Kansas Architecture & Construction Cluster

Design and Pre-Construction Pathway

CIP Code: 15.1303

Rating Scale: **4 Exemplary Achievement**
3 Proficient Achievement
2 Limited Achievement
1 Inadequate Achievement
0 No exposure- No instruction or training

Student:		Grade:
Teacher:	School:	
Enrolled Date:	Completion Date:	Graduation Date:
Student Signature	Teacher Signature	

Directions: *The following competencies are to be embedded in all pathway courses and are required for full approval of courses in the Design & Pre-Construction Pathway. Check the appropriate number to indicate the level of competency reached for student evaluation.*

Academic Foundations – Embedded in all courses

Benchmark: 0.1 Apply reading and writing, math, and science skills in personal, professional, and community situations.		4	3	2	1	0
0.1.1	Apply the four basic math functions to whole numbers, decimals, percentages and fractions. CC K&S/ NCCER/ SkillsUSA/ M (1.1.K1, 1.1.A1)/ FA(VB.6.3)/ AS (I1)/					
0.1.2	Use a standard ruler and a metric ruler to measure. NCCER/ S (HS.1.1.3 ▲)/ M (3.2.K1, 3.2.K2▲)/ AS (N3.5)/					
0.1.3	Explain the importance of the metric system in the construction trade and utilize metric units of length, weight, volume and temperature. CC K&S / NCCER/ SkillsUSA/ S (HS.1.1.3 ▲)/ M (3.2.A1a)/					
0.1.4	Recognize the basic shapes used in the construction industry, and apply basic geometry to measure them. CC K&S / NCCER/ SkillsUSA/ M (3.1.K1-8, 3.1.A1-2, 3.1.A1▲)/					
0.1.5	Demonstrate the ability to interpret information and instructions in both written and verbal form. CC K&S / NCCER/ SkillsUSA/ *21st (L03A)/ R (1.4.5, 1.4.8, 1.4.9, 1.4.10, 1.2.1, 1.4.4, 2.2.2)/ FA(D1.A.3)/ FA(TA.2.1, TA.1.3)/ FA(VP.1.3, VA.1.1, VA.1.2, VE.2.2)/ AS (B1, B2, B3, F1)/					
0.1.6	Demonstrate the ability to communicate effectively in on-the-job situations using verbal and written skills. CC K&S / NCCER/ SkillsUSA/ 21st (L03A)/ S (HS.1.1.5)/ W (1.3.1-17)/ FA(TA.3.3, TP.3.1)/ FA(VE.2.2, VA.3.2)/ AS (A7, B1, F3)/					
0.1.7	Perform physics skills to work with materials and load applications CC K&S / SkillsUSA/ S (4.2.1.4)/ 21st (L02E)					
0.1.8						
0.1.9						

Career Development Skills – Embedded in all courses

Benchmark: 0.2 Demonstrate appropriate career development skills.		4	3	2	1	0
0.2.1	Utilizes effective job seeking skills. NCCER/ SkillsUSA/ S (HS.7.1.1)/ 21st (L10B)					
0.2.2	Created and utilizes an occupationally specific resume. CC K&S/ SkillsUSA/ 21st (L03A)/ AS (C10)/					
0.2.3	Created and utilizes a portfolio. CC K&S/ SkillsUSA/ W (All of Standards 1 & 2)/ FA (D6.A.2)/ FA(VE.3)/ 21st (L10.2)/ AS (C10)/					
0.2.4	Understands proper interview techniques. CC K&S/ SkillsUSA/ 21st (L03A)					
0.2.5	Understands performance reviews. CC K&S/ SkillsUSA/ S (HS.7.1.2)/ R (1.42, 1.45, 1.48, 1.4.1, 1.2.1, 1.4.4)/ 21st (L03C)					
0.2.6	Explain the construction industry, the role of companies within the industry, and the role of individual professionals in the industry. CC K&S/ SkillsUSA/ 21st (L10B)/ S (HS.7.1.1)/ SS (HS.2.5.1, 2.5.2, 2.5.3▲)/					
0.2.7	Demonstrate the value of computers in the construction industry through use of email, databases, Internet and billing/inventory software. CC K&S/ SkillsUSA/ S (HS.5.1.3)/ W (1.3.3-3, 6-17)/ FA(VB.4.3)/ 21st (L04D)					
0.2.8						
0.2.9						

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Leadership/ 21st Century Skills – Embedded in all courses

Benchmark: 0.3 Apply leadership and 21st Century Skills to personal, professional and community issues.		4	3	2	1	0
0.3.1	Demonstrates speaking skills CC K&S/ NCCER/ SkillsUSA/ 21st (L03A))/ FA(TP.2.2, TA.2)/ FA(M1P1, 1A1, 2P1.2, 2A1)/ AS (B6)/					
0.3.2	Utilizes listening skills CC K&S/ NCCER/ SkillsUSA/ 21st (L03A)/ FA(M 6P1,2,3; 6A1,3)/					
0.3.3	Uses writing skills to produce and compile documents CC K&S/ NCCER/ SkillsUSA/ 21st (L03A)/ W (All of Standards 1 & 2)/ AS (C10)/					
0.3.4	Uses decision making / problem solving skills CC K&S/ NCCER/ SkillsUSA/ 21st (L02B)/ S (HS.1.1.4)/ R (1.4.7, 1.4.15, 1.4.5, 2.2.2, 1.4.4, 1.2.1)/ FA (D1.E.2, D1.E.3, D2.E.3, D4.E.1)/ FA(T6.A.1)/ FA(M 1P2; 1A2,3; 2P2,3; 4P1,2,3; 4A1; 7P1,2)/					
0.3.5	Participates as team member to achieve common goals CC K&S/ NCCER/ SkillsUSA/ 21st (L03D, L07A)/ FA(T1.3)/ FA(M 1P2,3; A2,3; 2P2,3; 5P2; 5A3)/ AS (B7)/					
0.3.6	Demonstrates time management CC K&S/ SkillsUSA/ 21st (L06C)/ FA(M1P3; 2P2)/					
0.3.7	Takes responsibility and displays work ethics CC K&S/ SkillsUSA/ 21st (L08A, L09A)/ FA(T1.3)/ FA(M 1P1,2,3; 1A1,2,3; 2P1,2,3; 2A1)/					
0.3.8	Establishes positive relations with others CC K&S/ NCCER/ SkillsUSA/ 21st (L07A)/ FA(TA.1.3)/ FA(M 1P3; 2P2)/					
0.3.9	Demonstrate a working knowledge of workplace issues such as sexual harassment, stress, and substance abuse. CC K&S/ NCCER/ SkillsUSA/ 21st (L07C)/ SS (HS.1.4.3, HS.1.1.2▲ , HS.1.1.4)/					
0.3.10						

Workplace Safety Skills – Embedded in all courses

Benchmark: 0.4 Utilize Workplace Safety Skills in all aspects of the construction industry.		4	3	2	1	0
0.4.1	Demonstrate a working knowledge of safety education, environment, and enforcement for life and work. CC K&S / NCCER/ SS (HS.3.5.3)/ FA(TE.4)/					
0.4.2	Apply safe practices while using tools and equipment to construct a project. CC K&S / SkillsUSA/ NCCER/ FA(TE.4)/ FA(VI.5.1, I.5.2, P.5.1, P.5.2)/ 21st (L02A)					
0.4.3	Apply safe practices for housekeeping, dress, fire, chemicals & personal protection while working in a shop. CC K&S / NCCER/ NSS/ FA(TE.4)/ 21st (L02A)					
0.4.4	Demonstrate the use and care of appropriate personal protective equipment (PPE). CC K&S / NCCER/ NSS/ S (HS.6.1.1)/ FA(TE.4)/ FA(VA.5.1, E.5.1)/					
0.4.5	Explain the importance of Hazard Communications (HazCom) and Material Safety Data Sheets (MSDS) CC K&S / NCCER/ NSS/ FA(TE.4)/ FA(VP.5.1, I.5.2, P.5.2, A.5.1, A.5.2)/ 21st (L02C)					
0.4.6	Describe fire prevention and firefighting techniques. CC K&S / NCCER/ FA(TE.4)/					
0.4.7	Follow safety procedures required for lifting heavy objects. CC K&S / NCCER/ FA(TE.4)/ 21st (L02A)					
0.4.8	Follow safe behavior procedures on and around ladders and scaffolds. CC K&S / NCCER/ S (HS.6.1.1)/ FA(TE.4)/ 21st (L02A)					
0.4.9	Explain the purpose of OSHA and how it promotes safety on the job. CC K&S / SS (HS.3.5.3)/ FA(TE.4)/ 21st (L02C)					
0.4.10	Respond to hazardous-materials and hazardous-waste emergency situations in accordance with regulatory requirements. CC K&S / NSS/ SS (HS.3.5.3)/ FA(TE.4)/ 21ST (L02A)					
0.4.11						

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TECHNICAL COURSES

38001 - Introduction to Industrial Technology (.5 credit)
An introductory level course designed to instruct students in the basic skills necessary to all occupations in the Construction, Manufacturing & Transportation areas.

Benchmark: 0.5 Demonstrate basic skills in the industrial technology area of study.		4	3	2	1	0
0.5.1	**Basic Safety –** NCCER/ CC K&S/ SkillsUSA/ -Identify causes of accidents and the impact of accident costs. 21st (L02C) - Follow safe behavior procedures on and around ladders, scaffolds and stairs. 21st (L02A, L02C) -Follow safe behavior procedures around electrical hazards. 21st (L02A) -Demonstrate the use, care and inspection of appropriate personal protective equipment (PPE) -Explain the importance of hazard communications (HazCom) and material safety data sheets (MSDSs). -Respond to hazardous-materials and hazardous-waste emergency situations in accordance with regulatory requirements. 21st (L02A) - Follow safety procedures required for lifting heavy objects. -Demonstrate a working knowledge of safety education, environment, and enforcement for life and work. 21st (L02A) - Apply safe practices while using tools and equipment. 21st (L02A) -Apply safe practices for housekeeping, dress, fire, chemicals & personal protection while working in a shop. 21st (L02A) -Describe fire prevention and firefighting techniques. 21st (L02C) -Explain the purpose of OSHA and how it promotes safety on the job.					
0.5.2	**Industrial Math –** NCCER/ CC K&S/ SkillsUSA/ AS (I1, N3.5)/ -Add, subtract, multiply, and divide whole numbers, fractions, decimals and percentages. -Use a standard ruler, a metric ruler, and a measuring tape to measure. -Demonstrate conversion skills for decimals and fractions. 21st (L02C) -Recognize and perform calculations using metric units of length, weight, volume and temperature. 21st (L02C)					
0.5.3	**Hand Tools –** NCCER/ CC K&S/ -Recognize and identify some of the basic hand tools and their proper uses in industrial trades. -Demonstrate the safe use of common hand tools.					
0.5.4	**Power Tools –** NCCER/ CC K&S/ -Recognize and identify some of the basic power tools and their proper uses in the industrial trades. -Demonstrate the safe use of common power tools. -Perform preventive maintenance on basic power tools used in the industrial trades.					
0.5.5	**Blueprint Reading –** NCCER/ CC K&S/ SkillsUSA/ AS (C8, F5)/ -Perform the drafting principles needed to draw the basic geometric shapes. 21st (L02E) -Develop a pictorial sketch of an object. 21st (L02E) -Develop a multi-view drawing. 21st (L02E) -Identify basic symbols used in blueprints. -Identify various types of blueprint views used in Architecture, Construction, Manufacturing and Engineering.					
0.5.6	**Communication Skills –** NCCER/ CC K&S/ SkillsUSA/ -Interpret information and follow instructions presented in both verbal and written form. 21st (L04A) -Communicate effectively in on-the-job situations using verbal and written skills in various delivery modes (face-to-face, paper, & electronic). 21st (L03A) -Create and complete various written documents used in industrial trades. 21st (L03A) -Demonstrate knowledge and use of computer systems and word processing software in effective communication. 21st (L04E)					
0.5.7	**Employability Skills –** NCCER/ CC K&S/ SkillsUSA/ AS (C10)/ -Create and utilize employment documents including a resume and portfolio. 21st (L03A) -Demonstrate job seeking and interview skills. 21st (L04E, L10A) -Understand and respond to performance reviews. 21st (L03C, L10A, L10C)					

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0.5.8	**21st Century/Foundation Skills –** NCCER/ CC K&S/ AS (B7)/ -Demonstrate critical thinking skills and the ability to solve problems using those skills. 21st (L02D) -Define effective relationship skills. 21st (L07A) -Demonstrate a working knowledge of workplace issues such as sexual harassment, stress, and substance abuse. 21st (L07C) -Demonstrate the ability to achieve common goals through team work 21st (L03C, L03D)					
0.5.9	**Materials Handling –** NCCER/ CC K&S/ -Verify that health, safety, environmental and government regulations are met. 21st (L02A) -Recognize hazards and follow safety procedures required for materials handling. 21st (L02A) -Demonstrate ability to load and unload materials properly and safely. 21st (L02A)					
0.5.10						
0.5.11						
0.5.12						
0.5.13						

21102 - Drafting (Architectural & Mechanical) (.5 credit)
An introductory course designed to expose students to both architectural and mechanical (technical) drafting skills.

Benchmark: 0.6 Demonstrate basic skills in architectural and mechanical drafting.		4	3	2	1	0
0.6.1	Identify types of architectural and mechanical drawings. CC K&S / SkillsUSA/ FA(TE.4.3)/ - NCCER/					
0.6.2	Display knowledge of careers in architecture and drafting. SkillsUSA/ 21st (L10B)/ W (All of Standards 1 & 2)/					
0.6.3	Display knowledge of drafting standards (line styles, dimensions, sheet layout, etc.) SkillsUSA/ - NCCER/					
0.6.4	Demonstrate ability to perform manual drafting skills. CC K&S / SkillsUSA/ AS (C8)/ 21st (L02E)/ - NCCER/					
0.6.5	Demonstrate ability to do lettering on a drawing. SkillsUSA/ 21st (L02E)- - NCCER/					
0.6.6	Demonstrate ability to perform sketching, geo construction and 2d drafting. CC K&S / SkillsUSA/ FA(TE.4.3)/ 21st (L02E)/ - NCCER/					
0.6.7	Demonstrate the ability to dimension a drawing. CC K&S / SkillsUSA/ 21st (L02E)/ - NCCER/					
0.6.8	Demonstrate visualization skills in orthographic projection. CC K&S / SkillsUSA/ 21st (L02B)/ - NCCER/					
0.6.9	Display knowledge of architectural symbols. NCCER/ SkillsUSA/					
0.6.10						
0.6.11						

17002 – Residential Carpentry I (1 Credit)
A comprehensive course designed to instruct students in the basic knowledge and skills required for construction of residential structures.

Benchmark: 0.7 Demonstrate basic skills in building trades.		4	3	2	1	0
0.7.1	Safely utilize and maintain tools common to the building trades industry. CC K&S / NCCER/ SkillsUSA/ FA(TA.4)/ 21st (L02A, L02B)					
0.7.2	Demonstrate Blueprint reading skills including the interpretation of plans, elevations, schedules, sections and details. CC K&S / NCCER/ SkillsUSA/ R (1.4.5, 1.4.6, 1.4.7, 1.2.1, 1.4.4, 2.2.2)/ M (2.4.K1)/ FA(TE.4.3)/ AS (F5, F8)/ 21st (L02C, L02E)					
0.7.3	Estimate building materials and cost for a project. CC K&S / NCCER/ SkillsUSA/ M (1.3.K1-2)/ FA(TE.4.3)/ AS (NB1)/ 21st (L04D)					
0.7.4	Set up and utilize leveling instruments NCCER/ FA(TE.4.3)/					
0.7.5	Install sill seal and sill plate to the foundation. NCCER/ SkillsUSA/ FA(TE.4.3)/					
0.7.6	Lay out, construct and erect walls and partitions. NCCER/ SkillsUSA/ FA(TE.4.3)/					
0.7.7	Lay out, cut and install ceiling joists. NCCER/ FA(TE.4.3)/					
0.7.8	Construct a frame roof and apply sheathing. NCCER/ SkillsUSA/ FA(TE.4.3)/					
0.7.9	Install a pre-hung window. NCCER/ SkillsUSA/ FA(TE.4.3)/					

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0.7.10	Install a pre-hung exterior door with weather-stripping. NCCER/ SkillsUSA/ FA(TE.4.3)/					
0.7.11	Install a lockset on an entry door. NCCER/ FA(TE.4.3)/					
0.7.12	Describe the types of and demonstrate the application of common wood sidings used as exterior finishes. NCCER/ FA(TE.4.3)/					
0.7.13	Apply fiberglass shingles with a 5" exposure, including at least one rooftop projection. NCCER/ SkillsUSA/ FA(TE.4.3)/					
0.7.14	Install factory-made cabinets, countertops, and backsplashes. NCCER/ FA(TE.4.3)/					
0.7.15						

21107 – Drafting/CAD (1 Credit)

A comprehensive course designed to instruct students in the use of CAD design and software.

Benchmark: 0.8 Demonstrate basic skills in drafting/CAD.		4	3	2	1	0
0.8.1	Identify and demonstrate the use of CAD commands and system peripherals. CC K&S / SkillsUSA/ FA(TE.4.3)/ 21st (L04D)					
0.8.2	Demonstrate the ability to dimension drawings on the CAD system. CC K&S / SkillsUSA/ FA(TE.4.3)/ 21st (L02E, L04D)					
0.8.3	Demonstrate proficiency in setting limits and scale on the CAD system. CC K&S / FA(TE.4.3)/ 21st (L04D)					
0.8.4	Demonstrate proficiency in setting, turning on and turning off layers. FA(TE.4.3)/ 21st (L04D)					
0.8.5	Create standard drawings for templates. SkillsUSA/ FA(TE.4.3)/ AS (C8)/ 21st (L02E, L04D)					
0.8.6	Demonstrate the ability to create drawings in 3D. CC K&S / SkillsUSA/ FA(TE.4.3)/ 21st (L02E, L04D)					
0.8.7	Demonstrate the ability to load, store files, and transport files via Internet. CC K&S / FA(TE.4.3)/ 21st (L04D, L04E)					
0.8.8	Place text on a drawing and be able to change to different font styles, sizes and angles. SkillsUSA/ FA(TE.4.3)/ 21st (L04D)					
0.8.9	Be proficient in the use of printer/plotter operations. FA(TE.4.3)/ 21st (L04D)					
0.8.10	Demonstrate ability to place text on a drawing and change to different font styles, sizes and angles. SkillsUSA/ FA(TE.4.3)/					
0.11.1	Demonstrate ability to dimension drawings on the CAD system. CC K&S / SkillsUSA/ FA(TE.4.3)/ 21st (L04D)					
0.11.2	Demonstrate proficiency in setting limits and scale on the CAD system. CC K&S / FA(TE.4.3)/ 21st (L04D)					
0.11.3	Construct drawings using straight line, circle, and hidden line statements, etc. CC K&S / SkillsUSA/ FA(TE.4.3)/ AS (C8)/ 21st (L04D, L04E)					
0.11.4	Construct isometric and 3D drawings. CC K&S / FA(TE.4.3)/ AS (C8)/ 21st (L04D, L04E)					
0.11.5	Set grid and snap specifications. FA(TE.4.3)/ 21st (L04D, L04E)					
0.11.6	Define and use commands to modify a drawing. FA(TE.4.3)/ 21st (L04D, L04E)					
0.11.7	Use symbols (from a symbol library) in a drawing. FA(TE.4.3)/ 21st (L04D)					

21103 – Architectural Design (1 Credit)

A comprehensive course designed to instruct students in the basic skills of architectural design with a particular emphasis on residential and light commercial applications.

Benchmark: 0.9 Demonstrate basic and advanced skills in architectural design.		4	3	2	1	0
0.9.1	Identify historical styles of architecture and types of structural designs. 21st (L04A)/ W (2.1.1-3)/ FA(TE.4.3)/					
0.9.2	Design a functional structure suitable for a particular site. CC K&S FA(TE.4.3)/ 21st (L01D, L02B, L03A)					
0.9.3	Calculate/estimate building costs for a particular structure and develop brief specifications for the project. CC K&S / M (1.3.K1-2, 1.4.K1-2)/ AS (NB1)/ 21st (L04D)					
0.9.4	Produce a floor plan with all walls, doors, windows and stairs properly identified. CC K&S / SkillsUSA/ M (2.4.A1)/ FA(TE.4.3)/ AS (C8, C10)/ 21st (L03A, L04D)					
0.9.5	Draw plumbing and electrical layers. CC K&S / SkillsUSA/ AS (C8)/ 21st (L03A, L04D)					
0.9.6	Draw a foundation plan for a single family dwelling. CC K&S / SkillsUSA/ M (2.4.A1)/ FA(TE.4.3)/ AS (C8)/ 21st (L03A, L04D)					
0.9.7	Draw elevations and pictorial presentations e.g. exterior, interior, etc. CC K&S / SkillsUSA/ AS (C8)/ 21st (L03A, L04D)					

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0.9.8	Dimension and draw wall section with all components identified. CC K&S / SkillsUSA/ M (2.4.A1)/ AS (C8)/ 21st (L03A, L04D)					
0.9.9	Develop Plot Plan with house, out buildings, trees, utility supply lines and communications supply lines identified. CC K&S / AS (C8, C10)/ 21st (L04D, L03A, L04D)					
0.10.1	Demonstrate the ability to 3D model a structure using different mediums in design. CC K&S / FA(TE.4.3)/ 21st (L01A, L03A)					
0.10.2	Draw a roof framing plan for a single family dwelling. FA(TE.4.3)/ 21st (L03A, L04D)					
0.10.3	Draw interior elevations with fixtures, built-ins, trims, utilities and openings. FA(TE.4.3)/ AS (C8)/ 21st (L03A, L04D)					
0.10.4	Construct an interior finish schedule. CC K&S / FA(TE.4.3)/ 21st (L03A, L04D)					
0.10.5	Draw an interior one-point perspective drawing. CC K&S / FA(TE.4.3)/ AS (C8)/ 21st (L03A, L04D)					
0.10.6	Create an exterior two-point perspective view. CC K&S / FA(TE.4.3)/ AS (C8)/ 21st (L03A, L04D)					

17007 – Cabinetmaking/Furniture Design I (1 Credit)
A comprehensive course designed to instruct students in the basic knowledge and skills required for cabinetmaking and furniture design.

Benchmark: 0.13 Demonstrate basic skills in cabinetmaking/furniture design.		4	3	2	1	0
0.13.1	Utilize hand tools for cutting, scraping or planing the stock for a project. CC K&S / NCCER/ FA(T 6.A.1)/					
0.13.2	Apply math skills to control distance, spacing &/or angle measurements and placements for constructing a project. CC K&S / M (1.1.A1)/ FA(TA.4.3; 6.A.1)/					
0.13.3	Utilize portable power tools to construct a project. CC K&S / NCCER/ SkillsUSA/ FA(TA.4.3; 6.A.1)/ __belt sander __router __hand drill __power plane __finish sander __nail gun __circular saw __reciprocating saw					
0.13.4	Utilize machines to construct a project. CC K&S / NCCER/ FA(TA.4.3; 6.A.1)/ __radial arm __jointer __planer/surface __table saw __band saw __drill press __power miter saw __shaper __mortiser __thickness sander __lathe __scroll saw __panel saw __disc/belt sander __grinder					
0.13.5	Perform the steps to interpret, transfer and layout lines &/or markings to be used for constructing a project. FA(TA.4.3; 6.A.1)/ 21st (L02E)					
0.13.6	Construct a project, incorporating the elements & principles of design as related to traditional styles in history. FA(TA.4.3; 6.A.1)/ FA(VA.2.B.3)/ 21st (L01D, L02B)					
0.13.7	Select and perform "best-method" for joining and assembling project parts. 21st (L02C, L02E, L02B)/ FA(TA.4.3; 6.A.1)/					
0.13.8	Apply a quality finish on a project utilizing appropriate materials & equipment. FA(TA.4.3)/ 21st (L02E)					
0.13.9						
0.13.10						
0.13.11						

22212– Interior Design IIb(.5 Credit)
An application level course designed to instruct students in the skills necessary to design interior spaces that acknowledge client needs, legislated codes, historic, current and future trends, and public policy.

Benchmark: 0.14 Demonstrate basic skills in architectural interior design.		4	3	2	1	0
0.14.1	Examine education and training requirements and opportunities for career paths in building/interior design. CC K&S/ 21st (L10B)					
0.14.2	Examine legislation, regulations, and public policy affecting the building industry. 21st (L04E)					
0.14.3	Assess community, family and financial resources needed to achieve client's goals. 21st (L02C)					
0.14.4	Compare historical architectural trends to current building/interior design trends. 21st (L04E)					

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0.14.5	Consider future trends in building/interior design. 21st (L04E)					
0.14.6	Determine the effects that the principles and elements of design have on the individual, aesthetics and function. 21st (L02E)					
0.14.7	Review measuring, estimating, ordering, purchasing, and pricing skills. 21st (L04D)					
0.14.8	Draw and interior space to scale, using correct architectural symbols, and drafting skills. AS (C8)/ 21st (L04D)					
0.14.9	Create floor plans, using computer design software. AS (C8, C10)/ 21st (L01D)					
0.14.10	Examine floor plans for efficiency, and safety and areas including, but not limited to, zones, traffic patterns, storage, electrical and mechanical systems. AS (F5)/ 21st (L02C)					
0.14.11	Utilize applicable building codes, universal guidelines, and regulations in space planning. AS (F8), 21st (L02A)					
0.14.12						
0.14.13						

21109 – Research and Design for Pre-Construction (1 credit)
An advanced research and application course covering specific topics in design and preconstruction to include management and "green design" skills.

Benchmark: 0.12 Demonstrate ability to research and perform basic and advanced skills in pre-construction.		4	3	2	1	0
0.12.1	Work with a client to develop a client-driven product. CC K&S/ AS (C10)/ 21st (L03B)					
0.12.2	Produce a working model (graphic or physical) using advanced software and/or equipment. AS (C8)/ 21st (L04D, L04E)					
0.12.3	Demonstrate ability to apply shading and rendering techniques to 3d surfaces and solid models. 21st (L04D)					
0.12.4	Demonstrate ability to access and utilize industry resources. CC K&S/ 21st (L04E)/ R (1.4.5, 1.2.1, 1.4.4)/					
0.12.5	Use appropriate grammar and word usage in the creation and implementation of a formal graphical information presentation using current standards and technology. 21st (L03A, L04D, L04E)/ AS (A1, B6, C10)/					
0.12.6	Apply principles of dimensioning/tolerances, fasteners/hardware, and power transmission. CC K&S					
0.12.7	Apply basic principles of environmental impact to enhance project acceptance & quality. CC K&S					
0.12.8	Demonstrate ability to apply design requirements for people needing special accommodations. CC K&S/ 21st (L07A)					
0.12.9	Utilize effective management techniques to organize work flow. CC K&S / 21st (L06C, L09C) W (2.1.1-3)/					
0.12.10	Use technology and resources to research licensing certification and credentialing in the architecture and construction industry. CC K&S / 21st (L04D, L04E, L04C)/ AS (D2)/					
0.12.11	Conduct product and facility evaluations and critique their effectiveness. 21st (L02E, L02F)/ AS (F8)/					
0.12.12	Research new technologies to meet future client needs. 21st (L04D, L05E)/ AS (D2)/					
0.15.1	Demonstrate ability to access and utilize industry resources. CC K&S/ 21st (L04E)/ R(4.2, 1.4.5, 1.4.1, 1.2.1, 1.4.4)/					
0.15.2	Demonstrate abilities in design/planning, visual communication and problem solving in current architectural practices. CC K&S/ 21st (L01A, L03A)/					
0.15.3	Integrate alternative construction methods and materials in current architectural drawings. CC K&S/ 21st (L01D)/					
0.15.4	Demonstrate ability to use CSI – Construction Specifications Institute's Uniform Drawing System and Master Format. 21st (L04D)					
0.15.5	Research various methods for obtaining financing for building projects. 21st (L04E)/ AS (D2)/					
0.15.6	Demonstrate ability to incorporate specific codes as given for a selected jurisdiction. 21st (L02B)					
0.15.7	Demonstrate ability to set and work within defined budget. AS (D2)/ 21st (L04D, L06D)					
0.15.8	Research and use information for product development. 21st (L01A, L01D, L04A)/ AS (D2)/					
0.15.9	Manipulate materials and processes to meet client needs. 21st (L02B, L03C)					
0.15.10	Demonstrate ability to manage and set project goals and timelines. 21st (L06C, L08C)/					

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38050 – Advanced Studies (.5 Credit)
An advanced level application course covering specific research-based topics in architectural design.

Benchmark: 0.16 Demonstrate ability to utilize research in the development and design of structures incorporating advanced building techniques.		4	3	2	1	0
0.16.1	Employ basic methods of data collection and analysis to provide information for projects. 21st (L04E)					
0.16.2	Research and report on methods for employing "Green Building" techniques. 21st (L03A, L04E)/ AS (D2, F3)/					
0.16.3	Research and report on the latest technology used in HVAC Systems Design. 21st (L3A, L04E)/ AS (D2, F3)/					
0.16.4	Research and report on the latest technology used in Electrical Systems Design. 21st (L03A, L04E)/ AS (D2, F3)/					
0.16.5	Research and report on the latest technology used in Plumbing Systems Design. 21st (L03A, L04E)/ AS (D2, F3)/					
0.16.6	Apply suitable practices of environmental impact to enhance project acceptance and quality. 21st (L03C, L05B)					
0.16.7	Integrate structural, environmental, safety, building envelopes and building service systems to design and construct buildings and structures. 21st (L02C)					
0.16.8	Develop a landscape design for a commercial building. AS (C8)/ 21st (L04D, L01A)					
0.16.9	Appreciate the diversity of needs, values and social patterns in project design to appropriately meet client needs. 21st (L07C, 01C)/					
0.16.10	Use communication skills and strategies to work effectively with potential clients. 21st (L03C, L03B)/ AS (A7),					
0.16.11	Develop technical drawings by hand and computer-generated plans to design structures. 21st (L04D)/ AS (C8)					
0.16.12						

OCCUPATIONAL PROFILE RATING SCALE RUBRIC

Rating Scale (Occupational Profile)

4 - Exemplary Achievement:	Student possesses outstanding knowledge, skills or professional attitude. Works Independently.
3 - Proficient Achievement:	Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.
2 - Limited Achievement:	Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.
1 - Inadequate Achievement:	Student lacks knowledge, skills or professional attitude.
0 - No Instruction / Training:	Student has not received instruction or training in this area.

*Key for 21st Century Skills:

CI = Creativity and Innovation
CP= Critical Thinking and Problem Solving
CC = Communication and Collaboration
IT = Information, Communication, Technology and Media Literacy
FA = Flexibility and Adaptability
IS = Initiative and Self-Direction
SC = Social and Cross-Cultural Skills
PA = Productivity and Accountability
LR = Leadership and Responsibility
EC = Employability and Career Development

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