**I.** **COURSE** **TITLE**: Dynamics

**COURSE** **NUMBER**: 2202 **CATALOG** **PREFIX**: ENDS

**II.** **PREREQUISITES**: ENDS 2201

**III.** **CREDIT** **HOURS**: 3 **LECTURE** **HOURS**: 3

**LABORATORY** **HOURS**: 0 **OBSERVATION** **HOURS**: 0

**IV**. **COURSE** **DESCRIPTION**:

In this course the student studies the principles of dynamics as applied to linear motion and angular motion. The course covers kinematics and kinetics of rectilinear motion, curvilinear motion and kinematics and kinetics of rotation.

**V**. **ADOPTED** **TEXT (S):**

“Mechanics for Engineers: Statics and Dynamics”

4th Edition,

Beer & Johnston,

McGraw-Hill, Publisher

ISBN: 0-07-004584-4

**VI**. **COURSE** **OBJECTIVES**:

The student will:

• Develop the ability to analyze any mechanics problem in a simple and logical manner and to apply to its solution a few, well‑understood basic principles.

• Understand and apply the concept of vectors and the laws governing the addition and resolution of vectors.

• Understand and apply the concepts of force, mass, and acceleration.

• Understand and apply the concepts of work and energy.

• Understand and apply the concepts of impulse and momentum.

**VII.** **COURSE METHODOLOGY:**

Course is a combination of in-class lecture and hands-on experience.

**VIII.** **GRADING**:

Grading will follow guidelines listed in the college catalog. See Item XII. Typically:

90 – 100 = A

80 – 89 = B

70 – 79 = C

60 – 69 = D

0 – 59 = F

See the college catalog for a description of other grades that could be assigned.

**IX.** **COURSE** **OUTLINE**:

Week 1: Chapter 6, Introduction. Review statics methods: Joints and Sections, for Analysis of Trusses, Frames and Machines.

Week 2: Chapter 11, Introduction to Dynamics

Week 3: Chapter 11, Rectilinear Motion. Test One

Week 4: Chapter 11, Motion of Several Particles

Week 5: Graphical Solution Methods

Week 6: Chapter 11, Curvilinear Motion. Test Two

Week 7: Torque and Rotation

Week 8: Chapter 11, Rotation of Bodies

Week 9: Chapter 12, Newton’s Second Law, Friction. Test Three

Week 10: Chapter 12, Equilibrium – Gravitation,

Week 11: Projectile Motion

Week12: Chapter 13, Work and Energy. Test Four

Week 13: Applications of the Principle

Week 14: Chapter 14, Impulse and Momentum

Week 15: Conservation of Angular Momentum

Week 16: **Finals**

**X.** **OTHER** **REQUIRED** **BOOKS, SOFTWARE** **AND** **MATERIALS**:

None

**XI.** **EVALUATION**:

Class attendance = 10%

Assignments = 30%

Quizzes = 10%

Examinations = 30%

Final examination = 20% Also see Item XII.

**XII.** **SPECIFIC** **MANAGEMENT** **REQUIREMENTS**:

For credit, all assignments will be completed as scheduled, and must be submitted in a 3- ring notebook, permitting corrected homework to replace incorrect examples.

Late assignments will be penalized at 10% per class day they are late.

No tests may be taken late without prior approval of the instructor.

No make-up tests. Read the student handbook.

Individuals guilty of academic misconduct will fail the course.

Cell phones must be off and put away during test periods.

**XIII.** **OTHER INFORMATION:**

**FERPA:** Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes.

Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**DISABILITIES:** Students with disabilities may contact the Disabilities Service Office, Central Campus, at 800-628-7722 or 937-393-3431.