



Architecture & Engineering

Drafting III: Advanced Concepts in CAD



ORGANIZING THEME/TOPIC

FOCUS STANDARDS & SKILLS

<p>Research and Design in Architecture, Construction and Engineering</p> <ul style="list-style-type: none"> • Engineering design process • Professional credentials <p>Time Frame: 3 weeks</p>	<p>Demonstrate ability to perform basic and advanced skills in research.</p> <ul style="list-style-type: none"> • KS 21109.13 Demonstrate ability to access and utilize industry resources. • KS 21109.10 Use technology and resources to research licensing certification and credentialing in the architecture and construction industry • KS 21109.12 Research new technologies to meet future client needs. • KS 21109.17 Research various methods for obtaining financing for building projects.
<p>Topography and Mapping</p> <ul style="list-style-type: none"> • Reading and creating topographic drawings and mapping <p>Time Frame: 4 Weeks</p>	<p>Demonstrate ability to creating topographic drawings and maps.</p> <ul style="list-style-type: none"> • KS 21109.06 Apply principles of dimensioning/tolerances, fasteners/hardware, and power transmission. • KS 21109.16 Demonstrate ability to use CSI – Construction Specifications Institute’s Uniform Drawing System and Master Format.
<p>3-D in CAD</p> <ul style="list-style-type: none"> • Drafting/drawing in a 3-D computer assisted environment. <p>Time Frame:12 Weeks</p>	<p>Demonstrate appropriate application of AutoCAD, Inventor, and Revit software.</p> <ul style="list-style-type: none"> • KS 21109.03 Demonstrate ability to apply shading and rendering techniques to 3d surfaces and solid models. • KS 21109.15 Demonstrate abilities in design/planning, visual communication and problem solving in current architectural practices.

<p>3-D Project</p> <ul style="list-style-type: none"> • Authentic problems and projects • Drafting and drawing in real-world project. <p>Time Frame:16 Weeks</p>	<p>Apply AutoCAD, Inventor, and Revit software to design and communicate solutions for real world challenges.</p> <ul style="list-style-type: none"> • KS 21109.01 Work with a client to develop a client-driven product. • KS 21109.02 Produce a working model (graphic or physical) using advanced software and/or equipment. • KS 21109.05 Use appropriate grammar and word usage in the creation and implementation of a formal graphic presentation using current standards and technology. • KS 21109.07 Apply basic principles of environmental impact to enhance project acceptance and quality. • KS 21109.08 Demonstrate ability to apply design requirements for people needing special accommodations. • KS 21109.11 Conduct product and facility evaluations and critique their effectiveness. • KS 21109.15 Integrate alternative construction methods and materials in current architectural drawings. • KS 21109.18 Demonstrate ability to incorporate specific codes as given for a selected jurisdiction. • KS 21109.19 Demonstrate ability to set and work within defined budget. • KS 21109.20 Research and use information for product development. • KS 21109.21 Manipulate materials and processes to meet client needs. • KS 21109.22 Demonstrate ability to manage and set project goals and timelines.
<p>Career and College Readiness</p> <ul style="list-style-type: none"> • Career and College readiness • Reading and writing skills • Math, and science skills <p>Time Frame: Integrated throughout all units</p>	<p>Career and college readiness skills</p> <ul style="list-style-type: none"> • KS 460000.0.1.2 Apply the four basic math functions to whole numbers, decimals, percentages and fractions. • KS 460000.0.1.2 Use standard and metric systems as they apply in the construction trades (linear, weight, volume and temperature). • KS 460000.0.1.2 Recognize the basic shapes used in the construction industry, and apply basic geometry concepts. • KS 460000.0.2.6 Demonstrate the ability to interpret information and instructions in both written and verbal form. • KS 460000.0.1.4 Demonstrate the ability to communicate effectively in on-the-job situations using verbal and written skills. • KS 460000.0.1.11 Utilize technology and effective management techniques to organize work flow and increase productivity.