

COURSE SYLLABUS

YEAR COURSE OFFERED: 2020

SEMESTER COURSE OFFERED: Fall

DEPARTMENT: ELECTRICAL AND COMPUTER ENGINEERING

COURSE NUMBER: ECE 2100-01 (16228)

NAME OF COURSE: [ECE 2100: Circuit Analysis Laboratory](#)

NAME OF INSTRUCTOR: Han Q. Le *ece2100uh@gmail.com*

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course. You will receive e-mail announcement before the first class about online instruction via Zoom. Please follow University instructions and announcement regarding adaptation for online instructions. **Please read Covid-19-related information at the end of the syllabus.**

Learning Objectives

- Students will design and conduct electrical engineering experiments. (Student Outcome b)
- Students will analyze and interpret their data, using and confirming fundamental circuit theory and concepts. (Student Outcome b)
- Students will use the techniques, skills and modern electrical engineering measurement tools typical of an electrical engineering laboratory. (Student Outcome k)
- Students will further develop their basic skills of circuit problem solving using experimental methods, and further develop their basic skills of critical thinking by learning measurement techniques such as time constant measurements and phase shift measurements. (Student Outcome e)
- Students will develop and demonstrate their technical writing skills by writing a formal report about their laboratory activities, and a paper about ethics and professionalism. (Student Outcome g)
- Students will be exposed to the issues of ethical and professional responsibility, through discussions of engineering ethics, through discussions of and enforcement of rules about plagiarism, and by writing about their own opinions concerning ethical behavior. (Student Outcome f)

Major Assignments/Exams

COURSE SYLLABUS

- Revision for Fall 2020: in general, the amount of topics and work on each lab may be adjusted to suit the course resource.
- There will be one special project, which will be described in class.
- Students may work on the experiments individually or with one partner. Maximum 2 partners per team. It is expected that students will be able to complete their lab experiments during regular class hours, although extra time may be required for the project. If more time is needed for the project or for regular assignments, students are free to work in the lab during its open hours (posted outside the Lab).
- The main outputs expected of a student are reports, which include pre-lab reports and end-of-lab reports (cf. attached schedule).

Formal Reports

The formal reports are written assignments that must conform to the *Electrical Engineering Formal Laboratory Report Format*. A copy of this document is available on the class website. The formal report will be written on the Project, which will be an experiment on a subject that will be discussed in class. The formal report must be submitted to the TurnItIn.com section of the class Blackboard site. Details concerning the formal report format, its content, and its submission will be given in class. Formal reports submitted after the deadline indicated on the schedule without justifiable unusual personal situation will incur a penalty.

Required Reading

There is no required text for the course. However, students are required to purchase a lab notebook at UH Research Stores: <http://researchstores.nsm.uh.edu/>. Students will need the “Lab 010” notebook. This notebook is black, with red UH lettering. Research Stores accepts credit or debit cards only.

Recommended Reading

None specific. However student can check with textbooks on electronic circuits to gain further understanding of the experiments if necessary.

Computer and Software

- Student is strongly encouraged to bring in laptop. The laptop can be used to do data analysis with scientific/engineering software.
- Software required for the course: Wolfram *Mathematica*®, which is free to [all UH students](#) (please follow the link for details). Lectures and simulations will be demonstrated with it.

List of discussion/lecture topics

Please see attached schedule.

Laboratory Materials

COURSE SYLLABUS

Course schedule is posted and updated online:
<http://courses.egr.uh.edu/ECE/ECE3340/Web2/notes.html>

The course main portal with links to all relevant pages is:
<http://courses.egr.uh.edu/ECE/ECE3340/Web2/welcome.htm>

Everyone must own or have access to a lab kit and a prototyping board. The prototyping board should have a pair of supply busses and 5 sets of connections on each side. The components in the lab kit are listed below. These kits and the prototyping board will be provided to you in the laboratory, when you show your ID card. You may supply your own parts, but they must be exact equivalents of the parts specified for the kit. You will find that lab operations are easier if you have a wire stripper and needle-nose pliers, and an assortment of multicolor insulated solid conductor wire, between 24 and 28 AWG.

There are a number of cables available for your use in the lab. Each cable is labeled, and is to be used only at the bench that corresponds to that label. If a cable or other equipment should break, you should fill out a report using the forms at the front of the lab. At the end of the lab, you should replace your cables in their holders. A list of cables is available at the end of each bench for your use. *It is wise to check your cables before you begin work to be sure that you have all your cables. If there are any missing cables, notify the TA before you begin work.*

Lab Kit Parts List (no. of parts needed indicated in parentheses)

<u>Resistors --1/4 watt</u>		<u>Resistors (con't)</u>		<u>Diodes</u>	
100 Ω	(2)	680 k Ω	(1)	1N4001	(6)
120 Ω	(2)	1 M Ω	(1)	1N4151	(1)
270 Ω	(1)	Potentiometer, 10 k Ω	(1)	1N5227B	(1)
470 Ω	(1)			1N34A	(1)
1 k Ω	(3)	<u>Capacitors, 25 VDC min.</u>		<u>Transistors</u>	
1.5 k Ω	(2)	100 μ F	(1)	MPF102 (JFET)	(2)
2.2k Ω	(2)	47 μ F	(1)	NTE123A (NPNBJT)	(4)
2.7k Ω	(1)	10 μ F	(2)	NTE159 (PNP BJT)	(4)
3.9k Ω	(1)	1 μ F	(2)		
5.6 k Ω	(1)	0.1 μ F	(2)	<u>Integrated Circuits (ICs)</u>	
8.2 k Ω	(1)	0.033 μ F	(1)	741 (op amp)	(3)
10 k Ω	(3)	0.022 μ F	(1)	7400 (TTL)	(1)
11 k Ω	(1)	0.01 μ F	(1)	7812 (regulator)	(1)
15 k Ω	(1)	0.0047 μ F	(1)		
22 k Ω	(2)	0.0022 μ F	(1)		
27 k Ω	(1)	150 pF	(1)		
47 k Ω	(1)				
68 k Ω	(1)				
100 k Ω	(1)				
110 k Ω	(1)				
220 k Ω	(1)				
390 k Ω	(1)				

COURSE SYLLABUS

Covid-19-Related information

Face Covering Policy (required for courses with a face-to-face component)

To reduce the spread of COVID-19, the University [requires face coverings](#) on campus including classrooms for both faculty and students. Face coverings must cover your mouth and nose and be worn throughout the class session. A mask with a valve is not considered an adequate face covering and should not be used, as it can expel exhaled air, increasing the risk to others. Eating or drinking during class is discouraged and is not an excuse for removing the face covering for any extended length of time. For additional information on the use of face coverings, please see [Face Covering FAQs](#). Failure to comply with the requirement to wear a face covering in class will result in your being asked to leave the classroom immediately and a disciplinary referral through the Dean of Students Office. Requests for accommodations relating to the face covering policy may be directed to the [Center for Students with DisABILITIES \(CSD\)](#).

Required Daily Health Self-Assessment (required for courses with a face-to-face component)

Your presence in class each session means that you have completed a daily self-assessment of your health/exposure and you:

- Are NOT exhibiting any [Coronavirus Symptoms](#)
- Have NOT tested positive for COVID-19
- Have NOT knowingly been exposed to someone with COVID-19 or suspected/presumed COVID-19

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see [COVID-19 Diagnosis/Symptoms Protocols](#) for what to do if you experience symptoms and [Potential Exposure to Coronavirus](#) for what to do if you have potentially been exposed to COVID-19. Consult the (select: [Undergraduate Excused Absence Policy](#) or [Graduate Excused Absence Policy](#)) for information regarding excused absences due to medical reasons.

Excused Absence Policy (required for all courses)

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) and [Graduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

Interim Undergraduate Grading Policy (required for undergraduate courses)

Due to the unique and unprecedented challenges associated with the COVID-19 pandemic, the University of Houston has implemented an [Interim Undergraduate Grade Policy](#) for undergraduate grades which applies to all undergraduate students in courses offered in all sessions during fall 2020. Under this policy, students have the option of converting final assigned letter grades to S (Satisfactory, applicable to any letter grade from A to D-) or NCR (No Credit

COURSE SYLLABUS

Reported COVID-19, applicable to grades of F) on their transcripts. Please visit [FAQs](#) for additional information.

Recording of Class (required for all courses)

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Center for Students with DisABILITIES](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with *anyone* without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Syllabus Changes (required for all courses)

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through (*specify how students will be notified of changes*).

Online instructional activities and learning

Resources for Online Learning

The University of Houston is committed to student success, and provides information to optimize the online learning experience through our [Power-On](#) website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

UH Email

Email communications related to this course will be sent to your [Exchange email account](#) which each University of Houston student receives. The Exchange mail server can be accessed via Outlook, which provides a single location for organizing and managing day-to-day information, from email and calendars to contacts and task lists. Exchange email accounts can be accessed by logging into Office 365 with your Cougarnet credentials or through Access UH. They can also be configured on [IOS](#) and [Android](#) mobile devices. Additional assistance can be found at the [Get Help](#) page.

Webcams

COURSE SYLLABUS

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (*state when webcams are required to be on and the academic basis for requiring them to be on*). (Example: Webcams must be turned on during exams to ensure the academic integrity of exam administration.)

Honor Code Statement

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: *"I understand and agree to abide by the provisions in the (select: [University of Houston Undergraduate Academic Honesty Policy](#), [University of Houston Graduate Academic Honesty Policy](#)). I understand that academic honesty is taken very seriously and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston."*

Course Delivery Formats and Final Exams

HyFlex: This course is a HyFlex course. Some students may have a designated face-to-face spot reserved, but alternative ways to participate will also be provided. These alternatives may include (but are not limited to) attending class sessions through synchronous streaming, viewing recordings of class meetings asynchronously, participating in discussion boards, and/or completing self-directed activities. This course will have a final exam per the [University schedule](#). As the University will be transitioning all classes and final exams given after the Thanksgiving Break to online delivery, the exam for this course will be delivered in the synchronous online format, and the specified date and time will be announced during the course. Prior to the exam, descriptive information, such as the number and types of exam questions, resources and collaborations that are allowed and disallowed in the process of completing the exam, and procedures to follow if connectivity or other resource obstacles are encountered during the exam period, may be provided.

Helpful Information

COVID-19 Updates: <https://uh.edu/covid-19/>

Coogs Care: <https://www.uh.edu/dsaes/coogscare/>

Laptop Checkout Requests: <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

Health FAQs: <https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/>

Student Health Center: <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>