COURSE SYLLABUS

COURSE NAME, PREFIX, NUMBER: PROCESS MEASUREMENTS, IMFG 2100

CAMPUS NAME AND ADDRESS

Central Louisiana Technical College

CREDIT HOURS: 3

LECTURE HOURS: 1

LAB HOURS: 2

CONTACT HOURS: 105

INSTRUCTOR: Donald Robinson PE

INSTRUCTOR INFORMATION:

Phone: 318-487-5443- Ext 1940
Email: donaldrobinson@cltcc.edu
Office: Room 202

Instructor hours:
7:00 am – 11:00 am Classroom
11:00 am – 12:00 pm Office hours
12:30 pm – 1:45 pm Classroom
1:45 pm – 4:45 pm Classroom

COURSE DESCRIPTION

An introduction to the concepts of pressure and level measurement, calculations and sensing devices. The student will calibrate, troubleshoot and repair/replace pressure and level indicators, recorders, transmitters, and transducers. This course also includes instruction in performing flow measurement calculations and conversions, procedures for using flow sensing devices, calibrating, troubleshooting and repair/replacing flow indicators, recorders, transmitters, transducers, and relays. Also included are the principles of final element operation and relay actuators, positioners and control valves to their function as the last system element in a process control loop. An introduction to the concepts of temperature measurement calculations, conversions and operating principles of temperature sensing devices will be covered. Troubleshooting, calibration and repair/replacement of electronic and pneumatic temperature sensing devices are also covered. The student will study the grounding and bonding, class and division identification, and special occupancies. Prerequisite: Student must be at or above CTS level in Basic Electronics. (1/2/3)

REQUIRED TEXTBOOKS

Open Education Resources available on Canvas

ADDITIONAL MATERIALS/RESOURCES

Provided by instructor

GRADING CRITERIA

A = 90%-100%
B = 80%-89%
C = 70%- 79%
Grades below 70% are failing grades.

GRADING SCALE

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

ASSESSMENTS

Tests = 50% of final grade
Labs = 50% of final grade

SECTION

Z01

TERM

Fall

COURSE OUTLINE

Chapter 1
Objectives:
a. Identify the concepts of pressure measurement
b. Identify the concepts of level measurement
c. Perform the general calculations of pressure measurement
d. Explain the safety aspect of grounding an electrical
e. Outline the basic steps in a lockout and tag-out procedure
f. Be aware of the functions of the different organizations responsible for electrical codes

Chapter 2
Objectives:
a. Recognize Symbols frequently used on motor and control diagrams

b. Read and construct ladder diagrams
c. Read wiring, single-line and block diagrams
d. Become familiar with terminal connects for different types of motors
e. Interpret information found on motor nameplates
f. Become familiar with the terminology used in motor circuits
g. Understand the operation of manual and magnetic motor starters

Chapter 3
Objectives:
a. Under the principles that are used to efficiently transmit power from the power generating plant to the customer
b. Recognize the different sections and functions of a unit substation
c. Differentiate between the service entrance, and feeders, and branch circuits of the electrical distribution system within a building.
d. Explain the function of switchboards, panelboard, and motor control centers
e. Understand the theory of operation of a transformer
f. Properly connect single-phase and three-phase transformers as part of a motor power and control circuit.

Chapter 4
Objectives:
a. Identify manually operated switches commonly found in a motor control circuit and explain
b. Identify mechanically operated switches commonly found in motor control circuits and explain their operation
c. Identify different types of sensors and explain how they detect and measure the presence of something
d. Explain the function of switchboards, panelboard, and motor control centers
e. Describe the operating characteristics of a relay, solenoid, solenoid valve, stepper motor, and brushless DC motor.

Chapter 5
Objectives:
a. Understand the basic electric motor operating principle
b. Have a working knowledge of the construction, connection, and operating characteristics of different types of DC motors.
c. Have a working knowledge of the construction, connection, and operating characteristics of different types of AC motors a
d. Carry out testing procedures used to trouble shoot motor problems.

ATTENDANCE

Students must be officially enrolled in any course that they attend. It is expected that students will attend scheduled classes regularly and on time. If an absence occurs, it is the responsibility of the student to make up all missed work, if approved by the instructor. Students who stop attending a course and do not officially withdraw will receive grades of “0” for all work missed and will result in a punitive final grade. This policy shall be superseded by any more stringent attendance policy required by a regulatory or licensing body having

jurisdiction over program requirements. Attendance will be tracked and maintained for various reporting purposes.

CLASS WITHDRAWAL POLICY

The deadline for dropping a class is published each semester on the CLTCC website in the academic calendar. A student who officially withdraws from a class prior to the designated date will receive a grade of “W” in that class. Any student who receives financial aid and withdraws from any or all classes is subject to repaying a portion of the funding received.

ACADEMIC HONESTY

The faculty of Central Louisiana Technical College supports the concept of academic honesty. The teaching faculty encourages academic honesty in all classes and we require academic honesty from all students. All students are expected to maintain honesty and integrity when completing all academic assignments and examinations. Plagiarism, cheating, and other forms of academic dishonesty will not be tolerated. Any student found guilty of such dishonorable acts in academic work will receive a “0” for the work presented. The instructor may also refer the student to the appropriate administrator for further disciplinary actions, which could result in an “F” in the course, dismissal from the course, or dismissal from the college.

STUDENT CODE OF CONDUCT

Students will be suspended for actions detrimental to the welfare of other students, instructors, staff, and the campus. These actions include, but are not limited to: Firearms and/or weapons, alcoholic beverages, and illegal drugs will not be permitted on campus. Profanity and fighting are strictly prohibited. Smoking or use of any other tobacco products is prohibited. Students must not eat or drink beverages in classrooms or labs. Vandalism will not be permitted on campus. Dishonesty will not be tolerated under any circumstances. Students who cheat, or aid in the act thereof, may be dismissed from campus. Students must display a respectable attitude and behavior toward instructor and other students. The college has a Zero Tolerance Policy, meaning the campuses should be completely free of threats and assaults to ensure the highest standard of safety for all faculty, staff, students, and visitors on each campus. The college will take all reasonably available steps to protect all such persons from violence. Violators of the Zero Tolerance Policy will be suspended.

DISCIPLINARY PROBATION

A student may be placed on disciplinary probation when campus rules and policies are disregarded. When a student is placed on disciplinary probation, the student is given a specified time to improve his/her record. If the student’s record does not show improvement, the student may be suspended for a specific time, usually a semester or more.

STUDENTS WITH DISABILITIES

The Central Louisiana Technical College complies with Section 504 and the Americans with Disabilities Act. Students with disabilities who seek accommodations must make their requests known by contacting the Disabilities Coordinator at the beginning of each semester. If a disability is identified later in the semester, a non-retroactive accommodation plan will be developed.

COURSE TRANSFERABILITY

A student should contact the institution to which he or she intends to transfer to inquire about the potential transferability of the course and to determine whether the course will count in his or her major.

INSTRUCTOR CREDENTIALS

All instructors for this course meet or exceed the criteria for academic and professional preparation as required in the SACS/COC standards for accreditation.