**Course Number and Title:** EEL 3111C – Circuits 1

1. **Catalog Description:** Basic Analysis of DC and AC electric circuits. Laboratory
2. **Pre-requisites and Co-requisites:** Calculus III and Physics II; Co-requisites: Differential Equations.
3. **Course Objectives:** The topics of this course are part of fundamental theory of electrical engineering and provide depth in analysis, design, and implementation skills in those areas of electrical engineering needed to solve problems in the domain of electrical engineering.
4. **Contribution of course to meeting the professional component:** Outcomes EE2, a, k
5. **Relationship of course to program outcomes:**
   - Analyze Linear DC and AC circuits using well-established techniques (Outcome a)
   - Simulate DC and AC circuit analysis using available software programs (EE2)
   - Comparison of theoretical results with measurements (Outcome k)
   - Design of a project and full implementation of the same (Engineering Design)
   - Ability to carry out error analysis (Statistical analysis)
6. **Instructor**
   - **Office location:** NEB 533
   - **Phone:** 352 392 4961
   - **E-mail address:** rsriv@ece.ufl.edu
   - **Web site:** www.rsriv.ece.ufl.edu/
   - **Office hours:** MWF 3rd period, MTW 6th and 7th periods
7. **Teaching Assistants**
   - **Office location:** N/A
   - **Telephone** N/A
   - **E-mail address** N/A
   - **Office hours** N/A
8. **Meeting Times:** MWF 2nd and 4th periods
9. **Class/laboratory schedule:** The course is divided in 10-12 sections with 12-14 students in each section. They meet three hours each week under the supervision of teaching assistants.
10. **Meeting Location:** Lectures are held in NEB 0101 and NEB 0202
11. **Material and Supply Fees:** Students in this class are required to have National Instruments MyDAQ boards. They can be purchased through http://www.studica.com/National-Instruments/ni-mydaq.html. Also recommended is
the associated prototype board: http://www.studica.com/ni-protoboard-for-
mydaq.html. This equipment will be required in later courses as well. 
In addition there is a $15 fee for materials.

12. Textbooks and Software Required
   a. Title: Electric Circuits
   b. Authors: Nilsson and Riedel
   d. ISBN number: 0-13-611499-7
   Older editions of textbook are also allowed.

13. Recommended Reading: N/A

14. Brief List of Topics to Be Covered

   Definitions and units of basic electrical quantities

   Ohm's law and Kirchhoff's laws and series and parallel dc circuit analysis

   Dependent sources, input and output resistances, and operational amplifiers

   Mesh, loop and nodal analyses of general dc resistive and op-amp circuits

   DC network theorems and bridge circuits

   Use of PSpice for dc circuit analysis

   Capacitors and inductors

   First-order transient analysis of RL and RC circuits

   Use of PSpice for transient analysis

   Sinusoids, phasors, phasor circuits, impedance and admittance

   Nodal, mesh and loop analyses of general ac circuits

   Network theorems applied to ac circuits; PSpice applied to ac circuits

   Bode plots and use of PSPICE to obtain frequency-response plots

   Average power, rms values, apparent power, and complex power

15. Attendance and Expectations: There is no written policy for attendance. However there is a quiz every week where all students are expected to be present.
16. Grading
Theory: The total theory grade will be calculated as follows:
\[ T_{th} = 0.20 \times Q + 0.20 \times T_l + 0.30 \times (T_{h1} + T_{h2}) \]
where \( Q \) is the quiz grade, \( T_l \) is the lowest test grade, \( T_{h1} \) and \( T_{h2} \) are the other two test grades. All the grades are normalized to 100.

Laboratory: To pass the course EEL 3111C a student must satisfy all of the following requirements.
1) Pass the lab separately with a grade B or higher.
2) Only allowed lab grades are A, B+, B, and E. No B- or C etc.
3) Must complete all the experiments except for a single allowed drop. For example, if there are 11 experiments to be completed in the semester, at least 10 must be completed.
4) Must demonstrate proficiency in using PSPICE for circuit simulations.
The criteria for the lab grade are given in the Laboratory Instruction Manual. The instruction manual may be downloaded from the course website: www.rsriv.ece.ufl.edu
5) Must complete the project at the end of the semester.

Final Grade \( G_f \)
The formula for calculating the final grade \( G_f \) is:
\[ G_f = 0.85[0.1(T_{th} - 60) + 1.0] + 0.15E_x, \]
where \( T_{th} \) is the % score in theory (with maximum value of 90) and \( E_x \) is the lab grade. \( E_x \) equals 4.0 for grade A, 3.5 for B+, and 3.0 for B in the lab. The formula with a maximum of 90 for \( T_{th} \) guarantees that to get an A in the course, a student must get an A in theory and an A in the lab, separately. The maximum value of \( G_f \) is 4.0.

17. Grading Scale
Final grade will be assigned as follows:
- A \( G_f = 4.0 \)
- A- \( 3.7 < G_f < 4.0 \)
- B+ \( 3.3 < G_f < 3.7 \)
- B \( 3.0 < G_f < 3.3 \)
- B- \( 2.7 < G_f < 3.0 \)
- C+ \( 2.3 < G_f < 2.7 \)
- C \( 2.0 < G_f < 2.3 \)
- C- \( 1.7 < G_f < 2.0 \)
- D+ \( 1.3 < G_f < 1.7 \)
- D \( 1.0 < G_f < 1.3 \)
- D- \( 0.7 < G_f < 1.0 \)
- E \( G_f < 0.7 \)

Note: 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

18. Make-up Exam Policy

No substitute test will be given to anyone who misses the scheduled test unless the instructor is convinced that the situation was beyond student’s control. No substitute quiz will be given for any reason, including official, study, or game related travels. However, the three (3) lowest quiz grades will be dropped.

19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

20. 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.

21. 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, psychological and psychiatric services.
   - Career Resource Center, Reitz Union, 392-1601, career and job search services.

22. 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.