



ENGINEERING

**CODE:** EGR 113

**TITLE:** Design Computer Graphics II

**DIVISION:** STEM

**COURSE DESCRIPTION:** This course covers advanced AutoCAD techniques. It covers orthographic projection; isometric projection; sections; auxiliary views; three-dimensional detailed drawings and engineering design projects. The lecture introduces the relevant advanced AutoCAD topics, which are then implemented in the hands-on laboratory component. All projects involve use of the AutoCAD software.

**PREREQUISITE:** EGR 110

**CREDITS:** 3 cr.

**REQUIRED MATERIALS (CHECK BOOKSTORE FOR LATEST EDITION):**

Click on the bookstore for the supplies which you are attending each class.

[Rcbc.edu/bookstore](http://Rcbc.edu/bookstore)

**COURSE LEARNING OUTCOMES:**

Upon completion of this course, students will be able to:

- Implement the drafting and design software language of AutoCAD 2007.
- Identify drafting and design standards that are currently in use.
- Apply skills and knowledge of AutoCAD software to create 2D and 3D drawings.
- Discuss how the various peripheral components of a computer system operate and communicate with each other.

**GENERAL EDUCATION OUTCOMES IN THIS COURSE:**

Written and Oral Communication: Communication	* Students will communicate meaningfully with a chosen audience while demonstrating critical thought.
Technological Competency or Information Literacy: Technology	* Students will use critical thinking skills for computer-based access, analysis, and presentation of information.

**CORE COURSE CONTENT:**

- Computer Setup for AutoCAD
  - Configure AutoCAD for use
  - How to Configure to Display Multiple Drawings
  - How to View Multiple Drawings
  - Warm Up Drawings
- Customize workspace/Tool Bars/User Profiles
  - Creating a Workspace
  - Selecting Toolbars to Display
  - How to Return to AutoCAD Default Window
  - Workspace Toolbar Options
  - Export a Workspace
  - Import a Workspace
  - How to Create a new Toolbar
  - How to Delete a Command from a Toolbar
  - Add a Command to a Pull down Menu
  - Delete a Command from a Pull Down Menu
  - Create a Workspace the Easy Way
  - Set Your Workspace as My Workspace
  - How to Customize the Status Bar
  - Redo Command
  - Understanding User Profiles
- Decimal/Architectural/Engineering Set Up
  - Set up of Drawings using the Above Units
  - Create a Border for Plotting
  - Create a View Port
  - Create Page Set Up and Layout for Various Sheet Sizes for Plotting  
Example 24 x 36
- Feet Inches Set Up
  - Create a Feet/Inches Setup Drawing
  - Create an Architectural Border for Plotting
  - Create a View port an Adjust Scale
  - Create a Layout  $\frac{1}{4}''=1'-0''$ ,  $\frac{1}{8}''=1'-0''$
- Multi-line
  - Justification, Scale and Style
  - Creating
  - Properties
  - Loading
  - Editing
  - Double Line (LT Only)

- Isometric Drawings
  - Isometric Snap and Grid
  - Isoplanes
  - Isometric Ellipse
  - Draw Order
  - Dimensioning an Isometric Drawings
  - Isometric Text
- Dynamic Blocks
  - Defining a Dynamic Block
  - Creating a Look Up Table
- Design Center
  - Drag and Drop Hatch Patterns
  - Drag and Drop Layouts, Text Styles, etc.
- External Referenced Drawings
  - Inserting
  - Manager
  - X Bind
  - Clipping an External Referenced Drawings
  - Clipping Options
  - Edit External Referenced Drawings
  - Convert an Object to a View port
  - Create Multiple View ports and X refs
  - Creating Multiple View ports (Quick Method)
  - Non-Continuous Line type Scales within View ports
- Ordinate Dimensioning
  - Creating
  - Jog
  - Q Dim and Ordinate
  - Alternate Units
  - Tolerances
  - Geometric Tolerances
  - Q Leader
  - Datum Feature Symbol
  - Typing Geometric Symbols
- Introduction to 3D
  - AutoCAD 3D Workspace
  - Dashboard
  - Viewing a 3D Model
  - Hiding Lines
  - Wire Frame Model
  - Surface Model
  - Solid Model

### **COURSE ACTIVITIES:**

Course activities vary from course to course and instructor to instructor. Below is a listing of some of the activities students can anticipate in this course:

- ▶ **Writing assignments:** students will analyze current issues in the field using current articles from the popular press as well as library research including electronic resources databases.
- ▶ **Speaking assignments:** students will present research individually or in groups using current technology to support the presentation (e.g., PowerPoint presentation); students will participate in discussions and debates related to the topics in the lessons. Discussions may also focus on cross-cultural and legal-ethical dilemmas as they relate to the course content.
- ▶ **Simulation activities:** Trends and issues will analyzed for their ethical as well as social or legal significance. Students might role-play common situations for classmates to analyze. Current news articles may be used to generate discussion.
- ▶ **Case Studies:** Complex situations and scenarios will be analyzed in cooperative group settings or as homework assignments.
- ▶ **Lectures:** This format will include question and answer sessions to provide interactivity between students and instructor.
- ▶ **Speakers:** Representatives from various related fields may be invited to speak.
- ▶ **Videos:** Related topics will provide impetus for discussion.

### **EDUCATIONAL TECHNOLOGY:**

Rowan College at Burlington County advocates a technology enhanced teaching and learning environment. Advanced technological tools may be used in any course section to facilitate instruction. Many of our sections are web-enhanced, which means that some of your work will be submitted or completed online. Web enhancements may include on-line materials, grade books, testing and quizzes and assignment submission. Many students enjoy the flexibility and convenience that these online enhancements have provided, however if you have concerns about the technology involved, please speak to your instructor immediately.

### **STUDENT EVALUATIONS:**

The student will be evaluated on the degree to which student learning outcomes are achieved. A variety of methods may be used such as tests, quizzes, class participation, projects, homework assignments, presentations, etc.

See individual instructor's course handouts for grading system and criteria (point value for each assessment component in course, e.g. tests, papers, presentations, attendance etc.), number of papers and examinations required in the course, and testing policy including make ups and/or retests.

**GRADING STANDARD:**

- A Mastery of essential elements and related concepts, plus demonstrated excellence or originality.
- B+ Mastery of essential elements and related concepts, showing higher level understanding.
- B Mastery of essential elements and related concepts.
- C+ Above average knowledge of essential elements and related concepts.
- C Acceptable knowledge of essential elements and related concepts.
- D Minimal knowledge of related concepts.
- F Unsatisfactory progress. This grade may also be assigned in cases of academic misconduct, such as cheating or plagiarism, and/or excessive absences.

For other grades, see the current ROWAN COLLEGE AT BURLINGTON COUNTY catalog.

**COLLEGE POLICIES:**

The current college catalog and student handbook are important documents for understanding your rights and responsibilities as a student in the RCBC classroom. Please read your catalog and handbook as they supplement this syllabus, particularly for information regarding:

- ▶ Academic Integrity Code
- ▶ Student Conduct Code
- ▶ Student Grade Appeal Process

**OFFICE OF STUDENT SUPPORT AND DISABILITIES SERVICES:**

RCBC welcomes students with disabilities into the college's educational programs. Access to accommodations and support services for students with learning and other disabilities is facilitated by staff in the Office of Student Support (OSS). In order to receive accommodations, a student must contact the OSS, self-identify as having a disability, provide appropriate documentation, and participate in an intake appointment. If the documentation supports the request for reasonable accommodations, the OSS will provide the student with an Accommodation Plan to give to instructors. Contact the Office of Student Support at 609-894-9311, ext. 1208 or visit the website at: [www.rcbc.edu/studentsupport](http://www.rcbc.edu/studentsupport)

**ADDITIONAL SUPPORT/LABS:**

RCBC provides academic advising, student support personal counseling, transfer advising, and special accommodations for individuals with disabilities free to all students through the Division of Student Services. For more information about any of these services, visit the Laurel Hall on the Mt. Laurel Campus, or call (609) 894-9311 or (856) 222-9311, then dial the desired extension:

- Ext. 1557 Academic Advisement and Counseling
- Ext. 1803 Special Populations
- Ext. 2737 Transfer Center

Or visit the following websites:

Academic Advising            [www.rcbc.edu/advising](http://www.rcbc.edu/advising)  
Student Support Counseling [www.rcbc.edu/counseling](http://www.rcbc.edu/counseling)  
Transfer Center                [www.rcbc.edu/transfer](http://www.rcbc.edu/transfer)

RCBC offers a free tutoring for all currently enrolled students. For more information regarding The Tutoring Center call Extension 1495 at (609) 894-9311 or (856) 222-9311 or visit the Tutoring Center Website at [www.rcbc.edu/tutoring](http://www.rcbc.edu/tutoring)

Reviewed: 04/2020, CAR