

# ATIN-2120: ADVANCED METAL JACKETING II

## Cuyahoga Community College

**Viewing:** ATIN-2120 : Advanced Metal Jacketing II

**Board of Trustees:**

October 2024

**Academic Term:**

Spring 2025

**Subject Code**

ATIN - Applied Industrial Technology - Insulators

**Course Number:**

2120

**Title:**

Advanced Metal Jacketing II

**Catalog Description:**

Continue to develop introductory to moderate level layout skills to create equal tees, unequal tees, Equal lateral wyes, and 90° elbows to be used for metal jacket fabrication. Introduce advanced layouts for metal jacketing.

**Credit Hour(s):**

3

**Lecture Hour(s):**

3

## Requisites

**Prerequisite and Corequisite**

Departmental approval: admission to Heat and Frost Insulator's apprenticeship program.

## Outcomes

**Course Outcome(s):**

Review Introductory to moderate layouts for metal jacketing.

**Objective(s):**

1. Accurately measure and design tees.
2. Accurately measure and design laterals.
3. Accurately measure and design endcaps.

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**Course Outcome(s):**

Develop the skills for Advanced level layouts for metal jacketing.

**Objective(s):**

1. Obtain accurate measurements to design 90° elbows.
2. Construct various 90° elbows.
3. Obtain accurate measurements to design transitions.
4. Construct various transitions.
5. Obtain accurate measurements to design removable cans.
6. Construct various removable cans.

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**Methods of Evaluation:**

1. Quizzes from International
2. Tests from International
3. Final exam from International
4. Graded projects
5. Caliper and Divider skills practice
6. Estimation exercises
7. Homework worksheets
8. Geometric construction projects

**Course Content Outline:**

1. Beginner layouts for Metal Jacketing

- a. Tees
    - i. Equal
    - ii. Unequal
    - iii. Valves
    - iv. Mono
  - b. Lateral wyes
    - i. Equal
    - ii. Unequal
    - iii. One piece

2. Moderate layouts for Metal Jacketing

- a. Endcaps
    - i. Flat endcaps
      1. One piece
      2. Two-piece
    - ii. Bevel endcaps
      1. 45 bevels
    - iii. Reducing
      1. Concentric
      2. Eccentric

3. Advanced layouts for Metal Jacketing

- a. 90s
    - i. Short radius
    - ii. Long radius
    - iii. Segmented
    - iv. Sweeps
  - b. Transitions
    - i. Square to round
    - ii. Rectangle to round
    - iii. Rectangle to rectangle
  - c. Removable
    - i. Flanges
    - ii. Valves
    - iii. Pump boxes

**Resources**

*Shop Fabrication Layout & Patternmaking Student Manual.* International Association of Heat and Frost Insulators and Allied Workers, 2014.

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*Metal & Rubber Layout Book.* International Association of Heat and Frost Insulators and Allied Workers, 2018.

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*First Year Math Manual. Heat and Frost Insulators.* Local 3 Cleveland, Ohio, 2019.

**Resources Other**

www.jatctraining.com 2024  
Insulators Union - YouTube 2024.

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