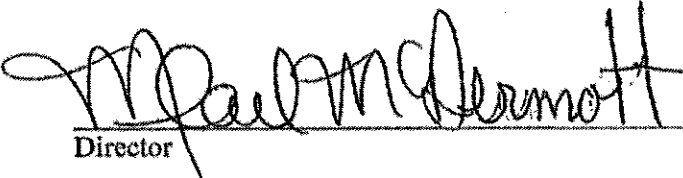


## Signature Page


The College and CTC will agree not to discriminate in their educational programs, activities or employment practices based on race, color, national origin, sex, sexual orientation, disability, age, religion, ancestry, union membership or any other legally protected classification.

Announcement of this policy is in accordance with state law, including the Pennsylvania Human Relations Act, and with federal law, including Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, Section 503 and 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and the Americans with Disabilities Act of 1990. Inquiries should be directed to the Affirmative Action Officer (presently Sylvia Detar) at 724-925-4190 or in Room 4100D, Westmoreland Business & Industry Center, Youngwood, PA 15697.

### For the CTC:

 03/24/21  
\_\_\_\_\_  
Director Date

### For the College:

 3/25/21  
\_\_\_\_\_  
Kristy A. Bishop, Ph.D. Date  
Vice-President of Academic Affairs

## Appendix I

### Articulated Courses

#### Guide for Local Articulation

Curriculum Guide for the articulation of Welding Technology/Welder college coursework and credit between WCCC and ICTC

#### WCCC

DFT 110 Blueprint Reading (2 cr.)

WEL 125 Introduction to Welding (4 cr.)

WEL 228 SMAW (4 cr.)

WEL 221 Metal Fabrication (4 cr.)

#### ICTC

CIP 48.0508



## COURSE OUTLINE

### Course Information

- A. Course Title: **Blueprint Reading**
- B. Course Number: **DFT 110**
- C. Lecture, Lab and Credit Breakdown: **1-2-2**
- D. Course Prerequisite(s): **None**
- E. Course Co-requisite(s): **None**

### Catalog Description

Introduces the basics of drafting principles and symbology used for interpreting prints for industry. Actual prints are provided for experience in proper interpretation. Topics include title blocks, material identification, revision systems, sketching, orthographic projection theory, dimensioning and tolerance, detail and assembly drawings, sections, thread representation and specifications and callouts for welding processes.

### Learning Objectives

The purpose of this course is to:

- Explore alternatives to problem solve, to make decisions, and ultimately to translate these ideas into graphic action.
- Understand the basic drafting symbols and principles for technical drawing interpretation.
- Learn the application of part and assembly drawings in both the manufacturing and welding industries.
- Explore the revision process and importance of technical drawings as a contractual agreement.

### Course Outcomes

Upon successfully completing this course, students will be able to:

- Apply the techniques of orthographic projections to show every aspect of the shape and size of complete manufactured or constructed objects, and of each component part.
- Use letters and words to convey information on drawings – all lettered, freehand, in a style that is perfectly legible, uniform, and capable of rapid execution.
- Demonstrate understanding of the value of the techniques and the timely use of drafting practices to clarify and complete orthographic representation.
- Provide the clarity and special effects of welding drawings to represent objects in freehand sketches, supplementary drawings, and presentational drawings.
- Use a knowledge of production methods to assure the effectiveness and completeness of working drawings.

## Topical Course Outline

1. Freehand Sketching
2. Lettering
3. Orthographic Sketching
4. Isometric Sketching
5. Sectional Views
6. Auxiliary Views
7. Dimensioning
8. Tolerancing
9. Screw Threads
10. Working Drawings
11. Assembly and Sub-assembly Drawings
12. CAD

## References, Resources, and Learning Materials Text:

**Machine Trades Print Reading (6<sup>th</sup> ed.) – Barsamian & Gizelbach**

ISBN-13: 978-1631261053

ISBN-10: 1631261053

**Blueprint Reading for Welders, (9<sup>th</sup> Ed.) Bennett, Siy** *(this text option is for welding majors)*

ISBN-13: 978-1133605782

ISBN-10: 1133605788

Reviewed and Approved by:

---

Division Dean

Date



## COURSE OUTLINE

### Course Information

- A. Course Title: **Introduction to Welding**
- B. Course Number: **WEL 125**
- C. Lecture, Lab and Credit Breakdown: **2-6-4**
- D. Course Prerequisite(s): **None**
- E. Course Co-requisite(s): **None**

### Catalog Description

Theory in oxyfuel principles, basic arc welding, and power source operation. Demonstrations by instructor and practice by students in basic oxyacetylene cutting and arc welding. Theory, safe and correct methods of assembly and operation of welding equipment. Use of power tools. Practice in SMAW, GMAW, and GTAW in flat position. Emphasis on lab techniques and safety.

### Learning Objectives

The purpose of this course is to:

Perform basic SMAW, GTAW, and GMAW welds in the flat position, and perform Oxyfuel cuts. Students will be able to identify different types of power supplies and their applications.

### Course Outcomes

Upon successfully completing this course, students will be able to:

- Safely burn steel with oxyfuel equipment,
- Safely operate equipment within a welding environment
- Demonstrate a working knowledge of steel electrodes
- Properly clean and prepare weld coupons
- Accurately fitup plates for weld coupons
- Strike and maintain an arc
- Restart, fill, and build up craters of bead welds
- Weld a down hand stringers E-6013, E-6010, and E-7018.
- Weld flat position stringers GMAW
- Weld single pass horizontal T-fillets E-6010, E-7018
- Weld flat position stringers GTAW
- Tack weld plates for forming joints
- Weld single pass horizontal t fillets GMAW

### Topical Course Outline

1. Demonstrations and practice using oxyfuel equipment.
2. Demonstrations and practice operating various equipment within a welding environment
3. Theory on proper electrode selection and care

4. Theory and demonstration of welding passable welds to specification
5. Theory of power sources and their use
6. Theory and practice print reading, writing, and interpretation
7. Theory and practice of reading, writing, and interpreting weld symbols

References, Resources, and Learning Materials Text:

**Modern Welding - Althouse**

Reviewed and Approved by:

---

Division Dean

Date



## COURSE OUTLINE

### Course Information

- A. Course Title: **Metal Fabrication**
- B. Course Number: **WEL 221**
- C. Lecture, Lab and Credit Breakdown: **2-4-4**
- D. Course Prerequisite(s): **DFT 110 & WEL 125**
- E. Course Co-requisite(s):

### Catalog Description

Provides students with an understanding of metal fabrication. Emphasis is placed working from blueprints, proper joint selection, design stresses in welds, material selection and estimating welding costs. Students construct projects using common metal fabrication equipment. Laboratory work includes use of welding power supplies, brake press, ironworker and metal rollers.

### Learning Objectives

The purpose of this course is to:

- To work safely (week 1)
- Use and understand basic measuring equipment (week 1)
- Calculate the weight of different materials (week 1)
- Apply basic math used in metal fabrication (week 2)
- Bill of Materials and calculating material cost (week 3)
- Read, understand and apply shop drawings (week 3 and 4)
- Material selection, weld joint design and weld joint stress (week 5)
- Read and apply welding symbols (week 6 and 7)
- Application of metal fabrication equipment (week 8 and 9)
- Mechanical Fasteners and Hardware (week 9)
- Project management and schedule (week 10)
- Minimization of welding distortion (week 11)
- Estimating welding cost (week 12)
- Lab project time (week 13-16)

### Course Outcomes

Upon successfully completing this course, students will be able to:

### Topical Course Outline

1. Provide project title(s) by week 3
2. Provide a sketch of project, proposed Bill of Materials and schedule for fabrication by week 4
3. Complete project(s) by week 16 – Each project will have:

- a. Final Bill of Materials
- b. All assemble and detail drawings necessary to fabricate project
- c. Written description of fabrication process
- d. Written welding procedure

References, Resources, and Learning Materials Text:

**Modern Welding - Althouse**

Reviewed and Approved by:

---

Division Dean

Date





## COURSE OUTLINE

### Course Information

- A. Course Title: **SMAW**
- B. Course Number: **WEL 228**
- C. Lecture, Lab and Credit Breakdown: **2-4-4**
- D. Course Prerequisite(s): **WEL 125 - Introduction to Welding**
- E. Course Co-requisite(s): **None**

### Catalog Description

Theory in advanced SMAW, production of metals, application of metallurgical principles. Demonstrations and practice of vertical, overhead, and advanced SMAW techniques. Practice for Open Root SMAW AWS Certification Test.

### Learning Objectives

The purpose of this course is to:

- Work under safety guidelines and understand hazards related to the welding environment
- Write and interpret welding symbols
- Visually inspect welds and identify discontinuities and defects
- Identify types of joints and welding positions
- Weld vertical-up E-6010 – stringer, whipping technique
- Weld a vertical-up T fillet E-6010 – stringer, whipping technique
- Weld a vertical-up T fillet E-7018 – weave technique
- Weld a vertical-up T fillet E-6010/E-7018
- Weld an overhead stringer E-6010 – whipping technique
- Weld an overhead T fillet E-6010/E-7018 – stringer multi pass
- Weld open root 7018 – 3G position
- Weld open root 6010- 3G position

### Course Outcomes

Upon successfully completing this course, students will be able to:

Successfully SMAW joints in 1F, 2F, 3F, 4F, 1G, and 3G positions. Students will understand the theory and operation of SMAW and SMAW power sources.

### Topical Course Outline

1. Introduction to Welding Objectives and Safety Overviews
2. Fundamentals of Vertical Welding
3. Fundamentals of overhead welding
4. Basic joints and welds
5. Effects of welding and metals
6. Making of Steel
7. Heat Treating

8. Introduction to Welder Qualification and Weld Specifications

References, Resources, and Learning Materials Text:  
**Modern Welding - Althouse**

Reviewed and Approved by:

---

Division Dean

Date