# Agricultural Fabrication Course No. 18409 Credit: 1.0

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

Pathways and CIP Codes: Power, Structural & Technical Systems (01.0201)

Course Description:

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: The Ag Mechanics Industry and Careers

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Explain the importance of welding, mechanics, technical skills and construction in the local economy  |  |
| 1.2 | Identify local businesses that require ag mechanics skills |  |
| 1.3 | List the causes of accidents in the Ag Mechanics workplace |  |

## Benchmark 2: Safety / Ag Mechanics Lab Orientation w/ Tool Use

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify and demonstrate proper methods of shop/lab clean-up |  |
| 2.2 | Identify various tool storage locations |  |
| 2.3 | Learn the components of the fire triangle |  |
| 2.4 | Explain the proper use of a fire extinguisher |  |
| 2.5 | Explain proper shop safety color coding |  |
| 2.6 | Complete a shop/lab safety test with 100% accuracy  |  |
| 2.7 | Explain the uses of agricultural mechanics hand tools.  |  |
| 2.8 | Demonstrate use of hand tools properly and safely  |  |
| 2.9 | Explain the uses of power tools to perform ag mechanics tasks |  |

## Benchmark 3: Metallurgy

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Understand chemical and physical properties of metal  |  |
| 3.2 | Explain steel classification and identification |  |
| 3.3 | Differentiate between carbon and alloy steels  |  |
| 3.4 | Identify standard steel shapes and configurations |  |
| 3.5 | Identify metals using the spark test |  |
| 3.6 | Analyze the impact of heat treatments on metals |  |

## Benchmark 4: Joint Design & Weld Symbols

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify types of weld joints |  |
| 4.2 | Analyze joint designs for strength and application |  |
| 4.3 | Explain the components of welding symbols |  |
| 4.4 | Apply welding symbols to blueprints |  |
| 4.5 | Identify symbols for specific welds |  |

## Benchmark 5: Material Layout and Selection

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Explain the importance of efficient material layout |  |
| 5.2 | Demonstrate the ability to efficiently layout material for a project |  |
| 5.3 | Analyze material shape for strength and application |  |
| 5.4 | Calculate material cost and waste percentage |  |
| 5.5 | Compute bill of material allowing for waste and loss |  |

## Benchmark 6: Production Processes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Select proper welding process for application  |  |
| 6.2 | Identify time saving techniques for production work |  |
| 6.3 | Demonstrate the use of jigs and fixture |  |
| 6.4 | Anticipate and control welding distortion  |  |
| 6.5 | Demonstrate proper setups and adjustments for different metal thicknesses  |  |

## Benchmark 7: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Read blueprints and follow detail plans for project construction |  |
| 7.2 | Make and read a working drawing  |  |
| 7.3 | Estimate materials needed for a project |  |
| 7.4 | Calculate project costs  |  |
| 7.5 | Prepare a bill of materials |  |
| 7.6 | Identify types of metal  |  |
| 7.7 | Construct group projects |  |
| 7.8 | Construct individual projects |  |
| 7.9 | Make a project drawing on the computer  |  |

## Benchmark 8: Project Construction

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Explain procedures to design a metal or wood project |  |
| 8.2 |  Use correct procedures to design a metal or wood project  |  |
| 8.3 | Apply proper procedures to construct a metal or wood project  |  |
| 8.4 | Project: |  |

## Benchmark 9: Project Selection & Working Drawings

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Select potential project for construction  |  |
| 9.2 | Evaluate existing designs  |  |
| 9.3 | Develop working drawings of project to include: |  |
| 9.4 | measurements |  |
| 9.5 | material selection  |  |
| 9.6 | exploded views necessary |  |
| 9.7 | multiple views |  |
| 9.8 | bill of material |  |

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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