James Clemens High School
11306 County Line Road
Madison, AL 35756

Phone: 256-216-5313
Extension: 95119
Email: aeturner@madisoncity.k12.al.us

Course Syllabus
Digital Electronics Fall 2024
Instructor: Allison Turner

Dear Parent/Guardian,

Welcome to Digital Electronics!

My name is Allison Turner and I will be your student's DE teacher this semester. It is my fourth year at JC, and I am so happy to be teaching DE again! At the end of this class, your student will have experience with building circuits in simulation, physically on breadboards, and by soldering. It is my favorite class to teach! If you have any questions or concerns at any point during the semester, please feel free to reach out to me. Please submit this page of the syllabus on Schoology by Monday, August 5th.

Thank you,
Allison Turner

 My child and I have read and discussed the classroom syllabus.

Student Name (Print) _____   Date _____

Student Signature _____   Date _____

Parent/Guardian Name (Print) _____   Date _____

Parent/Guardian Signature _____   Date _____

Email Address(es) _____

Phone number(s) _____   _____   _____
                                Cell   Home   Work

James Clemens High School
11306 County Line Road
Madison, AL 35756

Phone: 256-216-5313
Extension: 95119
Email: aeturner@madisoncity.k12.al.us

Course Description: Digital Electronics is a course of study in applied digital logic. Students will be introduced to digital circuits found in video games, watches, calculators, digital cameras, and thousands of other devices. Students will study the application of digital logic and how digital devices are used to control automated equipment. The use of digital circuitry is present in virtually all aspects of our lives, and its use is increasing rapidly. This course is similar to a first semester college course and is an important course of study for a student exploring a career in engineering or engineering technology.

Curriculum: PLTW Engineering Principles of Engineering Curriculum is used in this course. Windows 10 Fundamentals are taught via the People's Resource Center Online Curriculum. These resources are available upon request. Standards Connections, Course Outline, and Course Resume can be found at: https://www.pltw.org/curriculum/pltw-engineering.

Prerequisites: Introduction to Engineering Design, Geometry
Co-Requisites: Algebra II with Statistics or Algebra II with Trigonometry

Credentialing: Students become familiar with Multisim and Multisim Live software, as well as National Instruments hardware and software. Starting in 2024, students will work with Python Coding software and have the opportunity to take a test gaining them a certification in Python.

Grading and Assessment: Test grades will account for 70% of the 9-weeks grade, with the remaining 30% being determined by quiz/daily grades. The grading scale is as follows: A (90-100%), B (80-89), C (70-79), D (65-69), and F (below 65). Grades will be a reflection of mastery of the standards. Make sure all absences are excused as class work can be made up and graded for excused absences only. The final exam counts for 20% of the final grade. Not all assignments will be graded, but students must complete all work. Students will take notes via guided notes, graphic organizers, and other methods in this course.

Late Work: Per JCHS Policy. All late work is to be submitted within 7 days of absence. Students must submit their late work online to the proper Schoology Assignment AND submit a "Late Work Form" Submission to receive credit. The late work form is checked every 2 weeks and student grades are updated then. If a student is absent, their missed printed materials will be kept with Mrs. Turner. Students are responsible for checking Schoology when absent.

Integrated Assignments and Standards:
TSA (Technology Student Association) CTSO Integration: Technology Student Association is a National Career Technical organization where students can use knowledge gained from Engineering courses. JCHS's team competes at Alabama TSA convention every year and students from this course can choose to register and attend. This class is associated with the **Coding** Competition.
Embedded Numeracy Anchor Assignment: A main component of this course is to prepare students for everyday engineering practices. One of these practices is learning to write in engineering notation. During the first week of class, students will use their knowledge of scientific notation learned in earlier math classes to learn how to write answers in engineering notation. They will then use engineering notation throughout the semester to write any answer that is given in numerical form. To view all mathematics standards connections, please visit https://www.pltw.org/curriculum/pltw-engineering and view the "Standards Connections" under Digital Electronics.
Embedded Literacy Anchor Assignment: Learning to conduct proper research in engineering databases is an essential skill learned in this class. In one assignment, students will use engineering databases to

James Clemens High School
11306 County Line Road
Madison, AL 35756

Phone: 256-216-5313
Extension: 95119
Email: aeturner@madisoncity.k12.al.us

research integrated circuits and their functions. These integrated circuits are used in many assignments, including the midterm project, the Birthday Problem. To view all literacy standard connections, please visit https://www.pltw.org/curriculum/pltw-engineering and view the "Standards Connections" under Digital Electronics.

Embedded Science Anchor Assignment: Every assignment we complete in this class is directly related to science. To view all standards, please visit https://www.pltw.org/curriculum/pltw-engineering and view the "Standards Connections" under Digital Electronics.

Accommodations: Requests for accommodations for this course or any school event are welcomed from students and parents.

Supplies: In Digital Electronics, Binders and Engineering paper is provided and are used as the Engineering Notebook. **Students are responsible for bringing: Pencils and School Chromebook.**

Procedures
My Mrs. Turner Specific Rules:
1. Always treat others with respect. We do not make jokes at the expense of others in this classroom.
2. Do not throw things across the room.
3. Do not waste classroom materials.
4. Do not speak over me while I am teaching.
5. Clean up all materials when you leave the classroom and leave it better than you found it.

Technology Rules in the Classroom:
- Cell phones and earbuds/headphones will not be allowed to be used during classroom instruction time. Phones and earbuds/headphones will be put away in a location designated by the teacher and placed in silent mode. In secondary schools, students will have access to their phones and earbuds/headphones outside of classroom instruction time such as between classes and lunch. Failure to follow these procedures will result in a disciplinary referral to the office.
- If technology is needed in the classroom, then school issued Chromebooks must be used. Personal electronic devices may only be used at the teachers' discretion. Personal electronics are to be placed in the designated location when students arrive to class. Devices will be returned at the end of class (i.e. leave in the location even when they go to the restroom). Electronic devices may be out before school, during class change, lunch and after school. Parents, guardians, and other family members should call the front office in case of emergency.
- The use of Artificial Intelligence (AI) tools to complete assignments without prior disclosure and approval is strictly prohibited. Any undisclosed use of AI tools will be considered academic dishonesty and will result in an automatic grade of zero for the assignment in question. All assignments are subject to verbal review.

Computer/Internet Appropriate Use Policies:
1. Student laptops should not be hard-wired to the network or have print capabilities.
2. Use of discs, flash drives, jump drives, or other USB devices will not be allowed on Madison City computers.
3. Neither the teacher, nor the school is responsible for broken, stolen, or lost laptops.
4. Laptops and other electronic devices will be used at the individual discretion of the teacher.

Classroom Management Plan
- Verbal reprimand
- Conference with student with parent contact
- Withdrawal of privilege(s) with parent contact

James Clemens High School
11306 County Line Road
Madison, AL 35756

Phone: 256-216-5313
Extension: 95119
Email: aeturner@madisoncity.k12.al.us

● Other consequences determined to be reasonable and appropriate by the school administration.

Discipline
- Any discipline in my classroom will be a product of following the approved Madison City Schools Classroom Management Plan per the MCS Code of Conduct.
- A teacher may exclude from his or her classroom any student who does any of the following:
  - .Engages in disorderly conduct (has a specific definition)
  - Behaves in a manner that obstructs the teaching or learning process of others in the classroom
  - Threatens, abuses, intimidates, or attempts to intimidate an education employee or another student
  - Willfully disobeys an education employee
  - Uses abusive or profane language directed at an education employee

Instructional Delivery Plan

18 Week Plan*	
Week 1	Introduction, Safety, Portfolios
Week 2	Investigating Basic Circuits, Analog Components, Circuit Theory Part 1
Week 3	Circuit Theory Simulations and Circuit Theory Breadboarding
Week 4	CT Breadboarding, Component Identification, Datasheets
Week 5	Seat Belt Circuit, Analog and Digital Signals, Binary
Week 6	Clock Signals using the 555 Timer, Analog and Digital Signals in the RNG
Week 7	Truth Tables, Logic Expressions, AOI Logic Implementation
Week 8	AOI Logic Implementation, Boolean Algebra, DeMorgan's Theorems, Majority Vote
Week 9	Majority Vote, K-Mapping, NAND and NOR
Week 10	NAND and NOR, Fireplace Control Project
Week 11	Fireplace Control, Hex/Octal
Week 12	7 Segment Displays, MUX and DEMUX, 2's Complement
Week 13	Birthday Problem
Week 14	Introduction to Sequential Logic
Week 15	Shift Registers, Asynchronous Counters (SSI)
Week 16	Synchronous Counters (SSI and MSI) , Unit 3 IC Review, Counter Design
Week 17	Breadboarding Counters, State Machines
Week 18	State Machines, EOC, Review

* This syllabus serves as a guide for both the teacher and student; however, during the term it may become necessary to make additions, deletions or substitutions.