Colorado CTE

Energy (2015): Grades 9, 10, 11, 12, Higher Education

Adopted 2015

Demonstrate adequate technical knowledge & skills ENCL.01

01. **Understand the essential knowledge and skills common to all pathways in the Energy and Utilities sector.** ENCL.01.01

    a. Select, use, adjust, and maintain tools, equipment, systems, and products common to the school energy and utilities instructional program in a safe, effective, and appropriate manner. ENCL.01.01.A

    b. Interpret the common energy and power technologies. ENCL.01.01.B

    c. Identify the sources and systems of power and energy. ENCL.01.01.C

    d. Diagram the energy resources currently in use or under research. ENCL.01.01.D

    e. Explain the basic theory of energy conversion processes and energy transmission systems and know their common applications. ENCL.01.01.E

    f. Know the fundamentals of energy extraction processes and conserving and storing systems. ENCL.01.01.F

    g. Use service resources, including print and electronic retrieval systems, to diagnose and solve technical problems. ENCL.01.01.G

    h. Recognize the essential elements of a clearance and tagging program. ENCL.01.01.H

    i. Understand the basic principles and proper selection and use of equipment designed for working in confined spaces and equipment designed for working at heights in a safe and appropriate manner. ENCL.01.01.I

    j. Interpret material safety data sheets and locate information on hazardous materials. ENCL.01.01.J

    k. Execute the fundamentals of lubricants and lubrication. ENCL.01.01.K

    l. Understand the basic principles associated with the use of fasteners and the skills required in good bolting practices. ENCL.01.01.L

    m. Research the need to participate in sector-related professional improvement activities, SkillsUSA, other career technical education leadership and skill associations, and related career pathway specializations. ENCL.01.01.M

    n. Comprehend complex details and specifications from both technical documentation and presentations. ENCL.01.01.N

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o. Examine the need and process to obtain and maintain industry-standard, technical certifications and affiliations with professional organizations, including the American Gas Association and the Institute of Electrical and Electronic Engineers, Incorporated. ENCL.01.01.O

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02. Explore the history of energy. ENCL.01.02

a. Explain the physical geography related to various forms of energy. ENCL.01.02.A

b. Describe the geology of energy (i.e., how it all began). ENCL.01.02.B

c. Identify the geographic locations of key energy hot spots for various energy types and the geopolitical challenges presented by their locations. ENCL.01.02.C

d. Examine the political, social, economic and environmental roles of energy in the development of world history. ENCL.01.02.D

e. Explore the current integration status of alternative and/or renewable energy. ENCL.01.02.E