Nebraska CTE

# Engineering Design and Systems Thinking

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| **Apply safety principles, practice, philosophy, and guidelines to the work environment.** STS.HS.14.1 | **a** Complete applicable safety assessment with 100% accuracy. STS.HS.14.1.A |
| | **b** Employ eye protection in compliance with Neb. Rev. Statute 79–715. STS.HS.14.1.B |
| | **c** Employ appropriate Personal Protective Equipment (PPE) while in the lab setting. STS.HS.14.1.C |
| | **d** Employ the safe application of tools and machines. STS.HS.14.1.D |
| | **e** Explain the main hazards that are possible in the lab setting. STS.HS.14.1.E |
| | **f** Demonstrate proper handling and storing of materials. STS.HS.14.1.F |
| **Execute accurate measurements using measurement tools commonly used in engineering.** STS.HS.14.2 | **a** Identify types of engineering measurement tools. STS.HS.14.2.A |
| | **b** Categorize engineering measurement tools by use. STS.HS.14.2.B |
| | **c** Demonstrate the accurate use of engineering measurement and layout tools to 1/16" precision. STS.HS.14.2.C |
| **Solve math functions and formulas to complete engineering job/workplace tasks.** STS.HS.14.3 | **a** Identify whole numbers, decimals, fractions, and complex numbers. STS.HS.14.3.A |
| | **b** Apply basic arithmetic operations. STS.HS.14.3.B |
| | **c** Solve decimal or fraction conversions. STS.HS.14.3.C |
| **Compare the primary engineering branches.** STS.HS.14.4 | **a** Summarize each branch of engineering. STS.HS.14.4.A |
| | **b** Compare the engineering branches. STS.HS.14.4.B |
| **Explain engineering systems thinking.** STS.HS.14.5 | **a** Define “system” in an engineering context. STS.HS.14.5.A |
| | **b** Explain a current system in an engineering context. STS.HS.14.5.B |

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**Produce an engineered solution.** STS.HS.14.6

- **a** **Identify engineering principles needed for a solution.** STS.HS.14.6.A
- **b** **Apply engineering principles.** STS.HS.14.6.B
- **c** **Identify engineering processes needed for a solution.** STS.HS.14.6.C
- **d** **Apply engineering processes.** STS.HS.14.6.D
- **e** **Apply task specific mathematical concepts.** STS.HS.14.6.E
- **f** **Apply task specific scientific concepts.** STS.HS.14.6.F
- **g** **Demonstrate proper use of engineering tools and software.** STS.HS.14.6.G