

CATALOG INFORMATION

Dept and Nbr: ELEC 68A      Title: PULSE & DIGIT CIRCT 1  
Full Title: Pulse and Digital Circuits 1  
Last Reviewed: 11/3/2008

| Units   |      | Course Hours per Week |      | Nbr of Weeks | Course Hours Total |       |
|---------|------|-----------------------|------|--------------|--------------------|-------|
| Maximum | 3.00 | Lecture Scheduled     | 2.00 | 17.5         | Lecture Scheduled  | 35.00 |
| Minimum | 3.00 | Lab Scheduled         | 3.00 | 6            | Lab Scheduled      | 52.50 |
|         |      | Contact DHR           | 0    |              | Contact DHR        | 0     |
|         |      | Contact Total         | 5.00 |              | Contact Total      | 87.50 |
|         |      | Non-contact DHR       | 0    |              | Non-contact DHR    | 0     |

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable  
Grading:            Grade Only  
Repeatability:    00 - Two Repeats if Grade was D, F, NC, or NP  
Also Listed As:  
Formerly:

**Catalog Description:**  
Introduction to BASIC language and how to use it to analyze electronic circuits. Programs will be developed on IBM-compatible computers, paralleling and validating theory presented in the first year of the electronics program. Course begins with statements, commands, and functions of BASIC and progresses to applications used in the electronic industry, including direct and alternating resistive circuits, frequencies resonate circuits, transistor biasing circuits, operational amplifiers, filters, and gate arrays. No programming experience is required.

**Prerequisites/Corequisites:**  
Course Completion of ELEC 60 OR Course Completion of ELEC 71B

**Recommended Preparation:**

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Introduction to BASIC language and how to use it to analyze electronic circuits. Programs will be developed on IBM-compatible computers, paralleling and validating theory presented in the first year of the electronics certificate program. (Grade Only)

Prerequisites/Corequisites: Course Completion of ELEC 60 OR Course Completion of ELEC 71B

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

### **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

|                      |                      |            |           |            |             |
|----------------------|----------------------|------------|-----------|------------|-------------|
| <b>AS Degree:</b>    | <b>Area</b>          |            |           | Effective: | Inactive:   |
| <b>CSU GE:</b>       | <b>Transfer Area</b> |            |           | Effective: | Inactive:   |
| <b>IGETC:</b>        | <b>Transfer Area</b> |            |           | Effective: | Inactive:   |
| <b>CSU Transfer:</b> | Transferable         | Effective: | Fall 1981 | Inactive:  | Spring 2010 |
| <b>UC Transfer:</b>  |                      | Effective: |           | Inactive:  |             |

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

### **COURSE CONTENT**

#### **Outcomes and Objectives:**

Upon completion of this course the student will be able to:

1. Identify hardware components of a computer system.
2. Format floppy diskette and copy files.
3. Calculate to solve arithmetic problems using computer and appropriate software.
4. Develop software (BASIC) programs for electronic applications.
5. Program and debug software programs.
6. Edit programs for corrections and or extensions.
7. Organize and compress programs/files to conserve space.
8. Produce a hard copy of the programs.
9. Analyze circuit operation through evaluation of input and output data.

#### **Topics and Scope:**

- I. Introduction to BASIC
- II. Arithmetic Operations
- III. Writing Basic Programs
- IV. Disk Operating Instructions
- V. Program Testing and Looping
- VI. Application Required for Writing a Computer Simulation
  - A. DC Electric Circuit Analysis
  - B. AC electric circuit analysis
  - C. Resonance, power, & NonSinusoidal systems
  - D. Electronic devices and DC transistor biasing
  - E. Small signal analysis

- F. Multistage transistor systems and large signal amplifiers
- G. Feedback, OP-AMPS, and oscillator circuits
- H. Frequency response and communications systems
- I. Transients, lap lace, and filters
- J. Digital fundamentals and codes
- K. Digital applications
- L. Mathematical techniques and numerical methods

### Assignment:

1. Textbook readings, 20-30 pages per week.
2. Analysis of:
  - a. Basic Ohm's Law circuitry
  - b. Series, parallel, and series-parallel resistive circuits
  - c. Voltage divider circuits
  - d. Amplifier voltage gain input and output impedance
  - e. AND, OR, XOR gate circuit arrays for output
3. Write a program and debug, verify and analyze.
4. Quizzes (2-3); midterm; final exam.

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Exams

Problem solving  
30 - 70%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations  
0 - 0%

**Exams:** All forms of formal testing, other than skill performance exams.

Completion

Exams  
30 - 70%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

BASIC FOR ELECTRONIC AND COMPUTER TECHNOLOGY by Louis Nashelsky and Robert Boylestad, Prentice Hall, 2001.