

Course Title

Electronics 2A

Description of Target Group

This course is for juniors and seniors who have completed Electronics 1B and want to gain experience with advanced equipment and electronic repair. Students must be willing to work both independently, and in small study teams, to accomplish assigned projects/tasks.

Purpose

The purpose of Electronics 2A, the first term of a one-year course, is to build a functional knowledge of advanced electronic components; to obtain proficiency in the operation of analog and digital oscilloscopes; and teach the basic skills and techniques used to service and repair consumer electronic equipment.

Prerequisites: Completing Electronics 1B with a "C" or better.

Standards of Expected Student Achievement

Upon successful completion of this course, students will be able to demonstrate the following knowledge/skills:

1. Use of circuit simulation software.
2. Identify advanced electronic components.
3. Utilize advanced electronic test equipment, including oscilloscopes.
4. Interpret vendor reference data to perform equipment service and repair.
5. Communicate equipment problems with "customers."
6. Perform routine electronic equipment maintenance.
7. Complete typical electronic equipment repairs.
8. Perform equipment upgrades in personal computers.

Assessments of Student Learning

1. Students will present evidence of learning by cooperating with group or individual assignments and presentations based on projects and skills.
2. Students will present evidence of learning by presenting ideas, solutions and conclusions to proposed or presented problems.
3. Students will present evidence of learning through teacher observations.
4. Students will present evidence of learning through quizzes, tests, and homework.
5. Teacher evaluations.

Instructional Materials

Text: Introduction to Electronics, Earl D. Gates; Vendor Manuals Supplementary Materials: Manufacturers documentation; videos

Activities

Independent projects, vendor component research, computer simulations, demonstrations, audiovisual materials, field trips, electronic equipment repair, computer trouble shooting/upgrading, and electronic equipment repair.

Electronics 2 B

Description of Target Group

This course is for juniors and seniors who have completed Electronics 2A and want to continue studying advanced test equipment, electronic components, and perform electronic repair. Students must be willing to work both independently, and in small study teams, to accomplish assigned projects/tasks.

Purpose

The purpose of Electronics 2B, the second term of a one-year course, is to enhance the student's knowledge of advanced electronic components; increase proficiency in the operation of analog and digital oscilloscopes; continue teaching techniques used to service and repair consumer electronic equipment, especially computers.

Prerequisites: Completing Electronics 2A with "C" or better.

Standards of Expected Student Achievement

Upon successful completion of this course, students will be able to demonstrate the following knowledge/skills:

1. Communicate equipment problems with "customers."
2. Perform routine electronic equipment maintenance.
3. Complete typical electronic equipment repairs.
4. Perform equipment upgrades in personal computers.
5. Identify and replace defective computer assemblies.
6. Utilize advanced electronic test equipment, including logic analyzers.
7. Use a variety of manufacturer's documentation to perform electronic service.

Assessment of Student Learning

1. Students will present evidence of learning by cooperating with group or individual assignments and presentations based on projects and skills.
2. Students will present evidence of learning by presenting ideas; solutions and conclusions to proposed or presented problems.
3. Students will present evidence of learning through teacher observations.
4. Students will present evidence of learning through quizzes, tests, and homework.
5. Teacher evaluations.

Instructional Materials

Text: Introduction to Electronics, Earl D. Gates; Vendor Manuals Supplementary Materials: Manufacturers documentation; videos

Activities

Independent projects, computer simulations, demonstrations, audiovisual materials, field trips, electronic equipment repair, computer trouble shooting/upgrading, and electronic equipment repair.

