



Career Opportunities

Students will complete a list of required courses, then complete a chosen area of specialization in order to receive a Certificate of Completion.

Possible areas of specialization include General Welding Specialist, which is designed to establish a strong foundation utilizing various welding techniques and processes, and the Pipe Welding Specialist, which includes carbon steel, stainless steel, and aluminum pipe, utilizing the SMAW, GTAW (TIG), and GMAW (MIG) welding processes in all positions.

Safety and the safe operation of all tools of the profession are stressed on a continuous basis. Special equipment is required of all welding students including gloves, hood, goggles, safety glasses, and other personal protective equipment.



Frank Phillips College

Right For You. Right Here.
Right From the Start.

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WELDING TECHNOLOGY

Fundamentals of Industrial
Welding Processes

- Emphasis on Layout and Design
- Welding Processes and Procedures
- Blueprint Reading
- Welding Metallurgy
- Plate Welding
- Pipe Welding
- Pipe Fitting
- Plate and Pipe Layout
- Fabrication
- Welding Inspection
- Weld Testing Methods
- Preparation for ASME Testing

Welding Technology (FPC Division of Workforce Development, Safety, & Emerging Technology) Certificate of Completion

Required Courses	Credit Hours
DFTG 1325 - Blueprint Reading and Sketching	3
WLDG 1317 - Introduction to Layout Fabrication	3
WLDG 1337 - Introduction to Metallurgy	3
WLDG 1204 - Fundamentals of Oxy-Fuel Welding & Cutting	2
WLDG 1428 - Introduction to Shielded Metal Arc Welding	4
WLDG 1202 - Fundamentals of Gas Metal Arc (MIG) Welding	2
WLDG 1457 - Intermediate Shielded Metal Arc Welding	4
WLDG 1435 - Introduction to Pipe Welding	4
WLDG 1434 - Introduction to Gas Tungsten Arc (TIG) Welding	2
WLDG 2443 - Advanced Shielded Metal Arc Welding	4
WLDG 2506 - Intermediate Pipe Welding	5
WLDG 2488* - Internship: Welder/Welding Technologist	4
Advanced Welding Certification	20
WLDG 2453 - Advanced Pipe Welding	4
WLDG 2451 - Advanced Gas Tungsten ARC (TIG) Welding	4
WLDG 2447 - Advanced Gas Metal Arc Welding	4
WLDG 2439 - Advanced Oxy-Fuel Cut and Weld	4
WLDG 2413* - Intermediate Welding Using Multiple Processes	4
<i>*Capstone Course</i>	
Total: 62 Credit Hours	

Additional Welding Classes Offered:

WLDG 1305 - Art Metals	3
WLDG 1391 - Special Topics	3
WLDG 2452 - Advanced Flux Core	4
WLDG 1206 - Fundamentals of Gas Tungsten (TIG) Arc Welding	2



WLDG 1202 - Fundamentals of Gas Metal Arc (MIG) Welding

1-3-2 | A study of the principles of gas metal arc welding, setup and use of GMAW equipment, and safe use of tools and equipment instruction on various joint designs.

WLDG 1204 - Fundamentals of Oxy-Fuel Welding and Cutting

1-3-2 | An introduction to oxy-fuel welding and cutting including history and future in welding, safety, setup, and maintenance of oxy-fuel welding, cutting, equipment, and supplies.

WLDG 1206 - Fundamentals of Gas Tungsten Arc (TIG)

1-3-2 | An introduction to the principles of gas tungsten arc welding (GTAW), setup and use of GTAW equipment and safe use of tools and equipment. Welding instruction in various positions on joint designs.

WLDG 1305 - Art Metals

2-4-3 | Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student.

WLDG 1317 - Introduction to Layout Fabrication

2-2-3 | A fundamental course in layout fabrication related to the welding industry. Major emphasis on structural shapes and use in construction.

WLDG 1325 - Blueprint Reading and Sketching

3-0-3 | A study of industrial blueprints. Emphasis placed on terminology, symbols, graphic description, and welding processes, including systems of measurement and industry standards, interpretation of plans and drawings used by industry.

WLDG 1337 - Introduction to Metallurgy

2-2-3 | A study of ferrous and nonferrous metals from the ore to the finished product. Emphasis on metal alloys, heat treating, hard surfacing, welding techniques, forging, foundry processes, and mechanical properties of metal including hardness, machinability, and ductility.

WLDG 1391 - Special Topics Welder/Welding Technologist

2-4-3 | Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student.

WLDG 1428 - Introduction of Shielded Metal Arc Welding

2-8-4 | An introduction to shielded metal arc welding processes. Emphasis placed on power sources, electrode selection, oxy-fuel cutting and various joint designs, instruction provided in SMAQ fillet welds in various positions.

WLDG 1434 - Introduction to Gas Tungsten Arc (GTAW) Welding

2-8-4 | An in depth introduction to the principles of gas tungsten arc welding (GTAW), setup and use of GTAW equipment and safe use of tools and equipment. Welding instruction in various positions and joint design.

WLDG 1435 - Introduction to Pipe Welding

2-8-4 | An introduction to welding of pipe using shielded metal arc welding process, including electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 1G and 2G welds using various electrodes.

WLDG 1457 - Intermediate Shielded Metal Arc Welding (SMAW)

2-8-4 | A study of the production of various fillets and groove welds. Preparation of specimens for testing in all test positions. Prerequisite: WLDG 1428.

WLDG 2413 - Intermediate Welding Using Multiple Processes

2-8-4 | Instruction using layout tools and blueprint reading with demonstration and guided practices with some of the following welding processes: oxy-fuel gas cutting and welding, shield metal arc welding (SMAW), gas metal arc welding (GMAW), flux-cored arc welding (FCAW), gas tungsten arc welding (GTAW), or any other approved welding process in preparation for industry standard 2.5" pipe welding performance test.

WLDG 2439 - Advanced Oxy-Fuel Cut and Weld

2-8-4 | A study and practical use of all position welding on ferrous and non-ferrous metals using oxy-fuel welding process, including welding and quitting, brazing, and soldering operations.

WLDG 2443 - Advanced Shielded Metal Arc Welding

2-8-4 | Advanced topics based on accepted welding codes. Training provided with various electrodes in shielded metal arc welding processes with open V-groove joints in all positions. **Prerequisite:** WLDG 1457.

WLDG 2447 - Advanced Gas Metal Arc Welding

2-8-4 | Advanced topics in Gas Metal Arc Welding (GMAW) including welding in various positions, directions on various joint designs.

WLDG 2451 - Advanced Gas Tungsten Arc (TIG) Welding

2-8-4 | Advanced topics in GTAW welding, including welding in various positions and directions. **Prerequisite:** WLDG 1206.

WLDG 2452 - Advanced Flux Core

2-8-4 | Advanced concepts of flux core arc welding of structural and fabricated steel products with skills development in multi-pass fillet and V-groove welding.

WLDG 2453 - Advanced Pipe Welding

2-8-4 | Advanced topics involving welding of pipe using shielded metal arc welding process. Topics include electrode selection, equipment setup, and safe shop practices. **Prerequisite:** WLDG 1435.

WLDG 2506 - Intermediate Pipe Welding

2-8-5 | A comprehensive course on the welding of pipe using the shielded metal arc welding (SMAW) process. Position of welds will be 1G, 2G, 5G, and 6G using various electrodes. Topics covered include electrode selection, equipment setup, and safe shop practices.

WLDG 2488 - Internship: Welder/Welding Technologist

0-12-4 | An experience external to the College for an advanced student in a specialized field involving a written agreement between the educational institution and a business of industry. Mentored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and that are directly related to specific occupational outcomes. This may be a paid or unpaid experience. This course may be repeated if topics and learning outcomes vary.