Principles of Construction (Proc 17)

PRE-TEST/POST-TEST TEKS BLUEPRINT

Pre-Test/Post-Test Development Overview

TEKS Addressed Selection Process

The Texas Essential Knowledge & Skills (TEKS) included in the course pre-test and post-test were selected for their direct relevance to the course content. This selection process was guided by the goal of assessing learners' understanding of specific topics and skills that are integral to the course. As a result, TEKS related to general employability skills or broader topics were often excluded. This focus ensures that the assessments accurately measure students' mastery of the subject matter, allowing educators to gain a clear insight into areas where students excel or may need additional support. By concentrating on content-specific TEKS, the tests provide a more precise evaluation of the students' knowledge and understanding of the core material.

Test Question Development Process

The questions created for the pre-test and post-test were designed using psychometric principles to ensure they are of high quality and fairness. This approach helps to accurately assess student understanding. These principles guide the development of questions to be reliable, valid, and free from bias, ensuring that they effectively measure the knowledge and skills the students are expected to acquire in the course.

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Knowledge & Skills Statement	Student Expectation	iCEV Lesson Title
(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:	(H) explain the Occupational Safety and Health Administration (OSHA) General Duty Clause	Personal and Occupational Health & Safety
(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:	(I) explain OSHA 1926 CFR Subpart C	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(A) explain the idea of a safety culture	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(B) explain the importance of a safety culture in the construction crafts	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(C) explain the role of the OSHA in job-site safety	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(D) explain fall protection, ladder safety, stair safety, and scaffold safety procedures	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(E) demonstrate the use and care of appropriate personal protective equipment, including safety goggles and glasses, hard hats, gloves, safety harnesses, and safety shoes	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(F) define safe work procedures around electrical hazards	Personal and Occupational Health & Safety
(2) The student understands that safe working standards are imperative in the classroom and in the field. The student is expected to:	(G) explain the importance of Safety Data Sheets (SDS)	Personal and Occupational Health & Safety
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(A) identify causes of accidents	Basic Shop Safety: Mechanical Hazards
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(B) identify impacts of accident costs	Personal and Occupational Health & Safety
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(C) define hazard recognition	Personal and Occupational Health & Safety
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(D) identify struck-by hazards	Personal and Occupational Health & Safety
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(E) identify caught-in-between hazards	Personal and Occupational Health & Safety
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(F) identify other construction hazards on the jobsite, including hazardous material exposures, environmental elements, welding and cutting hazards, confined spaces, and fires	Personal and Occupational Health & Safety Basic Shop Safety: Non-Mechanical Hazards
(3) The student understands the importance of recognizing potential hazards and preventing accidents in the classroom and in the field. The student is expected to:	(G) explain the importance of hazard communication (HazCom)	Personal and Occupational Health & Safety
(4) The student understands basic construction mathematics. The student is expected to:	(A) add, subtract, multiply, and divide whole numbers with and without a calculator	Mathematics in Construction

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(4) The student understands basic construction mathematics. The student is expected to:	(B) add, subtract, multiply, and divide fractions	Mathematics in Construction
(4) The student understands basic construction mathematics. The student is expected to:	(C) add, subtract, multiply, and divide decimals with and without a calculator	Mathematics in Construction
(4) The student understands basic construction mathematics. The student is expected to:	(D) convert decimals to percentages and percentages to decimals	Mathematics in Construction
(4) The student understands basic construction mathematics. The student is expected to:	(E) convert fractions to decimals and decimals to fractions	Mathematics in Construction
(5) The student demonstrates basic measuring practices. The student is expected to:	(A) use a standard ruler, a metric ruler, a measuring tape, and an architectural/engineering scale to measure	Measurement in Construction
(5) The student demonstrates basic measuring practices. The student is expected to:	(B) explain what the metric system is and how it is important in the construction trade	Measurement in Construction
(5) The student demonstrates basic measuring practices. The student is expected to:	(C) recognize and use metric units of length, weight, volume, and temperature	Measurement in Construction
(5) The student demonstrates basic measuring practices. The student is expected to:	(D) recognize some of the basic shapes used in the construction industry and apply basic geometric principles to measure them	Mathematics in Construction
6) The student acquires knowledge about care and identification of hand tools. The student is expected to:	(A) recognize and identify the basic hand tools and their purposes for the construction trades	Installation: Roofing
6) The student acquires knowledge about care and identification of hand tools. The student is expected to:	(B) inspect basic hand tools visually to determine if they are safe for use	Installation: Roofing
6) The student acquires knowledge about care and identification of hand tools. The student is expected to:	(C) use the basic construction hand tools safely and properly	Installation: Roofing
(7) The student acquires knowledge about care and identification of powered hand tools. The student is expected to:	(A) identify powered hand tools commonly used in the construction trades	Installation: Roofing
(7) The student acquires knowledge about care and identification of powered hand tools. The student is expected to:	(B) practice safe and proper application of powered hand tools commonly used in the construction trades	Installation: Roofing
(7) The student acquires knowledge about care and identification of powered hand tools. The student is expected to:	(C) explain how to properly maintain and clean powered hand tools commonly used in construction trades	Installation: Roofing
(8) The student develops the basics of construction drawing. The student is expected to:	(A) interpret and use drawing dimensions	Introduction to Construction Drawings
(8) The student develops the basics of construction drawing. The student is expected to:	(B) recognize and identify basic construction terms	Introduction to Construction Drawing
(8) The student develops the basics of construction drawing. The student is expected to:	(C) recognize and identify basic drawing components	Introduction to Construction Drawing
(8) The student develops the basics of construction drawing. The student is expected to:	(D) recognize and identify commonly used drawing symbols	Introduction to Construction Drawing
(8) The student develops the basics of construction drawing. The student is expected to:	(E) relate information on construction drawings to actual locations on the print	Introduction to Construction Drawing
(8) The student develops the basics of construction drawing. The student is expected to:	(F) recognize different classifications of construction drawings	Introduction to Construction Drawing
(9) The student interprets and presents information used in workplace situations. The student is expected to:	(A) interpret information and instructions presented in written form	Project Management Skills
(9) The student interprets and presents information used in workplace situations. The student is expected to:	(B) interpret information and instructions presented in verbal form	Project Management Skills
(9) The student interprets and presents information used in workplace situations. The student is expected to:	(C) communicate effectively using verbal and writing skills	Project Management Skills
(9) The student interprets and presents information used in workplace situations. The student is expected to:	(D) communicate effectively on the job using electronic communication devices	Project Management Skills
(10) The student identifies ergonomic tools and procedures as well as safe material handling standards. The student is expected to:	(A) define a load	Introduction to Material Handling

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(10) The student identifies ergonomic tools and procedures as well as safe material handling standards. The student is expected to:	(B) establish a pre-task plan prior to moving a load	Introduction to Material Handling
(10) The student identifies ergonomic tools and procedures as well as safe material handling standards. The student is expected to:	(C) apply proper material-handling techniques	Introduction to Material Handling
(10) The student identifies ergonomic tools and procedures as well as safe material handling standards. The student is expected to:	(D) choose appropriate material-handling equipment for the task	Introduction to Material Handling
(10) The student identifies ergonomic tools and procedures as well as safe material handling standards. The student is expected to:	(E) recognize hazards and follow safety procedures required for material handling	Introduction to Material Handling