

Welding Technology



Recommendations for Success:

- Size and Shape discrimination
- Able to withstand outside elements, including exposure to intense heat and cold
- Structural and mechanical visualization/reasoning skills
- Manual dexterity including fine motor skills
- Excellent eye-hand-foot coordination
- Physical stamina; able to lift 60 lbs or more
- Adjust to noisy working conditions
- Able to work in confined spaces
- Follow safety rules and precautions
- Reasoning skills – both inductive and deductive
- Good attendance
- Homework completion
- Algebra and Trigonometry fundamentals
- Geometry
- Measure in both fractions/decimals
- No fear of heights
- Good mechanical aptitude
- Fine motor skills



Lenape Technical School	Welding Technology
Objective of field	Welding Technology curriculum provides excellent preparation for those whose career goals include becoming a welder, welding engineer, mechanical engineer, metallurgical engineer, welding technician, or a specialized welder practitioner.
Job Duties	<ul style="list-style-type: none"> • Set up, operate, or tend welding • Soldering or brazing machines • Robots that weld, braze, solder, or heat treat metal products, components, or assemblies
Classroom Tests	<p>First Year: 35 for the year* Second Year: 25 for the year* Third Year: 5 for the year and as needed*</p> <p><i>*This number is approximate and subject to change</i></p>
Certification Tests	<p>American Welding Society (AWS) SENSE Entry Level I–Welding Technology (written and performance assessments) AWS – EG2 (at least eight performance-based tests within this category) National Occupational Competency Testing Institute (NOCTI) Welding end of program test O.S.H.A. Safety Training (10 hour course) Fork Truck Training (sit-down counter balanced, stand-up narrow aisle, and motorized pallet jack) Bloodborne and Airborne Pathogens Certification CPR and First-Aid training Fire Extinguisher training</p>
Books	<p><u>Welding Skills</u> <u>NCCER Modules</u></p>
Lecture Time	<p>First year: 1 hour, 3 times a week* Second Year: 1 hour, 2-3 times a week and as needed* Third year: 1/2 hour, 2-3 times a week and as needed*</p> <p><i>*This number is approximate and subject to change</i></p>
Co-op/Clinical	<ul style="list-style-type: none"> • Student must receive approval from all members of the professional staff • Student must have a “B” grade or higher in all subjects • Student must have a satisfactory discipline record • Student must maintain passing grades while they are in the co-op program • Student must maintain strong attendance record and demonstrate punctuality • Student must provide their own transportation to and from work • Student must have completed 80% of program competencies
Homework	<p>Homework average is 3-5 hours per week depending on grade level</p> <ul style="list-style-type: none"> • Study for safety and unit tests • Reading assignments • Study guides • Chapter reviews • Oral presentations • Internet assignments
Task Lists	<p>First Year – 45 + for the year* Second Year – 114 for the year* Third Year – will complete what was left from second year*</p> <p><i>*This number is approximate and subject to change</i></p>

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Planned Courses	<ul style="list-style-type: none"> • Oxy-fuel Cutting (first, second, and third year) • Oxy-fuel Welding/Brazing (second and third year) • Intermediate Blueprint Reading (first, second, and third year) • Gas Metal Arc Welding (MIG) (end of first and all of second and third year) • Flux-core Arc Welding (end of first and all of second and third year) • Plasma Arc Cutting (first, second, and third year) • Carbon Air Arc Cutting (first, second, and third year) • Gas Tungsten Arc Welding (Heli-Arc/TIG) (end of first and all of second and third year) • Basic Safe Work Practices (first, second, and third year) • Safe Fabrication Equipment Operations (first, second, and third year) • Shielded Metal Arc Welding “Stick” (first, second, and third year) • Welding Inspection (first, second, and third year) • Cross training in Precision Machining and Pre-Engineering 	
Academic Skills	<p>High School reading level</p> <p>Math Skills:</p> <ul style="list-style-type: none"> • Fractions/decimals (add, subtract, multiply, divide) • Order of operations • Sine, Cosine, Tangent • Pythagorean Theorem • Special triangles • Application of Trigonometry/Inverse Trigonometry angles • Formulas • Conversion of Linear measurement to US Customary to metric and vice versa 	
Soft Skills	<ul style="list-style-type: none"> • Listening • Reasoning (inductive/deductive) • Human relations • Able to work with others • Critical thinking • Attendance • Punctual 	
Computer Skills	<ul style="list-style-type: none"> • Microsoft Word, Excel and PowerPoint 	
Physical Requirements	<ul style="list-style-type: none"> • Lift 60 pounds • Tolerate extreme temperature • No fear of heights • Hand-eye-foot coordination • Manual dexterity • Tolerate loud noise levels • Work in confined spaces 	
Vocational Testing Essential Aptitudes for lab recommended levels	<ul style="list-style-type: none"> • Structural mechanical visualization/reasoning • Discrimination by size/shape • Gross/fine motor skills • Manual dexterity • Retention of mechanical and structural detail 	
Training	<p>Welding has evolved into a sophisticated science and technology. Skills developed in Lenape Technical School’s Welding Technology program are immediately transferable to a professional career as a welder or as a student enrolled at a community/technical college, university, or other post-secondary institution.</p> <p>Additionally, the curriculum provides excellent preparation for those whose career goals include becoming a welder or a welding, mechanical, or metallurgical engineer.</p>	
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Uniform Requirements	<p>Student's Expense:</p> <ul style="list-style-type: none"> • High top (8 inch or more) leather work boots (steel toes are recommended) • Any leather welding attire • Lenape Tech polo shirt • 100% cotton clothing <ul style="list-style-type: none"> ▪ Denim long sleeve shop shirt ▪ Heavy cotton work pants ▪ T-shirts (no sleeveless tank tops, silk screened appliqués, or flannel) <p>Note: all undergarments must also be 100% cotton</p>										
Articulation Agreements	<p>This is a program of study (POS) that has a state-wide articulation agreement with post-secondary institutions. To find these, please see: www.collegetransfer.net for this CIP Code: 48.0508</p>										
Employment/Job Outlook	<p>Employment of welders, cutters, solderers, and brazers is expected to grow 15 percent from 2010 to 2020 (about as fast as the average for all occupations).</p> <p>Employment growth reflects the need for welders in manufacturing because of the importance and versatility of welding as a manufacturing process. The basic skills of welding are the same across industries, so welders can easily shift from one industry to another, depending on where they are needed most. For example, welders laid off in the automotive manufacturing industry may be able to find work in the oil and gas industry.</p> <p>Growth of the defense industry, including the manufacturing of aircrafts and missiles, is expected to contribute to employment growth.</p> <p>In addition, the nation's aging infrastructure will require the expertise of many welders, cutters, solderers, and brazers to rebuild bridges, highways, and buildings, resulting in some new jobs.</p> <p>Job Outlook:</p> <p>Overall job prospects will vary by skill level. Job prospects should be encouraging for welders trained in the latest technologies. Welding schools report that graduates have little difficulty finding work, and many welding employers report difficulty finding properly skilled welders. However, welders who do not have up-to-date training may face competition for jobs.</p> <p>For all welders, job prospects should be better for those willing to relocate.</p> <p>Retirements and job growth in the oil and gas and other industries are expected to create excellent opportunities for welders. Welding schools report that graduates have little difficulty finding work, and some welding employers report difficulty finding trained welders.</p> <p>The median annual wage of welders, cutters, solderers and brazers was \$35,450 in May 2010. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$23,940, and the top 10 percent earned more than \$53,690.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-left: 40px;">Other general purpose machinery manufacturing</td> <td style="text-align: right;">\$15.43</td> </tr> <tr> <td style="padding-left: 40px;">Agriculture, construction, and mining machinery manufacturing</td> <td style="text-align: right;">\$14.90</td> </tr> <tr> <td style="padding-left: 40px;">Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance</td> <td style="text-align: right;">\$14.59</td> </tr> <tr> <td style="padding-left: 40px;">Architectural and structural metals manufacturing</td> <td style="text-align: right;">\$14.39</td> </tr> <tr> <td style="padding-left: 40px;">Motor vehicle body and trailer manufacturing</td> <td style="text-align: right;">\$13.68</td> </tr> </table> <p>Wages for welders, cutters, solderers, and brazers vary based on experience, skill level,</p>	Other general purpose machinery manufacturing	\$15.43	Agriculture, construction, and mining machinery manufacturing	\$14.90	Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	\$14.59	Architectural and structural metals manufacturing	\$14.39	Motor vehicle body and trailer manufacturing	\$13.68
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Employment/Job Outlook	<p>industry, and company size.</p> <p>About 17 percent of welders belong to a union.</p> <p>Although most welders, solderers, cutters, and brazers work full time, overtime is common in this occupation. Many manufacturing firms have two or three shifts each day, ranging from 8 to 12 hours, which allow the firm to continue production around the clock if needed. Therefore, welders, cutters, solderers, and brazers may work evenings and weekends.</p> <table border="1" data-bbox="477 491 1520 898"> <thead> <tr> <th data-bbox="477 491 823 594">Industry</th> <th data-bbox="823 491 1170 594">2-Year Associates Degree or 2-4 Years in Industry</th> <th data-bbox="1170 491 1520 594">4-Year Bachelor's Degree or 4-6 Years in Industry</th> </tr> </thead> <tbody> <tr> <td data-bbox="477 594 823 898">Production Worker Apprentice Welder's Helper Welder</td> <td data-bbox="823 594 1170 898">Associate Welding Engineer Pipe Welder</td> <td data-bbox="1170 594 1520 898">Welding Engineer Certified Welding Inspector Forman Fitter Union Journeyman (Ironworker, Steamfitter, Sheetmetal Worker, Boilermaker, Pipeliner)</td> </tr> </tbody> </table>			Industry	2-Year Associates Degree or 2-4 Years in Industry	4-Year Bachelor's Degree or 4-6 Years in Industry	Production Worker Apprentice Welder's Helper Welder	Associate Welding Engineer Pipe Welder	Welding Engineer Certified Welding Inspector Forman Fitter Union Journeyman (Ironworker, Steamfitter, Sheetmetal Worker, Boilermaker, Pipeliner)
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