job Search
- Childcare
- disability Support Services
- Electronic Devices
- Equal Educational Opportunity
- Financial Aid TV (FATV)
- General Student Complaints
- Grade of FX
- Incomplete Grades
- International Students Services
- Health Awareness
- Libraries/Bookstore
- Police Services & Campus Safety
- Student Life at HCC
- Students Rights and Responsibilities
- Student Services
- Testing
- Transfer Planning
- Veteran Services

HCC Policies

Here's the link to the HCC Student Handbook <http://www.hccs.edu/resources-for/current-students/student-handbook/> In it you will find information about the following:

Academic Information	Incomplete Grades
Academic Support	International Student Services
Attendance, Repeating Courses, and Withdrawal	Health Awareness
Career Planning and Job Search	Libraries/Bookstore
Childcare	Police Services & Campus Safety
disAbility Support Services	Student Life at HCC
Electronic Devices	Student Rights and Responsibilities
Equal Educational Opportunity	Student Services
Financial Aid TV (FATV)	Testing
General Student Complaints	Transfer Planning
Grade of FX	Veteran Services

EGLS³

The EGLS³ (Evaluation for Greater Learning Student Survey System) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS³ surveys are only available for the Fall and Spring semesters. -EGLS3 surveys are not offered during the Summer semester due to logistical constraints.

<http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/>

Campus Carry Link

Here's the link to the HCC information about Campus Carry:

<http://www.hccs.edu/departments/police/campus-carry/>

HCC Email Policy

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go [to HCC Eagle ID](#) and activate it now. You may also use Canvas Inbox to communicate.

Housing and Food Assistance for Students

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

Office of Institutional Equity

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (<http://www.hccs.edu/departments/institutional-equity/>)

disAbility Services

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/support-services/disability-services/>

Title IX

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross
Director EEO/Compliance
Office of Institutional Equity & Diversity

3100 Main
(713) 718-8271
Houston, TX 77266-7517 or Institutional.Equity@hccs.edu
<http://www.hccs.edu/departments/institutional-equity/title-ix-know-your-rights/>

Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

<https://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-complaints/speak-with-the-dean-of-students/>

Department Chair Contact Information

Armando R. Villanueva Department Chair
armando.villanueva@hccs.edu
1301 Alabama Suite 201A
Houston, Texas 77004
713.718.5284

Department Dean Contact Information
Kris Asper, Dean
Kris.asper@hccs.edu
1301 Alabama Suite 230
Houston, TX 77004
713.718.6858