Architectural Drafting

Course Description

In this class, the students will create residential architectural working drawings, using CAD, necessary for a standard building permit. With hands-on exercises, assignments and projects, students gain the capability to use CAD to model a house project and create and distribute industry-standard drawings.

Course Code:

Program(s) of Study to which This Course Applies

- Design/Pre-construction

Course Framework	Reference Standards	Academic Crosswalk
Standard 1. Students will research and create a floor plan.		MA 12.2.4(1) CCSS:MA(G-MG1-3(1) SC.12.1.1.c,d,e(1) SC.12.4.2.c(1) LA.12.1.5.b(1) LA.12.1.6.d,f(1)
Benchmark 1.1 Draw exterior and interior walls. <u>Sample performance indicators:</u> • Place relevant material symbols. • Install doors symbols. • Install window symbols. • Place openings.	SkillsUSA 2.3	
Benchmark 1.2 Insert fixtures, appliances, and cabinetry. <u>Sample performance indicators:</u> • Add plumbing fixtures. • Add kitchen and laundry appliances. • Add built-in cabinetry.	SkillsUSA 2.3	SC.12.4.3.c(1)

• Add mechanical equipment.		
Benchmark 1.3 Insert a fireplace. <u>Sample performance indicators:</u> • Create opening. • Add hearth and mantel. • Add annotations, dimensions, and symbols.	SkillsUSA 3.5	
Benchmark 1.4 Insert a stairway. <u>Sample performance indicators:</u> • Add stairwell opening. • Calculate rise and run and add risers and treads. • Add annotations, dimensions, and symbols.	SkillsUSA 3.5	MA 12.3.1f(1)
Benchmark 1.5 Add annotations and symbolization. <u>Sample performance indicators:</u> • Add room labels. • Indicate room sizes. • Indicate floor coverings. • Show wall thicknesses. • Show joist direction and size. • Add attic scuttle. • Place title block and border. • Indicate beam sizes.	SkillsUSA 2.5.2	
Benchmark 1.6 Add dimensions. <u>Sample performance indicators:</u> • Add wall locations. • Add opening locations. • Add all other necessary dimensions.	ANSI Standards	
Standard 2. Students will research and create a foundation plan.		MA 12.2.4(1) CCSS:MA(G-MG1-3(1) SC.12.1.1.c,d,e(1) SC.12.4.2.c(1) LA.12.1.5.b(1) LA.12.1.6.d,f(1)
Benchmark 2.1 Create exterior and interior walls.	SkillsUSA 2.5	

<u>Sample performance indicators:</u> • Place relevant material symbols. • Install doors symbols. • Install window symbols. • Place openings.		
Benchmark 2.2 Add support material. <u>Sample performance indicators:</u> • Add posts, beams, girders and joists.	SkillsUSA 2.5	SC.12.4.3.c(1)
Benchmark 2.3 Add continuous and isolated footings. <u>Sample performance indicators:</u> • Add wall footings. • Add column footings. • Label and dimension footings.	SkillsUSA 2.5	
Benchmark 2.4 Add stairway. <u>Sample performance indicators:</u> • Add stairwell opening. • Calculate rise and run and add risers and treads. • Add annotations, dimensions, and symbols.	SkillsUSA 2.5	MA 12.3.1f(1)
Benchmark 2.5 Add annotations and symbolization. <u>Sample performance indicators:</u> • Place title block and border. • Indicate beam sizes.	SkillsUSA 2.5.4	
Benchmark 2.6 Add dimensions. <u>Sample performance indicators:</u> • Add wall locations. • Add opening locations. • Add all other necessary dimensions.	SkillsUSA 2.5.2	
Standard 3. Students will research and create a wall section.		SC.12.1.1.c,d,e(1) SC.12.4.2.c(1) LA.12.1.5.b(1) LA.12.1.6.d,f(1)

Benchmark 3.1 Add structural components from footing to roof. <u>Sample performance indicators:</u> • Draw footing. • Draw stem wall. • Draw floor system. • Draw wall system. • Draw roof system. • Add annotations, dimensions, and symbols.	SkillsUSA 3.2	SC.12.4.3.c(1)
Standard 4. Students will research and create exterior elevations.		SC.12.1.1.c,d,e(1) LA.12.1.5.b(1) LA.12.1.6.d,f(1)
Benchmark 4.1 Draw the required elevations in the appropriate location. <u>Sample performance indicators:</u> • Project elevations from floor plan and wall section. • Add doors and windows (fenestration).	SkillsUSA 2.3.1	
Benchmark 4.2 Add annotations and symbolization. <u>Sample performance indicators:</u> • Add material symbols. • Add roof slope triangle.	SkillsUSA 2.5.2	MA 12.3.1f(1) CCSS:MA (F-IF:6)(1)
Benchmark 4.3 Add dimensions. <u>Sample performance indicators:</u> • Add finished floor elevations. • Indicate grade. • Add head height.	SkillsUSA 2.5.2	
Standard 5. Students will show ability to research and create a site plan.		MA 12.2.2 (1) MA 12.2.5 (2) CCSS:MA(G-MG1-3)(1) CCSS:MA(G-CO12-13)(1) SC.12.4.2.c(1) SC.12.1.1.c,d,e(1) LA.12.1.5.b(1) LA.12.1.6.d,f(1)
Benchmark 5.1 Draw the lot boundary.	SkillsUSA 3.5	

Sample performance indicators: • Add property lines.		
Benchmark 5.2 Indicate existing features. Sample performance indicators: • Add streets. • Add trees. • Add utilities. • Add setbacks and easements.	Architectural Graphic Standards	
Benchmark 5.3 Add annotations. Sample performance indicators: • Add north arrow. • Add graphic scale. • Add datum points. • Add metes and bounds. • Add legal description. • Add legend.	SkillsUSA 2.5	
Benchmark 5.5 Add dimensions. Sample performance indicators: • Add building locations. • Add width of all pathways. • Add dimension to center line of street to property line.	SkillsUSA 2.5.2	MA 12.2.4(1)

Reference Standards Sources

- 2010 SkillsUSA Championships Technical Standards for Architectural Drafting
- Northeast Community College (NECC) ARCH 1200 and 1210
- AIA Standards
- ANSI Standards
- Architectural Graphic Standards, Tenth Edition, Ramsey

Other Information

Suggestions for innovative teaching and learning strategies:	• Job Shadow • Guest Speaker • Portfolio Development • Interdisciplinary Collaboration
Related assessments:	• SkillsUSA USA competition • Home Builder Associations competition • Post Secondary competitions
Extended learning opportunities:	• Internship • Dual Credit

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