

2010/2011 Architectural Drawing and Design
PTE305 - 36 weeks
DoDEA Course Description and Student Competencies

About the Program

Architectural Drawing and Design prepares students for careers in the Architecture industry. The course sequence focuses on duties and tasks performed by professionals in Architecture as well as pre-employment and employment skills.

Major Concepts/Content: The architectural drawing course is designed to provide students with instruction and skills in computer aided drawing (CAD) fundamentals commonly used in the production of residential and commercial buildings. The course includes the study of the basic fundamentals of design, including ‘green’ construction practices that include construction material disposal, and the skills related to the production of architectural designs. The content includes, but is not limited to, designing interior and exterior elements of structures in both two-dimensional and three-dimensional representations. Students will prepare presentations of designs created using CAD technology. It is recommended that aspiring architects, designers, engineers, CAD technicians, interior decorators take this course.

Major Instructional Activities: Instructional activities are provided in the applied engineering technology laboratory setting, using hands-on experiences with tools, equipment, and materials related to course content. Students will work as a member of a team to solve problems. Students will use the Internet as one of many tools in researching their project designs and will include problem/project-based activities. CAD software will be used in developing a presentation of a final project.

Major Evaluative Techniques: Students will be evaluated through laboratory practice and performance tests. Design projects will be analyzed and evaluated for meeting the essential objectives. Students will present a project plan.

The table below is a competency list for the Architectural Drawing and Design course. The competencies are considered essential and are required of all students.

PTE305 36 weeks	Architectural Drawing and Design TASKS/COMPETENCIES
Implementing DoDEA's CTE Course Requirements	
• 001	Demonstrate DoDEA's Workplace Readiness Skills in course activities.
• 002	Identify issues related to this field of study that affect the environment and impact local and global communities.
• 003	Identify Internet safety issues and procedures for complying with acceptable use standards.
Investigating the Architecture Profession and Related Careers	
• 004	Explain the purpose and functions of the architectural design team.
• 005	Apply safety rules to laboratory activities.
• 006	Explain and/or demonstrate the correct use of industry terms, behaviors, methods and best practices.
• 007	Summarize the characteristics of professional architects.

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Relating Objectives of the Course to Students in a Technological World	
• 008	Identify the type of coursework needed to become an architect.
• 009	Compare the different types of specialty fields within architecture.
• 010	Describe career qualifications, responsibilities, and wages using various resources and the Internet.
• 011	Use appropriate computer application programs to solve problems.
Communicating Technical Information	
• 012	Present technical information through computer-aided design and drafting.
• 013	Present technical information in an oral report.
• 014	Write a business letter to request information or material.
Reviewing the Architectural Design Phase	
• 015	Define and outline steps in the architectural design process.
• 016	Define optimum design and explain why one rarely exists.
• 017	List and define the phases used in most architectural designs.
• 018	Conduct an interview to gather information.
• 019	Identify and clarify the needs of clients.
• 020	Identify project constraints and assess their impact on the design process.
• 021	Evaluate and modify design to meet client needs.
• 022	Investigate the reasons for a foundation plan.
• 023	List the steps to preparing a site analysis.
• 024	Summarize historically significant architects and architectural achievements.
• 025	Define "architectural drawing."
• 026	Analyze architectural styles.
• 027	Describe the fundamentals of the architectural design process.
• 028	Define "design" as it relates to architectural drawing and design.
• 029	Use English and metric measuring devices and systems.
• 030	Record and chronicle daily activities and projects through the use of an architect's journal.
• 031	Prepare pictorial architectural sketches.
• 032	Correct and revise drawings as needed
• 033	Select appropriate drawing-related media and materials.
• 034	Prepare design sketches.
• 035	Integrate LEED (Leadership in Energy and Environmental Design) certification requirements into building design.
• 036	Use and maintain a reference library of files and technical data.
• 037	Acquire specification information, using the Internet and/or other resources.
• 038	Locate, create and use architectural libraries for insertion into a building design.
• 039	Use and maintain a reference library of files and technical data.
• 040	Design a floor plan.
• 041	Create sectional views.
• 042	Prepare exterior elevations.
• 043	Prepare interior elevations.
• 044	Prepare auxiliary view drawings.

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• 045	Apply basic geometric construction principles.
• 046	Apply mathematical calculations involving practical geometry.
• 047	Prepare sectional view drawings
• 048	Apply and use architectural drawing and design standards.
• 049	Prepare multiview drawings.
• 050	Apply basic principles of dimensioning and annotations.
• 051	Prepare exterior perspective views.
• 052	Prepare pictorial drawings (i.e., isometric and oblique).
Using the Design Process as a Group Study	
• 053	Use brainstorming as a strategy for problem solving.
• 054	Determine sources of information available for problem solving.
• 055	Describe the use of sketches and organizational drawings in the design process.
• 056	Describe anthropometric tables and ergonomic design.
• 057	Select appropriate materials and processes for design project.
• 058	Use self reflection as a tool to evaluate performance.
• 059	Create or update a portfolio containing representative samples of student work.