



North Central State College

MASTER SYLLABUS

2026-2027

- A. Academic Division: Engineering Technology, Business & Criminal Justice Division
- B. Discipline: Electronic Engineering Technology
- C. Course Number and Title: ELET2760 Instrumentation and Process Control
- D. Assistant Dean: Brooke Miller, M.B.A.
- E. Credit Hours: 3
Lecture: 2 hours
Laboratory: 2 hours
- F. Prerequisites: ELET1530
- G. Last Course/Curriculum Revision Date: Fall 2026 Origin date: mm/dd/yyyy
- H. Textbook(s) Title:

None
- I. Workbook(s) and/or Lab Manual: None
- J. Course Description: This course deals with complex instruments and instrumentation systems. Topics covered include: instrumentation buses, waveform generation, waveform analysis, transducers, signal conditioning, analog multiplexors, sample and hold circuits, A/D-D/A convertors, micro-computer controlled data acquisition systems and process control theory. Students will also examine industrial automated process control systems using data acquisition devices. Emphasis will be on programming, signal conditioning, and data transfer.
- K. College-Wide Learning Outcomes

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Be able to describe the operation of a basic current source/sink function generator.	Labs, midterm exam, final exam Weeks 1, 2, 5, 16
2. Be able to describe the functional blocks of data acquisition and control systems	Labs, midterm exam, final exam, Homework Weeks 3, 4, 5, 6, 16
3. Be able to describe and analyze the operation of the components that make up a data acquisition system, including: a. Transducers b. Signal Conditioning c. Analog Multiplexing d. Sample and Hold Amplifiers e. A/D - D/A Converters	Labs, midterm exam, final exam. Homework Weeks 7, 8, 9, 10, 11, 16
4. Demonstrate an understanding of the concept of measuring Transducers and be able to convert the physical quantities to electrical signals	Labs, midterm exam, final exam. Homework Weeks 11, 12, 13, 14, 16
5. Build, test and troubleshoot instrumentation circuits in the laboratory.	Labs Weeks 14, 15

M. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70–72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63–66	D	1.00	Below Average
60–62	D-	0.67	Poor
00–59	F	0.00	Failure

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences.

Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at

<https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf>



North Central State College
SYLLABUS ADDENDUM

Academic Division: Engineering Technology, Business & Criminal Justice Division **Discipline:** Industrial Technology, Industrial Maintenance
Course Coordinator: _____
Course Number: ELET-2760 **Course Title:** Instrumentation and Process Controls
Semester / Session Fall 2026 **Start / End Date:** 08/17/2026 to 12/11/2026

Instructor Information

Name: Dave Wright **Credentials:** _____
Phone Number: 419-755-4555 **E-Mail Address:** dwright@ncstatecollege.edu
Office Location: Kehoe Center – IST Lab **Office Hours:** Tuesday & Thursday 7am to 7 pm

I. Topical Timeline / Course Calendar (Subject to Change):

Weeks	Topics	Assignment	Due Date
1	Introduction to Process Control	Complete Amatrol Quiz, LAP, Skill Accomplishment	08/28/2026
2	Process Instrument Identification	Complete Amatrol Quiz, LAP, Skill Accomplishment	09/11/2026
3	Process Schematics / Process Controllers	Complete Amatrol Quiz, LAP, Skill Accomplishment	09/25/2026
4	Pneumatic Proportional Valves / Liquid Level Transducers	Complete Amatrol Quiz, LAP, Skill Accomplishment	10/16/2026
5	On/Off Level Control / Closed Loop Level Control	Complete Amatrol Quiz, LAP, Skill Accomplishment	10/30/2026
6	PID Control	Complete Amatrol Quiz, LAP, Skill Accomplishment	11/13/2026
7	Closed-Loop Flow Control	Complete Amatrol Quiz, LAP, Skill Accomplishment	11/27/2026
8	Basic Loop Tuning	Complete Amatrol Quiz, LAP, Skill Accomplishment, and take Final Exam	12/11/2026

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
Amatrol Quiz	11	100	20
LAP (learning activity pack)	11	100	50
Skill Accomplishment Test	11	100	10
Final Exam	1	100	20

There are 3 tasks that must be accomplished for each Topic:

1. Take the prequiz on the Amatrol LMS, Review the material, Take the quiz for that topic.
2. Complete the LAP (learning activity packet) on the trainer for your course. Have all exercises signed off by the instructor.
3. Complete the skill assessment for that topic.

Course Number: _____
Semester / Session: _____

Course Title: _____
Start / End Date: _____

III. Students are expected to work in a manner that is respectful of others. This includes avoiding loud or abusive language.