

I. CATALOG INFORMATIONA. Discipline: PHYSICSB. Subject Code and Number: PHYS M10AC. Course Title: General Physics I

D. Credit Course units:

Units: 4Lecture Hours per week: 4Lab Hours per week : 0Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 70 - 70

Laboratory/Activity Hours:

Laboratory/Activity Hours 0 - 0**Total Combined Hours** in a 17.5 week term: 70 - 70

F. Non-Credit Course hours per week _____

G. May be taken a total of: 1 2 3 4 time(s) for creditH. Is the course co-designated (same as) another course: No Yes

If YES, designate course Subject Code & Number: _____

I. Course Description:

Introduces the students to the basics of statics, mechanics, and wave motion. Includes kinematics, dynamics, work and energy, momentum, fluids, and simple harmonic motion.

J. Entrance Skills

*Prerequisite: No Yes Course(s)MATH M05 and MATH M06 or MATH M07*Corequisite: No Yes Course(s)

Limitation on Enrollment: No Yes

Recommended Preparation: No Yes Course(s)

Other: No Yes

K. Other Catalog Information:

Designed for students who need an algebra/trigonometry-based physics course.

Course Credit Limitation:

UC - PHYS M10A, PHYS M10B and PHYS M20A, PHYS M20B, PHYS M20C combined: maximum credit, one series.

II. COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	recognize, recall, and apply the equations that describe physical phenomena involving mechanics, thermodynamics, and wave motion. Demonstrate ability to analyze and solve physics problems of at least average complexity.	Examinations which include problem solving, exercises, final exam, projects, homework problems.
2	demonstrate ability to analyze and solve physics problems of greater than average complexity.	Examinations which include problem solving, exercises, final exam, projects, homework problems.
3	demonstrate ability to analyze, synthesize physics problems of reasonable complexity and evaluate and judge the results of the solutions to these problems.	Examinations which include problem solving, exercises, final exam, projects, homework problems.

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
18.00%	Introductory Topics Units and Unit Conversion Problem Solving Metric System Dimensional Analysis Kinematics and Kinematic Equations Scalars and Vectors Free Fall and Projectile Motion	1, 2, 3
18.00%	Rotational Motion Angular Measure Angular Speed, Velocity Centripetal Motion Angular Acceleration Torque, Equilibrium, Stability Rotational Dynamics	1, 2, 3

	Rotational Work and Kinetic Energy Angular Momentum Newton's Law of Gravitation Kepler's Law	
21.00%	Solids and Fluids Elastic Moduli Fluids Pressure Pascal's Principle Archimedes Principle Fluid Dynamics Bernoulli's Equation Surface Tension Viscosity Poisselle's Law	1, 2, 3
15.00%	Part II – Thermodynamics Temperature Scales: Fahrenheit, Celsius Gas Laws Kelvin Scale Thermal Expansion Kinetic Theory of Gases Heat and Specific Heat Phase Changes Heat Transfer First Law of Thermodynamics Second Law of Thermodynamics Heat Engines	1, 2, 3
10.00%	Part III – Vibrations Simple Harmonic Motion Equations of Motion Wave Motion Wave Properties Sound Waves Speed of Sound Sound Intensity Doppler Effect Musical Sound	1, 2, 3
18.00%	Force and Motion Concepts of Force Newton's 1st Law Newton's 2nd Law Newton's 3rd Law Equilibrium and Statics Work and Energy Potential Energy Kinetic Energy Conservation of Energy Power Momentum Impulse Conservation of Momentum Collisions: Elastic and Inelastic Center of Mass	1, 2, 3

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:

1	analyze and solve momentum problem set using basic algebra/trigonometry.
2	short report on the Laws of Thermodynamics.
3	conservation of energy problem sets.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	field trips to local engineering and science companies.
2	homework that consists of physics problems that correspond to the lecture topics in class. For each topic listed in the course content section, the assignment will include at least three problems, one of which will be of greater than average difficulty.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	data set analysis of fluid data.
2	identify the various forces in a free body diagram and then add them using vector addition.
3	analyze the efficiencies of various heat engines.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

- Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)
- Lecture/Discussion
- Laboratory/Activity
- Other (Specify) In-class experiments and problem sets.
- Optional Field Trips
- Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

- | | | |
|--|---|---|
| <input type="checkbox"/> Essay Exam | <input type="checkbox"/> Classroom Discussion | <input checked="" type="checkbox"/> Skill Demonstration |
| <input checked="" type="checkbox"/> Problem Solving Exam | <input checked="" type="checkbox"/> Reports/Papers/Journals | <input type="checkbox"/> Participation |
| <input checked="" type="checkbox"/> Objective Exams | <input checked="" type="checkbox"/> Projects | <input checked="" type="checkbox"/> Other (specify) |

Evaluation of results of experiments.

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Giambattista, Alan, Betty Richardson, and Robert Richardson. College Physics. 4th ed. McGraw-Hill, 2012.

Serway, Raymond, and Chris Vuille. College Physics. 9th ed. Brooks Cole, 2011.

Wilson, Jerry D., Anthony J. Buffa, and Bo Lo. College Physics. 7th ed. Addison-Wesley, 2009.

VIII. STUDENT MATERIALS FEES

No Yes

IX. PARALLEL COURSES

College	Course Number	Course Title	Units
CSU, Northridge	PHYS 100A	General Physics I	3
Los Angeles Pierce College	PHYSICS 66	Physics for Life Science Majors I	5
Sonoma State	PHYS 210A	General Physics	3
San Francisco State	PHYS 111	General Physics I	3
Cal Poly Pomona	PHYS 121	College Physics	3
UC Santa Barbara	PHYS 6A	Introductory Physics	3

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:

Master's in physics, astronomy, or astrophysics OR Bachelor's in physics or astronomy AND Master's in engineering, mathematics, meteorology, or geophysics OR the equivalent.

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

- Pass/No Pass only (no letter grade possible); or
 Letter grade (P/NP possible at student option)

2. Degree status:

Either Associate Degree Applicable; or Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?

Yes: No: If YES, what section(s)?

- A1 - Natural Sciences - Biological Science
 A2 - Natural Sciences - Physical Science
 B1 - Social and Behavioral Sciences - American History/Institutions
 B2 - Social and Behavioral Sciences - Other Social Behavioral Science
 C1 - Humanities - Fine or Performing Arts
 C2 - Humanities - Other Humanities
 D1 - Language and Rationality - English Composition
 D2 - Language and Rationality - Communication and Analytical

Thinking

E1 - Health/Physical Education

E2 - PE or Dance

F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: No:

2. If YES do you recommend this course for inclusion on the CSU General Education list?

Yes: No: If YES, which area(s)?

A1 A2 A3 B1 B2 B3 B4

C1 C2 D1 D2 D3 D4 D5

D6 D7 D8 D9 D10 E

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: No:

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: No:

IGETC Area 1: English Communication

English Composition

Critical Thinking-English Composition

Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

Mathematical Concepts

IGETC Area 3: Arts and Humanities

Arts

Humanities

IGETC Area 4: Social and Behavioral Sciences

Anthropology and Archaeology

Economics

Ethnic Studies

Gender Studies

Geography

History

Interdisciplinary, Social & Behavioral Sciences

Political Science, Government & Legal Institutions

- Psychology
- Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- Physical Science Lab or Physical Science Lab only (non-sequence)
- Physical Science Lecture only (non-sequence)
- Biological Science
- Physical Science Courses
- Physical Science Lab or Biological Science Lab Only (non-sequence)
- Biological Science Courses
- Biological Science Lab course
- First Science course in a Special sequence
- Second Science course in a Special Sequence
- Laboratory Activity
- Physical Sciences

IGETC Area 6: Language other than English

- Languages other than English (UC Requirement Only)
- U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

- A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:

Possible use of the Library's print and online resources in report writing.

- B. Are the currently held library resources sufficient to support the course assignment?

YES: NO:

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

Requisite Justification for MATH M05

- A. Sequential course within a discipline.
- B. Standard Prerequisite or Corequisite required by universities.

CSUN, CSULA, CSUCI

- C. Corequisite is linked to companion lecture course.

- D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for MATH M06

- A. Sequential course within a discipline.
- B. Standard Prerequisite or Corequisite required by universities.
CSUN, CSULA, CSUCI
- C. Corequisite is linked to companion lecture course.
- D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

or

Requisite Justification for MATH M07

- A. Sequential course within a discipline.
- B. Standard Prerequisite or Corequisite required by universities.
CSUN, CSULA, CSUCI
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- C. Corequisite is linked to companion lecture course.
- D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

XIV. WORKPLACE PREPARATION

PHYS M10A: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

PHYS M10A: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

General Education Division of Learning [check all applicable boxes]:

- Natural Sciences
 - Biological Science
 - Physical Science
- Social and Behavioral Sciences
 - American History/Institutions
 - Other Social Science
- Humanities
 - Fine or Performing Arts
 - Other Humanities
- Language and Rationality
 - English Composition
 - Communication and Analytical Thinking
- Health/Physical Education
- Ethnic/Women's Studies

Check either Option 1 or Option 2

- OPTION #1:** Moorpark College has already received approval from the CSU and/or UC systems for this course to fulfill a GE requirement.

Note: This option applies only to technical revisions and updated courses.

- OPTION #2:** Moorpark College has not received approval from the CSU and/or UC systems for this course to fulfill a GE requirement. This option applies to all new and substantively revised courses.

XVII. STUDENT MATERIALS FEE ADDENDUM

PHYS M10A: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

PHYS M10A: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: PHYSICS

Discipline Code and Number: PHYS M10A

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Ronald Wallingford 03/27/2013

Faculty Peer: Balazs Becht 04/02/2013

Curriculum Rep: Robert Keil 04/01/2013

Department Chair: _____

Division Dean: Julius Sokenu 04/03/2013

Approved By:

Curriculum Chair: Mary Rees 04/09/2013

Executive Vice President: Jane Harmon 04/09/2013

Articulation Officer: Letrisha Mai 04/04/2013

Librarian: Mary LaBarge 04/09/2013

Implementation Term and Year: Fall 2013

Approval Dates:

Approved by Moorpark College Curriculum Committee: 04/09/2013

Approved by Board of Trustees (if applicable): 04/09/2013

Approved by State (if applicable): 04/23/2013