EEEE 281 – 01 (52798) Circuits I
Syllabus – Spring 2023 (2225)
Course Information and Course Outline

Course Instructor
Dr. Ivan Puchades
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Office Hours: M, W 1PM-1.50PM available in my office, zoom (883 508 1036) or my office phone number (585-475-7294). Please, send email to initiate meeting. I am also available at other times, please request appointment by email or email questions.

Course Schedule:

Days & Times	Room	Instructor	Class Dates	Topic
MoWeFr 9:00AM - 9:50PM	James E Gleason Hall(GLE)-2580	Ivan Puchades	01/17/2023 - 05/01/2023	Lecture
MoWe 5:00PM - 5:50PM	Slaughter Hall(SLA)-2240to2210	Christopher Hoople	01/17/2023 - 05/01/2023	Recitation

Familiarize yourself with RIT's COVID-19 guidelines https://www.rit.edu/ready/

Lab: Section Varies

PLEASE NOTE: You must pass both the lab and the lecture portion of the class independent of the other, in order to pass the course. Laboratory attendance is mandatory. Turning in Laboratory Reports is mandatory.   No exceptions.

Textbook:
Digital Connect Textbook, Required for HW:
Fundamentals of Electric Circuits, C.K.Alexander and M.N.O.Sadiku, McGraw-Hill 7th Ed. McGraw-Hill You must purchase thorough the McGraw Hill Campus, McGraw Hill Connect tool in MyCourses ($115 for Circuits I, $150 for Circuits I and II) **MUST PURCHASE FOR HOMEWORK (One or two assignments a week.)**

Print options (optional): Fundamentals of Electric Circuits, C.K.Alexander and M.N.O.Sadiku, McGraw-Hill 4th or 6th Edition (options online).

Additional Recommended Equipment: Graphing Calculator – (multiple equation solver)

Grading
>   Homework…………. …………… 15%
>   Laboratory................................. 20%
>   2 tests …………………2* 22.5% = 45%
>   Final …………………………….. 20%
>   Professor's Discretion…………… ?

F 0-59, D 60-69, C- 70-72, C 73-76, C+ 77-79, B- 80-82, B 83-86, B+ 87-89, A- 90-92, A 93-100

Approx. Test Dates   W6
                             W12
                             Final – 2 1/2 hours Attendance: Highly recommended.

Grading Policy
o   Neatness, organization and format count!. Sloppy or haphazard work will not be accepted.
o   There will NOT be make-up exams, quizzes or homeworks.
o   Homework will NOT be accepted for grading after the posted due dates.
o   Individual and original efforts are expected for all work. Efforts of multiple students will result in equally divided scores for the submitted work.
If you find that you have missed an exam or assignment you have 24 hours to contact the professor to explain the reason - otherwise it will be recorded as a 0. There is no extra credit.

Course Topics:
- Basic Components and Electric Circuits
  - Charge, Current, Voltage, Power
  - Voltage and Current Sources
- Basic Laws
  - Ohm's Law
  - Nodes, Paths, Loops and Branches
  - Kirchoff's Current Law
  - Kirchoff's Voltage Law
  - Single Loop Circuit
  - Single Node-Pair Circuit
  - Series and Parallel Connected Independent Sources
  - Resistors in series and parallel
  - Voltage and Current Division
  - Δ - Y conversion
- Basic Nodal and Mesh Analysis
  - Nodal Analysis
  - Super Node
  - Mesh Analysis
  - Super Mesh
  - Nodal vs. Mesh: comparison
- Circuit Theorems
  - Linearity and Superposition
  - Source Transformations
  - Thevinin and Norton Equivalent Circuits
  - Maximum Power Transfer
- The Operational Amplifier
  - Ideal Op-amp
  - Cascaded Stages
  - Detailed Op-amp
  - Practical Considerations
- Capacitors and Inductors
  - Inductor and capacitor combinations
  - Consequence of linearity
  - Simple Op-amp with capacitor
  - Duality
- Basic RL and RC Circuits (First Order)
  - Source Free RL Circuit
  - Properties of exponential response
  - Source Free RC Circuit
  - General Perspective
  - Unit Step Function
  - Driven RL circuits
  - Natural and forced responses
  - Driven RC circuits
- The RLC Circuits (Second Order)
  - Source Free parallel circuit
  - Over-damped parallel RLC circuit
  - Critical Damping
  - Under-damped parallel RLC Circuit
  - Source Free Series RLC Circuit
  - Complete Response
  - Lossless LC circuit

Course Policy on Academic Honesty

KGCOE Honor Principles: *RIT Engineering faculty, staff and students are truthful and honorable, and do not tolerate lying, cheating, stealing, or plagiarism.*

All members of our community are expected to abide by these principles and to embrace the spirit they represent. We each have a responsibility to address any unethical behavior we observe; either through direct discussion with the offending party, or by discussion with an appropriate faculty or staff member. Allowing unethical behavior to continue unchallenged is not acceptable.

Rochester Institute of Technology does not condone any form of academic dishonesty. Academic Dishonesty falls into three basic areas: cheating, duplicate submission and plagiarism (refer to http://www.rit.edu/kgcoe/advising/handbook.pdf pages 19-20 for more information).

Throughout EE-531 the following specific conditions exist in regards to academic honesty:

Course Element	Specific Conditions
Homework: Graded and Ungraded	Student collaboration is encouraged. However, the final product that is turned in must be your own work. All homework sets must be completely documented in regards to references used (books other than the course textbook, web sites, etc.) and assistance obtained from individuals other than the course instructor. Proper documentation would include source, date, and extent of information gained through that source.
Exams and Quizzes: In-class and Take-home	Individual exercise; collaboration of any kind is disallowed
Team Project	All team members expected to participate fully; one submission required from each team
Individual Project	Individual assignment; collaboration of any kind is disallowed
Laboratory Assignments	All team members expected to participate fully; one submission required from each team

Any act of Academic Dishonesty will incur the following consequences. After notifying and presenting the student with evidence of such misconduct, the instructor has the full prerogative to assign a lower grade, including an "F" for the offense itself or for the entire course. If after careful review of the evidence, the instructor decides that the student's actions are indeed misconduct and warrant a penalty, the instructor will add a letter to the student's file in his or her home department (copy to the student, Department Head and the Dean) documenting the offense. Depending on the seriousness of the offense, the student may also be brought before the Academic Conduct Committee of the College in which the offense occurred, and may face academic suspension or dismissal from the Institute. The student has the right to appeal any disciplinary action as described in section D17.0 "Academic Conduct and Appeals Procedures" and D18.0 "RIT Student Conduct Process" of the Institute Policies and Procedures Manual.