Plano ISD, Career and Technical Education

Introduction to Drafting/Drafting 1

Course Outline, 2007-2008

Grade Level: 11-12

Credits: 1 (Introduction to Drafting), 2 (Drafting 1)

Course Prerequisite: None

Course Description:

Introduction to Drafting offers one hour of instruction each day, and Drafting 1 offers two hours each day. The purpose of these courses is to develop 2D and 3D drafting skills, with emphasis on computer-aided drafting (CAD) using AutoCAD 2007 and design visualization using AutoDesk VIZ. The course includes an overview of board drafting techniques and object-oriented drafting using AutoDesk Architectural Desktop. Students will gain an appreciation of the built environment by studying local architecture and engineering projects. The course includes a study of careers that use drafting skills, such as engineering, architecture, interior design, and manufacturing, with emphasis on emerging specializations.

Course Outline

First Semester – 2D Drafting — 85 days

Unit 1: Computer Basics — 3 days

1. PISD Acceptable Use Policy (TEKS 4A)
2. File management (TEKS 1D, 4A)
3. Computer terminology (TEKS 1D, 4B)

Unit 2: Careers and Colleges — 10 days

1. Personality and Occupations (TEKS 1B)
2. Careers that use drafting (TEKS 1A, C, E)
3. Professional and Regulatory Organizations (TEKS 2C, 4B)
4. The future of drafting (TEKS 1A, 4C)
5. College research (TEKS 2A)
6. Resumes and Portfolios

Unit 3: Board Drafting Basics — 5 days

1. History of drafting (TEKS 3)
2. Board drafting tools (TEKS 1E, 4A, B)
3. Drafting techniques (TEKS 1C)

4. Using a scale (TEKS 2D)

Unit 4: Getting Started in AutoCAD 2007 — 5 days

1. What is CADD? (TEKS 1A, 3)
2. The AutoCAD Classic Workspace (TEKS 5A)
3. AutoCAD coordinate systems (TEKS 3)
4. Setting up a drawing in AutoCAD (TEKS 3)
5. Printing from model space (TEKS 2B, 3)

Unit 5: Basic 2D Drawing and Editing in AutoCAD — 10 days

1. Basic drawing commands (TEKS 3, 5B)
2. Basic editing commands (TEKS 3, 5B)
3. Adding text (TEKS 3, 5B)

Unit 6: Basic 2D Drawing Management in AutoCAD — 10 days

1. Using layers (TEKS 3)
2. Object properties (TEKS 3)
3. Scales (TEKS 2D, 3)
4. Paper space layouts (TEKS 3)
5. Printing layouts (TEKS 2B, 3)

Unit 7: Intermediate 2D Drawing and Editing in AutoCAD — 5 days

1. Intermediate drawing commands (TEKS 3)
2. Intermediate editing commands (TEKS 3)

Unit 8: Intermediate 2D Drawing Management — 5 days

1. Importing and exporting (TEKS 3)
2. Blocks and external references (TEKS 3)
3. Creating, Using, and Extracting Attributes (TEKS 2B, 5F)

Unit 9: Dimensioning — 5 days

1. Types of dimensions (TEKS 2D, 3)
2. Dimensioning standards (TEKS 2D, 3)
3. Dimensioning on the board (TEKS 2D)
4. Dimension styles in AutoCAD (TEKS 3)
5. Dimensioning commands in AutoCAD (TEKS 3)

Unit 10: Orthographic Drawings — 10 days

1. Types of orthographic drawings (TEKS 2D)
2. Drafting standards for orthographics (TEKS 2D)

3. Creating multi-view drawings on the board (TEKS 2D)
4. Creating multi-view drawings in AutoCAD (TEKS 3)

Unit 11: Section Drawings 5 days

1. Types of section drawings (TEKS 2D)
2. Drafting standards for sections (TEKS 2D)
3. Creating sections on the board (TEKS 2D)
4. Creating sections in AutoCAD (TEKS 3)
5. Representing materials using hatch patterns (TEKS 2D, 3)

Unit 12: Isometric Drawings 5 days

1. Types of isometric drawings (TEKS 5C)
2. Drafting standards for isometrics (TEKS 2D)
3. Creating Isometrics on the board (TEKS 5C)
4. Creating Isometrics in AutoCAD (TEKS 3, 5C)

Unit 13: The Built Environment 7 days

1. Identifying Architectural Styles
2. Notable Local Architecture and Engineering Projects

Second Semester - 3D Drafting 85 days

Unit 14: 3D Solid Modeling in AutoCAD 15 days

1. AutoCad's 3D Modeling Workspace
2. Viewing 3D solids (TEKS 5E)
3. Creating 3D solids (TEKS 5D)
4. Solids editing (TEKS 5D)

Unit 15: Visualization and Rendering 10 days

1. Introduction to visualization (TEKS 1A, 4C)
2. Rendering solids in AutoCAD (TEKS 5E)
3. Adding materials in AutoCAD (TEKS 3, 4C)
4. Adding lights and shadows in AutoCAD (TEKS 3, 4C)

Unit 16: Object-oriented Drafting with Architectural Desktop 15 days

1. Introduction to object-oriented drafting (TEKS 1A, 4C)
2. Overview of Architectural Desktop (TEKS 4C)
3. The ADT interface (TEKS 5A)
4. Integrating AutoCAD and Architectural Desktop (TEKS 1D)

5. Creating and using drawing objects in ADT (TEKS 5D)
6. Rendering views in ADT (TEKS 5E)

Unit 17: Getting Started in AutoDesk VIZ 2007 — 5 days

1. Overview of AutoDesk Viz (TEKS 4C)
2. The VIZ interface (TEKS 5A, E)
3. Integrating AutoCAD, ADT, and VIZ (TEKS 1D)
4. Rendering and printing in VIZ (TEKS 2B, 5E)

Unit 18: Scene Creation in VIZ — 10 days

1. Standard and Extended Primitives (TEKS 3, 5D)
2. Compound Objects (TEKS 3, 5D)
3. Architectural Objects (TEKS 3, 5D)
4. Object modifiers (TEKS 3, 5D)

Unit 19: Adding Realism in VIZ — 5 days

1. Materials (TEKS 3, 4C)
2. Lighting (TEKS 3, 4C)

Unit 20: Animation in VIZ — 5 days

1. Time Configuration (TEKS 3)
2. Keyframing (TEKS 3)
3. Constraints and Controllers (TEKS 3)
4. Creating and controlling cameras (TEKS 5E)
5. Rendering in animated formats (TEKS 5E)

Unit 21: Final Project — 20 days