REGULAR COURSE SYLLABUS

College of: Professional Studies

Department: Engineering and Engineering Technology

Prefix & Course Number: SSE 2100  Crosslisted With*: ___

Course Title: Basic Electronic Systems

Transcripts course title (30 characters): BASIC ELECTRONIC SYSTEMS

Check All That Apply:   Required for Major: X Required for Minor:  Specified Elective: ___

Required for Concentration:  Elective: Service Course: ___

To receive Title IV financial aid funds, all institutions of higher education must comply with the federal definition of a credit hour. The Higher Learning Commission requires institutions to maintain policies and procedures for verifying compliance with this definition.

**Federal Credit Hour Definition:** A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than:
1) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or
2) at least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward the award of credit hours. 34CFR 600.2 (11/1/2010)

Credit Hours: 3(2+2)

Face-to-Face or Equivalent Hours per course:

Lecture 30  Lab 30  Internship  Practicum  Other (please specify type and hours): ___

Additional Student Work Hours per course: 75

Schedule Type:  Grade Mode: L

Variable topics umbrella course: No X  Yes  If Yes, number of credit hours allowed ___

Specified repeatable course: No X  Yes ___

Prerequisite(s): PHY 2331 and PHY 2341, with a grade “C” or better, or permission of instructor

APPROVED:  

Department Chair OR Program Director  Date  10/12/2015

Dean OR Associate Dean  Date  10-14-15

Associate VP, Academic and Student Affairs  Date  1-28-16

*If crosslisted, attach completed Course Crosslisting Agreement Form
Prefix and Course Number: SSE 2100

Corequisite(s): _________

Prerequisite(s) or Corequisite(s):

Banner Enforced:
   Prerequisite(s): PHY 2331 and PHY 2341, with a grade “C” or better
   Corequisite(s): _________
   Prerequisite(s) or Corequisite(s): _________

Registration restrictions: Level ______ Class ______ Program/Major ______ Student attribute ______

Catalog Course Description:
In this course students will study DC and AC circuits, including electric components, classic network theorems, electric power and complex power, phasor, impedance, digital system, etc. The application and development of electronic systems will also be discussed.

Specific Variable Topics Course Description (if applicable, umbrella course description included above):

Required Reading and Other Materials will be equivalent to:

Specific, Measurable Student Behavioral Learning Objectives:
Upon completion of this course the student should be able to:
1. Utilize Ohm’s law, Kirchhoff’s Voltage and Current Laws, Network Theorems to analyze AC and DC circuits and determine the theoretical value for current, voltage, power and resistance in circuits.
2. Analyze and simplify basic digital systems by Boolean algebra.
3. Demonstrate understanding of how the principles of electrical engineering apply to specific problems in the fields.
4. Demonstrate an awareness of the material’s relevance to the chosen profession, and make objective estimates of the trends in their development and user in the future.
5. Write laboratory finding in a concise document and present the work, including the results and recommendations, orally.

Detailed Outline of Course Content:
   I. Introduction
      A. Overview of Electrical Engineering
      B. Circuits, Currents, and Voltages
      C. Power and Energy
      D. Kirchhoff’s Current Law
      E. Kirchhoff’s Voltage Law
      F. Introduction to Circuit Elements
      G. Introduction to Circuits
   II. Resistive Circuits
      A. Resistances in Series and Parallel
      B. Network Analysis by Using Series and Parallel Equivalents
      C. Voltage-Divider and Current-Divider Circuits
      D. Mesh-Current Analysis
      E. Thévenin and Norton Equivalent Circuits
      F. Superposition Principle
   III. Inductance and Capacitance
      A. Capacitance
      B. Capacitances in Series and Parallel
      C. Inductance
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D. Inductances in Series and Parallel

IV. Steady-State Sinusoidal Analysis
   A. Sinusoidal Currents and Voltages
   B. Phasors
   C. Complex Impedances
   D. Circuit Analysis with Phasors and Complex Impedances
   E. Power in AC Circuits
   F. Thévenin and Norton Equivalent Circuits
   G. Balanced Three-Phase Circuits

V. Logic Circuits
   A. Basic Logic Concepts
   B. Representation of Numerical Data in Binary Form
   C. Combinatorial Logic Circuits
   D. Synthesis of Logic Circuits

VI. Computers and Microcontrollers
   A. Computer Organization
   B. Memory Types
   C. Digital Process Control

VII. Trends of Development in Electronic Systems

Evaluation of Student Performance:
1. Assignments
2. Exams
3. Lab reports
4. Presentation