



18 AUG 2016

Angelina College
Technology and Workforce Division
CETT 2437 Microcomputer Controls
Instructional Syllabus

I. **BASIC COURSE INFORMATION:**

A. Course Description:

Four hours credit. A study of microprocessors and microcomputers with an emphasis on embedded controllers for industrial and commercial applications. Students will be able to interface a microcontroller to monitor and control an industrial application. Prerequisite: CETT 1409. Two lecture and four lab hours each week. Lab fee.

B. Intended Audience:

Advanced

C. Instructor: David Turbeville

Office Location: TW-111

Office Hours: TBA

Phone: 936 633-5246 (front office)

E-mail Address: dturbeville@angelina.edu (best way to contact me)

II. **INTENDED STUDENT OUTCOMES:**

A. **Core Objectives Required for this Course**

1. **Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
2. **Communication:** to include effective development, interpretation and expression of ideas through written, oral and visual communication.
3. **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

B. **Course Learning Outcomes for all Sections**

1. Demonstrate an understanding of digital microcontroller operation.
2. Demonstrate an understanding of microcontroller interface requirements.
3. Identify control system interface and program requirements.
4. Create a digital control system based on a microcontroller.
5. Program a digital control system to operate in a specific manner.
6. Perform corrective actions as needed to perfect operation of a programmable digital control system.

III. **ASSESSMENT MEASURES**

A. **Assessments for the Core Objectives:**

1. **Critical Thinking:** Students will complete a final design project requiring critical thinking. A standard rubric is used to assess this objective.
2. **Communication:** Students are required to develop a presentation to demonstrate operation of their final design project. A standard rubric is used to assess this objective.
3. **Teamwork:** Students will work together in small groups to develop their unique final design project. A standard rubric is used to assess this objective.



B. Assessments for Course Learning Outcomes

1. Students will refer to project descriptions and demonstrate operation of various control circuits. Each exercise is assessed using an operational checklist.

IV. INSTRUCTIONAL PROCEDURES:

This course is being delivered in a hybrid format. This means is that some instruction will be delivered outside of the classroom. Content delivered outside of the classroom may include, video, audio, images and links to external websites. Students are encouraged to consult with their instructor if additional instruction is needed.

Lab activities are required in this course. The lab portion of the class appears on your schedule along with a room number. Attendance during the on-campus part of the course is mandatory. Completion of in-class work is also mandatory.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks and Recommended Readings, Materials and Equipment

Required Textbook: No textbook required. Specific materials will be delivered through Blackboard

Equipment:

1. ANSI Z87.1 Clear Safety Glasses
2. Precision Electrical Screwdriver Set (Harbor Freight # 96075)
3. Insulated Wire Cutter/Stripper (Harbor Freight #98410)
4. Diagonal Cutting Pliers Klein D228-7
5. 9 in 1 Screwdriver Hilmer model 1839053 or equivalent
6. Meter should be one of the following: Klein CL3200, Fluke 323 or Southwire 21050T)
7. Non-Contact Voltage Detector Fluke-1AC-A1-II
8. Texas Instrument TI-30X IIS Scientific Calculator

B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

Academic Assistance – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Steve Hudman (936 633-5293) shudman@angelina.edu in the Student Center. At a post-secondary institution, you must self-identify as a person with a disability; Mr. Hudman will assist you with the necessary information to do so.

Attendance – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy.

Additional Policies Established by the Instructor

- Because safety is valued in the workplace, if you choose to ignore the safety guidelines of the class, I must drop you from class. Please adhere to our safety guidelines.
- Handling conductors energized above 48V is not allowed.
- Use only insulated tools while working around electrical equipment. do not use knives or multi-tools in place of appropriate tools.
- Food is not allowed in class or lab. Drinks with a lid are allowable in the classroom but not in the lab areas.



Liquids create a slip and shock hazard. Spills must be cleaned up by the person who spills the drink.

- Cell phones must be set to vibrate. Texting and social media are a daily part of our lives, but it can also be distracting. Try to limit your use of these diversions. Step out of class if you have to take a call.
- I use a sign-in sheet to document attendance. I update the attendance record at the end of each day. If you forget to sign in, you will be counted as absent.
- Major exams may be administered through Blackboard or as a paper-based test.
- If a team project is assigned, each student must demonstrate ability to construct, operate or modify the project.
- All communication concerning assignments are sent to your Angelina College student email address.
- Students should be ready to make a short (3 minute) presentation on a class topic at any time. I will randomly select one or more students from the sign-in sheet each class period.

VI. COURSE OUTLINE: Description of the Course Activities including due dates, schedules, and deadlines.

At a minimum, there will be a midterm and a final exam. Assignments requiring a classroom presentation and several online quizzes will be delivered through Blackboard during the semester.

VII. EVALUATION AND GRADING:

All exams and assignments are delivered through Blackboard. Each exam and assignment is assigned a point value. Your score for the class is based on the percentage of points achieved. Extra points are not available. Attendance is not counted as a score.

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|------------------------|---|
| Above 89.5% | A |
| between 79.5 and 89.5% | B |
| between 69.5 and 79.5% | C |
| between 59.5 to 69.5% | D |
| Below 59.5% | F |

- A. The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.
- B. As a student enrolled in a Technology & Workforce program, you will encounter certain risks while you are in a classroom, laboratory experience, or in a clinical or practicum setting. In the event that you sustain an injury and/or require any medical testing or care, all resulting medical expenses (hospital, ambulance, or physician fees), are your financial responsibility and not the responsibility of Angelina College or the clinical/practicum site.
- C. Effective August 27, 2012 Angelina College prohibits the use of tobacco products on campus, except in your personal vehicle. This measure was approved by the College Board of Trustees, and includes smoking and smokeless tobacco products.