RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

ENGR 133 – Engineering Mechanics II - Dynamics

I. Basic Course Information

A. Course Number and Title: ENGR 133 – Engineering Mechanics II - Dynamics

B. New or Modified Course: Modified Course

C. Date of Proposal: Fall 2016

D. Effective Term: Fall 2017

E. Sponsoring Department: Science and Engineering

F. Semester Credit Hours: 3

G. Weekly Contact Hours: 4
   Lecture: 4
   Laboratory: 0
   Out of class student work per week: 8 hours

H. Prerequisites: ENGR 132 - Engineering Mechanics I – Statics

I. Laboratory Fees: None

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: ENGR 132 - Engineering Mechanics I – Statics

The course is the second of a two-semester sequence in engineering mechanics. It covers kinematics and kinetics. Topics include rectilinear motion; curvilinear motion of particles and rigid bodies; Newton's law for particles and rigid bodies; principle of impulse and momentum; plane motion of rigid bodies. Free body diagrams and vector analysis methods are used.

III. Statement of Course Need

A. It is a standard course in engineering programs as Mechanical and Civil, and it is needed to ensure the credibility and transfer articulations of our engineering program.
B. This course has no 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 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

D. Kinematics of rigid bodies: Translation and rotation about fixed axis – Velocities in general plane motion - Instantaneous center of rotation.
E. General plane motion of rigid bodies: Forces and acceleration method – General plane motion of rigid bodies – Constrained general plane motion.

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

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

1. Analyze text and interpret problem data. (GE-NJ 2)
2. Compose hypotheses and apply problem solving strategies. (GE-NJ 2, GE-NJ 3)

B. Course Learning Outcomes:

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

1. Apply the method of Work and Energy.
2. Solve a problem with the method of Impulse and Momentum.
3. Evaluate the Instantaneous Center of Rotation.
4. Calculate the General Plane Motion.
C. **Assessment Instruments**

The following assessment methods may be used:

1. Quizzes
2. Exams
3. Homework

**VII. Grade Determinants**

Factors that may enter into the determination of the final grade

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**

The following types of course materials will be used.

Suggested textbooks:


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.