James Madison
HIGH SCHOOL

Physics: Part 1

Course number: SC091_21_1
Credits: .5 credit
Prerequisites: SC081/82 Chemistry

INSTRUCTIONAL TEAM

Our Academic Advisors are also available to help you when you need it. They are trained to provide answers to your questions about the course or program.
Phone: 1-800-224-7234
Hours: 8:30AM – 8:30PM (Eastern Standard Time), Monday-Friday

MAIL

James Madison High School
5051 Peachtree Corners Circle, Suite 200
Norcross, GA 30092

TEXTBOOK

Physics: Principles & Problems. United States of America: McGraw Hill, 2017.

COURSE DESCRIPTION

Physics introduces students to relationships in the natural world using mathematical models and conceptual thinking. Motion, forces, work, and energy are the major themes investigated in this course. An exploration of different types of motion including straight-line motion, circular motion and gravity, allow student to develop skills in looking at motion and movement different perspectives. The investigation of forces looks at the causes of motion and the interactions between objects. These interactions occur because of the types of energies that occur in a system. How this energy is transferred and the efficiency of its transfer are illustrated as you analyze collisions and the influence of simple machines work. You will explore Newton's Laws in detail during this course. You will complete a project on Newton's Laws in unit 4. Other unit assessments and the Mid-term consist of multiple-choice style exams.

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LEARNING OBJECTIVES

After completing Physics Part 1, students will be able to:

- Explain relationships between distance, displacement, speed, velocity, and acceleration.
- Explain how forces affect the motion of objects.
- Apply the conservation laws to behavior in physical systems.
- Develop a systematic method for analyzing physical events.

LESSONS	TOPICS
Lesson 1: What is Physics	Methods of science, math and physics, measurement, data
Lesson 2: Motion	Motion, position time graphs, speed, vectors.
Lesson 3: Accelerated Motion	Accelerated motion, constant motion, free fall, Newtons' first and second law
Lesson 4: Force	Force in different dimensions, motion, weight, drag force, Newton's third law, vectors, friction
Lesson 5: 2D and Gravitational Motion	2-d and gravitations motion, projectible motion, circular motion, relative velocity, planetary motion, gravitation
Lesson 6: Momentum and Conservation	Impulse, momentum, conservation
Lesson 7: Work, Energy Machines and Conservation	Energy and Forms of energy, work, machines, conservation of energy.

GRADING

The following point totals correspond to the following grades:

POINTS	GRADE
100-90	A
89-80	B
79-70	C
65-69	D
Below 65	F

James Madison High School allows 2 attempts on exams. If a student is not satisfied with his/her score on the 1st attempt, an exam may be resubmitted. The 2nd attempt is not required as long as the final course average is above 65%. The higher of the 2 attempts will be the score that counts towards the final average.

Exams are timed and once you begin an exam, the timer runs continuously, even if you leave the course. Refer to the exam instructions for the time limit (in most cases 3 hours), but the time limit cannot be spread over multiple days.

GRADE WEIGHT

TOPIC	ACTIVITY	PERCENTAGE
Lesson 1: Title	MC Quiz	13.3%
Lesson 2: Title	MC Quiz	13.3%
Lesson 3: Title	Assignment	13.3%
Lesson 4: Title	MC Quiz	13.3%
Lesson 5: Title	MC Quiz	13.3%
Lesson 6:	MC Quiz	13.3%
Lesson 7:	MC Quiz	13.3%
Mid-Term (Lessons 1-7)	MC Quiz	20.2%

ACADEMIC AND COURSE POLICIES

Please see the Academic Policies section in the James Madison High School Catalog for information on Course policies, including the Exam/Assignment Retake Policy, Grading Policy, Academic Honesty Policy, and Student Conduct Policy.

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Physics: Part 2

Course number: SC092: Physics Part 2
Credits: .5 credit
Prerequisites: SC091

INSTRUCTIONAL TEAM

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Phone: 1-800-224-7234
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MAIL

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5051 Peachtree Corners Circle, Suite 200
Norcross, GA 30092

Course Materials

Physics: Principles & Problems. United States of America: McGraw Hill, 2017.

COURSE DESCRIPTION

Physics introduces students to relationships in the natural world using mathematical models and conceptual thinking. Student will explore different types of energy by expanding their learning about the atomic nature of matter. Other topics studied include the difference between temperature and heat and how heat is transferred. Other forms of energy including waves (mechanical, sound and light, too), electricity, magnetism and finally nuclear energy round out the topics in the second part of this course. As you study the different forms of energy the focus is on the conceptual relationships that are unique to each as well as how each of these forms of energy are present in our everyday world. Assessments for each individual lesson consist of multiple-choice exams. The final exam consists of short answer and problem-solving questions.

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LEARNING OBJECTIVES

After completing Physics Part 2, students will be able to:

- Explain relationships between the properties and application of waves
- Explain and apply information about electrical and magnetic force interactions
- Explore nuclear changes in matter and technological applications
- Investigate different forms of energy
- Apply learned concepts to everyday life

LESSONS	TOPICS
Lesson 1: Waves and Sound	Periodic Motion, wave properties, wave behavior, sound, the physics of music
Lesson 2: Light	Light, illumination, wave nature of light, mirrors
Lesson 3: Lenses	Refraction, lenses, interference, diffraction
Lesson 4: Electricity	Electric charge, force, fields, currents, circuits, electrical energy
Lesson 5: Circuits and Fields	Circuits, magnetic fields and forces
Lesson 6: Nuclear and Particle Physics	Nucleus, nuclear decay, reactions, building blocks of matter

GRADING

The following point totals correspond to the following grades:

POINTS	GRADE
100-90	A
89-80	B
79-70	C
65-69	D
Below 65	F

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GRADE WEIGHT

TOPIC	ACTIVITY	PERCENTAGE
Lesson 1: Waves and Sound	MC Quiz	13.3%
Lesson 2: Light	MC Quiz	13.3%
Lesson 3: Lenses	MC Quiz	13.3%
Lesson 4: Electricity	MC Quiz	13.3%
Lesson 5: Circuits and Fields	MC Quiz	13.3%
Lesson 6: Nuclear and Particle Physics	MC Quiz	13.3%
Final Exam (Lesson 1-6)	Assignment	20.2%

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