# Mechanical/Electrical/Plumbing Trades (MEP I) Course No. 17062 Credit: 0.5

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

Pathways and CIP Codes:Construction & Design (46.0000) - Construction Strand

Course Description: A **technical level** course designed to introduce instruct students in the basic skills necessary for occupations in skilled mechanical trades.

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: The following competency is to be taught within ALL technical level courses offered in your school’s approved pathway

### 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 to mechanical trades

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Utilize technology resources to investigate training, education and careers available in the skilled mechanical trades fields of construction. |  |
| 1.2 | Demonstrate proper use of basic hand and power tools used in HVAC, Plumbing, and Electrical Trades. |  |
| 1.3 | Identify the various types of drawings/ blueprints/schematics used in HVAC, Plumbing, and Electrical Trades, including knowledge of terms, components, and symbols. |  |
| 1.4 | Research the licensure requirements and certification opportunities for the HVAC, Plumbing, and Electrical Trades. |  |
| 1.5 | Develop a materials list for the construction of a project. |  |
| 1.6 | Demonstrate the ability to read a measuring device and calculate square feet and cubic feet. |  |

## Benchmark 2: HVAC and plumbing

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Describe various types of heating and cooling systems, including the pros, cons and applications of each. |  |
| 2.2 | Explain the basic principles of heating, ventilating, and air conditioning. |  |
| 2.3 | Correctly measure, cut, ream, join, groove and/or thread plastic piping/tubing. |  |
| 2.4 | Perform soldering and brazing applications. |  |
| 2.5 | Explain the basic principles of a drain, waste & vent system. |  |
| 2.6 | Demonstrate knowledge of slope |  |

## Benchmark 3: electrical

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Demonstrate knowledge of how electrical circuits work. |  |
| 3.2 | Demonstrate the procedure for safely using a clamp-on ammeter and a voltage tester. |  |
| 3.3 | Compute branch circuit loads and explain installation requirements. |  |
| 3.4 | Demonstrate the ability to properly ground electrical circuits according to codes. |  |

## Benchmark 4: refrigeration

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Explain the basic principles of a refrigeration system. |  |
| 4.2 | Identify & describe the major components of a refrigeration system and the roles they take in the refrigeration process. |  |

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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[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



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