North Central State College

MASTER SYLLABUS	2025-2026

A. Academic Division: Engineering Technology, Business & Criminal Justice Division

B. Discipline: Electronic Engineering Technology

C. Course Number and Title: ELET1530 Digital Principles

D. Assistant Dean: Brooke Miller, M.B.A.

E. Credit Hours: 4
Lecture: 3 hours
Laboratory: 2 hours

F. Prerequisites: None

G. Last Course/Curriculum Revision Date: Fall 2025 Origin date: 05/11/2011

H. Textbook(s) Title:

Digital Electronics
- Author(s): William Kleitz
- Copyright Year: 2012
- Edition: 9th
- ISBN #: 978-0132-5430-33

I. Workbook(s) and/or Lab Manual: None

J. Course Description: A study of the binary number system, Boolean algebra, logic and logic circuits, flip flops, registers, counters, and their interconnection in small systems. This curriculum has been previously approved under the Ohio Board of Regents Career Technical Credit Transfer guide (CTAG) and the Transfer Agreement Guide (TAG) as CTEET002 and OET 002 respectively. No changes have been made to the outcomes based on these requirements.

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	

North Central State College

SYLLABUS ADDENDUM

Academic Division:	Engineering Technology, Business & Criminal Justice	**Discipline:**	Electronic Engineering Technology
Course Coordinator:	Jonathan DeWitt		
Course Number:	ELET1530	**Course Title:**	Digital Principals
Semester / Session:	Fall 2025 / Session A/B	**Start / End Date:**	8/11/2025 – 12/12/2025

Instructor Information

Name:	Jonathan DeWitt	**Phone Number:**	419-755-4776
		E-Mail Address:	jdewitt@ncstatecollege.edu
Office Location:	007 AT (Kehoe)	**Office Hours:**	Monday 2:30 PM - 4:30 PM Wednesday 2:30 PM - 4:30 PM

I. Topical Timeline (Subject to Change):

Weeks	Topics
1	Demonstrate the ability to convert to and from binary, hex, octal, and BCD, and convert to and from 8-bit binary-decimal.
3-7	Demonstrate the ability to develop a combinational logic circuit composed of NOT, AND, OR, NAND, NOR gates given a boolean equation, truth table, or statement.
4-5	Design, verify and/or simplify logic circuits using the rules of Boolean algebra and Demorgan's Theorem.
7-8	Design, verify and/or simplify combinational logic circuits using the rules of Boolean algebra and Demorgan's Theorem.
9-10	Explain the operation of a two's compliment adder/subtractor circuit and a BCD adder circuit.
11	Explain the function of an encoder, decoder, multiplexer and demultiplexer.
12-13	Discuss and compare the operation of S-R, gated S-R, D and J-K flip-flops and design circuits using flip-flops
14-15	Design ripple counters and frequency dividers using J-K FFs.

II. Course Assignments:

1. Exams
2. Experiments/Labs
3. Watch Pre-recorded Lectures
4. Homework
5. Quizzes

III. Grading and Testing Guidelines:

Homework	10 points
Quizzes	20 points
Experiments/Labs	40 points
Midterm Exam	15 points
Final Exam	15 points
Total	100 points

Mid-Term Course Grading Policy

A) North Central State requires that at the mid-point of an academic course, students enrolled in that course be notified of their progress. A letter grade will be calculated based on the work completed at the mid-way point in the term.

B) North Central State College uses the standard 4.00 letter grade system (with pluses and minuses). Faculty will issue a grade to each student at the mid-point in the term and then again at the end of the term. Mid-term grades are not recorded in any permanent record or on a student's academic transcript.

C) Mid-term grades provide students with early feedback (both positive and negative) about their academic performance. Mid-term grades provide an opportunity for students to receive positive reinforcement and motivation if they are doing well, and intervention if they are struggling. Mid-semester grades allow faculty, advisors and other service providers on campus to intervene with students who are in academic difficulty, while there is still time to make improvement.

IV. Examination Policy:

Student must makeup missed Quizzes and/or Exams ***before*** the next class meets.
No makeup exam (Midterm or Final) will be allowed unless the student notifies the instructor within the same day or the following calendar day of the reason for absence.

V. Class Attendance and Homework Make-Up Policy:

This is an asynchronous course that does not meet in person. You are required to meet the deadlines in Canvas for the weekly assignments. If you have questions about this, contact your instructor.
Homework may be made up through the second to last week of term (through week 15).

VI. Classroom Expectations:

All communications & conduct in this course is subject to the NC State Student Code of Conduct

General Professionalism Expectations

In general, as a future professional in your field, **you will be expected to conduct yourself as a professional in this course in ALL communications** - assignments, discussion forums, Canvas Inbox, emails etc.

This expectation includes *but is not limited to*:

- **Being respectful of classmates' opinions, work and comments**
  Good test = Is this something I would/should say to a co-worker in person?
- **Being respectful in communications with the instructor**
  Good test = Is this something I would/should say to my boss in the workplace?
- **Being respectful of diversity**
  Good test = Is this a comment/joke that is at some other groups, ethnicity, political etc. expense?
  Note: Offensive "jokes", slurs or hate speech will NOT be tolerated
- **Using Non-Profane, Appropriate Language**
  Good test = Is this language you would use in the workplace or in front of your grandmother?
- **Using proper. NON-"Text speak" Language to make Yourself Easily Understood**
  Good test = Could my older boss understand what I have written?

Consequences for Failure to Meet These Expectations

Failure to meet these standards will result in the following consequences in this course:

1st Instance =
Written warning from the instructor documenting issue
(No points deductions)

2nd offense =
Mandatory meeting with the instructor and or Department Chair or Division Dean
(Related assignment/Participation subject to Point Deductions)

3rd offense =
College Disciplinary procedures filed with the NC State Judicial Committee as a violation of the NCSC Student Code of Conduct

Links to an external site..
(Course Grade subject to F)

Extreme or repeated unprofessional behavior will result in initiating college disciplinary procedures as outlined in the NC State Student Code of Conduct._ NCSC Disciplinary hearings can result in a variety of consequences, including and up to suspension or being expelled from the college.

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. Demonstrate the ability to convert to and from binary, hex, octal, and BCD, and convert to and from 8-bit binary-decimal.	Lab – First half of term Quiz – First half of term Homework – First half of term Final exam
2. Demonstrate the ability to develop a combinational logic circuit composed of NOT, AND, OR, NAND, NOR gates given a boolean equation, truth table, or statement.	Lab – First half of term Quiz – First half of term Homework – First half of term Final exam
3. Design, verify and/or simplify logic circuits using the rules of Boolean algebra and Demorgan's Theorem.	Lab – First half of term Quiz – First half of term Homework – First half of term Final exam
4. Design, verify and/or simplify combinational logic circuits using the rules of Boolean algebra and Demorgan's Theorem.	Lab – First half of term Quiz – First half of term Homework – First half of term Final exam
5. Explain the operation of a two's compliment adder/subtractor circuit and a BCD adder circuit.	Lab – First half of term Quiz – First half of term Homework – First half of term Final exam
6. Explain the function of an encoder, decoder, multiplexer and demultiplexer.	Lab – Second half of term Quiz – Second half of term Homework – Second half of term Final exam
7. Discuss and compare the operation of S-R, gated S-R, D and J-K flip-flops and design circuits using flip-flops	Lab – First half of term Midterm Homework – First half of term Final exam
8. Design ripple counters and frequency dividers using J-K FFs.	Lab – Second half of term Quiz – Second half of term Homework – Second half of term Final exam
9. Design serial or parallel-in to serial or parallel-out shift registers using J-K FFs.	Lab – Second half of term Quiz – Second half of term Homework – Second half of term Final exam
10. Explain the operation of memory and storage circuits	Lab – Second half of term Quiz – Second half of term Homework – Second half of term Final exam
11. Explain characteristic differences in various Integrated circuit technologies	Lab – First half of term Quiz – First half of term Homework – First half of term Final exam

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