



Utah System of Higher Education
Civil Construction I
FY2025 / 4 Credits (120 Clock-Hours)

Foundational Courses

TECI 1010 Civil Construction Fundamentals

4 Credits / 120 Clock-Hours

This comprehensive course is designed to provide students with a foundational understanding of civil construction processes, equipment, safety protocols, and environmental considerations. From the initial bid to project hand-off, students will delve into the intricacies of construction blueprint reading, measurement techniques, and soil mechanics. Real-world application through site visits and a culminating capstone project will solidify their knowledge and skills for successful entry into the heavy civil construction industry.

Objectives:

- Explore the fundamental concepts and practices within the heavy civil construction industry.
- Identify the standard processes involved from project bidding to final hand-off.
- Identify the functions of various heavy equipment commonly used in construction projects.
- Explain the environmental factors affecting construction projects.
- Integrate sustainable practices into construction planning and execution.
- Demonstrate safety throughout all aspects of heavy civil construction.
- Interpret blueprints including recognizing symbols and measurements.
- Perform depth and slope calculations, read grade stakes, and review GPS data.
- Interpret and explain the basics of geotechnical reports.
- Identify sand and gravel aggregate types.
- Explain proctor and moisture requirements for soil compactions.
- Describe asphalt paving techniques, including sand and aggregate requirements.
- Follow safety protocols associated with asphalt paving.
- Perform practical site visits, focusing on earthwork, excavation, and material transportation.
- Demonstrate ability to maneuver heavy equipment utilizing heavy equipment simulators and emphasizing safety protocols.
- Demonstrate basic utility layout principles.
- Explain load requirements for utilities.
- Demonstrate trenching and excavation with a focus on safety.
- Prepare a comprehensive capstone project based on a module from prior learning, or alternatively, utilize on-the-job projects to meet capstone project requirements.