Construction Technology I
At-A-Glance - Lamar CISD

Ongoing Skills Imbedded All Year	**Professional Standards/Employability Skills/Technical Skills**		
	Safety CT I 2(A) The student will explain the idea of a safety culture. CT I 2(B) The student will explain the importance of a safety culture in the construction crafts. CT I 2(C) The student will explain the role of Occupational Safety and Health Administration (OSHA) in job-site safety. CT I 2(D) The student will explain fall protection, ladder safety, stair safety, and scaffold safety procedures. CT I 2(E) The student will explain the importance of hazard communication (HazCom). CT I 2(F) The student will explain the importance of Safety Data Sheets (SDS). CT I 2(G) The student will explain OSHA's General Duty Clause. CT I 2(H) The student will explain OSHA 1926 CFR Subpart C. CT I 2(I) The student will identify causes of accidents. CT I 2(J) The student will identify impacts of accident costs. CT I 2(K) The student will identify struck-by hazards. CT I 2(L) The student will identify caught-in-between hazards. CT I 2(M) The student will identify other construction hazards on the jobsite, including hazardous material exposures, environmental elements, welding and cutting hazards, confined spaces, and fires. CT I 2(N) The student will define safe work procedures around electrical hazards. CT I 2(O) The student will define hazard recognition. CT I 2(P) The student will define risk assessment techniques. CT I 2(Q) The student will demonstrate the use and care of appropriate personal protective equipment, including safety goggles and glasses, hard hats, gloves, safety harnesses, and safety shoes. **Hand Tools** CT I 5(A) The student will identify the hand tools commonly used by carpenters and describe their uses. CT I 5(B) The student will use hand tools in a safe and appropriate manner. **Power Tools** CT I 5(C) The student will state the general safety rules for operating all power tools regardless of type.		
Grading Period	**Unit Name**	**Estimated Time Frame**	**TEKS**
Grading Period 1 **29 Days**	**Career and Employability Skills**	**5 Days**	3A, 3B, 1A, 1B, 1C, 1D, 1E, 1F, 1G
	CT I 3(A) The student will identify job opportunities and their accompanying job duties such as carpentry, building maintenance supervisor, architect, and engineer. CT I 3(B) The student will research careers along with the education, job skills, and experience required to achieve them. CT I 1(A) The student will explain the role of an employee in the construction industry. CT I 1(B) The student will apply critical-thinking skills. CT I 1(C) The student will demonstrate the ability to solve problems using critical-thinking skills. CT I 1(D) The student will demonstrate knowledge of basic computer systems. CT I 1(E) The student will explain common uses for computers in the construction industry. CT I 1(F) The student will define effective relationship skills. CT I 1(G) The student will recognize workplace issues such as sexual harassment, stress, and substance abuse.		
	Safety	**9 Days**	OSHA 127.17d 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N, 2O, 2P, 2Q
	127.17(d)(1) The student will explain and discuss the responsibilities of workers and employers to promote safety and health in the workplace and the rights of workers to a secure workplace. 127.17(d)(2) The student will explain and discuss the importance of OSHA standards and OSHA requirements for organizations, how OSHA inspections are conducted, and the role of national and state regulatory entities. 127.17(d)(3) The student will explain the role industrial hygiene plays in occupational safety and explain various types of industrial hygiene hazards, including physical, chemical, biological, and ergonomic. 127.17(d)(4) The student will identify and explain the appropriate use of types of personal protective equipment used in industry. 127.17(d)(5) The student will discuss the importance of safe walking and working surfaces in the workplace and best practices for preventing or reducing slips, trips, and falls in the workplace. 127.17(d)(6) The student will describe types of electrical hazards in the workplace and the risks associated with these hazards and describe control methods to prevent electrical hazards in the workplace. 127.17(d)(7) The student will analyze the hazards of handling, storing, using, and transporting hazardous materials and identify and discuss ways to reduce exposure to hazardous materials in the workplace. 127.17(d)(8) The student will identify workplace health and safety resources, including emergency plans and Safety Data Sheets, and discuss how these resources are used to make decisions in the workplace.		

	127.17(d)(9) The student will describe the elements of a safety and health program, including management leadership, worker participation, and education and training. 127.17(d)(10) The student will explain the purpose and importance of written emergency action plans and fire protection plans and describe key components of each such as evacuation plans and emergency exit routes, list of fire hazards, and identification of emergency personnel. 127.17(d)(11) The student will explain the components of a hazard communication program. 127.17(d)(12) The student will explain and give examples of safety and health training requirements specified by standard setting organizations. CT I 2(A) The student will explain the idea of a safety culture. CT I 2(B) The student will explain the importance of a safety culture in the construction crafts. CT I 2(C) The student will explain the role of Occupational Safety and Health Administration (OSHA) in job-site safety. CT I 2(D) The student will explain fall protection, ladder safety, stair safety, and scaffold safety procedures. CT I 2(E) The student will explain the importance of hazard communication (HazCom). CT I 2(F) The student will explain the importance of Safety Data Sheets (SDS). CT I 2(G) The student will explain OSHA's General Duty Clause. CT I 2(H) The student will explain OSHA 1926 CFR Subpart C. CT I 2(I) The student will identify causes of accidents. CT I 2(J) The student will identify impacts of accident costs. CT I 2(K) The student will identify struck-by hazards. CT I 2(L) The student will identify caught-in-between hazards. CT I 2(M) The student will identify other construction hazards on the jobsite, including hazardous material exposures, environmental elements, welding and cutting hazards, confined spaces, and fires. CT I 2(N) The student will define safe work procedures around electrical hazards. CT I 2(O) The student will define hazard recognition. CT I 2(P) The student will define risk assessment techniques. CT I 2(Q) The student will demonstrate the use and care of appropriate personal protective equipment, including safety goggles and glasses, hard hats, gloves, safety harnesses, and safety shoes.		
	Blueprints and Symbols	**15 Days**	6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6I
	CT I 6(A) The student will describe the types of drawings usually included in a set of plans and list the information found on each type. CT I 6(B) The student will identify the different types of lines used on construction drawings. CT I 6(C) The student will identify selected architectural symbols commonly used to represent materials on plans. CT I 6(D) The student will identify selected electrical, mechanical, and plumbing symbols commonly used on plans. CT I 6(E) The student will identify selected abbreviations commonly used on plans. CT I 6(F) The student will read and interpret plans, elevations, schedules, sections, and details contained in basic construction drawings. CT I 6(G) The student will state the purpose of written specifications. CT I 6(H) The student will identify and describe the parts of a specification. CT I 6(I) The student will demonstrate or describe how to perform a quantity takeoff for materials.		
Grading Period 2 27 Days	**Hand Tools**	**14 Days**	5A, 5B
	CT I 5(A) The student will identify the hand tools commonly used by carpenters and describe their uses. CT I 5(B) The student will use hand tools in a safe and appropriate manner.		
	Power Tools	**13 Days**	5C, 5D, 5E
	CT I 5(C) The student will state the general safety rules for operating all power tools regardless of type. CT I 5(D) The student will identify the portable power tools commonly used by carpenters and describe their uses. CT I 5(E) The student will use portable power tools in a safe and appropriate manner.		
Grading Period 3 28 Days	**Building Materials**	**8 Days**	4A, 4B, 4C, 4D, 4E, 4F, 4G
	CT I 4(A) The student will identify various types of building materials and their uses. CT I 4(B) The student will state the uses of various types of hardwoods and softwoods CT I 4(C) The student will identify the different grades and markings of wood building materials. CT I 4(D) The student will describe the proper method of storing and handling building materials. CT I 4(E) The student will state the uses of various types of engineered lumber. CT I 4(F) The student will calculate the quantities of lumber and wood products using industry-standard methods. CT I 4(G) The student will describe the fasteners, anchors, and adhesives used in construction work and explain their uses.		

	Concrete	**9 Days**	10A, 10B, 10C, 10D, 10E, 10F, 10G, 10H
	CT I 10(A) The student will identify the properties of cement. CT I 10(B) The student will describe the composition of concrete. CT I 10(C) The student will perform volume estimates for concrete. CT I 10(D) The student will identify types of concrete reinforcement materials and describe their uses. CT I 10(E) The student will identify various types of footings and explain their uses. CT I 10(F) The student will identify the parts of various types of concrete forms. CT I 10(G) The student will explain the safety procedures associated with the construction and use of concrete forms. CT I 10(H) The student will erect, plumb, and brace a simple concrete form with reinforcement.		
	Stairs	**11 Days**	12A, 12B, 12C, 12D, 12E, 12F, 12G
	CT I 12(A) The student will identify the various types of stairs. CT I 12(B) The student will identify the various parts of stairs. CT I 12(C) The student will identify the materials used in the construction of stairs. CT I 12(D) The student will interpret construction drawings of stairs. CT I 12(E) The student will calculate the total rise, number and size of riser, and the number and size of treads required for a given stairway. CT I 12(F) The student will lay out and cut stringer, riser, and treads. CT I 12(G) The student will build a small unit with a temporary handrail.		
Grading Period 4 **31 Days**	**Flooring Systems**	**15 Days**	7A, 7B, 7C, 7D, 7E, 7F, 7G, 7H, 7I, 7J, 7K, 7L, 7M, 7N, 7O
	CT I 7(A) The student will identify the different types of framing systems. CT I 7(B) The student will read and interpret drawings and specifications to determine floor system requirements. CT I 7(C) The student will identify floor and sill framing and support members. CT I 7(D) The student will name the methods used to fasten sills to the foundation. CT I 7(E) The student will select the proper girder or beam size from a list of available girders or beams given specific floor load and span data. CT I 7(F) The student will list and recognize different types of bridging. CT I 7(G) The student will list and recognize different types of flooring materials. CT I 7(H) The student will explain the purposes of subflooring and underlayment. CT I 7(I) The student will select the appropriate fasteners to be used in various floor framing systems. CT I 7(J) The student will estimate the amount of material needed to frame a floor assembly. CT I 7(K) The student will lay out and construct a floor assembly. CT I 7(L) The student will install bridging. CT I 7(M) The student will install joists for a cantilever-floor. CT I 7(N) The student will install a subfloor using butt-joint plywood or oriented strand board panels. CT I 7(O) The student will install a single floor system using tongue-and-groove (T&G) plywood or oriented strand board (OSB) panels.		
	Doors and Windows	**16 Days**	11A, 11B, 11C, 11D, 11E, 11F, 11G, 11H, 11I, 11J, 11K
	CT I 11(A) The student will identify various types of fixed, sliding, and swinging windows. CT I 11(B) The student will identify the parts of a window installation. CT I 11(C) The student will state the requirements for proper window installation. CT I 11(D) The student will install a pre-hung window. CT I 11(E) The student will identify the common types of exterior doors and explain how they are constructed. CT I 11(F) The student will identify the parts of a door installation. CT I 11(G) The student will identify types of thresholds used with exterior doors. CT I 11(H) The student will install a pre-hung exterior door. CT I 11(I) The student will identify the various types of locksets used on exterior doors and explain how the locksets are installed. CT I 11(J) The student will install a lockset. CT I 11(K) The student will identify and explain the use and installation of various door and window hardware, including security hinges, keepers, deadbolts, and peep holes.		

Grading Period 5 30 Days	**Wall Framing**	**15 Days**	8A, 8B, 8C, 8D, 8E, 8F, 8G, 8H, 8I
	CT I 8(A) The student will identify the components of a wall and ceiling layout. CT I 8(B) The student will describe the procedure for laying out a wood frame wall, including the installation of plates, corner posts, door and window openings, partition Ts, bracing, and firestops. CT I 8(C) The student will describe the correct procedure for assembling and erecting an exterior wall. CT I 8(D) The student will identify the common materials and methods used for installing sheathing on walls. CT I 8(E) The student will lay out, assemble, erect, and brace exterior walls for a frame building. CT I 8(F) The student will describe wall framing techniques used in masonry construction. CT I 8(G) The student will explain the use of metal studs in wall framing. CT I 8(H) The student will cut and install ceiling joists on a wood frame building. CT I 8(I) The student will estimate the materials required for frame walls and ceilings.		
	Roofing	**15 Days**	9A, 9B, 9C, 9D, 9E, 9F, 9G, 9H, 9I, 9J
	CT I 9(A) The student will demonstrate an understanding of the terms associated with roof framing. CT I 9(B) The student will identify the roof framing members used in gable and hip roofs. CT I 9(C) The student will identify the methods used to calculate the length of a rafter. CT I 9(D) The student will identify the various types of trusses used in roof framing. CT I 9(E) The student will use a framing square, speed square, and calculator in laying out a roof. CT I 9(F) The student will identify various types of sheathing used in roof construction. CT I 9(G) The student will frame a gable roof with vent openings. CT I 9(H) The student will erect a gable roof using trusses. CT I 9(I) The student will frame a roof opening. CT I 9(J) The student will estimate the materials used for framing and sheathing a roof.		
Grading Period 6 27 Days	**Residential Wiring**	**10 Days**	12A, 12B, 12C, 12D, 12E, 12F, 12G
	CT I 12(A) The student will identify the various types of stairs. CT I 12(B) The student will identify the various parts of stairs. CT I 12(C) The student will identify the materials used in the construction of stairs. CT I 12(D) The student will interpret construction drawings of stairs. CT I 12(E) The student will calculate the total rise, number and size of riser, and the number and size of treads required for a given stairway. CT I 12(F) The student will lay out and cut stringer, riser, and treads. CT I 12(G) The student will build a small unit with a temporary handrail.		
	Project/Portfolio	**17 Days**	5B, 5E, 4F, 6I
	CT I 5(B) The student will use hand tools in a safe and appropriate manner. CT I 5(E) The student will use portable power tools in a safe and appropriate manner. CT I 4(F) The student will calculate the quantities of lumber and wood products using industry-standard methods. CT I 6(I) The student will demonstrate or describe how to perform a quantity takeoff for materials.		