FIU Engineering & Computing

Course Syllabus
EEL 3110C Circuit Analysis and Lab
Spring 2022

PROFESSOR INFORMATION

Instructor:	Prof. Vladimir Pozdin
Phone:	(305) 348-7788
Office:	EC 3982 / Zoom
Office Hours:	by appointment
Lectures:	*Tuesdays and Thursdays 3:00pm – 4:45pm* *EC1109*
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TA's e-mail:	rramo066@fiu.edu

LECTURE DELIVERY

This class is taught in person and is subject to FIU policies at the time of course delivery. Please review the repopulation.fiu.edu, for the up-to-the-minute guidance.

As cases and hospitalizations due to the Omicron variant continue to increase in our community, we must unite and take necessary steps to prevent further spread.

a) Daily and before arriving to campus, complete the P3 app. If you are not given the green check mark to enter campus, then stay home, and contact me by email by forwarding your P3 app email notification advising you to stay home.

b) Please check your FIU email account and your Canvas course at least once a day. Email and Canvas are the official ways for the university, and your professors, to contact you.

c) If you do not feel well and/or have tested positive for COVID-19, please do not come to class, immediately complete the P3 app to notify the COVID Response Team and contact me by email by forwarding your P3 app email notification as soon as you can. In order to receive an excused absence for P3 failure/COVID-19, you must complete the P3 app and forward the email notification. If directed to stay home by the P3 app, that email notification will serve as your excused absence when you forward it to me. The make-up policies are outlined in this syllabus.

d) FIU is following current CDC Guidance. Please refer to the link where you can access their most current information.

e) Please take every precaution to keep yourself and others healthy. Per CDC guidelines, you are encouraged to get vaccinated and strongly advised to wear a mask indoors and in public including all FIU facilities.

f) Missing excessive days may lead to failing a class or a grade of incomplete.

g) For me to assist you in achieving your goals, it is important for you to contact me as soon as you experience any events that might disrupt your course participation. For up-to-date information about COVID-19, please see the repopulation.fiu.edu FAQs.

h) Please be advised that classes may be audio and visually recorded and/or subject to course capture for future access by students in this course. Your attendance/participation in this course constitutes consent to such recordings, which will only be used for educational purposes by students in the course and securely stored in University systems. If there is a concern regarding the recording and use of such recording, please contact FERPA@fiu.edu

COURSE DESCRIPTION AND PURPOSE

Basic principles of DC and AC circuits. Circuits analysis for sinusoidal steady-state response, power in AC circuits, the ideal transformer, operational amplifier. Transient response of RC and RL circuits in time domain and S domain, transfer functions, and introduction filters.

COURSE OBJECTIVES

Through successful completion of this course, students will:

- Be able to learn the concepts and applications of electric circuits.
- Be able to learn the concepts and applications of DC and AC circuits.
- Be able to solve problems using nodal and mesh methods.
- Be able to solve problems using Laplace transforms.
- Be able to have a basic understanding of transient and steady state response of electric circuits.

COURSE PREREQUISITES

MAC 2312 or MAC2282, PHY 2049, (EGN 1002 or EGS 1006).

COURSE MATERIALS

Textbook
Ulaby, Maharbiz, and Furse, "*Circuit Analysis and Design*"
ISBN: 978-1-60785-483-8
Free electronic edition is available from the publisher. ISBN: 978-1-60785-484-5

Lab supplies

Lab kit can be purchased or will be available from the TA before the first lab.

- NI myDAQ
- Components
- Breadboard
- Wires
- NI Multisim

Canvas
Additional course lecture and lab resources will be posted on Canvas.

ABET RELATIONSHIP OF COURSE TO PROGRAM OUTCOMES

(1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
(2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
(3) an ability to communicate effectively with a range of audiences
(4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
(6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

GRADING

Letter	Range (%)	Letter	Range (%)	Letter	Range (%)
A	95 or above	B	83 - 86	C	70 - 76
A-	90 - 94	B-	80 - 82	D	60 - 69
B+	87 - 89	C+	77 - 79	F	59 or less

Grade components:

Laboratory Portion	20%
Midterm exam	40%
Final exam	40%

Homework assignments:

Suggested homework problems will be posted on Canvas. Homework is not graded, but it is important to complete the assigned homework to do well in the course and on the exams.

Laboratory portion:

The lab manual and supporting documents will be posted on Canvas. For each lab, a concise 2-page report based on the posted template is to be submitted before the due date. **Late submissions will receive a 0**. 2-page reports will count as 30% of the laboratory portion grade.

One of labs will be selected for a full laboratory report at the end of the term to be completed for 30% of the laboratory grade.

Makeup policy:

All students are expected to attend class meeting in person at the time described in this syllabus. Each student is responsible for all assignments, announcements, and material covered in each class. If excused absences fall on a day that an assignment is due, the assignment may be turned in **prior** to the due date on Canvas.

Class absence on the day of an exam or final must be discussed with the instructor at least 48 hours in advance or based on FIU's current attendance policy. A missed exam due to an excused absence must be made-up within **3 business days** of returning to campus.

ONLINE CONTENT

Some lectures may be delivered through Zoom. Classroom lecture may be recorded and made available as online content for your review.

SCHEDULE*

Course meeting time: 3:00 pm – 4:45 pm

Course meeting days: Tuesdays and Thursdays

Topics covered

- Introduction to circuits
- Kirchhoff's Laws
- Equivalent circuit transformations
- Nodal analysis
- Mesh analysis
- Equivalent circuit models
- P-N junction
- Operational amplifier

Inductance and capacitance
RL and RC circuits
AC analysis
Laplace Transform and s domain analysis
BJTs and FETs

Important dates:

Date	Topics
02/22	Midterm exam
04/26	Cumulative final 2:15PM - 4:15PM EC1109

** due to the dynamic weather conditions and the ongoing pandemic this syllabus may change, and changes will be posted on Canvas.*

Announcements regarding class interruptions or changes will be posted on Canvas. Based on individual Canvas settings, notifications may not be sent out, but students will be responsible for all posted material.

TECHNOLOGY ACCOMODATIONS

If students have difficulties meeting the minimum requirements for software or course delivery platform, please contact the instructor at soon as possible to find a solution.

POLICIES

Students are required to have an FIU Onecard. This card must be presented to the professor and/or proctors for face-to-face exams, Honorlock exam, and/or oral exam on Zoom. You will not be allowed to take an exam without confirming your identity with an FIU Onecard and will receive a **0 (zero**) for that exam. If you do not have an FIU Onecard, prior arrangements need to be made with the instructor at least **48 hours** before the exam.

Please review the FIU's Policies webpage. The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable etiquette for courses.

FIU CORE Values: Responsibility, Truth, Freedom, Respect & Excellence

• All students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the core values.

• All students should understand that if they are found responsible for academic misconduct, they will be subject to the FIU Academic Misconduct Policies & Procedures. The FIU Academic Integrity home page provides information on the informal and formal resolution process. The Informal Resolution Form is available for completion online.

The instructor abides and endorses the university's policy on academic integrity. Any form of academic misconduct is considered a **serious** offense. Should you have academic or personal problems that are getting in the way of your academic success, please contact your instructor.

FIU's Policy for academic misconduct includes these definitions for these intentional acts or omissions:

Cheating: The unauthorized use of books, notes, aids, electronic sources; or unauthorized use of on-line exams, library materials or assistance from another person with respect to examinations, course assignments, field service reports, class recitations; or the unauthorized possession of examination papers (or on-line examination) or course materials, whether originally authorized or not. Any student helping another cheat may be found guilty of academic misconduct.

Plagiarism: The deliberate use and appropriation of another's work without any indication of the source and the representation of such work as the student's own. Any student, who fails to give credit for ideas, expressions or materials taken from another source, including internet sources, is guilty of plagiarism. Any student helping another to plagiarize may be found guilty of academic misconduct.

Self-Plagiarism: This is using your own work for another assignment without providing a citation indicating that this work was previously used. When **citing yourself**, use cite in-text citations to identify yourself as the author.

Misrepresentation: Intentionally lying to a member of the faculty, staff, administration, or an outside agency to gain academic advantage for oneself or another, or to misrepresent or in other ways interfere with the investigation of a charge of academic misconduct.

Misuse of Computer Services: The unauthorized use of any computer, computer resource or computer project number, or the alteration or destruction of computerized information or files or unauthorized appropriation of another's program(s).

Bribery: The offering of money or any item or service to a member of the faculty, staff, administration or any other person in order to commit academic misconduct.

Conspiracy and Collusion: The planning or acting with one or more fellow students, any member of the faculty, staff or administration, or any other person to commit any form of academic misconduct together.

Falsification of Records: The tampering with, or altering in any way any academic record used or maintained by the University.

Academic Dishonesty: In general, by any act or omission not specifically mentioned above and which is outside the customary scope of preparing and completing academic assignments and/or contrary to the above stated policies concerning academic integrity.

Instructor retains the right to modify the course syllabus for any reason throughout the semester provided that:

- Fair and adequate notice is given to enrolled students either by email, in writing, or through online publishing.
- Modifications to the syllabus are not arbitrary or capricious.
- Students are not unfairly disadvantaged by mid-semester changes to grading standards, attendance standards, or performance measures.

ACCESSIBILITY AND ACCOMMODATION

The Disability Resource Center collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The DRC provides FIU students with disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic accommodations, please contact the Center at 305-348-3532 or visit them at the Graham Center GC 190.

Please visit our ADA Compliance webpage for information about accessibility involving the tools used in this course.

For additional assistance please contact FIU's Disability Resource Center.

FIU PANTHERS CARES AND CAPS SERVICES

If you are looking for help for yourself or a fellow classmate, Panthers Care encourages you to express any concerns you may come across as it relates to any personal behavior concerns or worries you, for the classmate's well-being or yours; you are encouraged to share your concerns with FIU's Panthers Care website: http://PanthersCare.fiu.edu/.

Counseling and Psychological Services (CAPS) offers free and confidential help for anxiety, depression, stress, and other concerns that life brings. Learn more about CAPS at caps.fiu.edu. Professional counselors are available for same-day appointments. Don't wait to call 305-348-2277 to set up a time to talk or visit the online self-help portal.

INCOMPLETE GRADES

An incomplete grade (IN) is a temporary grade given at the discretion of the instructor for work not completed due to serious interruption, not caused by the student's own negligence. Students receiving an incomplete grade must complete the appropriate coursework within two semesters (including summer). If coursework is not completed in this time frame, the incomplete grade (IN) will automatically default to a failing grade (F). To qualify for an *Incomplete*, a student must:

1) Contact (e.g., phone, e-mail, Canvas, etc.) the instructor before or during missed portion of the class
2) Be passing the course prior to the part of the course that is not completed

3) Make up the incomplete work through the instructor of the course
4) Meet the instructor to complete the missing coursework. All missed work must be completed before the last two (2) weeks of the following term.

[1] Updated 09/20/2022