

**RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE**

ENGR 107 - ENGINEERING GRAPHICS

I. Basic Course Information

- A. Course Number and Title: ENGR 107 - Engineering Graphics
- B. New or Modified Course: Modified
- C. Date of Proposal: Fall 2016
- D. Effective Term: Fall 2017**
- E. Sponsoring Department: Science and Engineering
- F. Semester Credit Hours: 2
- G. Weekly Contact Hours: Lecture: 1
 Laboratory: 3
 Out of class student work per week: 4
- H. Prerequisites: Intermediate Algebra and Geometry (HS)
- I. Laboratory Fees: Yes
- J. Name and Telephone Number or E-Mail Address of Department Chair at time of approval: Dr. Sarah Imbriglio sarah.imbriglio@raritanval.edu

II. Catalog Description

Prerequisites: Intermediate Algebra and Geometry (HS)

This course is a basic introduction to the concepts and conventions of engineering graphics. Students are immersed in industry standard methods of communication through pictorial representation of design for the purpose of fabrication. Participants will learn to interpret and prepare technical drawings by hand and with the assistance of Computer Aided Design (CAD) utilizing software widely used throughout the profession of Engineering.

III. Statement of Course Need

- A. It is a standard course of an engineering program, and it is needed to ensure the credibility and transfer articulations of our engineering program.
- B. Computer lab practice is a critical tool for students to learn and master the Computer Aided Design (CAD) software.
- C. This course generally transfers as a requirement of engineering programs.

IV. Place of Course in College Curriculum

- A. This course is a Free Elective.
- B. This course meets a program requirement for the Engineering Science AS degree.
- C. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

- A. Introduction to Engineering Graphics
- B. Lettering
- C. Orthographic Projection
- D. Isometric and Oblique Views
- E. Introduction to AutoCAD
- F. Cartesian Coordinate Drafting
- G. Drawing basic shapes
- H. Modifiers for basic shapes
- I. Object snap
- J. Display options
- K. Layouts
- L. Scale
- M. Plotting
- N. Polylines; multilines
- O. Edit polylines
- P. Supplemental Text and leaders
- Q. Dimensions
- R. Boundary Hatching
- S. Blocks editor
- T. Attributes
- U. External References
- V. Isometric drawing
- W. Introduction to 3D

VI. General Education and Course Learning Outcomes

- A. **General Education Learning Outcomes:**

At the completion of the course, students will be able to:

1. Demonstrate knowledge of basic spatial and geometric relations (NJ-GE 2)
2. Interpret and generate engineering drawings (NJ-GE 2, 4)
3. Acquire a working knowledge of the software as an employable skill (NJ-GE 4)

B. Course Learning Outcomes:

At the completion of the course, students will be able to:

1. Utilize the Engineering language and symbolism associated with drafting and design.
2. Prepare free hand sketches to accurately convey thinking and intention.
3. Demonstrate ability to use the introductory part of advanced graphics software such as AutoCAD in order to produce Engineering drawings.

C. Assessment Instruments

The following assessment methods may be used:

1. Design projects
2. Classwork lab assignments
3. Quizzes
4. Exams

VII. Grade Determinants

Factors that may enter into the determination of the final grade:

- A. Classwork lab assignments
- B. Quizzes
- C. Midterm Exam
- D. Design Project

Primary formats, modes, and methods for teaching and learning that may be used in the course:

- A. lecture/discussion
- B. computer-assisted instruction
- C. laboratory (computer)

VIII. Texts and Materials

The following types of course materials will be used.

Suggested textbooks: Technical Drawing 101 with AutoCAD 2016, Latest edition, SDC Publications.

Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.

XI. Resources

Computers equipped with AutoCad (latest version available).

X. Honors Option

Not applicable.