



Los Angeles Trade-Technical College
Utilities and Construction Prep Program
Curriculum and Instructional Activities Overview

The Utilities and Construction Prep program is comprised of four primary instructional components to prepare students for requirements for entry positions in the utility and construction industries as follows: workplace fitness and conditioning; applied construction skills; basic math, English, and mechanical skills; and workplace readiness and retention skills.

Topics and activities covered in each instructional component are provided below.

Workplace Fitness and Conditioning – fitness and conditioning instruction and activities to enable participants to meet typical utility and construction industry physical requirements including:

- *Lifting capacity (50 lbs)* – Has physical capacity to lift 50 lbs above head in safe and appropriate manner
- *Stooping, crawling, squatting* -Has physical capacity to stoop, crawl, squat, and maneuver on hands and knees
- *Working in small/confined spaces*- Has capacity to work and maneuver in small and confined spaces.
- *Walking and standing* - Has physical capacity to walk 5 to 7 miles per day and stand for extended periods of time
- *Agility* – able to climb ladders (no fear of heights)

Applied Constructions Skills – elementary construction skills in several concentrated areas to enable participants to achieve skills necessary for entering the utility and construction industries including:

- *Using Hand Tools* – Has ability to complete hand tool activities including cutting wood to length, making wooden joints, using a chisel to cut mortises, using a plane to size and smooth wood, creating wood objects, creating joints that slip fit, using appropriate hand tools.
- *Electrical* – Has ability to complete wiring activities involving installation of outlets, basic wire connections, simple switch circuits, operational circuits, and testing circuits using sound connections.
- *Heating, ventilation and Air Conditioning*- Has ability to complete HVAC activities including testing electrical circuits, assembling duct systems, measuring temperature and humidity, and measuring airflow achieving accurate measurements.
- *Concrete* - Has ability to complete concrete activities including mixing concrete, forming, concrete calculations, and concrete finishing using the correct amount of water and edged and finish floated.
- *Wall Framing* – Has ability to complete wall framing activities including layout, cutting members to size, and wall assembly to achieve layout and frame walls using portable power tools and hand nailing techniques.
- *Roof Framing* – Has ability to complete roof framing activities including layout of rafter length and assembling a roof structure with rafters connected to the ridge, using cut joints with a skillsaw and jigsaw.
- *Masonry* – Has ability to complete masonry activities including mixing mortar, spreading mortar, laying bricks and blocks, building a brick wall, and a corner lead level and plumb.

- *Drywall* – Has ability to complete drywall activities including constructing steel stud walls, installing drywall, applying joint compound and tape, fastening drywall to steel studs and applying tape to walls, and applying three coats of compound to joints.
- *Communication Wiring* – Has ability to complete communication wiring activities including voice, data, and video applications making sound connections and testing the termination and continuity.

Basic Math, English, and Mechanical Skills – basic math, reading comprehension, mechanical comprehension, and test taking topics and activities to prepare students for taking entrance exams which are required for many careers in the utility and construction industries including:

- *Basic Math* – fractions, percentages, decimals, conversions (e.g. inches to meters, Fahrenheit to Celsius), basic geometry, basic algebra, basic trigonometry.
- *Reading Comprehension* – paragraph comprehension, word comprehension (e.g. roots, suffixes, prefixes), synonyms, homonyms, antonyms, and chart and graph reading.
- *Mechanical Comprehension* – basic tool identification, gears, pulleys, basic electrical circuits, symbol identification.

Workplace Readiness and Retention Skills – personal effectiveness information and activities to provide students with information and soft skills to make an informed decision for entering this career pathway and for being effective in the workplace.

- *Industry Overview* – career opportunities in the skilled labor trades and utility industries, career pathways, entrance requirements, training requirements, and wages and benefits.
- *Workplace Readiness and Retention Skills* – workplace harassment, job search planning and preparation, customer services, workplace diversity, and interpersonal communications, and financial literacy.