



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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Produced by the Department of Teaching and Learning.
For further information, please call (757) 263-1070.

Notice of Non-Discrimination Policy

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Title IX Notice: Complaints or concerns regarding discrimination on the basis of sex or sexual harassment should be addressed to the Title IX Coordinator, at the VBCPS Office of Student Leadership, 641 Carriage Hill Road, Suite 200, Virginia Beach, 23452, (757) 263-2020, Mary.Dees@vbschools.com (student complaints) or the VBCPS Department of School Leadership, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (757) 263-1088, Elizabeth.Bryant@vbschools.com (employee complaints). Additional information regarding Virginia Beach City Public Schools' policies regarding discrimination on the basis of sex and sexual harassment, as well as the procedures for filing a formal complaint and related grievance processes, can be found in School Board Policy 5-44 and School Board Regulations 5-44.1 (students), School Board Policy 4-4 and School Board Regulation 4-4.3 (employees), and on the School Division's website at [Diversity, Equity and Inclusion/Title IX](#). Concerns about the application of [Section 504 of the Rehabilitation Act](#) should be addressed to the Section 504 Coordinator/Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Plaza Annex/Family and Community Engagement Center, 641 Carriage Hill Road, Suite 200, Virginia Beach, VA 23452.

The School Division is committed to providing educational environments that are free of discrimination, harassment, and bullying. Students, staff, parents/guardians who have concerns about discrimination, harassment, or bullying should contact the school administration at their school. Promptly reporting concerns will allow the school to take appropriate actions to investigate and resolve issues. School Board Policy 5-7 addresses non-discrimination and anti-harassment, Policy 5-44 addresses sexual harassment and discrimination based on sex or gender. Policy 5-36 and its supporting regulations address other forms of harassment.

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