RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

EMET 103 – Engineering Graphics and Introduction to CAD

I. Basic Course Information

A. Course Number and Title: EMET 103 – Engineering Graphics and Introduction to CAD

B. New or Modified Course: New Course

C. Date of Proposal: Fall 2018

D. Effective Term: Fall 2019

E. Sponsoring Department: Science and Engineering

F. Semester Credit Hours: 2

G. Weekly Contact Hours: 3 Lecture: 1
Laboratory: 2
Out of class student work per week: 3 hours

H. Prerequisites: None

I. Laboratory Fees: Yes

J. Name and Telephone Number or E-Mail Address of Department Chair and Dean at time of approval: Chair: Dr. Marianne Baricevic, marianne.baricevic@raritanval.edu, Dean: Dr. Sarah Imbriglio, Sarah.Imbriglio@raritanval.edu

II. Catalog Description

Prerequisites: None

Basic principle of Engineering Graphics, blueprint reading and geometric constructions are reviewed. Multi-view projections and 3D visualization are introduced. CAD software named Inventor Professional is studied extensively. Using Inventor, students learn dimensioning, creating Sectional, Auxiliary and Detail/Break views.

III. Statement of Course Need

A. It is a required course for the Mechanical Engineering Technology (MET) program.
B. This course has a lab component.
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 Mechanical Engineering Technology (MET) 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. Line types/Geometric constructions
B. Introduction to Inventor
C. Scales in Engineering Graphics/Inventor
D. Shape Description
E. Orthographic Projections
F. 3D Visualization
G. Dimensioning
H. Sectional Views, Auxiliary Views, Detail/Break views
I. Axonometric Drawings
J. Assembly/Working Drawings
K. Discipline-specific projects

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

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

1. Use appropriate engineering design practices and software to create 3D component designs. (GE-NJ 4) (#)

(#) = Embedded critical thinking

B. Course Learning Outcome

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

1. Select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly defined engineering technology activities (*).

2. Design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives (*).
3. Read and interpret a blue print.
4. Create standard orthographic views of a 3-dimensional object by using geometric tools (without CAD software).
5. Create a 3-dimensional object and standard orthographic views by using Inventor.
6. Define dimensions and tolerances of an object by following the rules.
7. Use Inventor to create Sectional, Auxiliary and Detail/Break views of a 3-dimensional object.

(*) The Course Learning Outcomes support the TAC of ABET Criterion 9 requirements.

C. Assessment Instruments

A. Quizzes
B. Exams
C. Homework
D. Projects

VII. Grade Determinants

A. Quizzes
B. Chapter Exams
C. Homework
D. Final Cumulative Exam

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

A. lecture/discussion
B. small-group work
C. student collaboration
D. independent study

VIII. Texts and Materials

Suggested textbooks:

- Introduction to Engineering Graphics & CAD (Using Inventor Professional 2009) by H. Assadipour (2010)

Computer Use:

- AutoCAD, Inventor Professional

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.

IX. Resources

No other type of resources are needed

X. Honors Option

Not applicable