# Welding Processes II Course No. 39208 Credit: 1.0

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

Pathways and CIP Codes: **Manufacturing (48.0000)**; Power, Structural and Technical Systems (01.0201)

Course Description: An advanced, **application level** course that builds on skills learned in Welding Processes I (39207) and provides opportunities for applying welding skills. (Prerequisite: Welding Processes I.)

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: Safety Practices

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Identify hazards associate with welding. |  |
| 1.2 | Identify and demonstrate proper use of Personal Protective Equipment (PPE). |  |
| 1.3 | Identify the parts of a fire triangle. |  |
| 1.4 | Demonstrate proper assembly of welding and cutting equipment. |  |

## Benchmark 2: Welding, Cutting, and Inspection Theory

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify code and standard governing bodies. |  |
| 2.2 | Explain requirements for creating Welding Procedure Specifications (WPS). |  |
| 2.3 | Demonstrate ability to match filler metal to base metal based on code, position, material capability, thickness, etc. |  |
| 2.4 | Demonstrate common destructive and nondestructive inspection and testing methods. |  |
| 2.5 | Calculate weld sizes from prints, drawings, and measure welds produced in the lab. |  |
| 2.6 | Identify and explain weld discontinuities causes and recommended corrections. |  |
| 2.7 | Measure weld discontinuities. |  |

## Benchmark 3: Shielded Metal Arc Welding (SMAW)

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Demonstrate 3F, and 4F welds with 6010/6011 on Tee, pipe to plate joints (vertical up and down). |  |
| 3.2 | Demonstrate 3F, 3G, 4F, and 4G welds with 7018 on Tee, pipe to plate, groove welds with backing (vertical up and down). |  |
| 3.3 | Demonstrate open 3G, 4G, 5G, and 6G on butt joints (plate and pipe) using 6010/6011 root and 7018 fill/cap. |  |

## Benchmark 4: Gas Metal Arc Welding (GMAW)

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Demonstrate Short Circuit 3F, and 3G welds on Tee, pipe to plate, and butt joints (plate and pipe). |  |
| 4.2 | Demonstrate Pulse 3F, and 3G welds on Tee, and butt joints (plate and pipe). |  |
| 4.3 | Demonstrate fillet and groove welds on aluminum material. |  |
| 4.4 | Demonstrate fillet and groove welds on stainless steel material. |  |

## Benchmark 5: Gas Tungsten Arc Welding (GTAW)

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate 3F, and 3G welds with filler metal on corner, Tee, pipe to plate, and butt joints (vertical up and down). |  |
| 5.2 | Demonstrate 4F, and 4G welds with filler metal on corner, Tee, pipe to plate, and butt joints. |  |
| 5.3 | Demonstrate welds on aluminum material. |  |
| 5.4 | Demonstrate welds on stainless steel material. |  |
| 5.5 | Explore Pulse GTAW welding. |  |

## Benchmark 6: Flux Core Arc Welding (FCAW)-Self Shielded and Dual Shielded.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Demonstrate 2F, and 2G welds on lap, Tee, pipe to plate, and butt joints. |  |
| 6.2 | Demonstrate 3F, and 3G welds on lap, Tee, pipe to plate, and butt joints. |  |
| 6.3 | Demonstrate 4F, and 4G welds on lap, Tee, pipe to plate, and butt joints. |  |

## Benchmark 7: Fabrication Practices

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Identify material needed for fabrication project. |  |
| 7.2 | Calculate the material required from a bill of materials. |  |
| 7.3 | Prep material (cut, grind, clean, etc.) for project. |  |
| 7.4 | Layout project using appropriate techniques and tools (squares, levels, fixtures, clamps, etc.) |  |
| 7.5 | Demonstrate ability to control distortion. |  |
| 7.6 | Weld project according to print details. |  |

## Benchmark 8: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 |  |  |
| 8.2 |  |  |
| 8.3 |  |  |
| 8.4 |  |  |
| 8.5 |  |  |

## Benchmark 9: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 |  |  |
| 9.2 |  |  |
| 9.3 |  |  |
| 9.4 |  |  |
| 9.5 |  |  |

## Benchmark 10: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 |  |  |
| 10.2 |  |  |
| 10.3 |  |  |
| 10.4 |  |  |
| 10.5 |  |  |

## Benchmark 11: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 |  |  |
| 11.2 |  |  |
| 11.3 |  |  |
| 11.4 |  |  |
| 11.5 |  |  |

## Benchmark 12: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 12.1 |  |  |
| 12.2 |  |  |
| 12.3 |  |  |
| 12.4 |  |  |
| 12.5 |  |  |

## Benchmark 13: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 13.1 |  |  |
| 13.2 |  |  |
| 13.3 |  |  |
| 13.4 |  |  |
| 13.5 |  |  |

## Benchmark 14: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 14.1 |  |  |
| 14.2 |  |  |
| 14.3 |  |  |
| 14.4 |  |  |
| 14.5 |  |  |

## Benchmark 15: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 15.1 |  |  |
| 15.2 |  |  |
| 15.3 |  |  |
| 15.4 |  |  |
| 15.5 |  |  |

## Benchmark 16: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 16.1 |  |  |
| 16.2 |  |  |
| 16.3 |  |  |
| 16.4 |  |  |
| 16.5 |  |  |

## Benchmark 17: Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 17.1 |  |  |
| 17.2 |  |  |
| 17.3 |  |  |
| 17.4 |  |  |
| 17.5 |  |  |

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

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



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

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