

# Syllabus

## Electronic Engineering Technology

### Course Description

#### CETT 1425 DIGITAL FUNDAMENTALS

Credit: 4 (3 lecture, 3 lab)

An entry level course in digital electronics covering number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic. Emphasis placed on circuit logic analysis and troubleshooting digital circuits including counters, registers, code converter, and multiplexers. (Formerly ELET 1444)

### Prerequisites

Corequisite: CETT 1403 or departmental approval

### Course Goals (includes competencies, incorporation of SCANS, etc.)

Upon successful completion of this course, the student should be able:

1. Prepare for each class by reading assigned material (Text, standard references, and instructor provided supplementary materials).

2. Identify AND, OR, and NOT logic circuit element separately or combined.

3. Analyze LOGIC circuits for high, low, and indeterminate.

4. Construct various types of LOGIC circuits. The learning outcome in this section corresponds to **SCANS** competencies/Foundation requirements:

-Student organizes/maintains information provided in the classroom in order to construct various circuits to successfully pass the course.

-Student interprets/communicates results from circuit outputs to the instructor to successfully complete the course.

-Student understands systems and individual modules used in electronic circuits in order to successfully construct circuits with correct outputs.

5. Use a LOGIC TESTER to check basic LOGIC circuit values.

6. Write computer generated teamwork incorporated formal lab report.

The learning outcome in this section corresponds to **SCANS** competencies/Foundation requirements:

-Student works with diversity in a team with other group members in order to perform specific lab steps for successful completion of the course.

-Student reads lab experiment procedures and related textbook materials in order to do and write lab experiments for successful completion of the course.

-Student writes lab reports for experiments done in the classroom for successful completion of the course.

-Student uses mathematics to evaluate and verify the experimental/theoretical results in order to write formal lab reports for successful completion of the course.

## Instructor Information

## Textbook Information

**TextBook:** Digital Systems Principles and Applications, Ronald J. Tocci & Neal S. Widmer, Prentice-Hall, Inc., 2009, ISBN-13: 9780131725799

**Tools:** One Scientific Calculator One 3.5 in HD unformatted diskette

**Lab Manual:** Lab Manual A Troubleshooting Approach to Accompany Digital Principles and Applications, 2009, Jim C. Deloach, Frank Ambrosio, ISBN 0-13-188136-1

## Lab Requirements (if any)

### LAB EXPERIMENTS

The following is a list of lab experiments recommended by the Electronics department to be completed during the semester.

These experiments are in the lab manual DIGITAL FUNDAMENTALS. Principles and Applications 5th ED. By Ronald J. Tocci

Lab Session	Experiment	Objectives
1	2	Logic gates I
2	5	Logic gates II
3	8	Simplification Using Boolean Theorems
4	9	DeMorgan's Theorems
5	10	The Universality of Nand and Nor gates
6	14,15	S/C, D Flip-Flops
8	23	Synchronous IC Counters
9	26	Shift Register
10	32	Decoder
11	34,35	MUX, DEMUX

There MUST be at least one formal written laboratory report for this course. The instructor will determine which lab exercise will be used for the report.

Minimum of two formal written laboratory reports are required. It will be assigned by the instructor.

## Students with Disabilities

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculty are authorized to provide only the accommodations requested by the Disability Support Services Office.

## Academic Honesty

Academic dishonesty can result in a grade of F or 0 for the particular test or assignment involved, dropped, and/or expelled from HCCS. Please refer to the HCCS Student Handbook for further information regarding Academic Dishonesty.

## Attendance and Withdrawal Policies

### Attendance

Students are expected to attend all classes in which they are enrolled regularly. Class attendance is the responsibility of the student. It is also the responsibility of the student to consult with the instructor regarding an absence from a class. Class attendance is checked regularly by the instructor. A student may miss 12.5% of total class hours. Reports of excessive absence will be sent to the Veterans Administration, Social Security Office, and other agencies responsible for aid to the student when appropriate.

### Drop or Withdrawal Policies

A student may drop a course or withdraw from the college by following the procedure outlined by the Campus Director. Should circumstances prevent a student from appearing in person to withdraw, withdrawal may be completed by writing to the Registrar's Office. A drop or withdrawal request will not be accepted by telephone. A student who ceases to attend a class without officially dropping or withdrawing, will be given a grade of "F" for non-

attendance. A semester-hour student who fails to attend classes by the twelfth class day of a regular term will be administratively withdrawn from the class roll. Students who officially withdraw from a course during the first twelve days of a regular term will not receive a grade and the course will not appear in their permanent records. Students withdrawing from a course after this period and prior to the deadline designated in the college calendar will receive a "W". A student may not withdraw from a course during the last two weeks prior to the final examination period.

**Notice:** Students who repeat a course three or more times may soon face significant tuition/fee increases at HCCS and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

**Note:** Please refer to and follow current HCC policies in the Student Handbook or, catalog, and /or on-line information regarding attendance, withdrawal, refund, grading, financial assistance, student services, repeating courses, emergency cases, and academic honesty.

**Note:** The protocol for the college in regards to issues, complaints or clarifications that are directly related to the programs, courses, and classes, is for students to contact the instructor of their class first. If no resolution is reached, they are then to contact the Chair or Associate Chair of the department. Should the issue still not be resolved, they would then contact the Dean of the division.

## Course Requirements and Grading Policy

### HCCS Grading System

The Houston Community College grading system will be used to evaluate students' performance in this course.

Grade	Score
A-Excellent	90-100
B-Good	80-89
C-Fair	70-79
D-Passing	60-69
F-Failure	0-59

### Testing

Test1 20%  
Test2 20%  
Final Test 30%  
Lab Reports 20%  
Quiz, Homework, or Optional Assignment 10%

### Make-up policy

#### LATE ASSIGNMENTS and MAKE-UP TEST POLICY

Students are expected to adhere to the weekly schedule of assignments printed in the course syllabus. Late assignments and make-up assignments will only be accepted at the discretion of the instructor. All assignments for each session are due at the end of their respective session.

Make-up tests will be given at the discretion of the instructor.

### Projects, Assignments, Portfolios, Service Learning, Internships, etc.

Please ask instructor at the start of the semester.

### Course Content

#### Course Calendar with Reading Assignments

##### CETT 1425 DIGITAL FUNDAMENTALS

Minimum course requirements  
16 week schedule

WEEK	LECTURE TOPIC	READING
1	Number Systems & Codes	2.1-2.9
2-3	Logic Gates/Boolean Algebra	3.1-3.15

4	Combinatorial Logic Circuits	4.1-4.13
5-6	Flip - Flops	5.1-5.25
7	Digital Arithmetic Midterm	6.9-6.17
8-9	Counter and Registers	7.1-7.23
10	Logic Families	8.1-8.3, 8.7-8.10
11-12	BSI Logic circuits	9.1-9.8
13-14	D/A, A/D converter	10.1-10.11
15	Memory Devices	11.1-11.10
16	Review, Final	