



**VIRGINIA BEACH CITY PUBLIC SCHOOLS**  
CHARTING THE COURSE

*Department of Teaching & Learning*  
*Parent/Student Course Information*

***Architectural Design***  
***(AT8531)***  
***Three Credits, One Year***  
***Grades 10 - 12***

*Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.*

**COURSE DESCRIPTION**

Do you have dreams of becoming the next Frank Lloyd Wright? Architectural Design students will design their own dream houses and commercial buildings, developing complete sets of building plans and 3D visualizations of their creations.

**CERTIFICATION**

Autodesk Revit Certification  
AutoCAD  
NOCTI Architectural Drafting Assessment  
NOCTI Technical Drafting Assessment

**STUDENT ORGANIZATION**

SkillsUSA is a co-curricular organization for all students enrolled in trade and industrial education programs. SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps students excel by providing educational programs, events and competitions that support career and technical education (CTE) in the nation's classrooms. Students are highly encouraged to participate.

**PREREQUISITE**

Engineering Design

**OPTIONS FOR NEXT COURSE**

Naval Architecture and Ocean Engineering

**REQUIRED STUDENT TEXTBOOK**

None

## COMPETENCIES FOR ARCHITECTURAL DESIGN

### **Demonstrating Workplace Readiness Skills: Personal Qualities and People Skills**

- 1 Demonstrate positive work ethic.
- 2 Demonstrate integrity.
- 3 Demonstrate teamwork skills.
- 4 Demonstrate self-representation skills.
- 5 Demonstrate diversity awareness.
- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate creativity and resourcefulness.

### **Demonstrating Workplace Readiness Skills: Professional Knowledge and Skills**

- 8 Demonstrate effective speaking and listening skills.
- 9 Demonstrate effective reading and writing skills.
- 10 Demonstrate critical-thinking and problem-solving skills.
- 11 Demonstrate healthy behaviors and safety skills.
- 12 Demonstrate an understanding of workplace organizations, systems and climates.
- 13 Demonstrate lifelong-learning skills.
- 14 Demonstrate job-acquisition and advancement skills.
- 15 Demonstrate time-, task- and resource-management skills.
- 16 Demonstrate job-specific mathematics skills.
- 17 Demonstrate customer-service skills.

### **Demonstrating Workplace Readiness Skills: Technology Knowledge and Skills**

- 18 Demonstrate proficiency with technologies common to a specific occupation.
- 19 Demonstrate information technology skills.
- 20 Demonstrate an understanding of Internet use and security issues.
- 21 Demonstrate telecommunications skills.

### **Examining All Aspects of an Industry**

- 22 Examine aspects of planning within an industry/organization.
- 23 Examine aspects of management within an industry/organization.
- 24 Examine aspects of financial responsibility within an industry/organization.
- 25 Examine technical and production skills required of workers within an industry/organization.
- 26 Examine principles of technology that underlie an industry/organization.
- 27 Examine labor issues related to an industry/organization.
- 28 Examine community issues related to an industry/organization.
- 29 Examine health, safety and environmental issues related to an industry/organization.

### **Addressing Elements of Student Life**

- 30 Identify the purposes and goals of the student organization.
- 31 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.
- 32 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs and projects.
- 33 Identify Internet safety issues and procedures for complying with acceptable use standards.

### **Practicing Safety**

- 34 Follow general safety procedures.
- 35 Adjust equipment for maximum comfort and usability.
- 36 Describe ergonomic considerations.

## **Performing Architectural Drafting and Design Operations with Extensive Use of CADD**

- 37 Prepare primary auxiliary views.
- 38 Prepare secondary auxiliary views.
- 39 Prepare sectional views (removed, revolved, aligned, and broken-out).
- 40 Prepare drawings of threads and fasteners.
- 41 Use reference materials.
- 42 Develop patterns, including radial and parallel line patterns.
- 43 Apply mechanical symbols to a drawing.
- 44 Apply dual dimensioning to a drawing.
- 45 Apply datum (ordinate) dimensioning to a drawing.
- 46 Identify symbols for geometric dimensioning and tolerancing.
- 47 Apply Geometric Dimensioning and Tolerancing (GD&T) to a drawing.
- 48 Apply formulas for gear design.
- 49 Prepare a drawing of a gear.
- 50 Prepare a drawing of a cam.
- 51 Prepare a line drawing of a linked mechanism.
- 52 Identify welding symbols and processes.
- 53 Apply welding symbols to a drawing.
- 54 Identify manufacturing processes.
- 55 Prepare a parts list for an assembly drawing.
- 56 Prepare an orthographic assembly drawing.
- 57 Prepare an exploded assembly drawing.
- 58 Prepare a working drawing, to include assembly and detailed drawings, of a multi-component mechanical device.
- 59 Identify the difference between parametric and non-parametric CADD models.
- 60 Prepare an electrical schematic.
- 61 Reproduce drawings.
- 62 Create a 3-D model, using CADD.
- 63 Document a 3-D CADD model design.
- 64 Plot a documented 3-D CADD model.
- 65 Create a 3-D printed model.

## **Preparing a Career Portfolio**

- 66 Compile a professional drafting portfolio.
- 67 Gather material for a portfolio.
- 68 Organize a portfolio.
- 69 Present a portfolio.

## **Obtain an Industry Certification by Examination**

- 70 Prepare for an industry-certification exam through review.
- 71 Take an industry-certification exam.

## **Locally Developed Competencies**

- 72 Define architectural design.
- 73 Analyze architectural styles.
- 74 Maintain a reference library of architectural data.
- 75 Estimate construction costs.
- 76 Calculate square footage.
- 77 Research building and zoning code information.
- 78 Apply architectural principles of annotation and dimensioning.
- 79 Identify the components in a complete set of architectural drawings.

- 80 Create an architectural title block.
- 81 Define the architectural design process.
- 82 Identify ADA (Americans with Disabilities Act) regulations.

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For further information please call (757) 263-1070.

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(Revised August 2018)