

ARCHITECTURAL DRAFTING AND DESIGN I

Architectural Drafting and Design I Gives students a basic understanding of the detailing skills commonly used by drafting technicians. Areas of study include: lettering, sketching, proper use of equipment, geometric constructions with emphasis on orthographic (multi-view) drawings that are dimensioned and noted to ANSI standards. This course includes the creation and interpretation of construction documents. Methods of geometric construction, three dimensional drawing techniques, and sketching will be presented as well as elementary aspects of residential design and site work. Areas of emphasis will include print reading and drawing. This course also provides students with a basic understanding of the features and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain valuable hands-on experience with Auto CAD. They will be expected to complete several projects relating to command topics. Topics include: 2D drawing commands, coordinate systems, editing commands, paper and model space, inquiry commands, layers, plotting, text, and basic dimensioning.

- DOE Code: 5640
- Recommended Grade Level: Grade 11-12
- Recommended Prerequisites: Computers in Design and Production
- Credits: 2-3 credits per semester, maximum of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- This course is aligned with postsecondary courses for Dual Credit
 - Ivy Tech
 - DESN 102- Technical Graphics
 - DESN 103- CAD Fundamentals
 - Vincennes University
 - ARCH 102- Architectural Drawing
 - ARCH 141- Introduction to Architectural CAD

Dual Credit

This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

Application of Content and Multiple Hour Offerings

Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences. When a course is offered for multiple hours per semester, the amount of laboratory application or work-based learning needs to be increased proportionally.

Career and Technical Student Organizations (CTSOs)

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in SkillsUSA, the CTSO for this area.

Content Standards

Domain – Utilizing the Design Process in Architectural Drafting

Core Standard 1 Students apply and adapt the design process to challenges found in architectural drafting scenarios.

Standards

- ADDI-1.1 Identify and utilize the design process
- ADDI-1.2 Recognize that budget constraints and customer needs are part of the design process
- ADDI-1.3 Interpret demographics in an given area and relate it to the design process

Domain – Drawing Concepts in Architectural Drafting

Core Standard 2 Students integrate architectural concepts to produce industry standard drawings.
Standards

Standards

- ADDI-2.1 Use various architectural and construction terminology correctly
- ADDI-2.2 Show familiarity with conventional drafting standards
- ADDI-2.3 Identify and demonstrate proper use of drafting equipment
- ADDI-2.4 Identify pictorial, isometric, and orthographic drawing types
- ADDI-2.5 Sketch proportionately and recognizably a given object
- ADDI-2.6 Demonstrate advanced design sketching
- ADDI-2.7 Demonstrate vertical Gothic lettering to quality standards
- ADDI-2.8 Interpret scaled detailed drawings
- ADDI-2.9 Identify and utilize drafting symbols
- ADDI-2.10 Demonstrate acceptable line work and construction techniques
- ADDI-2.11 Use and interpret sectioning techniques involving numerous line types
- ADDI-2.12 Interpret residential planning and bubble diagrams
- ADDI-2.13 Read an architectural scale
- ADDI-2.14 Understand how to make a drawing to-scale

Domain – Utilization of CAD Software in Architecture

Core Standard 3 Students select specific commands to develop drawings to meet industry standards.

Standards

- ADDI-3.1 Demonstrate competence in the use of CAD software through assignments
- ADDI-3.2 Correctly use word processing and CAD file exporting commands when completing assignments
- ADDI-3.3 Identify and use multiple input methods to select commands on the CAD system
- ADDI-3.4 Retrieve and use help commands
- ADDI-3.5 Navigate through and identify various parts of the CAD environment
- ADDI-3.6 Modify drawing elements using editing commands
- ADDI-3.7 Complete assignments using specific software commands and processes
- ADDI-3.8 Explain coordinate systems

Domain – Solving Design Challenges in Architectural Drafting

Core Standard 4 Students synthesize architectural knowledge to design and create solutions.

Standards

- ADDI-4.1 Develop and draw a floor plan
- ADDI-4.2 Draw a site plan
- ADDI-4.3 Draw a foundation plan
- ADDI-4.4 Interpret roof framing and calculations
- ADDI-4.5 Draw wall sections
- ADDI-4.6 Read construction documents
- ADDI-4.7 Develop elevations
- ADDI-4.8 Interpret schedules
- ADDI-4.9 Interpret and apply required codes, standards, specifications, and cross-referencing

Domain – Careers in Architectural Drafting

Core Standard 5 Students evaluate architectural careers to prepare for future training and employment opportunities .

Standards

- ADDI-5.1 Research architectural drafting careers
- ADDI-5.2 Find architectural drafting opportunities offered by a technical school or college
- ADDI-5.3 Determine architectural drafting occupation wages/salaries
- ADDI-5.4 Research architectural drafting job outlook information