

COMPUTER-AIDED DESIGN & DOCUMENTATION

100 CONTACT HOURS/
10 CONTINUING EDUCATION UNITS

Ai The Center for Professional Development
The New England Institute of Art®

CERTIFICATE IN COMPUTER-AIDED DESIGN & DOCUMENTATION

The certificate in Computer-Aided Design and Documentation (CAD) introduces participants who wish to integrate drafting (2D) and design (3D) systems in their practice through the production of two-dimensional documents - plans, sections, elevations, and details - and the generation of three-dimensional models and representations - axonometric and perspective illustrations, and animations.

With an emphasis on a hands-on exploration, development and synthesis of design ideas, the participants in this CAD certificate program will learn to create geometric entities in a modeling environment; organize and order information; edit elements, parts and components; dimension and annotate drawings; organize and layout designs in order to, finally, assemble projects in various formats, producing hard-copy documents for presentation. The certificate culminates in the creation of an individual and comprehensive project, of the participant's choice, that draws from the skills developed and fine-tuned throughout the sequence.

Faculty are involved in the various aspects of the disciplines in which they teach and, therefore, are committed to bringing the most relevant issues and practices the industry demands, while maintaining focus on individual needs. Participants in the Computer-Aided Design & Documentation certificate, on the other hand, are required to have a fundamental working knowledge of software applications on the Mac platform and have worked in a professional capacity for at least two years. Direct industry experience is not required. Coursework is hands-on, taught alternating as necessary between a PC and Mac Lab. Participants may access computer labs outside of class time for course work and homework completions.

Courses meet one evening per week or on Saturday. All course work is graded Pass or Fail. Each course is worth 2 continuing education units and meets for 20 contact hours.

CERTIFICATE COURSE SEQUENCE

- Fundamentals of Modeling with Google Inc., SketchUp Pro version 5®
- Fundamentals of Documentation with Autodesk Inc., AutoCAD 2006®
- Modeling and Design Exploration and Experimentation with Google Inc., SketchUp Pro version 5®
- Exploration and Experimentation in Design Illustration and Documentation with Autodesk Inc., AutoCAD 2006®
- Computer-Aided Design, Project-Development and Production

Please see below for detailed descriptions of some of the sample materials that may be covered in each course within the sequence.

Course curricula will vary depending on the instructor yet the following pages provide an overview of the principles to be covered.

CAD 101

Fundamentals of Modeling with SketchUp Pro version 5®

This hands-on course will introduce participants to 3D/Modeling where they will develop fundamental principles on the use of the computer-graphics software program, SketchUp Pro®. This course will concentrate on the conceptual aspects of the modeling process, covering the fundamentals of design visualization, creating and editing three-dimensional geometry. This course is intended for individuals who have a basic knowledge of computer functions*.

Upon completion of this course you will have:

- Explored the SketchUp Pro® User Interface
- Worked on Generating Two and Three-dimensional Geometry
- Worked on the basic Transformations & User Interface
- Worked with Groups, Layers and Components
- Experienced Basic Painting and Rendering Techniques
- Experienced various Modes of Representation
- Worked on Importing and Exporting from/to other applications

Software Used (CAD 101): Google Inc. SketchUp Pro version 5®

CAD 102

Fundamentals of Documentation with AutoCAD 2006®

This hands-on course will introduce participants to 2D/Documentation where they will develop fundamental principles on the use of the computer-graphics software program, AutoCAD®. This course will concentrate on the conceptual aspects of the documentation process, covering the fundamentals of design visualization, creating and editing two-dimensional geometry. This course is intended for individuals who have a basic knowledge of computer functions*.

Upon completion of this course you will have:

- Explored the AutoCAD 2006® User Interface
- Explored the Basic Drawing Aids, Document/Drawing Management and Strategies
- Worked on Generating Two-dimensional Geometry
- Worked on Global Object-Property Transformations & User Interface: Color, Layers & Linetype
- Worked on Global Object-Transformations: Move - Rotate - Mirror / W/W.O. Copy
- Worked on Local Object-Transformations: Stretch - Scale / W/W.O. Copy
- Worked on Insert and Blocks
- Worked on Importing and Exporting from/to other applications

Software Used (CAD 102): Autodesk Inc. AutoCAD 2006®

***Subject to Change**

COMPUTER-AIDED DESIGN & DOCUMENTATION

CAD 103 Modeling and Design Exploration and Experimentation with SketchUp Pro version 5®

In this course, participants will further develop their understanding of design-modeling principles using SketchUp Pro®. Through the process of exploration and experimentation, this course will include advanced techniques in visualization, creating and editing complex three-dimensional geometry.

Upon completion of this course you will have:

- Worked on Importing and Exporting from/to other applications
- Explored Advanced Geometric Modeling and Editing
- Explored Pre-made Ruby Scripts
- Explored Advanced Painting and Texturing Techniques
- Explored Advanced Viewing, Pages and Rendering Techniques

Software Used (CAD 103):

Google Inc. SketchUp Pro version 5®
Autodesk Inc. AutoCAD 2006®
Adobe Photoshop®

CAD 104 Exploration and Experimentation in Design Illustration and Documentation with AutoCAD 2006®

In this course, participants will further develop their understanding of design-documentation principles through the process of exploration and experimentation using AutoCAD 2006®. Through the process of exploration and experimentation, this course will include advanced techniques in visualization, creating and editing complex two-dimensional geometry.

Upon completion of this course you will have:

- Worked on Importing and Exporting from/to other applications
- Worked on Setting and Controlling Annotations and Dimensions
- Explored and Worked on Advanced Drawing Aids Document/Drawing Management and Strategies
- Explored Advanced Two-dimensional Geometry
- Explored Advanced Illustration Techniques: Line Weight, Fills and Hatches
- Explored Advanced Viewing, Layout and Printing/Plotting Settings and Techniques

Software Used (CAD 104):

Autodesk Inc. AutoCAD 2006®
Google Inc. SketchUp Pro version 5®
Adobe Photoshop®

CAD 105 Computer-Aided Design, Project-Development and Production

Using the problem-solving skills, knowledge and expertise acquired during the previous sequence, participants will explore the application of these techniques and technologies in the comprehensive documentation of a project of their own choice, from concept through final production.

Upon completion of this course you will have:

- Developed Final-Project consisting of:
 - Phase 1: Declaration of Proposals & Presentations; Established Parameters and Challenges of Design Problem
 - Phase 2: Re-submitted Proposals & Kick-off - Worked on Process, 3D/Modeling & 2D/Drafting
 - Phase 3: Worked on Process, Revised Assembly & Composition; From-To/AutoCAD-SketchUp
 - Phase 4: Worked on Process; Preliminary Final-Project Preparation
 - Phase 5: Final-Project Production, Presentations and Hard-copy Output

Software Used:

Autodesk Inc. AutoCAD 2006®
Google Inc. SketchUp Pro version 5®
Adobe Photoshop®