

# Manufacturing Processes - Metals

Apply safety principles, practices, philosophy, and guidelines to the work environment. [STS.HS.21.1](#)

- a** Complete applicable safety assessment with 100% accuracy. [STS.HS.21.1.A](#)
- b** Employ appropriate Personal Protective Equipment (PPE) while in the lab setting. [STS.HS.21.1.B](#)
- c** Employ eye protection in compliance with Neb. Rev. Statute 79-715. [STS.HS.21.1.C](#)
- d** Employ the safe application of tools and machines. [STS.HS.21.1.D](#)
- e** Explain the main hazards that are possible in the lab setting. [STS.HS.21.1.E](#)
- f** Demonstrate proper handling and storing of materials and chemicals. [STS.HS.21.1.F](#)

Identify career opportunities in metals areas. [STS.HS.21.2](#)

- a** Identify responsibilities and characteristics of professionals in a metals industry. [STS.HS.21.2.A](#)
- b** Describe work behaviors needed to be employable in a metals industry. [STS.HS.21.2.B](#)
- c** Identify the training, education, certification, and licensing requirements for various careers in a metals industry. [STS.HS.21.2.C](#)
- d** Identify high wage, high demand, and high skill careers in metals. [STS.HS.21.2.D](#)

Demonstrate accurate measurements using measurement tools used in metals. [STS.HS.21.3](#)

- a** Identify types of metals measurement tools. [STS.HS.21.3.A](#)
- b** Explain metals measurement tools by use. [STS.HS.21.3.B](#)
- c** Demonstrate the accurate use of metals measurement and layout tools to 1/16" precision. [STS.HS.21.3.C](#)

Solve math functions and formulas to complete metals manufacturing tasks. [STS.HS.21.4](#)

- a** Identify whole numbers, decimals, fractions, and complex numbers. [STS.HS.21.4.A](#)
- b** Apply basic arithmetic operations used in metals manufacturing. [STS.HS.21.4.B](#)
- c** Solve decimal/fraction conversions used in metals manufacturing. [STS.HS.21.4.C](#)

Analyze the use of metals manufacturing communications. STS.HS.21.5

- a Define metals manufacturing terminology. STS.HS.21.5.A
- b Interpret the language of metals manufacturing. STS.HS.21.5.B
- c Explain business and interpersonal communication appropriate to the work in the metals manufacturing environment. STS.HS.21.5.C

Determine the materials, tools, machines, and processes required to manufacture a metals product. STS.HS.21.6

- a Identify the characteristics, properties, and origin of diverse metals. STS.HS.21.6.A
- b Differentiate additive and subtractive metals manufacturing. STS.HS.21.6.B
- c Identify metals fasteners by their industry standard applications. STS.HS.21.6.C
- d Determine feed rate and/or speed settings for a metal material and process. STS.HS.21.6.D
- e Explain the operation and application of common metals industry chemicals. STS.HS.21.6.E
- f Determine the correct tools, machines, and processes needed to produce a specific metal product. STS.HS.21.6.F
- g Estimate the amount of materials and supplies needed to manufacture a metal product. STS.HS.21.6.G

Manufacture a product that uses metal as its primary material. STS.HS.21.7

- a Interpret plans, drawings, and specifications to process metal materials. STS.HS.21.7.A
- b Employ the standard operation and application of tools and machines along the metal manufacturing process. STS.HS.21.7.B
- c Apply the correct types of materials, fasteners, adhesives, and finishes required to manufacture a specific metal product. STS.HS.21.7.C
- d Explain how to critique a finished product. STS.HS.21.7.D
- e Explain how to appraise the manufactured product. STS.HS.21.7.E