Nebraska CTE

Advanced Manufacturing & Fabrication - Metals

Apply safety principles, practices, philosophy, and guidelines to the work environment. STS.HS.2.1	**a** Complete applicable safety assessment with 100% accuracy. STS.HS.2.1.A
	b Employ appropriate Personal Protective Equipment (PPE) while in the lab setting. STS.HS.2.1.B
	c Employ eye protection in compliance with Neb. Rev. Statute 79–715. STS.HS.2.1.C
	d Employ the safe application of tools and machines. STS.HS.2.1.D
	e Explain the main hazards that are possible in the lab setting. STS.HS.2.1.E
	f Demonstrate proper handling and storing of materials and chemicals. STS.HS.2.1.F
Execute accurate measurements using precision metal measurement tools. STS.HS.2.2	**a** Identify types of precision measurement tools. STS.HS.2.2.A
	b Categorize precision measurement tools by use. STS.HS.2.2.B
	c Differentiate between measurement tools and layout tools. STS.HS.2.2.C
	d Demonstrate the accurate use of measurement and layout tools to 1/64" precision or 0.5mm precision. STS.HS.2.2.D
Solve math functions and formulas to complete metals job or workplace tasks. STS.HS.2.3	**a** Identify whole numbers, decimals, fractions, and complex numbers. STS.HS.2.3.A
	b Apply intermediate arithmetic operations. STS.HS.2.3.B
	c Apply basic geometric operations. STS.HS.2.3.C
	d Solve decimal or fraction conversions. STS.HS.2.3.D
	e Solve metric or United States Customary System (USCS) conversions. STS.HS.2.3.E
Identify career opportunities in the me inc	**a** Describe work behaviors needed to be employable. STS.HS.2.4.A
	:mploy appropriate work behavior that meets or exceeds metal industry tandards. STS.HS.2.4.B

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	d Explain the required education, certification, or licensure needed for a metal manufacturing career. STS.HS.2.4.D
	e Analyze the value that may be added to the community by manufacturing professionals. STS.HS.2.4.E
	f Explain the industry standard compensation for a metal manufacturing professional. STS.HS.2.4.F
Apply manufacturing communications. STS.HS.2.5	**a** Define metal manufacturing terminology. STS.HS.2.5.A
	b Generate a metal project proposal. STS.HS.2.5.B
	c Estimate manufacturing timelines based on criteria. STS.HS.2.5.C
	d Utilize business and interpersonal communication appropriate to the work environment. STS.HS.2.5.D
Describe the materials, tools, machines, and processes required to manufacture a metal product. STS.HS.2.6	**a** Identify the various types of metals and their characteristics. STS.HS.2.6.A
	b Differentiate additive and subtractive manufacturing. STS.HS.2.6.B
	c Identify fasteners by their industry standard applications. STS.HS.2.6.C
	d Differentiate between various types of mechanical and chemical fasteners. STS.HS.2.6.D
	e Estimate amount of materials and supplies needed for a product. STS.HS.2.6.E
	f Determine feed rate and speed settings for a material and process. STS.HS.2.6.F
	g Explain the operation and application of common metal industry finishes. STS.HS.2.6.G
	h Assess potential environmental and health impacts of using specific materials or processes. STS.HS.2.6.H
	i Determine the correct tools, machines, and processes needed to produce a specific metal product. STS.HS.2.6.I
Manufacture a custom-level product that uses metal as its primary material. STS.HS.2.7	**a** Interpret plans, drawings, and specifications to process materials. STS.HS.2.7.A
	b Coordinate the standard operation and application of tools and machines along the manufacturing process. STS.HS.2.7.B
	c Plan and apply the type of materials, processes, and finishes required to manufacture a specific product. STS.HS.2.7.C
	d Critique a finished product. STS.HS.2.7.D

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e **Appraise the manufacturing process for streamlining opportunities.** STS.HS.2.7.E