

PHYS 20 Course Outline as of Fall 2015**CATALOG INFORMATION**

Dept and Nbr: PHYS 20 Title: GENERAL PHYSICS PART I

Full Title: General Physics Lecture Part I

Last Reviewed: 4/22/2019

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: PHYS 2A

Catalog Description:

Translational and rotational motion, statics, conservation of momentum and energy, oscillations, mechanical waves and sound, fluid mechanics, heat and thermodynamics.

Prerequisites/Corequisites:

Completion of MATH 27 or higher (V2) OR Course Completion of MATH 25 and MATH 58

Recommended Preparation:

Course Completion or Concurrent Enrollment in PHYS 1 or Completion of high school physics

Limits on Enrollment:**Schedule of Classes Information:**

Description: Laws of motion, energy, momentum, thermodynamics, sound and waves. (Grade or P/NP)

Prerequisites/Corequisites: Completion of MATH 27 or higher (V2) OR Course Completion of MATH 25 and MATH 58

Recommended: Course Completion or Concurrent Enrollment in PHYS 1 or Completion of high school physics

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
	C	Natural Sciences	Fall 1981	
CSU GE:	Transfer Area		Effective:	Inactive:
	B1	Physical Science	Fall 1981	
IGETC:	Transfer Area		Effective:	Inactive:
	5A	Physical Sciences	Fall 1981	
CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive: Fall 2021
UC Transfer:	Transferable	Effective:	Fall 1981	Inactive: Fall 2021

CID:	
CID Descriptor:PHYS 100S	Algebra/Trigonometry-Based Physics: AB
SRJC Equivalent Course(s):	PHYS20 AND PHYS20L AND PHYS21 AND PHYS21L OR PHYS20A AND PHYS20B
CID Descriptor:PHYS 105	Algebra/Trigonometry-Based Physics A
SRJC Equivalent Course(s):	PHYS20 AND PHYS20L OR PHYS20A

Certificate/Major Applicable:

Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:

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

1. Convert to and from various units.
2. Perform algebraic operations with scalars and vectors.
3. Predict the future trajectory of an object in two dimensions with uniform acceleration.
4. State Newton's laws of motion and analyze a physical situation with multiple constant forces acting on a point mass using Newtonian mechanics.
5. Identify various forms of energy and analyze a physical situation using concepts of work and energy.
6. Define momentum and use conservation of momentum principle to solve problems related to elastic and inelastic collisions.
7. Describe and analyze static and dynamic extended systems using the concepts of torque and angular acceleration.
8. Define physical properties of solids and fluids, pressure and buoyant force.
9. Explain laws of thermodynamics and the physics of heat, temperature and thermal energy.
10. Describe concepts of waves, vibration and oscillation, and discuss their applications in the analysis of pendulum, sound and interference.

Topics and Scope:

1. Vectors and scalars
2. Translational kinematics
3. Newton's laws
4. Work and energy
5. Momentum
6. Torque and static equilibrium
7. Rotational kinematics
8. Solids and Fluids
9. Mechanical waves and sound
10. Simple harmonic motion
11. Laws of thermodynamics and heat engines
12. Kinetic theory

Assignment:

1. Homework problem sets (12 - 20)
2. Quizzes (0 - 15)
3. Exams (3 - 5)
4. Final exam
5. Reading 20-40 pages per week

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problem sets

Problem solving
15 - 35%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes, objective and problem solving exams

Exams
65 - 85%

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Other Category 0 - 0%

Representative Textbooks and Materials:

Essentials of College Physics by Serway/Vuille, Thomson-Brooks/Cole, 2007 (classic text)

Physics by Cutnell and Johnson, 9th edition, Wiley, 2012

College Physics: A Strategic Approach by Knight, Jones, & Field, 3rd Edition, Addison-Wesley, 2014