

MECHATRONICS 08

THE SCIENCE OF ELECTRONICS

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**PLEASE NOTE THAT THIS CLASS IS NOT PART OF THE MECHATRONICS CERTIFICATE.
It is a stand-alone class, designed to teach the fundamentals of electricity and electronics**

PREREQUISITES: None. No previous electronics knowledge or math beyond basic algebra is assumed.

DETAILED COURSE DESCRIPTION: This course, as I teach it, is intended to make the students more informed citizens of the technological society we live in and more informed consumers of that technology. It is also a way of exposing people to a potential career field. Many jobs in our increasingly automated world require technical training. These jobs tend to pay well and provide a real career path. This class allows people to get a basic understanding of the electronics technology that fills our world and possibly decide that a career in technology might be more interesting and more accessible than they previously thought.

By the end of this class the student should:

- Know fundamental electronic theory
- Be able to hook up, and troubleshoot, a circuit according to a schematic
- have a solid understanding on how to interface various input and out devices to a microcontroller

TEXT: There is no official text book for this course.

If you need additional resources, ask Mr Stargaard or download Teach Yourself Electricity and Electronics, by Stan Gibilisco. It is available for free (.pdf) if you search for it online.

SUPPLEMENTAL MATERIAL: The instructor will provide handouts as additional material for the class. These materials should be kept in a notebook and considered part of the required reading for the class. The book for the class is not a comprehensive source book for all of electronics. Since we can't be in class for demonstrations, we will also utilize a large number of videos that explain the concepts quite well. Other sources, especially the internet, can act as useful supplemental material for the course. Some good sources for "plain language" explanations of electronic concepts are www.allaboutcircuits.com or www.wikipedia.org or electronics.howstuffworks.com

Purchase of a scientific calculator is helpful, but not required. (I like the TI-30XA. It costs about \$11.)

ADDS/DROPS/WITHDRAWALS: If a student decides to not complete the course, that student is responsible for completing the proper "drop" paperwork. If a class is not officially dropped, the student will receive an "F" grade on their permanent transcript. Adds, drops and fee payments must be done by the required deadlines.

TESTS: The course will have a final exam as well as periodic quizzes/tests throughout the semester. You can not make these up. In cases of personal emergency, extensions may be allowed per discretion of the instructor.

Late Work: I accept late Theory worksheets up until the test on that unit. After that, you can no longer turn in that work for credit

Labs can be turned in for credit TWO WEEKS after its due date. See Stargaard to get signed up for intervention so you have the extra time.

GRADING:

- Projects (In class labs) 50% of your final course grade.
- Theory worksheets 10%
- Quizzes and Tests: 20%
- Final exam 20%

The breakdown of the final course grade is as follows: 90-100%=A, 80-89%=B, 70-79%=C, 60-69%=D, <60% = F

Note: for your high school grade anything below 70% will be an F