

EEL 3003 Elements of Electrical Engineering Spring 2017

(Credits: 3) An introduction to the theory and practice of electrical engineering for students not majoring in electrical engineering; circuits, machines, electronics and systems.

Prerequisites: MAC 2311 - Analytical Geometry & Calculus 1, PHY 2049 - Physics with Calculus 2

Course Objectives: To introduce non-electrical engineering majors to the concepts, vocabulary, and problem-solving methods used in electrical engineering.

Contribution of course to meeting the professional component – EE2, EE3, a, b, e 5.

Relationship of course to program outcomes: 3 hours of engineering science.

Meeting Times & Location: If you want to attend live lecture, it will be held in NEB 100 on Tuesday 7th period (1:55pm-2:45pm), and Thursdays 6th-7th periods (12:50pm-2:45pm). This classroom is a studio classroom, and recordings of all lectures will be available online later the same day they are held live. Homework is submitted online through Canvas and all course exams are held online using live Proctor-U web proctoring services.

Instructor: Dr. Pamela Dickrell, pld@ufl.edu Office: 202 Nuclear Sciences, 352-392-9672

TAs and Office Hours: TAs will offer dual in-person and online office hours, each TA office hour session will have both live and virtual assistance for students. All TA office hour sessions are for help with both calculation based problems and SparkFun Inventor's Kit assistance. Online office hours will be held using the 'Conferences' tool within our Canvas course shell. For TA Office hours held in Marston Library, the TAs will make a post in the course 'Announcements' tool each week of the specific location at least one hour prior to the start of their office hours so it is easier to find them in the library. You can attend any TAs office hours for help, not just the one with your grading range.

Ashley (amaj25@ufl.edu), Marston Library, live and online help, Mondays 10:40am-12:35pm

Hector (heosorio@ufl.edu), Marston Library, live and online help, Mondays 10:40am-12:35pm

Gabe (gabrielgarcia@ufl.edu), Marston Library, live and online help, Tuesdays 3:00pm-4:55pm

Shakim (shakim.cooper@ufl.edu), Marston Library, live and online help, Tuesdays 3:00pm-4:55pm

Dr. Dickrell Office Hours, Nuclear Sciences Room 202, *In-person Help Only*, Wednesdays 12:50pm-2:45pm

Chelsea (cjrichards1458@ufl.edu) (SparkFun Expert), Nuclear Sciences Room 202, *In-person Help Only*, Wednesdays 12:50pm-2:45pm

Jesus (jesuzn@ufl.edu), Marston Library, live and online help, Wednesdays 3:00pm-4:55pm

Lindsey (lindseyolson@ufl.edu), Marston Library, live and online help, Wednesdays 3:00pm-4:55pm

Caleb (ctmeek@ufl.edu), Marston Library, live and online help, Wednesdays 5:00pm-7:00pm

Carlos (carlosrsuhr@ufl.edu), Marston Library, live and online help, Wednesdays 5:00pm-7:00pm

Esus (eoberlaender@ufl.edu), Marston Library, live and online help, Thursdays 10:40am-12:35pm

Royce (roycecreyes@ufl.edu), Marston Library, live and online help, Thursdays 10:40am-12:35pm

Bonnie (bonnie.president@ufl.edu), Marston Library, live and online help, Thursdays 3:00pm-4:55pm

Miranda (mirandarlochner@ufl.edu), Marston Library, live and online help, Thursdays 3:00pm-4:55pm

Material & Supply Fees: none

Textbook & Hardware/Software:



There are three required items for this course, the first two are considered the textbook requirement for this course and are available in either the UF bookstore or through online vendors. The third is your laptop with a web camera and microphone for Proctor-U supervised online exams. The three items are described below:

Required Item 1) Textbook: 'Practical Electronics for Inventors', it is an excellent book, that you will want to keep, very practical applications knowledge in it! (The electronic version is not done as well, in my opinion stick to the paper version, you will want to actually flip through it, but you are adults if you prefer the electronic version of the 4th edition that is fine too!) The book is 'Practical Electronics for Inventors' the 4th edition, paperback version, ISBN: 9781259587542, authors Scherz and Monk. It is in the UF bookstore, but less expensive on Amazon. Here is a link to it on Amazon for a quick, inexpensive order: <http://www.amazon.com/Practical-Electronics-Inventors-Fourth-Scherz/dp/1259587541>

Required Item 2) Sparkfun Inventor's Kit V3.2 or 3.3: Each student should purchase their own Sparkfun Inventor's Kit. Half of your course homework assignments and some conceptual questions on the exam will be based on built items using the Sparkfun Inventor's Kit. The kit is in the UF bookstore for a slight discount, or you can also find it here, the one for summer/fall 2017 is: <https://www.sparkfun.com/products/14189> This kit is awesome by the way, if you ever wanted to get into Arduino or tinkering/inventing, it is very easy to use and once you get started, you can build and create all kinds of small electronic items. Here is a link to the PDF of the paper manual that comes with the kit, so you can see the fun labs in there: https://cdn.sparkfun.com/datasheets/Kits/RedBoard_SIK_3.2.pdf



(***If you are going to be out of town this summer, there is a build kit with the class, you might want to buy and get the software installed for before you leave Gainesville in case you need installation help, I have a TA who can work with you to make sure your kit is fully running before you leave town (most people install fine, just about 10% of students needed a little help, but it is easier to help in person than distance)***.

Required Item 3) Laptop with web camera and microphone Proctor-U tested well ahead of each exam: You will need your own laptop to use your Sparkfun Inventor's Kit as well as take course exams, which are proctored online using Proctor-U. You will need to make sure it has a web camera and microphone for use for Proctor-U (built in or external). Well before exam 01,

you need to read, re-read, register with proctor-u, and actively test out your computer, microphone, camera, planned exam taking location, and internet using this Proctor-U guide: [ProctorU Exam Preparations.pdf](#)  

Recommended Reading: Will be announced with each homework. For general circuits theory we will cover most of chapters 2 and 3 in the textbook, for the practical applications homework assignments and builds we will hit select sections of other chapters in our textbook, details of which will be outlined in each homework assignment statement.

Assignment Due Dates: Will be posted in the Canvas calendar for each assignment.

Exams: Exams are held online using Proctor-U web proctoring services. There are four exams in the course, each exam is 60 minutes long, and you will get to drop your lowest exam. Exams will total 60% of your grade, calculated on the highest 3 out of 4 exams you have. Exams will be multiple choice (no partial credit), to reflect practice FE Exam questions in basic circuits. Only Exam 04 is cumulative, and will feature content on questions from the earlier exams. Remember, you get to drop your lowest exam grade! Well before exam 01, you need to read, re-read, register with proctor-u, and actively test out your computer, microphone, camera, planned exam taking location, and internet using this Proctor-U guide: [ProctorU Exam Preparations.pdf](#)  

ProctorU is a live online proctoring service that allows you to take your exam from the comfort of your home. You will need to schedule your proctoring session at least 72 hours in advance to avoid any on demand scheduling fees. Creating a ProctorU account is very simple. All you will need to do is visit go.proctoru.com. ProctorU also provides free technical support to ensure you have the best testing situation possible. That is available at www.proctoru.com/testitout On this page you will also be able to test your equipment, learn about what to expect during your proctoring session, and ask any questions you may have about the proctoring process with a ProctorU representative. In order to use ProctorU you will need to have a high-speed internet connection, a webcam (internal or external), a Windows or Apple operating system, and a government-issued photo id. ProctorU recommends that you visit proctoru.com/testitout prior to your proctoring session to test your equipment. For additional technical services needed before your exam, you can click on the button that says "connect to a live person." Test Taker Walk Through Video URL:

<https://vimeo.com/107066503>

Other UF Exam Conflicts: Our course is an assembly course (multiple sections and/or enrollment over 300). The UF policy is : "***When two exams conflict, assembly exams (multiple sections and/or enrollment over 300) take precedence over non-assembly exams (single sections and/or enrollment under 300). If two assembly exams conflict, the course with the higher number will take priority. Likewise, if two non-assembly exams conflict, the higher number will again take priority. Instructors giving make-up exams will make the necessary adjustments.***" So, unless you have another UF course that is holding an **assembly** course exam (multiple sections and/or enrollment over 300) AND has a higher course number than our course, at the same time as our exam, the other professor will need to arrange for a make-up exam for you. Please be sure to check that the course you are in meets both the assembly status AND higher course number criteria before messaging me about exam conflicts.

Calculator for Exams: Only non-graphing calculators permitted on exams, you can use a two-line scientific calculator. It should not be a model with a graphing screen, only 2-3 typed lines for calculations. (Please do not try to take the exam with a graphing calculator, you will not be allowed to use it, Proctor-U will consider it a mark of cheating, they are screening and will ask you to hold up your calculator as part of the process.)

Homework: Homework will make up 40% of your grade. Late assignments are not accepted for credit. There are 9 homework assignments and you will get to drop your lowest homework assignment grade. All homework assignments are due, uploaded into Canvas before 5:00pm on Thursdays as noted in the course calendar. In case of misgrade, you have one week from the date the individual assignment grade is posted to discuss that assignment grade with your grading TA.

Ashley (amaj25@ufl.edu), Grades Last Names: Ab-Be

Hector (heosorio@ufl.edu), Grades Last Names: Bi-Co

Gabe (gabrielgarcia@ufl.edu), Grades Last Names: Cr-Ev

Shakim (shakim.cooper@ufl.edu), Grades Last Names: Fa-GI

Jesus (jesuzn@ufl.edu), Grades Last Names: Go-Ho

Lindsey (lindseyolson@ufl.edu), Grades Last Names: In-La

Caleb (ctmeek@ufl.edu), Grades Last Names: Le-Mc

Carlos (carlosrsuhr@ufl.edu), Grades Last Names: Me-No

Esus (eoberlaender@ufl.edu), Grades Last Names: Od-Ra

Royce (roycecreyes@ufl.edu), Grades Last Names: Re-Se

Bonnie (bonnie.president@ufl.edu), Grades Last Names: Sh-Tu

Miranda (mirandarlochner@ufl.edu), Grades Last Names: Va-Zo

Course Topics: Introduction to Electronics, Theory of Electronics, Electric Current, Voltage, Conduction, Resistance, Resistivity, Conductivity, Heat and Power, Wire Gauges, Grounds, Electric Circuits, Ohm's Law & Resistors, Wheatstone Bridge, Voltage & Current Sources, Measuring Electronics, Combining Batteries, Open & Short Circuits, Kirchhoff's Laws, Thevenin's Theorem, Nodal Method, Mesh/Loop Method, AC Circuits, AC and Resistors, RMS Voltage, Capacitors, Inductors, Complex Numbers, Sinusoidal Sources, Power in AC Circuits, Resonant Circuits, Impedance, Wires, Cables, Connectors, Batteries, Switches, Operational Amplifiers, Diodes, Transformers, Motors

Attendance and Expectations: Lecture attendance is not required since course lecture videos are available online. However, I love to see students in my lectures, so if you can make it to NEB 100 on Tuesday 7th period (1:55pm-2:45pm), and Thursdays 6th-7th periods (12:50pm-2:45pm), I would love to see you in person!

You are responsible for scheduling your exams with Proctor-U for the dates and times set forth for each exam in the Canvas course calendar. You must take your exams with Proctor-U on the dates and during the exam hours window specified. It is your responsibility to make sure you have registered with Proctor-U, done their equipment test procedure, and registered for an exam time well ahead of each exam.

Grading Scale:

A	= 92 – 100
A-	= 90 – 91.99
B+	= 88 – 89.99
B	= 82 – 87.99
B-	= 80 – 81.99
C+	= 78 – 79.99
C	= 72 – 77.99
C-	= 70 – 71.99
D	= 60 – 69.99

Less than 59.99 will result in an E grade

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Requirements for class assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Honesty Policy: UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class. Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures. See <http://www.dso.ufl.edu/sccr/procedures/honorcode.php>

Accommodation for Students with Disabilities: Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

UF Counseling Services: Resources are available on-campus for students having personal problems or lacking clear career and academic goals.

The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, <http://www.counseling.ufl.edu/cwc/Default.aspx>, counseling services and mental health services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.
- University Police Department 392-1111

Software Use: All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against

University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>