



# 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: 100141**

## Program(s) of Study to which This Course Applies

- Design/Pre-construction

Course Framework	Reference Standards	Academic Crosswalk to Common Core Standards	Academic Crosswalk to Nebraska Standards	Comments
<p><b>Standard 1. Students will create a floor plan.</b></p>				
<p>Benchmark 1.1 Draw exterior and interior walls.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Place relevant material symbols.</li> <li>• Install doors symbols.</li> <li>• Install window symbols.</li> <li>• Place openings.</li> </ul>	SkillsUSA 2.3	ELA.WHST.11-12.6	LA.12.2.1.f LA.12.1.5.e	
<p>Benchmark 1.2 Insert fixtures, appliances, and cabinetry.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add plumbing fixtures.</li> <li>• Add kitchen and laundry appliances.</li> <li>• Add built-in cabinetry.</li> <li>• Add mechanical equipment.</li> </ul>	SkillsUSA 2.3	ELA.WHST.11-12.6	LA.12.2.1.f LA.12.1.5.e  SC.12.4.3.c	Alignment presumes students will use renewable resources when insert fixtures and appliances (NE: SC.12.4.3.c).



<p>Benchmark 1.3 Insert a fireplace.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Create opening.</li> <li>• Add hearth and mantel.</li> <li>• Add annotations, dimensions, and symbols.</li> </ul>	SkillsUSA 3.5	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 1.4 Insert a stairway.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add stairwell opening.</li> <li>• Calculate rise and run and add risers and treads.</li> <li>• Add annotations, dimensions, and symbols.</li> </ul>	SkillsUSA 3.5	ELA.WHST.11-12.6	LA.12.2.1.f MA.12.3.1.f	Alignment presumes that students will analyze the rate of change (e.g., rise and run) of measurements for the stairway (NE. MA.12.3.1.f).
<p>Benchmark 1.5 Add annotations and symbolization.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add room labels.</li> <li>• Indicate room sizes.</li> <li>• Indicate floor coverings.</li> <li>• Show wall thicknesses.</li> <li>• Show joist direction and size.</li> <li>• Add attic scuttle.</li> <li>• Place title block and border.</li> <li>• Indicate beam sizes.</li> </ul>	SkillsUSA 2.5.2	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 1.6 Add dimensions.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add wall locations.</li> <li>• Add opening locations.</li> <li>• Add all other necessary dimensions.</li> </ul>	ANSI Standards	ELA.WHST.11-12.6	LA.12.2.1.f	
<p><b>Standard 2. Students will create a foundation plan.</b></p>				
<p>Benchmark 2.1 Create exterior and interior walls.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Place relevant material symbols.</li> <li>• Install doors symbols.</li> </ul>	SkillsUSA 2.5	ELA.WHST.11-12.6 MTH.G.MG.3	LA.12.2.1.f MA 12.2.4.b	Alignment presumes that students will analyze geometric figures while creating the foundation plan (NE: MA.12.2.4.b).



<ul style="list-style-type: none"> <li>• Install window symbols.</li> <li>• Place openings.</li> </ul>				
<p>Benchmark 2.2 Add support material.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add posts, beams, girders and joists.</li> </ul>	SkillsUSA 2.5	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 2.3 Add continuous and isolated footings.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add wall footings.</li> <li>• Add column footings.</li> <li>• Label and dimension footings.</li> </ul>	SkillsUSA 2.5	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 2.4 Add stairway.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add stairwell opening.</li> <li>• Calculate rise and run and add risers and treads.</li> <li>• Add annotations, dimensions, and symbols.</li> </ul>	SkillsUSA 2.5	ELA.WHST.11-12.6	LA.12.2.1.f MA.12.3.1.f	Alignment presumes that students will analyze the rate of change (e.g., rise and run) of measurements for the stairway (NE. MA.12.3.1.f).
<p>Benchmark 2.5 Add annotations and symbolization.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Place title block and border.</li> <li>• Indicate beam sizes.</li> </ul>	SkillsUSA 2.5.4	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 2.6 Add dimensions.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add wall locations.</li> <li>• Add opening locations.</li> <li>• Add all other necessary dimensions.</li> </ul>	SkillsUSA 2.5.2	ELA.WHST.11-12.6	LA.12.2.1.f	
<p><b>Standard 3. Students will create a wall section.</b></p>				
<p>Benchmark 3.1 Add structural components from footing to roof.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Draw footing.</li> </ul>	SkillsUSA 3.2	ELA.WHST.11-12.6	LA.12.2.1.f	



<ul style="list-style-type: none"> <li>• Draw stem wall.</li> <li>• Draw floor system.</li> <li>• Draw wall system.</li> <li>• Draw roof system.</li> <li>• Add annotations, dimensions, and symbols.</li> </ul>				
<b>Standard 4. Students will create exterior elevations.</b>				
<p>Benchmark 4.1 Draw the required elevations in the appropriate location.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Project elevations from floor plan and wall section.</li> <li>• Add doors and windows (fenestration).</li> </ul>	SkillsUSA 2.3.1	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 4.2 Add annotations and symbolization.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add material symbols.</li> <li>• Add roof slope triangle.</li> </ul>	SkillsUSA 2.5.2	ELA.WHST.11-12.6 MTH.F.IF.6	LA.12.2.1.f MA.12.3.1.f	Alignment presumes that students will analyze the rate of change (e.g., rise and run) for annotations related to the slope of the roof (CC: MTH.F.IF.6; NE. MA.12.3.1.f).
<p>Benchmark 4.3 Add dimensions.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add finished floor elevations.</li> <li>• Indicate grade.</li> <li>• Add head height.</li> </ul>	SkillsUSA 2.5.2	ELA.WHST.11-12.6	LA.12.2.1.f	
<b>Standard 5. Students will show ability to create a site plan.</b>				
<p>Benchmark 5.1 Draw the lot boundary.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add property lines.</li> </ul>	SkillsUSA 3.5	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 5.2 Indicate existing features.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add streets.</li> <li>• Add trees.</li> </ul>	Architectural Graphic Standards	ELA.WHST.11-12.6	LA.12.2.1.f	



<ul style="list-style-type: none"> <li>• Add utilities.</li> <li>• Add setbacks and easements.</li> </ul>				
<p>Benchmark 5.3 Add annotations.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add north arrow.</li> <li>• Add graphic scale.</li> <li>• Add datum points.</li> <li>• Add metes and bounds.</li> <li>• Add legal description.</li> <li>• Add legend.</li> </ul>	SkillsUSA 2.5	ELA.WHST.11-12.6	LA.12.2.1.f	
<p>Benchmark 5.5 Add dimensions.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>• Add building locations.</li> <li>• Add width of all pathways.</li> <li>• Add dimension to center line of street to property line.</li> </ul>	SkillsUSA 2.5.2	ELA.WHST.11-12.6	LA.12.2.1.f MA 12.2.4.a	

*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:	<ul style="list-style-type: none"> <li>• Job Shadow</li> <li>• Guest Speaker</li> <li>• Portfolio Development</li> <li>• Interdisciplinary Collaboration</li> </ul>
Related assessments:	<ul style="list-style-type: none"> <li>• SkillsUSA USA competition</li> <li>• Home Builder Associations competition</li> <li>• Post Secondary competitions</li> </ul>



Extended learning opportunities:

- Internship
- Dual Credit

