



**Media Arts and Technology Center of Excellence
Audio Recording Technology**

<https://www.hccs.edu/programs/areas-of-study/art--design/audio-recording-technology/>

MUSC 1323: Audio Electronics | Lecture/Lab | #13004

Spring 2019 | 16 Weeks (1.14.2019-5.12.2019)

In-Person | Spring Branch 209 | Saturdays 9 a.m.-2:50 p.m.

3 Credit Hours | 96 hours per semester

Instructor Contact Information

Instructor:	David Wells	Office Phone:	713-718-5615
Office:	Spring Branch, Room 440A	Office Hours:	S 2:50p.m.-3:30p.m. (209)
HCC Email:	david.wells@hccs.edu	Office Location:	Spring Branch PAC Bldg.

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 to discuss course topics.

Instructor's Preferred Method of Contact

HCC email (address shown above). I will strive to respond to emails received Monday through Thursday during daytime and evenings and Saturday daytime within 24 hours whenever possible. Emails sent outside of those times will be replied to on Monday. For urgent situations where time is critical, I can be reached on my cell at 713-417-0648.

What's Exciting About This Course

You will develop your skills and knowledge in a hands-on, project based learning environment using professional quality equipment in our studio and lab.

My Personal Welcome

Welcome to MUSC 1323. I'm delighted that you have chosen this course. My passion is to impart knowledge and skills which will qualify you for higher paying jobs and to help you develop a career as a recognized professional in the audio industry. I will present the information using the most exciting and effective methods I know, so that you can grasp the concepts and apply them now and hopefully throughout your career. As you read and wrestle with new ideas and facts that may challenge you, I am available to support you. In an emergency, please call my cell number, listed in the first paragraph. Otherwise, the preferred way to reach me is by my HCC email. The best way to really discuss issues, however, is in person. I am available by appointment both during and outside of posted

office hours to tackle any questions you might have. My goal is for you to walk out of the course with a better understanding of electronics as used in the audio industry, and with skills which help you get jobs that others cannot. So please visit or contact me whenever you questions.

Prerequisites and/or Co-Requisites

MUSC 1323 requires college-level reading and writing skills. While it is not a prerequisite, research indicates that you are most likely to succeed if you have already taken and passed an introductory course in college algebra. If you have enrolled in this course having satisfied these prerequisites, you have a higher chance of success than students who have not done so. Please carefully read and consider the repeater policy in the [HCCS Student Handbook](#).

Eagle Online Canvas Learning Management System

As required by college administration, this section of MUSC 1323 will use [Eagle Online Canvas](#) (<https://eagleonline.hccs.edu>) to supplement the course curriculum. All handouts, study aids, the course syllabus and other useful information are available in Canvas. HCCS Open Lab locations may be used to access the Internet and Eagle Online Canvas. It is strongly recommended that you **USE FIREFOX OR CHROME AS YOUR BROWSER**.

HCC Online Information and Policies

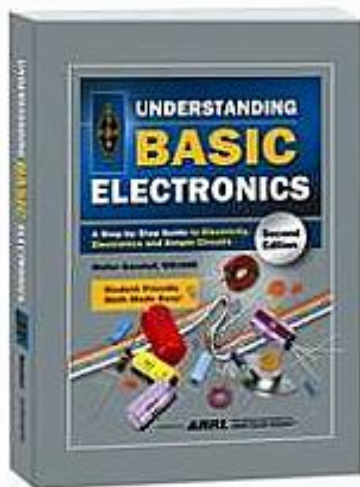
Here is the link to information about HCC Online classes including the required Online Orientation for all fully online classes: <http://www.hccs.edu/online/>

Scoring Rubrics, Sample Assignments, etc.

Look in the course syllabus for scoring rubrics, a list of essential assignments, and other information to assist you in the course. <https://eagleonline.hccs.edu/login/ldap>

Instructional Materials

Textbook Information



The textbook listed below is **required** for this course and MUST be obtained by the second week of class

"Understanding Basic Electronics" (second edition ONLY) by Walter Banzhaf, ISBN: 978-0-87259-082-3.

The book can be found at the [HCC Bookstore](#) or ordered from <http://www.arrl.org/shop/Understanding-Basic-Electronics/> or https://www.amazon.com/dp/B0112HMEUI/ref=cm_sw_su_dp (Amazon has a rental version, as well).

You may either use a hard copy of the book, or purchase the Kindle version from the ARRL website or Amazon.com.

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

MUSC 1323 is a survey course of the basic principles of electricity, Ohm's Law, circuit analysis, basic troubleshooting and soldering techniques. Emphasis is placed on circuitry used in the audio industry and equipment maintenance, as well as effective communication with other professionals and customers.

Core Curriculum Objectives (CCOs)

MUSC 1323 satisfies the course requirements for either a degree or certificate in the Audio Recording Technology program at Houston Community College. The program's Discipline Committee has specified that the course address the following core objectives and workplace competencies:

- **Participation as a Team Member**
- **Works with diversity**
- **Selects technology**
- **Reading**

Program Student Learning Outcomes (PSLOs)

The student will be able to:

- **Solve circuit problems using Ohm's Law**
- **Demonstrate effective troubleshooting techniques for basic audio problems**
- **Demonstrate appropriate preventive maintenance routines in recording and sound reinforcement**
- **Utilize proper soldering techniques**

Course Student Learning Outcomes (CSLOs)

Upon completion of MUSC 1323, the student will be able to:

- 1.1 Describe the atomic properties involved with electricity and how this relates to conductors and insulators
- 1.2 Demonstrate knowledge in multiple (8) areas of psychology, including concepts, facts, and theoretical perspectives.
- 1.3 Demonstrate proper use of terminology associated with basic electronics, such as voltage, current, resistance and power.
- 1.4 Construct circuits using series and parallel connections
- 1.5 Calculate voltage, current and resistance within circuits by using Ohm's Law
- 2.1 Describe current flow and voltage drops within a DC circuit
- 2.2 Simplify a DC circuit for analysis
- 2.3 Define properties of AC signals such as amplitude, frequency and phase
- 2.4 Describe common AC signal measurement techniques
- 2.5 Describe common passive circuit elements such as resistors, capacitors, inductors and transformers
- 2.6 Summarize units of measurement for passive components and coding schemes for values
- 2.7 Explain the effect a diode has on DC and AC signals in a given circuit
- 2.8 List common components found in power supplies and describe their operation
- 3.1 Identify common measurement devices
- 3.2 Demonstrate awareness of the potential dangers when using electricity and follow proper safety procedures when connecting or analyzing electronic circuits
- 3.3 Demonstrate proper choice of components used in electronic devices based on their values and ratings
- 3.4 Demonstrate proper use of a multimeter and oscilloscope
- 4.1 Demonstrate proper use of soldering tools
- 4.2 Demonstrate the ability to solder and de-solder connectors, wires, cables, printed circuit boards and components
- 4.3 Describe the proper wiring schemes for various cable types

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
- Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me
- Read and comprehend the textbook and handouts
- 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
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

Assignments, Exams, and Activities

Written Assignments

Written assignments will include answering the review questions at the end of every assigned section of the textbook.

Submission of individual certificates or the unmodified grade log from the computer-based exercises contained within the BASIC, DC and AC modules of the ETCAI Circuit Challenge software provided, as assigned.

Quizzes

Quizzes will be given on a regular basis, usually, but not always, near the beginning of class. Quizzes will be based on lectures, reading and assigned Circuit Challenges. Quizzes may or may not be announced in advance. Once a quiz begins, admittance to the classroom is not allowed until the quiz is finished. Makeups for missed quizzes will only be allowed in extreme circumstances at the discretion of the instructor. Many quizzes will be administered using Scantron forms, which are the student's responsibility to supply.

In-Class Activities

Students are expected to participate in lab exercises, class discussions and lectures in an engaged and positive manner.

Cable Construction

All students will be required to properly construct four common audio cables. Cables must be turned in by the due dates for full credit to be given. Further discussion and demonstrations on how to properly make cables will precede their assignment. Raw cable and connectors will be supplied by the instructor. Since making and repairing cables is an industry required skill, all four cables must be properly wired and acceptably made in order to pass the course.

Project (Kit) Construction

All students will be required to build a project from a commercially available electronic kit. Discussion and details about building a kit will occur before the assignment is made. The kit must be fully functional as designed and documented by the assembly instructions before any grade can be assigned. Since the kit demonstrates industry required skills, an acceptably made and properly functioning kit is required to pass the course.

Grading Formula

The final grade in this course will be based upon the following percentages:

Written Assignment(s) and Circuit Challenges:	10%
Quizzes:	30%
In-Class Activities and Labs:	10%
Cable Construction:	30%
Project (kit) Construction:	20%
	TOTAL: 100%
EXTRA CREDIT (Federal Communications Commission License):	20%
	TOTAL POSSIBLE WITH EXTRA CREDIT: 120%

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

A final grade of "I" (incomplete) may only be given in extremely rare circumstances as determined solely by the instructor, both the student and instructor must agree, and not more than one major assignment is missing. There will be a grade penalty assessed proportional to how late the work is submitted. The assignment must be completed prior to the end of the following semester or a grade of "F" will automatically be assigned.

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

Course Calendar

(TENTATIVE, subject to adjustment)

Week	Topic/What's due
1	Syllabus; Handout #1 and Textbook Assignments Electrical Physics and Ohm's Law
2	Handout #1 and Textbook Assignments; DC Principles: voltage, current, resistance and power; multimeter
3	Handout #1 and Textbook Assignments; Cable #1 due; Resistors in Series and Parallel
4	Handout #1 and Textbook Assignments; Cable #2 due; Troubleshooting and problem isolation of defective circuits

5	Handout #2 and Textbook Assignments; Cable #3 due Light Emitting Diodes
6	Handout #3 and Textbook Assignments; Cable #4 due Properties of Sound and Audio; Introduction to AC; Oscilloscope basics
7	Handout #3 and Textbook; Using the oscilloscope; hands-on oscilloscope measurement quiz
8	Handout #3 and Textbook; Reactance; Low Pass and High Pass Filters
9	Handout #3 and Textbook; Resonance
10	Handout #5 and Textbook; Introduction to Semiconductors
11	Handout #5 and Textbook; Small signal amplifiers
12	Handout #6 and Textbook; Operational Amplifiers
13	Handout #4 and Textbook; Power Supplies; Kit Project due
14	Handout #7 and Textbook; Digital Logic and Gates
15	Handout #8 and Textbook; Computers; Deadline for Extra Credit
16	Deadline for all late assignments and projects with late penalty

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 is no makeup for a missed quiz except in extreme circumstances, on a case-by-case basis, at the sole discretion of the instructor. Students arriving after a quiz has begun have missed the quiz, being late is not an excuse worthy of a makeup quiz. A makeup test is never a retake. The lowest quiz grade out of every integer multiple of five quizzes will be dropped. Other late assignments MAY be accepted but will be subject to a late-work penalty.

Academic Integrity

A student who is academically dishonest is, by definition, now showing that the coursework has been learned, and that student is claiming an advantage not available to other students. The instructor is responsible for measuring each student's individual achievements and, additionally, for insuring that all students compete on a level playing field. Thus, in our system, the instructor has teaching, grading and enforcement roles. You are expected to be familiar with the college's policy on academic honesty. What that means is: if you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Scholastic Dishonesty will result in a referral to the Dean of Student Services.

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

While materials for this course are found online, MUSC 1323 is an in-person class. Students are expected to attend every class session. What we will learn in one class is based on what was learned in previous classes. It becomes very difficult to pass the course if more than a

very small number of class sessions are missed. Additionally, absence from class includes being tardy and leaving early. HCCS policy states that students who miss more than 12.5% of classtime should be dropped and this policy will be strictly enforced. Exceptions will be considered on a case-by-case basis at the instructor's sole discretion. However, even in extreme cases, no more than 15% of classtime can be missed or the student will be dropped. The last day to drop a class without a grade is April 1, 2019; after that date, a student cannot withdraw and a grade must be assigned.

Student Conduct

MUSC 1323 is an in-person course with classroom instruction. Students are expected to conduct themselves in a professional and reasonable manner at all times. Any conduct which disrupts the class will result in the student being dismissed and not allowed to return to that class session. If the issue recurs, that student will be dropped from the course and referred to the Dean of Students for appropriate disciplinary action.

Instructor's Course-Specific Information

A gradesheet will be posted near the front of the room and updated on a regular basis. Students will be assigned a unique reference number with which they can view their grades. The reference number assigned to a student is not to be shared with others so that each individual's privacy is assured. Completed quizzes will be available for review by students upon individual request at times determined by the instructor, but quizzes will not otherwise be returned to students and must be returned to the instructor at the end of the review time.

Electronic Devices

Students are allowed to use laptops and tablets in the classroom solely for purposes of notetaking and recording of lectures. Use of a TI-30XIIS calculator is strongly encouraged.

Cell phones and all other devices which might disrupt the class are to be turned off or otherwise silenced and are to remain so while class is in progress. Cell phones may not be used for any purpose during class. If a student needs to make or take a call, that student must leave the class room for the duration of the call. There will be only one warning given for violating this rule. Any subsequent disruptions created by a student's cell phone will subject them to the same student conduct penalties described above.

AC power outlets which may be used for charging portable electronics are located along floor runners in the seating area and on the two metal desks against the wall farthest from the door. No other power outlets are to be used; test equipment and soldering irons shall not be unplugged in order to supply power or charge personal devices. Students must bring their own chargers and power supplies. Connection of personal devices to USB ports on any of the room's computers is strictly forbidden.

Audio Recording Technology Program Information

This program requires completion of the department's orientation each semester, wherein rules and procedures are specified which must be observed by all students. First-start Commercial Music Software and Audio 1 students are required to attend the **in-person** orientation in Performing Arts Center room 442 (the screening theater) on Thursday, January 24th at 2pm or on Saturday, January 26th at 7pm. All other first-start Audio students will have 13 days to complete their orientation **online** via Social Media by following **@StudioManagerLife** on Instagram or Facebook beginning on Monday, January 14th at 9am and ending on Saturday, January 26th at 8pm.

**ALL STUDENTS MUST COMPLETE ORIENTATION TO ACCESS LABS AND EQUIPMENT!
No extensions or exceptions are allowed and no other sessions will be scheduled!**

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

The Audio Recording Technology Department Chair is Aric Nitzberg. Mr. Nitzberg's email address is aric.nitzberg@hccs.edu and his office telephone number is 713-718-5621.