

Illinois Career Programs in Architecture and Construction



Opportunities for Success

These career programs are focused on careers in designing, planning, managing, building and maintaining the built environment. All career and technical education programs provide students opportunities for practical application of academic concepts. The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) emphasizes student achievement in science, English language arts, and mathematics. To assist local education agencies in selecting courses best suited for this purpose, specific CTE courses with emphasis on these subjects have been highlighted below. Courses best suited for science applications are shown in yellow, mathematics are shown in blue, and English language arts are shown in orange. Local boards of education may allow CTE courses to be substituted for graduation requirements. Refer to [105 Illinois Compiled Statutes 5/27-22](#) and [105 ILCS 5/27-22.05](#) for more information.

Science Applications	Math Applications	ELA Applications
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CAREER CLUSTER	Architecture and Construction	Architecture and Construction	Architecture and Construction	Architecture and Construction	Architecture and Construction	Architecture and Construction
CIP CODE	15.1301	46.0000	46.0302	46.0401	47.0201	47.0302
TEACHER LICENSUR ENDORSEMENT	PEL with TEED (Technology Education) ELS with ACDD (Design and Drafting)	PEL with TEED (Technology Education) ELS with ACTR (Construction Trades)	PEL with TEED ELS with ACEE ELS with ACBM ELS with MIEL	PEL with TEED (Technology Education) ELS with ACBM (Building Maintenance)	PEL with TEED (Technology Education) ELS with ACBM ELS with ACHV	PEL with TEED (Technology Education) ELS with ACHT (Heavy Equipment Technology)
PATHWAY	Drafting and Design Technology/ Technician, General	Construction Trades, General	Electrician	Building/Property Maintenance	Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/ Technician	Heavy Equipment Technology/ Technician
GROUP 1: ORIENTATION COURSES (Minimum Selection: One course from Group 1 or 2)						
ORIENTATION COURSES	Career Exploration 22151A001	Career Exploration 22151A001	Career Exploration 22151A001	Career Exploration 22151A001	Career Exploration 22151A001	Career Exploration 22151A001
	Introduction to Technology and Engineering (Industrial) 21052A002	Introduction to Technology and Engineering (Industrial) 21052A002	Introduction to Technology and Engineering (Industrial) 21052A002	Introduction to Technology and Engineering (Industrial) 21052A002	Introduction to Technology and Engineering (Industrial) 21052A002	Introduction to Technology and Engineering (Industrial) 21052A002
	Transportation Technology 20001A001	Transportation Technology 20001A001	Transportation Technology 20001A001	Transportation Technology 20001A001	Transportation Technology 20001A001	Transportation Technology 20001A001
	Production Technology 13052A001	Production Technology 13052A001	Production Technology 13052A001	Production Technology 13052A001	Production Technology 13052A001	Production Technology 13052A001
	Communication Technology 11002A001	Communication Technology 11002A001	Communication Technology 11002A001	Communication Technology 11002A001	Communication Technology 11002A001	Communication Technology 11002A001
	Energy Utilization Technology 20101A001	Energy Utilization Technology 20101A001	Energy Utilization Technology 20101A001	Energy Utilization Technology 20101A001	Energy Utilization Technology 20101A001	Energy Utilization Technology 20101A001
GROUP 2: INTRODUCTORY COURSES						
INTRODUCTORY COURSES	Foundations of Technology 21052A001	Foundations of Technology 21052A001	Foundations of Technology 21052A001	Foundations of Technology 21052A001	Foundations of Technology 21052A001	Foundations of Technology 21052A001
	Industrial Safety 13004A001	Industrial Safety 13004A001	Industrial Safety 13004A001	Industrial Safety 13004A001	Industrial Safety 13004A001	Industrial Safety 13004A001
	Intro to Engineering Design 21006A001	Beginning Construction 17001A001	Beginning Electricity 17102A005	Beginning Construction 17001A001	Beginning Welding 13207A003	Beginning Welding 13207A003
	Beginning Drafting 21102A002	Beginning Electricity 17102A005	Beginning Drafting 21102A002	Beginning Electricity 17102A005	Beginning Drafting 21102A002	Beginning Automotive Service 20106A001
	Computer Concepts and Software Applications 10004A001	Beginning Welding 13207A003		Geometry in Construction 17017A002	Beginning Machining 13203A007	
	Geometry in Construction 17017A002	Beginning Drafting 21102A002				

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PATHWAY	Drafting and Design Technology/ Technician, General	Construction Trades, General	Electrician	Building/Property Maintenance	Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/ Technician	Heavy Equipment Technology/ Technician
CIP CODE	15.1301	46.0000	46.0302	46.0401	47.0201	47.0302
INTRO COURSES <i>CONT'D</i>		Geometry in Construction 17017A002				
GROUP 3: SKILLS COURSE (Minimum Selection 1)						
SKILLS COURSE	Drafting 21102A001	Construction Trades I 17002A001	Electrical Trades I 17102A003	Building Maintenance I 17009A001	HVAC I 17056A001	Heavy Equipment Technician I 20112A001
	Architectural Drafting I 21103A001	Carpentry I 17003A001	Electrical Systems I 17102A001			
	Mechanical Drafting I 21106A001	Civil Construction 17017A001				
GROUP 4: ADVANCED COURSES						
ADVANCED COURSES	Civil Engineering and Architecture 21012A001	Construction Trades II 17002A002	Electrical Trades II 17102A004	Building Maintenance II 17009A002	HVAC II 17056A002	Heavy Equipment Technician II 20112A002
	Architectural Drafting II 21103A002	Plumbing 17058A001	Electrical Systems II 17102A002	Plumbing 17058A001		
	Mechanical Drafting II 21106A002	Carpentry II 17003A002				
		Drywall Installation 17005A001				
		Masonry 17008A001				
		Wall Finishing 17011A001				
		Commercial Construction 17013A001				
	Concrete Foundations, Pavement, and Asphalt 17014A001					
GROUP 5: WORKPLACE EXPERIENCE COURSES						
WORKPLACE EXPERIENCE	Architecture and Construction Workplace Experience 17998A003	Architecture and Construction Workplace Experience 17998A003	Architecture and Construction Workplace Experience 17998A003	Architecture and Construction Workplace Experience 17998A003	Architecture and Construction Workplace Experience 17998A003	Architecture and Construction Workplace Experience 17998A003
	Drafting Workplace Experience 21148A001	General Construction Workplace Experience 17048A001	Electricity/Electronics Workplace Experience 17148A001	Building Maintenance Workplace Experience 17998A001	HVAC Workplace Experience 17098A001	Heavy Equipment Technician Workplace Experience 17998A002
<p>A quality CTE program delivers all required elements of Illinois' definition of Size, Scope, Quality. CTE program elements include: a sequence of courses, each educational entity offering approved courses provides assurance that the course content includes at a minimum the State course description, meets the State's minimum requirements for course offerings by program, curriculum aligned to state recognized learning standards & industry standards, career pathway guidance, resources to support program/course delivery (licensed & qualified staff, appropriate facilities, adequate equipment, instructional materials, work-based learning experiences, special populations support services, an active affiliated CTSO chapter), articulation/dual credit agreements, documentation of state agency certification or licensing requirements for occupations regulated by law or licensure, & content which prepare students for reflective of current labor & opportunity for workplace experience or a structured capstone course. Orientation courses are suggested to be taught at the prior-to-secondary or 9th grade levels. Introductory level courses are suggested to be taught at the 9th-11th grade level. Skill level courses are suggested to be taught at the 10th – 12th grade levels. Workplace Experiences Courses are suggested to be taught at the 12th grade level.</p>						

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Group	State Course Code	State Course Title	State Course Description
Group 1	22151A001	Career Exploration	Career Exploration courses help students identify and evaluate personal goals, priorities, aptitudes, and interests with the goal of helping them make informed decisions about their careers. These courses expose students to various sources of information on career and training options and may also assist them in developing job search and employability skills.
Group 1	21052A002	Introduction to Technology and Engineering (Industrial)	Introduction to Technology & Engineering is comprised of the following areas: Production, Transportation, Communication, Energy Utilization and Engineering Design but is not limited to these areas only. This course will cover the resources, technical processes, industrial applications, material sciences, technological impact and occupations encompassed by that system.
Group 1	13052A001	Production Technology	Production Technology is a course designed to foster an awareness and understanding of manufacturing and construction technology. Through a variety of learning activities, students are exposed to many career opportunities in the production field . Experiences in manufacturing include product design, materials and processes, tools and equipment including computers, safety procedures, corporate structure, management, research and development, production planning, mass production, marketing and servicing. In construction, students are exposed to site preparation, foundations, building structures, installing utilities, and finishing and servicing structures.
Group 1	11002A001	Communication Technology	Communication Technology is a course designed to foster an awareness and understanding of the technologies used to communicate in our modern society. Students gain experience in the areas of design and drafting, radio and television broadcasting, computers in communication, photography, graphic arts, and telecommunications.
Group 1	20001A001	Transportation Technology	Transportation Technology is a course designed to foster an awareness and understanding of the various transportation customs that make up our mobile society. Through laboratory activities, students are exposed to the technologies of and career opportunities involved in material handling, atmospheric and space transportation, marine transportation, terrestrial transportation, and computer uses in transportation technology.
Group 1	20101A001	Energy Utilization Technology	Energy Utilization Technology is a course designed to foster an awareness and understanding of how we use energy in our industrial technological society. Areas of study include conversion of energy, electrical fundamentals, solar energy resources, alternate energy resources such as wind, water, and geothermal; fossil fuels, nuclear power, energy conservation, and computer uses in energy technology. Students use laboratory experiences to become familiar with current energy technologies.
Group 2	21052A001	Foundations of Technology	The course employs teaching/learning strategies that enable students to build their own understanding of new ideas. It is designed to engage students in exploring and deepening their understanding of “big ideas” regarding technology and apply technological processes to solve real problems and develop knowledge and skills to design, modify, use and apply technology in the following areas: engineering design, manufacturing technologies, construction technologies, energy & power, information & communication technologies and emerging technologies.
Group 2	13004A001	Industrial Safety	Industrial Safety courses provide students with instruction in safe operating procedures related to various trades. Course topics may include the importance of standard operation procedures, agencies and regulations related to occupational safety and hazard prevention, and the dangers of particular materials.
Group 2	21006A001	Introduction to Engineering Design	Engineering Design courses offer students experience in solving problems by applying a design development process. Often using solid modeling computer design software, students develop, analyze, and test product solutions models as well as communicate the features of those models.
Group 2	21102A002	Beginning Drafting	Beginning Drafting is an introductory level drafting course. During this course students will learn the basic fundamentals of drafting and/or computer aided drafting (CAD). The instruction will include the care and use of drafting equipment, freehand sketching, orthographic projection, lettering techniques, dimensioning standards, pictorial drawings, drawing reproduction, and an introduction to CAD.
Group 2	10004A001	Computer Concepts and Software Applications	Computer Concepts and Software Applications is an orientation-level course designed to develop awareness and understanding of application software and equipment used by employees to perform tasks in business, marketing, and

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			management. Students will apply problem-solving skills to hands-on, real-life situations using a variety of software applications, such as word processing, spreadsheets, database management, presentation software, and desktop publishing. Students will explore topics related to computer concepts, operating systems, telecommunications, and emerging technologies. The development of employability skills, as well as transition skills, will be included in the course as well as an understanding of the ethical considerations that arise in using information processing equipment and gaining access to available databases.
Group 2	17001A001	Beginning Construction	Beginning Construction course expose students to the opportunities available in construction -related trades, such as carpentry, masonry, air conditioning/refrigeration, plumbing, and so on. Students learn about the processes involved in construction projects and may engage in a variety of small projects.
Group 2	17017A002	Geometry in Construction	Geometry in Construction courses provide students with an integrated way to learn Geometry through the application in Construction. The construction concepts within the course are organized to complement the skills and the knowledge that align to High School - Geometry standards. Students will apply these skills and knowledge to the completion of construction projects.
Group 2	17102A005	Beginning Electricity	Beginning Electricity—course provides a survey of the theory, terminology, equipment, and practical experience in the skills needed for careers in the electrical field. This courses typically include AC and DC circuitry, safety, and the National Electrical Code and may cover such skills as those involved in building circuits; wiring residential, installing lighting, power circuits, and cables.
Group 2	13207A003	Beginning Welding	Beginning Welding course enables students to gain knowledge of the properties, uses, and applications of various metals, skills in various processes used to join and cut metals (such as oxyacetylene, shielded metal, metal inert gas, and tungsten arc processes), and experience in identifying, selecting, and rating appropriate techniques. Welding courses often include instruction in interpreting blueprints or other types of specifications.
Group 2	13203A007	Beginning Machining	Beginning Machining course enable students to create metal parts using various machine tools and equipment. Course content may include interpreting specifications for machines using blueprints, sketches, or descriptions of parts; preparing and using lathes, milling machines, shapers, and grinders with skill, safety, and precision.
Group 2	20106A001	Beginning Automotive Service	Beginning Automotive Service course emphasizes preventative auto maintenance and automobile troubleshooting. Course content typically includes tune-up, oil change, and lubrication skills; tire replacement, alignment, and balancing; and basic knowledge of brake, cooling, electrical, emission, fuel, ignition, steering, suspension, and transmission systems.
Group 3	21102A001	Drafting	Drafting—General courses, usually offered as a sequence of courses, introduce students to the technical craft of drawing illustrations to represent and/or analyze design specifications and then refine the skills necessary for this craft . Drafting—General courses use exercises from a variety of applications to provide students with the knowledge and experience to develop the ability to perform freehand sketching, lettering, geometric construction, and multiview projections and to produce various types of drawings (working, detail, assembly, schematic, perspective, and so on). Computer-aided drafting (CAD) systems (if available) are typically introduced and used to fulfill course objectives.
Group 3	21103A001	Architectural Drafting I	This course is designed to provide students interested in a career in Architecture with information and practical experience needed for the development of job-related competencies. Students are made aware of the career opportunities available in the Architectural Drafting and Architectural Drafting CAD - CADD field. Instruction is provided in the areas of planning and organizing activities, researching information, performing general office procedures, preparing of preliminary drawings, basic layout, detail drawings, reproduction techniques, producing working drawings, and computer aided drafting. Students are also provided with instruction in producing architectural drawings in the areas of presentation, floor plans, illustration of landscape features, sketching preliminary floor plans, drawing foundation plans and sections, exterior elevations, stair sections, chimney sections, roof sections, finish schedules, preparing plumbing, HVAC and electrical plans, and structural drawings.
Group 3	21106A001	Mechanical Drafting I	This course introduces students to layout to scale using specified tolerances, preparing detail drawing for individual parts from drawings, layout and creating assembly drawings, and preparing mechanical orthographic subassembly drawings. This course also includes a sequence of CAD experiences in 2-dimensional and 3-dimensional drawing generation to

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			include vocabulary development, system operation, entity creation, dimensioning and text insertion, plotting, three dimensional coordinate system, 3-D parts detailing and assembly drawings, wire frame models, and system management relative to hard disk and tape storage systems.
Group 3	17002A001	Construction Trades I	This course provides experiences related to the erection, installation, and maintenance of residential buildings and related fixtures. Planned learning activities allow students to understand fundamental principles and methods, and develop technical skills related to masonry, carpentry, and finish work. Instruction includes safety principles and practices, recognition of standard lumber sizes, foundation layout methods, building concepts and procedures, local, state, and national codes, cost estimating, and blueprint reading.
Group 3	17003A001	Carpentry I	This course is designed to introduce students to the Carpentry /Carpenter occupation. Students are instructed in areas of safety, including hand tool, power tool, ladder, scaffolding and the use of safety harnesses. Students are introduced to the theoretical knowledge needed to lay out rafter, stairs, and basic framing techniques. Students demonstrate knowledge of blueprint reading, including foundations, concrete, floor plans, specification schedules, and electrical, plumbing and mechanical symbols . Students demonstrate entry-level skills in all facets of residential construction. Technology-related mathematics, reading, writing, vocabulary, blueprint reading, and science are integrated throughout the curriculum.
Group 3	17017A001	Civil Construction	Civil Construction courses provide an introduction to the skills and knowledge of building and maintaining a high quality civil infrastructure including transportation systems, structures, and underground sewers and pipelines. Topics may include civil construction materials (e.g., cements and aggregates, steels and timber, pavement materials, asphalt, pipe, and geosynthetics); life cycle assessments of structures and systems; reading civil blueprints, and understanding civil construction techniques.
Group 3	17102A003	Electrical Trades I	This course is designed to provide students with instruction and training in areas that prepare them to enter the electrical trades. Areas of instruction include electrical theory, circuit design and operation, the national electrical code, blue print reading, construction blue print interpretation, and test equipment usage. Students plan and organize wiring tasks, and gain practical experience by wiring mock-ups and trainers. Students become familiar with tools, materials, and methods used in residential wiring. Students troubleshoot circuits for faulty operation and make repairs. Specific studies include AC and DC theory, series and parallel circuits, motor and generator theory, motor controls, lighting and appliance wiring, low voltage wiring, and testing and repair.
Group 3	17102A001	Electrical Systems I	This course provides experiences that prepare students to apply technical knowledge and skills to install indoor and outdoor residential, commercial, and industrial electrical systems and associated power transmission lines. The program includes instruction in electricity, safety procedures, wiring, insulation and grounding, schematic blueprint interpretation, equipment operation and maintenance, and applicable codes and standards. Specific program content includes but is not limited to electrical wiring, industrial hydraulics, introduction to pneumatic technology, understanding of local and national electrical codes, basic power transmission, and an introduction to motor controls.
Group 3	17009A001	Building Maintenance I	This course includes learning experiences and skills in servicing building systems, repair and maintenance of machinery, maintaining plumbing systems, minor electrical repairs, essential heating ventilation and air conditioning system maintenance, painting, and basic carpentry. These experiences provide students the opportunity to become knowledgeable in a variety of practices and skills associated with all trades necessary to maintain a building 's daily operations that are repair-related. The Building Maintenance I course provides instruction and hands -on activities including the use of test equipment and tools, hand tools, basic electricity, carpentry and masonry skills.
Group 3	17056A001	HVAC I	This course is an introduction to the principles and practices employed in the installation, maintenance, and repair of basic air conditioning and heating systems units. Instruction is provided in safety precautions related to electricity, heating units, rotating machinery, refrigerants, and the use of power tools. Instruction includes basic electrical concepts, circuits, transformers, motors and motor controls, and circuit protection devices. Emphasis is also placed on basic refrigeration principles, gas laws, pressure, fluidics, heat and heat transfer, refrigerants, compressors, and lubrication systems. Activities include experiences in using hand tools, gauges, and test instruments used in cutting, reaming, flaring, swaging,

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			bending, soldering, and brazing copper tubing; evacuating and charging refrigeration systems, and inspecting and testing electrical and air conditioning circuits and component parts.
Group 3	20112A001	Heavy Equipment Technician I	This course introduces students to the basic skills needed to repair and maintain heavy equipment found in the manufacturing industry. Topics covered in this course include safety, blueprint reading basic hand and power tools, introductory hydraulics and pneumatics, orientation to computer diagnostics, basic electricity and electronics, and an introduction to welding technology.
Group 4	21012A001	Civil Engineering and Architecture	Civil Engineering and Architecture courses provide students with an overview of the fields of Civil Engineering and Architecture while emphasizing the interrelationship of both fields. Students typically use software to address real world problems and to communicate the solutions that they develop. Course topics typically include the roles of civil engineers and architects, project-planning, site-planning, building design, project documentation, and presentation.
Group 4	21103A002	Architectural Drafting II	Instruction is provided in the areas of locating information using computer data files, determination of materials and availability, project conferences, checking plan dimensions, drawing schematic sketches, preparing scale sketches, producing drawings from written/verbal instructions, application of coordinate dimensioning standards, creating drawings using a plotter /printer, producing renderings and/or charts and graphs, and common plan features. Instruction is also provided in the areas of drawing framing plans, wall sections, fireplace sections, door sections, door and window schedules, dimensioning structural steel drawings, constructing column detail drawings, preparation of structural foundation, slab and floor plans, drawing electrical, block, schematic, and electrical connection drawings. Skills relating to CAD include preparation of a basic CAD drawing, building and editing a data base, developing a 3-dimensional drawing and selecting appropriate line work, line weight, and color.
Group 4	21106A002	Mechanical Drafting II	Instruction is provided in the areas of identifying appropriate interfacing personnel (internal/external), producing renderings and project time schedules, producing structural working drawings as structural steel plans, dimension structural steel drawings, and draw beam connections, and producing electrical and electronic working drawings as electrical and electronic schematic diagrams. Additional skills introduced in this program include determining the requirements of a specific drafting job, preparing preliminary drawings such as freehand, isometric, orthographic, and oblique sketches; preparing detail drawings such as creating assembly drawings, orthographic projections, sectional views, auxiliary views, isometric views and letter drawings; producing mechanical working drawings such as detailing components of mechanical orthographic assembly and subassembly drawings; using CAD command processes as preparing a basic CAD drawing, start up, log on, retrieve, save, log off and shut down CAD system; creating disk files, copying disk files, and generating a grid on drawing.
Group 4	17002A002	Construction Trades II	This course provides learning experiences related to the erection, installation, maintenance, and repair of building structures and related utilities. Student technical skill experiences include instruction and activities in safety principles and practices, performing maintenance control functions, joining pipes, building water distribution lines and drains, installing and maintaining plumbing fixtures and systems, installing switch and outlet boxes, light fixtures, service entrances, roughing in and trimming out electrical devices and appliances, preparing foundations and footings, constructing residential chimneys and fireplaces, laying, jointing and pointing brick, and advanced building and construction methods and codes. All learning experiences are designed to allow the student to acquire job-entry skills and knowledge.
Group 4	17058A001	Plumbing	This course is an introductory level course designed to acquaint students with the basics of plumbing. Tasks introduced in this course include classroom safety, estimating the costs of jobs, joining copper tubing and strip pipes, installing hangars and supports, roughing in water supply lines for bathtubs, water closets, and water heaters, maintaining plumbing systems, using manuals to determine maintenance schedules, brazing pipes, joining pipes of dissimilar material with a variety of couplings, building water distribution line, and installing vents and drains.
Group 4	17003A002	Carpentry II	This course provides learning experiences related to the erection, installation, maintenance and repair of building structures and related utilities. Students are instructed in areas of safety, including hand tool, power tool, ladder, scaffolding and the use of safety harnesses. Students demonstrate knowledge of exterior trim and finishes, energy conservation in residential construction, and design of stairs and rafter building. Students gain knowledge of planning and

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			zoning regulations and building codes. Students are introduced to estimating both materials and construction costs, and demonstrate basic knowledge in applying drywall materials, stair-building skills, designing and erecting wall partitions, applying roofing materials, and installing common siding and interior finish. Technology-related mathematics, reading, writing, vocabulary, blueprint reading, and science are integrated throughout the curriculum.
Group 4	17005A001	Drywall Installation	This course provides experiences related to the fastening of drywall panels to the inside framework of residential, commercial, and other buildings, and preparing these panels for painting by taping and finishing joints and imperfections. Planned learning activities allow students to become knowledgeable in fundamental principles and methods. Students develop technical skills related to drywall handling, drywall fastening, drywall taping, and drywall sanding. Instruction includes safety principles and practices, recognition of standard lumber sizes, estimating materials, building concepts and procedures, local state, and national building codes, and blueprint reading.
Group 4	17008A001	Masonry	This course introduces students to the development and manufacture of brick and concrete block. Instruction concentrates on learning how to handle the trowel and lay brick to the line accurately. Skills involving the use of additional tools are also introduced at this level, so that students have a working knowledge of a mason's basic tools. In addition, students are introduced to the skills needed for installing ceramic, stone, vinyl and composite flooring as well as ceramic, glass, and stone wall tile.
Group 4	17011A001	Wall Finishing	This course provides students with experiences related to the painting and wall covering industry. Introductory experiences consist of finishing both exterior and interior surfaces, mixing, blending, and the proper techniques in applying paints, lacquers, enamels, and varnishes. Students learn to use hand tools in removing old surfaces and preparing new surfaces. Safety and care in handling materials are emphasized in this course. Skills introduced include safety, preparation of surfaces for painting, wall-coverings, concrete finishing, plaster finishing, finishing surfaces, filling holes and cracks, applying primer, and sealing wood surfaces.
Group 4	17013A001	Commercial Construction	Commercial Construction courses focus on residential construction principles and their relationship to commercial applications. Topics typically covered include commercial concrete forming, reinforcement and placement methods, stair construction, metal framing, interior finishes, suspended ceiling systems, metal framing and drywall applications, and commercial roofing methods and systems. These courses may also address equipment and tool usage in commercial construction.
Group 4	17014A001	Concrete Foundations, Pavement, and Asphalt	Concrete Foundations, Pavement, and Asphalt provides an overview of concrete and asphalt construction including material composition, behavior, and testing. Additional topics may include climate factors, drainage, pavement evaluation, maintenance strategies, rehabilitation and preservation techniques, and cost analysis.
Group 4	17102A004	Electrical Trades II	This course is a continuation of Electrical Trades I, advancing the basics learned in the first course. The study centers around advancing basic theory, multi-phase electricity, transmission and delivery systems, electronic and advanced motor controls, alarm and sensory systems, light commercial and industrial wiring, and advanced circuit design. Students continue to gain practical skill by working on trainers, mock-ups, and on-the-job projects.
Group 4	17102A002	Electrical Systems II	This course builds on the concepts and skills introduced in Electrical Systems I. It provides experiences that prepare students to apply technical knowledge and skills to install indoor and outdoor residential, commercial, and industrial electrical systems, and associated power transmission lines. The program includes instruction in electricity, safety procedures, wiring, insulation and grounding, schematic blueprint interpretation, equipment operation and maintenance, and applicable codes and standards. Content in this course includes program controls, industrial program controls, and quality assurance.
Group 4	17009A002	Building Maintenance II	This course provides learning experiences and skills related to servicing building systems, repairing and maintenance of machinery, maintaining plumbing systems, minor electrical repairs, essential heating ventilation and air conditioning system maintenance, painting and basic carpentry. These experiences provide students the opportunity to become knowledgeable in a variety of practices and skills associated with all trades necessary to maintain a building's daily operations that are repair-related. Planned learning activities should emphasize the development of more advanced knowledge and skills than those provided in Building Maintenance I. Students are instructed in areas of safety including

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			hand tool, power tool, ladder, scaffolding, and the use of safety harnesses. Additional instruction is provided in drywall installation and repair, maintenance painting, tile setting and repair, and basic masonry repair. Students demonstrate knowledge of technology -related mathematics, reading, writing, vocabulary, blueprint reading, and science as these are integrated throughout the curriculum.
Group 4	17056A002	HVAC II	This course builds on the foundational skills introduced in HVAC I. Students learn the mechanics and electrical fundamentals needed to work as a HVACR technician. Installation, maintenance, and repair of residential forced air heating systems, alternative energy sources, hydronic heating systems, heat pumps, and air conditioners are taught.
Group 4	20112A002	Heavy Equipment Technician II	This course is a continuation of Heavy Equipment Technician I and builds on the skills and concepts introduced there. New skills introduced in this course include metal separating, drill press, metal lathe, surface grinder, and milling machine operation . Also included are units of instruction on advanced electronics and electricity along with additional skill building activities in welding, braising, hydraulics, pneumatics, computer diagnostics, and precision measurement.
Group 5	17998A003	Architecture and Construction Workplace Experience	Architecture and Construction Workplace Experience courses provide work experience in a field related to the Architecture and Construction cluster. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.
Group 5	21148A001	Drafting Workplace Experience	Drafting Workplace Experience courses provide work experience in a field related to drafting. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.
Group 5	17048A001	General Construction Workplace Experience	General Construction Workplace Experience courses provide work experience in a field related to construction. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.
Group 5	17148A001	Electricity/Electronics Workplace Experience	Electricity/Electronics Workplace Experience courses provide students with work experience in a field related to electricity and/or electronics. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.

CAREER PROGRAMS IN ARCHITECTURE AND CONSTRUCTION (2023-2024)

Group 5	17998A001	Building Maintenance Workplace Experience	Building Maintenance Workplace Experience courses provide students with work experience in a field related to architecture or construction. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.
Group 5	17098A001	HVAC Workplace Experience	HVAC Workplace Experience courses provide work experience in a field related to air conditioning, heating, and/or plumbing. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.
Group 5	17998A002	Heavy Equipment Technician Workplace Experience	Heavy Equipment Technician Workplace Experience courses provide students with work experience in a field related to architecture or construction. Goals must be set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses must include classroom instruction at least once per week, involving further study of the field, discussion of relevant topics that are responsive to the workplace experience and employability skill development. Workplace Experience courses must be taught by an approved WBL educator-coordinator. These courses should be aligned to a Career Development Experience that could include: Student-led Enterprises; School-based Enterprises; Immersion Supervised Agricultural Experiences; Clinical Experiences in Health Science and Technology programs; Internships; and Apprenticeship programs including Youth Apprenticeships, Pre-apprenticeships, and Registered Apprenticeships.