



Meridian Technical Charter High School
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Electronics 3A & 3B

Teacher: Mr. Bushard

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Room 105

Daily 7:45am – 9:32am

Office Hours: 7:15am – 7:45am & 2:15pm – 3:00pm

Course Overview

This course covers DC, AC and Analog electronics theory and application. Certification is available in these areas. Test equipment such as oscilloscopes, function generators, digital multimeters, and power supplies will be used. Electronics is a math intensive course and strong algebra skills are essential to complete necessary calculations correctly. Additionally, students will be challenged with faults entered into NIDA trainers to enhance troubleshooting skills.

Topics Outline

DC Electronics

- Voltage, Current, and Resistance
- Ohm's Law
- Power Supplies
- Series Circuits
- Parallel Circuits
- Kirchhoff's Law
- Series-Parallel Circuits
- Electromagnetism

AC Electronics

- Alternating Current
- AC Power Generation
- Oscilloscope Usage
- Function Generator Usage
- Inductors
- Capacitors
- RL Series/Parallel Circuit Analysis
- RC Series/Parallel Circuit Analysis
- RC and RL Time Constants
- RLC Series/Parallel Circuit Analysis
- Resonance Circuits
- Phase Calculations
- Transformers

Analog Electronics (if time)

- Diodes
- Diode Limiters
- Diode Clampers
- Transistors
- Wave Rectifiers
- Bridge Rectifiers
- Zener Diodes
- Voltage Regulators
- Multistage Transistor Amplifiers
- RC Coupled Transistor Amplifier
- Push-Pull Transistor Amplifier
- Field-Effect Transistor Amplifier
- Oscillator

Grading

This class will be graded on a point-based system derived from assignments, labs and tests. Due dates for all work will be listed in PowerSchool and/or Moodle.

Class Expectations

- All MTCHS Handbook policies will be followed
- Students are responsible for checking due dates in PowerSchool
- Students will respect the equipment in the Electronics Lab and consider safety first at all times

Competencies

The following assessments are competencies. Students must achieve a score of 70% or better in order to pass a competency. If a student fails any one of the following competencies, the student fails this course. Students have three (3) attempts to pass a competency within two (2) weeks of the first attempt on that competency.

- DC Electronics final exam (70% min)
- AC Electronics final exam (70% min)
- NIDA performance assessments (70% min)

CTE Requirements and Certification

Career Technical Requirements

Because this course is a capstone course, students are required by the State of Idaho to complete a Technical Skills Assessment (TSA) in their area of study. For this reason, all students in this course MUST take and complete the TSA in the spring. To be awarded the appropriate badges in SkillStack, students must score at least 80% on the applicable standards. For more information about SkillStack see: <https://skillstack.idaho.gov/>

Certification

Students have the option to take the ETA CETa (Certified Electronics Technician Associate) exam. The ETA CETa (\$65) can be administered on site at MTCHS. Fast Forward money can be used to pay for certification.

Late Work, Make-Up, and Redo Policy

Late Work

Students may receive no more than 70% for any late assignment. Any missing or late assignment may be submitted up to two (2) school days after the assignment is marked missing in PowerSchool.

Exceptions to this policy may be requested by the student in writing or email. The instructor will make the final determination on extension requests and will inform the student of the decision in writing or email.

Make-Up Work

Students are allowed up to two days per unexpected absence to complete make-up work. Unexpected absences are those due to sudden illness, injuries or death in a family. Assignments or tests, which were assigned prior to the date of the absence, are due upon return.

Redo's

If a student receives below a 70% on an assignment, a student may redo that assignment for a grade up to 70%. Individual teachers will determine due dates on make-up/redo assignments and which assignments can be made up.