Course Syllabus

ELCT 101 – Electrical and Electronic Engineering

Course Coordinator: Undergraduate Program Committee

Catalog Description: Introduction to the field of electrical engineering and its impact on everyday-use systems and devices, computers, and automotive electronics.

Credit Hours: 3

Prerequisite(s) by course: None

Prerequisite by topics: High school level Physics, Mathematics, Chemistry

Required Textbook: Analog Discovery Kit
Analog Parts Kit
Arduino Uno Microcontroller
Microsoft OneNote Online Application

Microsoft OneNote Online Application-optional electronic notebook (FREE!)
http://www.nirmaltv.com/2010/06/09/access-onenote-online-with-onenote-web-app/
Class notes on Blackboard

Course Outcomes:
Students who are successful in this class (i.e. earn a C or better) will demonstrate at least the abilities to:

- Develop a plan for successful and timely completion of the rigorous EE curriculum by completing a program of study and by recalling and identifying important campus resources (such as for summer internships, for writing help, for tutoring, etc.)
- Describe the design cycle for a simple product, including aesthetics.
- Communicate technical issues in an easily understandable way via written, oral and electronic means, including creation of effective bullet points in presentations, and creation of graphs with appropriate axes and labeling.
- Explain how basic EE concepts such as voltage and current or circuits and systems, apply in the larger contexts of problem solutions and i.e. sustainable energy, electric car, wireless communication, etc.
- Show interest in their professional development by membership in IEEE, participation in at least two IEEE meetings, and active engagement in class modules.
- Explain in their final presentation how Electrical Engineers help society.

Students who demonstrate higher proficiency will earn higher grades.

Course Topics:
- Communication skills in electrical engineering
- Introduction to the EE curriculum and campus resources
- Overview of the process of engineering design for electronic systems
- Staying current, making a lifetime commitment to the rapidly changing world of electrical engineering
- Introductions to interesting topics in EE, including guest speakers on topics such as:
  - Transistors as switches (voltage, current, amplifier, circuits, electronic drives)
  - What does digital really mean? (Time and Space Domain, frequency domain, Fourier Transform)
  - Harvesting the power of the Sun (solar panel, transformer, electric generators, motors, and power electronics)
How do we communicate long distance? (frequency, transmissions, microwave)
How do electric cars work? (Batteries and motors)
Programming the world (software is embedded in every electronic system)

**General Course Policies**

**Academic Integrity**
Unless specified, assignments and examination work are expected to be the sole effort of the student submitting the work. Students are expected to follow the University of South Carolina Honor Code and should expect that every instance of a suspected violation will be reported. Students found responsible for violations of the Code will be subject to academic penalties under the Code in addition to whatever disciplinary sanctions are applied.

**Accommodating Disabilities**
Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.

**Diversity**
In addition to scheduling exams, I have attempted to avoid conflicts with major religious holidays. If, however, I have inadvertently scheduled an exam or major deadline that creates a conflict with your religious observances, please let me know as soon as possible so that we can make other arrangements.

**Recommended Study Habits**
- Read the assigned material before class.
- Bring thoughtful questions to class for discussion.
- Prepare for the exams in study groups.
- Take notes during class discussions and while completing reading assignments.

**Deviations**
Minor deviations from the syllabus are a normal part of any adaptive teaching and learning process.