# Introduction to Energy Course No. 41100 Credit: 0.5

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:Energy (17.2071)

Course Description: An **Introductory course** designed to teach students about the occupations in the Energy field and the skills required for those occupations. Required for pathway approval.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Click or tap here to enter text.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Understand the concepts of energy: |  |
|  | 1. forms of energy & how energy can perform work
 |  |
|  | 1. differentiate between potential energy and kinetic energy
 |  |
|  | 1. how energy can be transformed.
 |  |
| 1.2 | Understand how humans utilize energy: |  |
|  | 1. what types of energy is used by humans
 |  |
|  | 1. how humans have historically used energy
 |  |
|  | 1. how energy use has changed over time
 |  |
|  | 1. how new forms of renewable and alternative energy sources may be used in the future.
 |  |
| 1.3 | Demonstrate an ability to understand and interpret data as it relates to energy : |  |
|  | 1. read graphs and charts to analyze data and to communicate information.
 |  |
|  | 1. how data can be used to understand and create opportunities around energy
 |  |
|  | 1. how computers, data, analytics, and machine learning can be used to optimize energy generation and consumption.
 |  |
| 1.4 | Understand what careers are available in the energy field. |  |
| 1.5 | Understand how energy is generated and distributed to where it can be used: |  |
|  | 1. types of power generation
 |  |
|  | 1. electrical power distribution lines
 |  |
|  | 1. natural gas, water and sewer distribution
 |  |
|  | 1. how energy is metered and billed.
 |  |
| 1.6 | Understand how energy is used in a building:  |  |
|  | 1. Building envelope
 |  |
|  | 1. Lighting systems
 |  |
|  | 1. Heating, cooling, and ventilation
 |  |
|  | 1. Water consumption
 |  |
|  | 1. Other.
 |  |
| 1.7 | Perform an energy audit in a building: |  |
|  | 1. Conduct energy use benchmarking using historical energy consumption
 |  |
|  | 1. Identify equipment, systems and processes that use energy in a building
 |  |
|  | 1. Identify the factors that impact energy use in a building.
 |  |
| 1.8 | Identify opportunities to optimize energy use in a building: |  |
|  | 1. use energy audit to identify existing energy use
 |  |
|  | 1. utilize building data to identify opportunities for energy optimization
 |  |
|  | 1. calculate the cost and other impacts of optimized energy use.
 |  |
| 1.9 | Present findings and recommendations from energy audit: |  |
|  | 1. create visual aids
 |  |
|  | 1. Oral presentation to school district personnel and/or community members.
 |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

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