

Angelina College
Technology and Workforce Division
MECHANICAL AND ELECTRICAL SYSTEMS ARCE 2452
Instructional Syllabus

I. BASIC COURSE INFORMATION:

- A. Course Description: *(as stated in the bulletin, including necessary pre-requisite courses, credit hours)*
Four hours credit. The properties of building materials (assemblies), specifications, codes, vendor references and uses of mechanical, plumbing, conveying, and electrical systems as they relate to architecture for residential and commercial construction.
Two lecture and four lab hours each week. Lab fee. Prerequisite: DFTG 1409
- B. Intended Audience: Sophomore
- C. Instructor:
Name: Dallas McClelland
Office Location: TW-113
Office Hours: As Posted or By Prior Appointment
Phone: 936-633-5251
E-mail Address: dmcclelland@angelina.edu

II. INTENDED STUDENT OUTCOMES:

A. Core Competencies – (Basic Intellectual Competencies)

- 1. Critical Thinking Skills** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- 2. Empirical and Quantitative Skills** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- 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 Objectives for all sections –

1. Upon successful completion of this course the student will be able to perform mechanical/electrical/plumbing (MEP) calculations and select MEP components.
2. Upon successful completion of this course the student will be able to interpret codes and specifications, and produce MEP drawings.
3. Upon successful completion of this course the student will gain experience in the use of writing skills, speaking skills, computer skills, critical thinking skills and reading skills.

III. ASSESSMENT MEASURES OF STUDENT LEARNING OUTCOMES:

A. Assessments for the Core Intellectual Competencies –

- 1. Critical Thinking Skills** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- 2. Empirical and Quantitative Skills** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- 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. Assessments for the Exemplary Objectives–

NA

C. Assessments for Course Objectives for all sections –

1. Course objective assessment will be accomplished by conventional tests and student drawings.
2. Core objectives assessment will be accomplished by writing a technical report, speaking during class discussions, creating drawings using a computer, use of critical thinking skills during problem solutions, and reading skills during the study of technical literature.

D. Assessments for the Course Objectives as determined by the instructor –

NA

IV. INSTRUCTIONAL PROCEDURES:

A. Methodologies common to all sections

1. Time Allocation: 96 contact hours
2. Lecture - 32 hours
3. Guided problem solutions in class - 56 lab hours
4. Tests - 8 hours

B. Methodologies determined by the instructor

1. Overhead Projector
2. Videos
3. Models
4. Marker board

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks, Materials, and Equipment –

1. USB Jump Drive minimum of 2gb.
2. One(1) - 1" three - ring notebook with dividers
3. 1 package – Dividers
4. 1 hand held calculator

B. Assignments – *(Appropriate due dates, schedules, deadlines)*

WEEK	TOPICS	READING ASSIGNMENTS	PROBLEM ASSIGNMENT
1	INTRODUCTION TO MECHANICAL AND ELECTRICAL SYSTEMS	HANDOUT	
2	HVAC TERMS	pp 248-270	
3	CALCULATE HVAC SYSTEMS	pp 150-215	
4	CALCULATE HVAC SYSTEMS	pp 150-215	
5	HEAT FLOW SPECIFICATIONS	pp 150-215	TEST
6	CALCULATE HEAT FLOW, ESTIMATE BUILDING HEAT LOSS	pp 492-501	
7	R AND U SPECIFICATIONS	pp 492-501	
8	CALCULATE R AND U VALUES	HANDOUT	TEST
9	Air conditioning----zoning. Selecting HVAC equipment.	pp 446-475	BEGIN FINAL PROJECT
10	Calculate and design HVAC plans	pp 332	FLOOR PLAN DUE
11	Recognize and understand electrical terms. Recognize and design electrical units.	pp 475	SITE PLAN DUE

12	Draft and Design electrical plans and specifications	pp 276-299; pp 474	TEST
13	Understand water and plumbing terms	pp 492-501	SECTIONS DUE
14	Calculate and design water supply plans. Calculate and design waste water plans	pp 264, 321, 264	ELEVATION DUE
15	Calculate and design plumbing plans.	pp 196, 198, 201, 204, 214, 282, 286, 292	CEILING PLAN DUE
16	Calculate and design plumbing plans.		FINAL PROJECT DUE

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

Educational Accommodations – 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 may fill out the Educational Accommodations application within your AC Portal, under the “Student Services” tab. A Student Success team member will contact you once the application is received. At a post-secondary institution, you must self-identify as a person with a disability in order to receive services; for questions regarding the application process you can visit the Office of Student Success and Inclusion in the Student Center (205A); text 936.463.8078; or email access@angelina.edu. To report any complaints of discrimination related to a disability, you should contact Mr. Steve Hudman, Dean of Student Affairs, in Room 101 of the Student Center. You may also contact Dean Hudman by calling (936) 633-5292 or by emailing shudman@angelina.edu.

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, this does not include absences for college-authorized activities, but it does include absences for illness. Attendance records will be turned in to the College Records Office 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.

Student’s Responsibility For Attendance-(This is official Angelina College Student Handbook Policy)

1. It is the responsibility of the student to attend all classes and a record of attendance will be kept for all classes by the instructor.
2. It is the responsibility of the student to withdraw officially in the College Records Office from a class the student no longer desires to attend. Failure to do so may result in a failing grade.
3. Excessive absences are defined as three or more consecutive absences or four or more cumulative absences. Absences in online courses are based on an equivalent participation formula.
4. Students will not be dropped and will be allowed to make up work for absences because of college authorized and sponsored activities. It is the student’s responsibility to arrange for make-up work with the instructor and to complete it within a reasonable time.
5. A student dropped because of excessive absences will be directed to seek the approval of the instructor to be reinstated.
6. All make-up work is at the discretion of the instructor and is defined in the course syllabus.

Additional Policies Established by the Individual Instructor –

Assignments are due on the date specified. Assignments turned in late will not receive full credit. Test must be taken on the scheduled date. Special arrangements must be made before the day of the test for exceptions covered in the college catalog.

VI. COURSE CONTENT:

A. Required Content/ Topics – *(common to all sections)*

The properties of building materials (assemblies), specifications, codes, vendor references and uses of mechanical, plumbing, conveying, and electrical systems as related to architecture for residential and commercial construction.

B. Additional Content *(as required by the individual Instructor)*

Not applicable for courses in the Technology & Workforce Division.

VII. EVALUATION AND GRADING:

A. Grading Criteria *(percents, extra credit, etc.)*

Lab assignments - 50%
Unit tests - 40%
Final project - 10%

To receive credit for unit tests and final exams, they must be taken at the designated location and in the presence of the instructor.

B. Determination of Grade *(assignment of letter grades)*

90 - 100 - A
80 - 89 - B
70 - 79 - C
60 - 69 - D
Below 60 - F

VIII. SYLLABUS MODIFICATION:

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.

- IX.** 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.