Miami Dade College

Course Description

ARC2053| Architectural Computer Applications | 4.00 credits

Applications of software and computer languages in the fields of architecture, building construction and interior design. Corequisite: ARC2052. Laboratory fee.

Course Competencies

Competency 1: The student will demonstrate an understanding of the operating system of Rhino software by:

1. Navigating the screen commands and becoming familiar with the command panel
2. Becoming aware of the 3-dimensional environment of the modeling program
3. Managing, identifying and using the various display dialogs and system prompts
4. Learning how to use the 3-dimensional modeling program file management system

Competency 2: The student will demonstrate an understanding of the principles and mechanics associated with the creation of three-dimensional surface and solid models by:

1. Utilizing all available surface and solid modeling commands
2. Creating extruded 3-dimensional forms, combining different solid forms to create a solid model and setting the environment to generate the relative smoothness of the faces of a 3-dimensional model

Competency 3: The student will demonstrate an understanding of the principles associated with editing and management of 3-dimensional objects by:

1. Transforming 3-dimensional objects
2. Modifying and managing primitive and compound objects
3. Merging various models into a scene and organizing a database of symbols

Competency 4: The student will demonstrate an ability to enhance their modeling ability by incorporating surface material, lighting, and camera(s) with target positioning for visualization by:

1. Creating and assigning materials to objects
2. Establishing and managing an effective lighting system and creating and manipulating various cameras for the purpose of better visualizing an object or a group of objects

Competency 5: The student will demonstrate an ability to render and animate 3-dimensional forms and scenes by:

1. Utilizing the animation tools provided and incorporating camera walk-through techniques to a 3-dimensional scene
2. Understanding rendering mechanisms and their wide range of options for creating appealing and descriptive images and organizing and assembling an effective electronic presentation that could be used as part of an academic or professional portfolio

Competency 6: The student will demonstrate an ability to manipulate digital data for 3D scanning, 3D printing, and CNC machining by:

1. Utilizing the fusion interface to export digital data to a CNC router
2. Producing drawings intended to be exported and properly configured for 3D-printing, and organizing and assembling 3D scanned images

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Use computer and emerging technologies effectively
- Demonstrate an appreciation for aesthetics and creative activities