

Cosby High School:
DE Industrial Maintenance/Electricity II & IV Course Syllabus

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Planning Time: 5th-6th Period

Career Cluster: Advanced Manufacturing

Focus Area: Industrial Maintenance/Electricity

List of Courses: Must Be Taken Sequentially*

- Principles of Manufacturing
- DE Industrial Maintenance/Electricity I**
- DE Industrial Maintenance/Electricity II**
- DE Industrial Maintenance/Electricity III**
- DE Industrial Maintenance/Electricity IV**

**Note 1: Students must first complete Intro before being eligible to take Level 1, students must first complete Level 1 before being eligible to take Level 2, etc.*

***Note 2: Students who complete this course will receive dual enrollment credit through TCAT.*

Course Description

DE Industrial Maintenance/Electricity II is a Dual Enrollment course where students can earn up to 90 hours per semester if enrolled for one block, or up to 180 hours per semester if their schedule allows them to enroll for two blocks. Upon completion of this course, proficient students will gain knowledge and skills in both theory and practical applications of the Industrial Maintenance/Electricity practices. Students will navigate through the National Electrical Code to gain knowledge (theory) of how to properly install electrical circuits within residential, commercial, and industrial structures. Students will perform hands-on labs (practical applications) installing common components found in the maintenance/electricity field while applying the National Electrical Codes and gaining troubleshooting skills, along the way, correcting their mistakes during the hands-on labs. Upon completing this course, students are eligible to advance to the next course of study.

Grade Level: 10-12

Textbook(s): Mike Holt's: Understanding the Electrical Code Volume 1 & Understanding Electrical Theory

Course Objectives/Goals

Upon Completion of this course, the student will be able to:

1. SAFETY

- Demonstrate proper safety procedures.
 - Lock Out Tag Out (energy isolation)
 - Ladder Safety
 - Personal Protective Equipment
 - Electrical Safety
 - Hand Tool/Power Tool Safety
- Identify safety hazards and implement safe work practices in the classroom and lab.

2. THEORY AND PRACTICAL APPLICATION

- INE 1021 – BASIC PRINCIPLES AND METERS (90 HOURS)
- INE-S1 ENROLLMENT, ORIENTATION, AND SHOP SAFETY (~2 hours)
- [1] Shop safety and orientation.
- [2] This will be done by the high school's instructor based upon the high school's shop safety and orientation guidelines.
- INE-T1 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 1 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 1 test.
- INE-T2 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 2 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 2 test.
- INE-T3 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 3 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 3 test.
- INE-T4 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 4 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 4 test.
- INE-T5 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 5 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 5 test.
- INE-T6 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 6 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 6 test.
- INE-T7 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)

- [1] Read Chapter 7 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 7 test.
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- INE-T8 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 8 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 8 Test.
- INE-T9 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 9 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 9 test.
- INE-T10 MIKE HOLT'S: UNDERSTANDING ELECTRICAL THEORY (~5 hours)
- [1] Read Chapter 10 in textbook.
- [2] Answer questions at the end of the chapter.
- [3] Complete Chapter 10 test.
- INE-L1 LAB: INE-L1 SEAL-IN CIRCUIT (~6 hours)
- [1] Obtain copy of lab.
- [2] Wire lab.
- [3] See instructor, for sign off, once lab is complete.
- INE-L2 LAB: INE-L2 START/STOP FROM MULTIPLE LOCATIONS (~6 hours)
- [1] Obtain copy of lab.
- [2] Wire lab.
- [3] See instructor, for sign off, once lab is complete.
- INE-L3 LAB: INE-L3 START/RUN/JOG SELECTOR (~6 hours)
- [1] Obtain copy of lab.
- [2] Wire lab.
- [3] See instructor, for sign off, once lab is complete.
- INE-L4 LAB: INE-L4 START/RUN/JOG PUSHBUTTON (~6 hours)
- [1] Obtain copy of lab.
- [2] Wire lab.
- [3] See instructor, for sign off, once lab is complete.
- INE-L5 LAB: INE-L5 START/RUN/JOG COIL RELAY (~6 hours)
- [1] Obtain copy of lab.
- [2] Wire lab.
- [3] See instructor, for sign off, once lab is complete.
- INE-L6 LAB: INE-L6 FORWARD/REVERSE MOTOR STARTERS (~6 hours)
- [1] Obtain copy of lab.
- [2] Wire lab.
- [3] See instructor, for sign off, once lab is complete.
- INE-T11 COMPETENCY TEST (~2 hours)
- [1] Study for Final Exam.
- [2] Complete Final Exam test.
- Apply fundamental theory to practical skills.
- Labs: Performed on trainers in shop.

- Lab 1 through Lab 6

- Repeat Lab 1 through Lab 6 again
 - Gain troubleshooting skills through correcting your mistakes in the hands-on labs.
3. SUPPLEMENTAL CERTIFICATES
 - Snap-On 525F Multimeter Certification (if not already obtained from taking the Intro to Industrial Maintenance/Electricity course).
 4. EMPLOYABILITY & PROFESSIONAL DEVELOPMENT
 - Begin developing a professional portfolio including certifications and a resume.
 - Understand professional work ethics, and workplace readiness skills.
 - Demonstrate positive, professional worker characteristics.

Rules/Expectations

1. Come prepared for class with a positive attitude, and ready to learn.
2. Treat others with respect, professionalism is taught and expected.
3. Follow the Cocke County Schools policies and procedures.
4. Clean up after yourself.
5. No horseplaying.
6. Follow the dress code and shop dress code (closed toed, rubber-soled shoes).
7. No food and drinks are allowed in the shop/lab. You may have food and drinks in the classroom, but they must remain in the classroom during shop/lab days.
8. **No cellphone use** is allowed unless explicitly instructed by the teacher. This policy also applies to **AIRPODS, HEADPHONES, SMARTWATCHES, AND ANY OTHER ELECTRONIC DEVICES**. All cellphones will be locked away for the entirety of the class time. (See cellphone use policy attached)
9. Use common sense. This is not a full list of Do's and Don'ts. If you think you will get in trouble for doing something, then refrain from doing it.

Consequences of Actions

- 1st offense – Verbal warning to student and written documentation of warning.
- 2nd offense – Phone call to parent and written documentation of phone call.
- 3rd offense – Referral to Administration and possible write up/disciplinary actions.

Note: Dress code violations, electronic devices/cell phone violations, and hostility will result in an immediate referral to administration and/or removal from the classroom/shop.

Classroom Procedures

Students should promptly report to class **BEFORE** the bell rings. Upon arrival, students must place their cell phones in their book bags **BEFORE THE BELL RINGS**. Students should then check the board for announcements and instructions. Following this, students will gather the necessary materials for the class, put away their backpacks, and quietly wait for class to begin. If a student fails to place their phone in their bags before the bell rings, or if the instructor must remind them to put it away, the student will be out of compliance for not adhering to the

classroom's rules or Cocke County School's electronic device/cell phone policy, and the student's cell phone will be taken by administration.

Classroom and Shop Participation

This course is a performance-based course. Participation in both theory and lab activities is essential to student success. Students are expected to engage daily, complete all assignments, and follow safety procedures.

Field Trips, Guest Speakers & Community Engagement

Throughout the year, students may have opportunities to attend field trips, hear from industry professionals, or participate in community service. These events enhance student learning and provide real-world insights into the profession. Parents will be notified in advance of any events requiring off-campus travel or additional permission.

Supplies/Materials Needed Daily

All students enrolled in the DE Industrial Maintenance/Electricity I course will be provided with the essential tools and resources necessary for success. This includes individual tool kits and books.

Students are expected to be prepared and bring the following items to class EVERY DAY. Failure to do so may result in the student falling behind on coursework and being ineligible to participate in the hands-on lab portion of the class.

- **Closed toed, rubber-soled shoes (tennis shoes) are the minimum requirement for lab activities.** Students who do not have the appropriate footwear (flip flops, slides, house slippers, sandals, any open-toed shoe, etc.) will not be allowed to participate in the lab and will receive a zero for that day's lab grade. This is not only for safety, but also workplace readiness. We use hand and power tools (hammers, drills, reciprocating saws, etc.), and the last thing I want to happen is for a student to accidentally drop something and it gives them a foot/toe injury.
- **Fully charged school issued laptop and the laptop charger** as all the tests will be taken online (Canvas).
- **Binder 1"** so students have something to keep their notes, schematics, work, etc.
- **Pens and pencils (NO RED)**
- **Notebook/Paper**

Grading Calculations

Daily Assignment-10% Professionalism-20% Quizzes-20% Test-20% Projects-30%= 100%

Grading Scale

A = 100 - 90

B = 80 - 89

C = 70 - 79

D = 60 - 69

F = 59 – below

LATE WORK POLICY

All assignments will have designated due dates. These assignment deadlines will be clearly communicated to the students in advance. All assignments not submitted by the given due date and time will be given a zero. That assignment will remain a zero until a submission occurs.

Assignments submitted after the designated due date and time will be considered late. Late submissions will incur a 2-point decrease for each day past the due date. The reduction will apply to the overall grade earned on the assignment, and the maximum penalty will be 50 points. Weekends and holidays will be included when calculating daily late penalties. Once the first nine weeks have concluded, there will be no chance to submit any work for that grading period.

It is also important to note that falling behind on bookwork will render a student ineligible to participate in the lab (hands-on) portion of the course. **Given the fast-paced nature of this program, missed lab sessions cannot be made up**, and students will receive zeros for any missed skills assessments. To ensure success, students must demonstrate consistent effort and maintain strong performance in both the theory and skills components of the curriculum.

Student Progress Tacking

Student progress is tracked throughout the semester using:

- Aspen
- Pre and post assessments in theory content.
- Performance rubrics and assessments for lab evaluations.

Extended Learning Opportunities: TCAT Dual Enrollment

High school students who have completed the Principles of Manufacturing course are eligible to take Dual Enrollment (DE) courses that align with a TCAT program. Homeschool students may also qualify based on program availability and completion of the Tennessee Dual Enrollment Grant (DEG) application. Students can earn up to 90 hours per semester if enrolled for one block, or up to 180 hours per semester if their schedule allows them to enroll for two blocks.

For more information, visit the College for TN website or contact TCAT admissions.

Plagiarism/Use of AI:

According to Harbrace Handbook, 15th edition:

Plagiarism is defined as “presenting someone else’s ideas, research, or opinion as your own without proper documentation, even if it has been rephrased.” It includes, but is not limited to the following:

1. Copying verbatim all or part of another’s written work;
2. Using phrases, figures, or illustrations without citing the source;
3. Paraphrasing ideas, conclusions, or research without citing the source;
4. Using all or part of a literary plot, poem, or film without attributing the work to its creator.”

CONSEQUENCES OF PLAGIARISM

Plagiarism is a form of stealing and academic fraud. Students who are found guilty of plagiarism will have the option of either redoing the assignment within a specified time period and accepting a grade letter drop or taking a zero on the assignment. Parents should be involved in making the decision.

<https://www.youtube.com/watch?v=Aza-s-uuaY8>

<https://www.youtube.com/shorts/g0ID4I3uq9w>

<https://www.youtube.com/watch?v=s4UEGkXNcsw>

<https://www.youtube.com/watch?v=Np14M0du758>

<https://www.youtube.com/watch?v=dBq10FfuYHI&t=42s>

<https://www.youtube.com/playlist?list=PLfZcU0E-cRgAiN6udrWd2LvUnUX7zet0y>

<https://www.youtube.com/@electricianu>