



Department of Teaching & Learning
Parent/Student Course Information

Electricity

(VO8534)

Three Credits, One Year

Grades 10 - 12

Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.

COURSE DESCRIPTION

This program covers safety, wiring, terminology, electrical floor plan layouts and the National Electric Code. Students are instructed in the installation of all power and lighting circuits, including 200-amp service and the materials used in new construction or remodeling. They gain practical experience troubleshooting electrical problems and reading blueprints.

CERTIFICATION

SkillsConnect Assessment: Electrical Construction Wiring (Residential Wiring)

STUDENT ORGANIZATION

SkillsUSA is a co-curricular organization for all students enrolled in trade and industrial education programs. SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps students excel by providing educational programs, events and competitions that support career and technical education (CTE) in the nation's classrooms. Students are highly encouraged to participate.

PREREQUISITE

Construction Technology

OPTIONS FOR NEXT COURSE

None

REQUIRED STUDENT TEXTBOOK

None

COMPETENCIES FOR ELECTRICITY

Demonstrating Workplace Readiness Skills: Personal Qualities and People Skills

- 1 Demonstrate positive work ethic.
- 2 Demonstrate integrity.
- 3 Demonstrate teamwork skills.
- 4 Demonstrate self-representation skills.
- 5 Demonstrate diversity awareness.
- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate creativity and resourcefulness.

Demonstrating Workplace Readiness Skills: Professional Knowledge and Skills

- 8 Demonstrate effective speaking and listening skills.
- 9 Demonstrate effective reading and writing skills.
- 10 Demonstrate critical-thinking and problem-solving skills.
- 11 Demonstrate healthy behaviors and safety skills.
- 12 Demonstrate an understanding of workplace organizations, systems, and climates.
- 13 Demonstrate lifelong-learning skills.
- 14 Demonstrate job-acquisition and advancement skills.
- 15 Demonstrate time-, task-, and resource-management skills.
- 16 Demonstrate job-specific mathematics skills.
- 17 Demonstrate customer-service skills.

Demonstrating Workplace Readiness Skills: Technology Knowledge and Skills

- 18 Demonstrate proficiency with technologies common to a specific occupation.
- 19 Demonstrate information technology skills.
- 20 Demonstrate an understanding of Internet use and security issues.
- 21 Demonstrate telecommunications skills.

Examining All Aspects of an Industry

- 22 Examine aspects of planning within an industry/organization.
- 23 Examine aspects of management within an industry/organization.
- 24 Examine aspects of financial responsibility within an industry/organization.
- 25 Examine technical and production skills required of workers within an industry/organization.
- 26 Examine principles of technology that underlie an industry/organization.
- 27 Examine labor issues related to an industry/organization.
- 28 Examine community issues related to an industry/organization.
- 29 Examine health, safety, and environmental issues related to an industry/organization.

Addressing Elements of Student Life

- 30 Identify the purposes and goals of the student organization.
- 31 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.
- 32 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.
- 33 Identify Internet safety issues and procedures for complying with acceptable use standards.

Applying Basic Construction Safety Standards (Core Safety)

- 34 Comply with federal, state, and local safety legal requirements.
- 35 Maintain a safe working environment.
- 36 Explain safe working practices around electrical hazards.
- 37 Inspect course-specific hand and power tools to visually identify defects.
- 38 Report injuries.
- 39 Report personal, environmental, and equipment safety violations to the appropriate authority.
- 40 Pass safety exam.

Solving Mathematical Problems Related to the Electrical Field

- 41 Solve problems using direct and inverse relationships.
- 42 Solve electrical problems using calculators.
- 43 Convert metric prefixes to their numerical equivalents and vice-versa.

Applying Basic Electrical Theory

- 44 Troubleshoot series circuits.
- 45 Troubleshoot parallel circuits.
- 46 Wire series-parallel (combination) circuits.
- 47 Calculate series-parallel (combination) circuits.
- 48 Troubleshoot series-parallel (combination) circuits.
- 49 Explain nameplate specifications related to motors, generators, and transformers.

Applying the National Electrical Code (NEC) Book

- 50 Apply the NEC requirements for electrical installation.

Identifying and Installing Conduit and Raceways

- 51 Identify various conduits and raceways.
- 52 Select material and wiring support systems.
- 53 Install conduits.

Examining Lighting Systems

- 54 Install fixtures.
- 55 Explain functions, operation, and characteristics of single-phase power systems.
- 56 Install power devices.

Exploring Panelboards and Switchboards

- 57 Identify basic components of service entrance equipment.
- 58 Select OCPDs.
- 59 Install OCPDs.
- 60 Install various ground fault circuit interrupter (GFCI) and arc fault circuit interrupter (AFCI) devices.

Identifying and Installing Grounding Systems

- 61 Identify characteristics of grounding systems.
- 62 Illustrate sizing, layout, and installation of grounding systems.

Installing Transformers

- 63 Install transformers.

Exploring Environmentally Friendly Choices

- 64 Identify energy-efficient equipment and methods.
- 65 Determine the environmental impacts of land use and site location for a proposed building project.
- 66 Describe design choices for a proposed building project that reflect conservation and efficient use of materials.
- 67 Describe design choices for a proposed building project that reflect conservation and efficient use of energy.
- 68 Describe design choices for a proposed building project that reflect conservation and efficient use of water.
- 69 Describe design choices that can affect indoor air quality for proposed building projects.

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For further information please call (757) 263-1070.

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CHARTING THE COURSE

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