

CERRITOS COLLEGE

WELDING TECHNOLOGY PROGRAM TECHNICAL STANDARDS/ESSENTIAL FUNCTIONS

The following listing has been prepared to assist you in understanding the technical standards of the Welding Technology program in order to affiliate in the industry and ultimately practice the profession. The technical standards as stated herewith are not conditions of admission to a program of study. Rather, they reflect performance abilities that are necessary for a student to successfully complete the requirements of the specified Technology program.

The purpose of this document is to notify prospective Welding Technology students of these technical standards to enable them to make an informed decision regarding enrollment in the Welding Technology program at Cerritos College.

The delivery of safe, effective practice requires that students be able to perform functions related to the technical standards outlined here. The inability of a student to perform these functions may result in the student being unable to meet course objectives and to progress in the Welding Technology program. Additionally, if a student is unable to perform these required competencies, the student may pose a risk of harm to the customer(s) for whom service is provided.

All applicants meeting the appropriate academic requirements shall be considered equally for admission to Cerritos College or any academic program regardless of physical or mental disability, gender, gender identity, gender expression, nationality, race or ethnicity, religion, sexual orientation, age, marital status, or genetic information. (Education Code section 66270, Government Code section 11135, Penal Code section 422.6)

Technical Standards Essential Function	Standard Performed Description	Examples of Activities (Not All Inclusive)
Cognitive Ability	<ul style="list-style-type: none">• Demonstrate ability to use logic and technical analysis to identify the strengths and weaknesses of different approaches to complete welding tasks.• Demonstrate personal time management to complete projects by given deadlines.• Exhibit ability to translate written and/or verbal information into actual projects.• Demonstrate ability to execute work requirements in accordance with written instructions.• Exhibit deductive reasoning.	<ul style="list-style-type: none">• Establish and manage time requirements for welding project completion.• Demonstrate judgment and decision making as required to organize various tasks to complete welding assignments and projects.• Determine solutions and procedures to guarantee conformance with welding tolerances and specifications.• Use self-evaluation of performance to determine new approaches for personal improvement.

Technical Standards Essential Function	Standard Performed Description	Examples of Activities (Not All Inclusive)
		<ul style="list-style-type: none"> Exhibit the ability to analyze documentation like blueprints and welding procedures specifications and then use this knowledge to build, fabricate, weld projects and/or structures. Accept constructive criticism from instructor and implement recommendation and/or solutions for improvement.
Communication Ability	<ul style="list-style-type: none"> Demonstrate use of multiple approaches to convey information. Demonstrate ability to follow verbal directions. Demonstrate ability to follow written directions. Discuss directions and methods required to complete a specific welding task. Demonstrate use of industry specific welding symbols to communicate information. 	<ul style="list-style-type: none"> Use a variety of strategies to convey the necessary welding information required to complete a specific welding task or project. Discuss available alternatives and methods that may be used to accomplish the objective. Use oral expression, reading, and writing comprehension to verify the information was received. Use of welding symbols to represent information on blueprints, projects, work orders, and welding procedure specifications.
Interpersonal/ Intrapersonal Skills and Behavior	<ul style="list-style-type: none"> Demonstrate awareness of other people's reactions and understand why they react the way they do and how you can improve the reception of your work. Demonstrate ability to identify the nature of problems. Demonstrate ability to collaborate with others in a group. 	<ul style="list-style-type: none"> Demonstrate respect for individual differences. Assist peers in resolving problems or conflicts. Respond appropriately to emergencies.

Technical Standards Essential Function	Standard Performed Description	Examples of Activities (Not All Inclusive)
	<ul style="list-style-type: none"> • Demonstrate ability to maintain and control self-behavior in a group setting. 	<ul style="list-style-type: none"> • Work cooperatively within a group to achieve a goal. • Maintain appropriate self-behavior in a group and/or social environment like a classroom lecture or laboratory demonstration.
Visual Ability	<ul style="list-style-type: none"> • Exhibit accurate vision from 6" to 36" required. • Demonstrate ability to perform required task in both low and bright lighted environments. • Demonstrate ability to visually obtain information from technical drawings or written standards. 	<ul style="list-style-type: none"> • Perform welding tasks from 6" to 36" with natural vision or corrected vision with contacts or glasses. • Identify visually weld discontinuities and defects like: size, shape, undercut, cracks, porosity, and slag inclusions. • Precision use of tools and measurement devices such as tape measurements using the 1/64" scale and/or dial calipers using the thousandths scale. • Read detailed orthographic blueprints, symbols, and welding procedure specifications.
Auditory Ability	<ul style="list-style-type: none"> • Demonstrate hearing ability sufficient to communicate with peers in close or far proximity. • Demonstrate hearing awareness of potentially hazardous industrial equipment. • Demonstrate ability to hear alarms, bells, sirens, and various other safety alerts. • Demonstrate ability to detect and/or identify electrically motorized equipment under load and/or being strained. 	<ul style="list-style-type: none"> • Communicate effectively with other welders or coworkers inside of an industrial shop or in the field by voice, loud speaker, phone, and/or two-way radio. • Hear and detect safety hazards like flammable gas leaks. For example: welders are notified of gas leaks with a repeating buzzer sound. • Hear and detect industrial equipment problems, overloading, and/or failures.

Technical Standards Essential Function	Standard Performed Description	Examples of Activities (Not All Inclusive)
	<ul style="list-style-type: none"> • Tolerate exposure to extremely noisy and loud environments. 	<ul style="list-style-type: none"> • Demonstrate ability to accurately adjust welding equipment by sound. • Demonstrate ability to concentrate and perform welding duties while being exposed to an industrial noisy environment for • lengthy periods of time.
Tactile Ability	<ul style="list-style-type: none"> • Demonstrate tactile ability sufficient for physical control of tools and equipment. • Demonstrate manual hand dexterity with repetitive precision movements and techniques. • Demonstrate ability to manually manipulate small objects like welding rods less than 1/16" in diameter. • Demonstrate ability to tactically use multiple extremities simultaneously. • Demonstrate ability to use finger and hand pressure to grip various shaped objects. 	<ul style="list-style-type: none"> • Perform functions of physical control with various tools and equipment, including: Chipping hammers, wire brushes, torches, filler materials, and welding electrode holders. • Perform repetitive welding techniques in multiple positions with both hands simultaneously. (Welding torches, stingers, wire feed guns etc.) • Demonstrate ability to have individual hands perform different manual functions simultaneously. (Hold torch with one hand – feed welding wire with other hand) • Manipulate and feed small welding wires tactically with hands and fingers. (Welding rods & wires come in diameters from .030" to 3/16"). • Perform welding operations using both hands and both feet to control. (Torch angle, feed of filler metal, amperage control, and speed of part rotation)
Olfactory Ability	<ul style="list-style-type: none"> • Demonstrate ability sufficient to detect contaminant odors in the workplace. 	<ul style="list-style-type: none"> • Detect hazardous and/or objectionable welding fumes.

Technical Standards Essential Function	Standard Performed Description	Examples of Activities (Not All Inclusive)
	<ul style="list-style-type: none"> • Demonstrate ability to detect flammable gas leaks. • Exhibit identification ability when working with chemicals, solvents, and petroleum-based liquids. • Demonstrate ability to detect various burning materials. • Demonstrate ability to detect electrical and/or burning synthetic materials. 	<ul style="list-style-type: none"> • Detect specific flammable gas leaks like acetylene or propylene gas. • Detect various burning materials. • Detect smells that represent a potential hazard such as smoke from a fire or burning electrical equipment and/or synthetic materials. • Tolerate normal smells and fumes produced by welding and cutting processes.
Strength and Mobility	<ul style="list-style-type: none"> • Demonstrate ability to push and pull industrial equipment up to 300 lbs. • Demonstrate ability to lift 50 lbs. from the ground to the overhead position. • Demonstrate ability to pick up and carry industrial building materials like: steel pipe, tube, angle, channel, and flat bar weighing up to 100 lbs. with assistance. • Demonstrate ability to lift, and move heavy metal projects and/or structures manually or by chain fall, come-along, cables, straps, ropes, etc. • Demonstrate ability to climb ladders while carrying heavy loads. 	<ul style="list-style-type: none"> • Demonstrate ability to lift containers of welding rod weighing 50 lbs. from the floor up to 24" overhead. • Demonstrate ability to pick up and carry structural steel materials (pipe, plate, tube, angle, flat bar etc.) and/or industrial equipment weighing up to 100 lbs. with assistance. • Demonstrate ability to work in numerous positions from on the ground to overhead as well as over, under, and around parts, projects and/or structures. • Demonstrate ability to carry extremely heavy weight 20-foot-long structural steel members from storage facilities to and from metal cutting and fabrication equipment. • Demonstrate ability to move (push and pull) welding and cutting equipment, weighing up to approximately 300 lbs. like: gas cylinders, oxyacetylene cutting carts, and welding

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Motor Skills	<ul style="list-style-type: none"> • Demonstrate physical abilities including: standing, sitting, walking, stooping, crawling, reaching, squatting, lifting, and bending. • Exhibit full range-of-motion of all extremities. • Demonstrate balance sufficient to conduct precision repetitive movements. • Demonstrate ability to keep balance and equilibrium when in various physical positions. • Demonstrate ability to perform controlled accurate movements, motor skills, and techniques with both hands and both arms independently and/or simultaneously. 	machines etc.
		<ul style="list-style-type: none"> • Demonstrate ability to perform physical welding and cutting operations in an industrial laboratory while wearing all required personal protective equipment. • Demonstrate ability to perform various welding and cutting tasks while the body is in an awkward and/or uncomfortable position. • Demonstrate ability to perform repetitive physical movements and motor skills intermittently and/or continuously for extended periods of time. • Demonstrate ability to continuously improve and further develop manual motor skills and welding techniques. • Demonstrate ability to develop and refine manual dexterity motor skills to implement various welding techniques required to produce acceptable weldments.
Physical Endurance	<ul style="list-style-type: none"> • Demonstrate sufficient physical endurance to complete assigned industrial work and/or welding projects. • Perform industrial work activities for up to 8 hours while wearing required safety equipment like: Leather jacket, face shields, gloves, boots, and respirators. • Demonstrate ability to work with hands and arms extended overhead or below the waist for long periods of time. • Demonstrate ability to perform manual activities with industrial equipment like: torches, welding guns, heavy electrical cables, and grinders for extended periods of time. 	<ul style="list-style-type: none"> • Sit and/or stand for up to 8 hours a day with arms extended to waist level, face level and/or overhead positions while performing welding operations. • Make repetitive motions (welding techniques) for several hours with the hands, wrists, arms, and feet. • Perform manual hammering, chipping, sanding, filing, and/or wire brushing for extended periods of time. • Operate and control industrial grinders

Technical Standards Essential Function	Standard Performed Description	Examples of Activities (Not All Inclusive)
	<ul style="list-style-type: none"> • Demonstrate ability to work long extended overtime hours. • Demonstrate physical endurance to perform welding work duties in environments like when ambient temperatures exceed 100° F. • Tolerate exposure to industrial equipment and other potentially hazardous equipment like forklifts, manlifts, overhead cranes, iron workers, shears, saws, and grinders. 	<p>weighing approximately 25 lbs. and operating at 6,000 to 10,000 RPM.</p> <ul style="list-style-type: none"> • Perform welding and cutting operations for up to 8 hours while wearing all required personal welding safety equipment and while utilizing and working with welding equipment like: heavy electrical cables, torches, stingers, and wire feed guns. • Perform strenuous welding and cutting activities in adverse conditions and environments that may be hot, cold, dusty, windy, noisy, and/or in direct sunlight. • Tolerate exposure to an environment that contains industrial hazards like: heavy parts and metals, flammable gasses, sharp objects, metal saws, grinders, hydraulic and electrical • equipment.

Disability Statement:

If you have a disability or acquire one, you may be entitled to receive support services and/or accommodations intended to assure you an equal opportunity to participate in, and benefit from, the program. Reasonable accommodations for students with disability related needs will be determined on an individual basis taking into consideration the standards and essential skills which must be performed to meet the program objectives. To receive more information or to apply for services, please contact the Center for Access and Disability Services (CADS) at (562) 860-2451 ext. 2335 or (562) 274-7164 (VP), or visit them in the Santa Barbara Building. All prospective and current Welding Technology students must be able to meet these standards with or without reasonable accommodations.

Cerritos College is committed to providing an educational environment that is free from discrimination and harassment. We do not discriminate on the basis of race, color, national origin, sex, disability, age, or any other characteristic protected by law in any of our programs or activities. For more information regarding our policies, please contact our Director, Compliance, Diversity, & Title IX Coordinator at <https://www.cerritos.edu/hr/>

All career technical education (CTE) opportunities will be offered regardless of race, color, national origin, sex, or disability. Compliance with Title IX and Section 504/Title II are the responsibility of the District's Director of Diversity, Compliance, & Title IX.

Human Resources
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