UTAH SYSTEM OF HIGHER EDUCATION

Utah System of Higher Education
Concrete Masonry Apprenticeship
FY2027 / 12 Credits (360 Clock-Hours)

Foundational Courses

TECN 1000 Concrete Masonry IA **3 Credits / 90 Clock-Hours**

The course is an overview of the construction industry careers; OSHA 10 certification; construction math, drawings, hand, and power tools; materials handling; basic communication skills; building materials, fasteners/adhesives, heavy equipment/crane and rough terrain forklift safety, and orientation to basic oxyfuel cutting and safety to equip them with skills needed on the job.

Objectives:
• Obtain OSHA 10 certification.
• Select the correct building materials to perform a specific task and perform calculations using industry-standard methods.
• Use job-specific hand, measurement, layout, and power tools and construction drawings to identify symbols and markers for floor and all finishes.
• Identify standard equipment and hitches used in rigging, including emergency hand signal.
• Demonstrate tying common knots used in material handling and safe manual lifting techniques.
• Set up, adjust, and field-test leveling instruments; determine site and building elevations and transfer elevations up a structure using the correct tools and procedures.
• Describe types of rough-terrain forklifts, chassis components, in-cab controls, start-up, and operating procedures, and safety guidelines for working around heavy equipment.
• Perform basic oxyfuel cutting following safety guidelines.

TECN 1100 Concrete Masonry IB **3 Credits / 90 Clock-Hours**

In this course apprentices are introduced to concrete construction, safety, fall protection, trade tools and equipment, concrete placement prep and reinforcement, foundations and slabs-on-grade, and horizontal formwork. The course is designed to help the apprentice develop their craft skills and be contributing members of a concrete crew.

Objectives:
• Follow safety regulations and standards related to concrete operations, fall protection, and elevated work.
• Identify, use, and properly care for the concrete construction hand and power tools.
• Operate a vibrating compactor to compact subgrade, confirm the elevation of a prepared subgrade, and complete a pre-placement inspection.
• Use appropriate tools to cut and bend reinforcing bars.
• Demonstrate five types of ties for reinforcing bars; use wire ties for lap splicing reinforcing bars; and place, space, type, and support reinforcing bars.
• Establish elevations; layout and construct foundation using an establish grid line; install templates, keyways, and embedments; and prepare strip pier foundation forms for resetting at another location.
• Erect, plumb, brace, and level a handset deck form.
• Install edge forms, including blockouts, embedments, and bulkheads.

TECN 1200 Concrete Masonry IIA **3 Credits / 90 Clock-Hours**

In this course, apprentices are introduced to foundations and vertical formwork; site concrete; finishing, curing, and protecting concrete. The course is designed to help the apprentice develop their craft skills and be contributing members of a concrete crew.

Objectives:
• Erect, plumb, and brace a wall, column, or stair form.
• Describe the procedures and techniques used in constructing common site-built structures and constructing curbs, gutters, site-built concrete steps, walks, drives, and patios.
• Perform calculations for tread and riser dimensions.
• Build wood formwork for a set of steps on grade with a top landing, and place and finish concrete for a curb, gutter, and set of steps.
• Hand float, edge, groove, and trowel a small concrete slab.
• Apply a broom finish to a slab and a sack or stone-rubbed finish to a surface.
• Mark and saw control joints.
• Apply a curing compound to a slab using a systematic pattern, cover a slab with curing coverings, sealed and wrinkle-free.

TECN 1210 Concrete Masonry IIB **3 Credits / 90 Clock-Hours**

In this course, apprentices are introduced to properties of concrete, estimating concrete quantities, tilt-up wall panels, paving, architectural finishes, industrial/superflat floors, surface treatments, troubleshooting and quality control, and concrete repair. The course is designed to help the apprentice develop their craft skills and be contributing members of a concrete crew.

Objectives:
• Calculate metric linear and weight conversions and work with denominate numbers to determine area and volume.
• Interpret construction drawings and estimate concrete quantities and form a tilt-up panel per construction drawings.
• Install inserts, reinforcements, and architectural features.
• Set up and perform slipform paving, concrete slump test, and hot-mix asphalt paving.
• Prepare and finish the concrete surface to a specified surface profile.
• Assist in placing, consolidating, and screeding an industrial floor slab to a given elevation and setting a wooden superflat-floor edge from on-grade to a specified elevation.
• Mix, place, and cure a concrete repair.
• Collect concrete samples, prepare specimens, and complete field tests.