

Industrial Welding Technology

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Welders use hand-welding or flame-cutting equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products. The process of welding uses either electricity or various gasses to create high temperatures that bond metals.

Welders may also be required to flame cut or cold cut metal based on blueprints and/or isometric drawings to construct new pipe or structural steel systems for process systems and unit infrastructure components. Flame cutting may also be required for equipment demo prior to new construction of new equipment.

The skill level varies between different types of welding depending on the metallurgy and process required to complete a reliable weld.

What will I learn?

The welding technology program teaches both the theoretical and practical principles of the profession, develops proficiency in technical skills, and provides opportunities for the application of both theoretical and practical knowledge. Upon completion of the program, you will be able to:

- Safely and efficiently utilize cutting and welding equipment that complies with accepted industry standards
- Read/interpret mechanical drawings and apply communicated information to build fabricated assemblies that comply with industry standards
- Demonstrate acquired skills and a knowledge base that meets or exceeds established industry benchmarks
- Prepare various types of weld joints per industry standards, using appropriate welding and cutting processes and procedures
- Perform various types of welds on industry-standard joint types in all positions, using appropriate welding and cutting processes and procedures
- Evaluate quality control standards and practices applied in welding inspection in the welding industry
- Analyze technical documentation to make informed decisions in welding processes
- Apply mathematical and logical reasoning to the welding and fabrication processes
- Analyze the physical, mechanical, and chemical properties of materials to perform welding and fabrication procedures

What Can I Do with this Course of Study?

Successful completion of a degree or certificate within the Welding Technology program may lead to employment as:

- Welders
- Cutters
- Solderers
- Brazers
- Machinists

AAS: Industrial Welding Technology

Foundations: These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.

Course	Course Title	Counts Toward Certificate
WLDG 1200	Introduction to Welding	WE1, WH1
WLDG 1428	Introduction to Shielded Metal Arc Welding (SMAW- Plate I)	WE1, WH1
WLDG 1323 or PFPB 1350	Welding Safety, Tools, and Equipment Or Plumbing and Pipefitting Equipment and Safety	WE1, WH1
WLDG 2443	Advanced Shielded Metal Arc Welding (SMAW - Plate II)	WE1, WH1
WLDG 1313	Introduction to Blueprint Reading for Welders	WE1, WH1, WI1
WLDG 1434	Introduction to Gas Tungsten Arc Welding (GTAW)	WE1
WLDG 1430	Introduction to Gas Metal Arc Welding (GMAW)	WE1
WLDG 1312	Introduction to Flux Cored Arc Welding (FCAW)	WE1
WLDG 1337	Introduction to Welding Metallurgy	WE1, WI1

*To complete the WI1 certificate, you will need to complete NDTE 1401, NDTE 1405, NDTE 1410, NDTE 2411, & WLDG 1327.

Knowledge Building: These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.

Course	Course Title	Counts Toward Certificate
WLDG 1435	Introduction to Pipe Welding	WE1
WLDG 2453	Advanced Pipe Welding	WE1

WLDG 2451 Advanced Gas Tungsten WE1
 Arc Welding (GTAW)

Completion: These are the courses the student needs in order to complete the degree plan and prepare to enter the workforce.

Course	Course Title	Counts Toward Certificate
ENGL 1301	English Composition I	
TECM 1301	Industrial Mathematics	
SPCH 1321	Suggested: Business and Professional Communication	
Creative Arts	Suggested: ARCH 1311	
Life or Physical Science or Math	Suggested: Physics 1405 or Math 1332	
SBS	Suggested: PSYC 2301 or SOCI 1301	

WE1: Certificate of Completion — Welding Technology

Foundations: These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.

Course	Course Title	Counts Toward Certificate
WLDG 1200	Introduction to Welding	WE1
WLDG 1428	Introduction to Shielded Metal Arc Welding (SMAW - Plate I)	WE1
WLDG 1323 or PFPB 1350	Welding Safety, Tools, and Equipment Or Plumbing and Pipefitting Equipment and Safety	WE1
WLDG 2443	Advanced Shielded Metal Arc Welding (SMAW - Plate II)	WE1
WLDG 1313	Introduction to Blueprint Reading for Welders	WE1
WLDG 1434	Introduction to Gas Tungsten Arc Welding (GTAW)	WE1
WLDG 1430	Introduction to Gas Metal Arc Welding (GMAW)	WE1
WLDG 1312	Introduction to Flux Cored Arc Welding (FCAW)	WE1

WLDG 1337	Introduction to Welding Metallurgy	WE1, WI
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To complete the WI1 certificate, you will need to complete NDTE 1401, NDTE 1405, NDTE 1410, NDTE 2411, & WLDG 1327.

Knowledge Building: These courses further the students' knowledge in the area of study and increase their preparation for the degree completion.

Course	Course Title	Counts Toward Certificate
WLDG 1435	Introduction to Pipe Welding	WE1
WLDG 2453	Advanced Pipe Welding	WE1
WLDG 2451	Advanced Gas Tungsten Arc Welding (GTAW)	WE1

WH1: Certificate of Completion — Welding Helper

Foundations: These are the courses students need in order to progress in their career/college pathway, as they either provide a certificate or lay the groundwork for moving to the next set of courses.

Course	Course Title	Counts Toward Certificate
WLDG 1200	Introduction to Welding	WH1
WLDG 1428	Introduction to Shielded Metal Arc Welding (SMAW - Plate I)	WH1
WLDG 1323 or PFPB 1350	Welding Safety, Tools, and Equipment Or Plumbing and Pipefitting Equipment and Safety	WH1
WLDG 2443	Advanced Shielded Metal Arc Welding (SMAW - Plate II)	WH1
WLDG 1313	Introduction to Blueprint Reading for Welders	WH1

WI1: Certificate of Completion — Welding Inspection

Foundations: These are the courses students need in order to progress in their career/college pathway as they either provide a certificate or lay the groundwork for moving to the next set of courses.

Course	Course Title	Counts Toward Certificate
WLDG 1313	Introduction to Blueprint Reading for Welders	WI1
WLDG 1337	Introduction to Welding Metallurgy	WI1

NDTE 1401	Film Interpretation of Weldments	WI1
NDTE 1410	Liquid penetrant/Magnetic particle Testing	WI1

Knowledge Building: These courses further the students' knowledge in the area of study and complete the certificate.

Course	Course Title	Counts Toward Certificate
NDTE 2411	Preparation for Certified Welding Inspector Exam	WI1
WLDG 1327	Welding Codes	WI1
NDTE 1405	Introduction to Ultrasonics	WI1
	Elective: Choose from BCIS 1305, WLDG 1312, or WLDG 1428	WI1

NDTE 2411: Students should plan to take the capstone course in their last semester and should speak with their advisor before registering for the final semester.

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