Course Name: ELT-215 Industrial Electronics

Date Updated: 4/2022

Credit Hours/week: 4 hrs./wk. – 4 cr.

BEGINNING: SPRING 2022

Catalog Description: This course covers operational amplifiers in linear, non-linear and active filter applications, pulse and wave-shaping techniques, power supplies and regulators, thyristor control of power and transducers. The laboratory includes experiments in design and tests to support the above topics.

Prerequisite: ELT-209, ELT 115

Text: "Operational Amplifiers and Linear Integrated Circuits", 6th Edition by Robert F. Coughlin and Frederick F. Driscoll. Published by Prentice Hall.

Lab Manual: "Industrial Electronics, ELT215, Lab Experiments" by James Balicki, January 2018.

Supplementary Material: 1. Thumb drive to record scope waveforms. 2. Circuit breadboard to save for the next lab. Some of the labs run more than one week.

Syllabus:

Topics
Homework
Test 1
Test 2
Test 3
Experiment 1
Experiment 2
Experiment 3
Experiment 4
Experiment 5
Comp. Assignment 1
Final Exam

Students are expected to adhere to the policies of the County College of Morris. These can be accessed at: (insert link here)

Statement of Expected Course LEARNING OUTCOMES

- Define open loop/closed loop op-amps, offset, slew rate, bandwidth and gain.
- Design multiple input linear op-amps.
- Properly measure gain vs. frequency for linear amplifiers and low, high, bandpass and notch filters.
- Describe the difference between a power supply and a power supply regulator and distinguish between a dissipative and a pulse regulator (switching regulator). Further, the student should be able to explain the operation of a PWM (pulse width modulator).
- Describe thyristors such as DIACS, SCR's and TRIAC's in the control of power.
- Distinguish between a position and a speed control system in a closed loop system.