



9037

EXPLORATION OF
ELECTRONICS TECHNOLOGY (9)

15S/15E/15M

10S/10E/10M

An Electronics Technology Course

9037: EXPLORATION OF ELECTRONICS
TECHNOLOGY (9) (OPTIONAL)
15S/15E/15M AND 10S/10E/10M

Course Description

This optional course can be taught as a half or full credit. Students will have the opportunity to explore various aspects of the electronics industry that will equip them to make an informed decision about pursuing more courses in this subject area. Students will learn about terminology, basic electrical theory, and electronic test equipment.

Goal 1: Describe and apply appropriate **health and safety** practices.

GLO 1.1: Describe and apply appropriate **health and safety** practices.

- SLO 9.1.1.1: Create and maintain a safe work environment.
 - SLO 9.1.1.2: Describe and utilize personal protective equipment (PPE) and follow prescribed procedures.
 - SLO 9.1.1.3: Demonstrate an awareness of electrical safety.
 - SLO 9.1.1.4: Demonstrate an awareness of fire safety.
 - SLO 9.1.1.5: Recognize and control hazards.
 - SLO 9.1.1.6: Demonstrate an understanding of how Ohm's law relates to electrical safety.
 - SLO 9.1.1.7: Demonstrate awareness of emergency procedures related to electrical shock.
 - SLO 9.1.1.8: Demonstrate awareness of shop safety procedures.
 - SLO 9.1.1.9: Demonstrate awareness of accident reporting procedures.
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Goal 2: Demonstrate the **identification, selection, utilization, and maintenance** of **tools and materials**.

GLO 2.1: Demonstrate the **identification** and **selection** of tools and materials.

SLO 9.2.1.1: Identify and select appropriate tools and materials.

GLO 2.2: Demonstrate the **utilization** of tools and materials.

SLO 9.2.2.1: Demonstrate the appropriate utilization of tools and materials.

GLO 2.3: Demonstrate the maintenance of tools and materials.

SLO 9.2.3.1: Demonstrate the appropriate maintenance of tools and materials.

Goal 3: Demonstrate the **identification, selection, value determination, and utilization** of **components**.

GLO 3.1: Demonstrate the **identification** and **selection** of components.

SLO 9.3.1.1: Identify and select appropriate components.

GLO 3.2: Demonstrate the appropriate **value determination** of components.

SLO 9.3.2.1: Determine values of components.

GLO 3.3: Demonstrate the appropriate **utilization** of components.

SLO 9.3.3.1: Demonstrate the appropriate utilization of components.

Goal 4: Demonstrate the **utilization and maintenance** of **equipment**.

GLO 4.1: Demonstrate the **utilization and maintenance** of **equipment other than diagnostic equipment**.

SLO 9.4.1.1: Demonstrate the appropriate utilization and maintenance of equipment other than diagnostic equipment.

GLO 4.2: Demonstrate the **utilization and maintenance** of **diagnostic equipment**.

SLO 9.4.1.1: Demonstrate the appropriate utilization and maintenance of diagnostic equipment (i.e., VOM).

Goal 5: Demonstrate schematic reading.

GLO 5.1: Read, understand, and interpret **schematic diagrams**.

SLO 9.5.1.1: Read, understand, and interpret basic schematic diagrams.

GLO 5.2: Demonstrate **rendering**.

SLO 9.5.2.1: Render basic schematic diagrams.

GLO 5.3: Demonstrate **breadboarding**.

SLO 9.5.3.1: Demonstrate the appropriate use of solderless breadboards at a basic level.

Goal 6: Demonstrate an understanding of electrical theory and the analysis of electrical circuits.

GLO 6.1: Demonstrate an understanding of **electrical theory**.

SLO 9.6.1.1: Demonstrate an understanding of material sciences (i.e., conductors, semi-conductors, insulators).

SLO 9.6.1.2: Demonstrate an understanding of the four electrical quantities (voltage, current, resistance, and power).

SLO 9.6.1.3: List sources of electrical energy.

SLO 9.6.1.4: Demonstrate an understanding of the parts of a basic circuit and direction of electron flow.

SLO 9.6.1.5: Demonstrate an understanding of Ohm's Law.

SLO 9.6.1.6: Explain the function of resistors, potentiometers, and rheostats.

SLO 9.6.1.7: Demonstrate an awareness of the difference between series and parallel circuits.

SLO 9.6.1.8: Explain the function of capacitors.

GLO 6.2: Demonstrate the procedures for **analyzing electrical circuits**.

SLO 9.6.2.1: Demonstrate appropriate procedures for measuring electrical quantities with a VOM.

Goal 7: Demonstrate **soldering skills, fabricating printed circuit boards, and selecting and installing** components.

GLO 7.1: Demonstrate **soldering** skills.

SLO 9.7.1.1: Demonstrate appropriate soldering skills.

GLO 7.2: Demonstrate the procedures for **selecting and installing components**.

SLO 9.7.2.1: Appropriately select and install components.

GLO 7.3: Demonstrate the procedures for **fabricating printed circuit boards**.

SLO 9.7.3.1: Fabricate circuit boards.

Goal 8: Describe and demonstrate the transferable **cross-curricular** knowledge and skills as they apply to electronics technology.

GLO 8.1: Read, interpret, and communicate information.

No applicable SLOs.

GLO 8.2: Apply the knowledge and skills from **mathematics**.

SLO 9.8.2.1: Perform calculations related to the four electrical quantities (voltage, current, resistance, and power).

SLO 9.8.2.2: Perform calculations related to Ohm's Law.

SLO 9.8.2.3: Perform conversion calculations using scientific notation and industry prefixes (i.e., K, M, μ)—the last symbol is the Greek letter *mu*.

GLO 8.3: Apply the knowledge and skills from the **sciences**.

SLO 9.8.3.1: Define the terms: matter, element, compound, molecule, atom, ion, electron, and valence electron.

SLO 9.8.3.2: Demonstrate an understanding of atomic theory, including the parts of the atom.

SLO 9.8.3.3: Demonstrate an understanding of static electricity.

Goal 9: Understand **education, career opportunities, employment conditions,** and **professional organizations** in the electronics industry.

GLO 9.1: Understand **education, career opportunities, employment conditions,** and **professional organizations** in the electronics industry.

No applicable SLOs.

Goal 10: Demonstrate awareness of **sustainability** as it pertains to electronics technology.

GLO 10.1: Describe the impact of **human sustainability** on the health and well-being of electronics technicians and those who use their products.

No applicable SLOs.

GLO 10.2: Describe the electronic technology's sustainability practices and impact on the **environment.**

No applicable SLOs.

Goal 11: Demonstrate awareness of the **ethical standards and legal issues.**

GLO 11.1: Demonstrate awareness of the **ethical standards and legal issues.**

No applicable SLOs.

Goal 12: Demonstrate **employability skills.**

GLO 12.1: Demonstrate **fundamental employability skills.**

SLO 9.12.1.1: Demonstrate regular and punctual attendance.

SLO 9.12.1.2: Demonstrate the ability to communicate respectfully and effectively with teachers, supervisors, co-workers, and students.

SLO 9.12.1.3: Demonstrate accountability by taking responsibility for one's actions.

SLO 9.12.1.4: Demonstrate adaptability, initiative, and effort.

SLO 9.12.1.5: Demonstrate the ability to accept and follow direction and feedback.

SLO 9.12.1.6: Demonstrate teamwork skills.

SLO 9.12.1.7: Demonstrate the ability to stay on task and effectively use time in class and work environments.

GLO 12.2: Demonstrate an awareness of **cultural proficiency**, and its importance in the workplace.

No applicable SLOs.

GLO 12.3: Demonstrate **critical thinking skills** in planning, procedures, analysis, and diagnosis.

SLO 9.12.3.1: Discuss the need for critical thinking.

SLO 9.12.3.2: Discuss the need for problem-solving skills.

Goal 13: Understand the **evolution, technological progression, and emerging trends** in electronics technology.

GLO 13.1: Demonstrate the **evolution, technological progression, and emerging trends** in electronics technology.

No applicable SLOs.
