# Principles of Applied Engineering Course No. 41320 Credit: 1.0

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

Pathways and CIP Codes:Energy (17.2071); **Engineering & Applied Mathematics (14.0101)**

Course Description: A t**echnical level** course designed to expand student knowledge in the area of applied engineering and allow students to apply learning related to multiple topics in the field of engineering.

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 0: Introduction and Communication

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 0.1 | Demonstrate an understanding of industry standards for personal safety including the safe use of tools, equipment, and hazardous materials. |  |

## Benchmark 1: Introduction and Communication

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Work with others as an engineering team to solve problems, with each team member having individual and collective responsibility. |  |
| 1.2 | Discuss the differences between engineering disciplines and job functions. |  |
| 1.3 | Research the educational requirements to become an engineer. |  |
| 1.4 | Formulate an organized outline for a technical paper |  |
| 1.5 | Utilize materials from an assigned research topic to design and deliver a presentation. |  |

## Benchmark 2: research and data

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Illustrate collected data through the use of tables, charts, and graphs. |  |
| 2.2 | Formulate conclusions through analysis of recorded laboratory test data for presentations in the form of charts, graphs, written, verbal, and multimedia formats. |  |
| 2.3 | Analyze an engineering failure for the purpose of presenting an oral report which identifies causes, damage done, design failures, and other areas where the failure has impacted the environment or society. |  |
| 2.4 | Analyze test data and utilize the results to make decisions. |  |

## Benchmark 3 : Engineering Concepts

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Explain the functions of the six types of simple machines and use mathematics to distinguish the mechanical advantage gained by each. |  |
| 3.2 | Identify practical applications of each material category: composites, ceramics, polymers, and metals to engineered products and processes |  |
| 3.3 | Locate information and select the materials, tools, equipment, or other resources to perform the activities needed to accomplish a specific task using a problem-solving method. |  |

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

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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