



**KENOSHA UNIFIED SCHOOL DISTRICT NO. 1
CURRICULUM AND INSTRUCTIONAL SERVICES**

**COURSE SYLLABUS FOR PHYSICS-HONORS
(441021 & 441022)**

Number of Credits: 1 **Locations:** Bradford, Harborside, Hillcrest, LakeView Tech,
Tremper

Prerequisites: Successful completion of Chemistry-Honors and Algebra 2/Trig-Honors

Course Description

This course uses a math-based approach to provide students with an introduction to the field of physics. Topics include a mathematics review; motion, forces, work and energy; properties of solids, liquids and gases; elasticity; thermodynamics; acoustics (sound); optics (light); electricity and magnetism; and modern physics. This course is highly recommended for students considering science and engineering careers. Upon successful completion of this course with a final grade of B or higher, the student may earn 3 Gateway Technical College credits for course 806-154 General Physics 1.

Course Standards

Standard A: Science Connections

Standard B: Nature of Science

Standard C: Science Inquiry

Standard D: Physical Science

Standard G: Science Applications

Standard H: Science in Social and Personal Perspectives

Explanations of standards and most essential benchmarks can be viewed at www.kusd.edu.

Lifelong Learning Standards

- Knowledgeable person
- Effective communicator
- Quality producer
- Complex thinker
- Self-directed learner
- Contributing citizen

Lifelong learning benchmarks may be viewed at: www.kusd.edu.

Course Outline

- I. Newtonian Mechanics
 - a. Kinematics: Motion and Vectors
 - b. Newton's Laws and Forces
 - c. Work, Energy, and Power
 - d. Momentum and Collisions
 - e. Circular Motion, Rotational Mechanics,
 - f. And Gravitation
 - g. Fluid Mechanics

II. Heat and Thermodynamics

- a. Temperature and Heat Transfer,
- b. Phase Changes, Thermal Expansion
- c. Laws of Thermodynamics

III. Periodic Motion, Waves, and Sound

- a. Periodic Motion, SHM,
- b. Pendulum Motion, Wave Motion,
- c. Wave Properties
- d. Sound: Properties and Effects,
- e. Resonance and Beats

IV. Light and Optics

- a. Light: Speed, Experiments, and Theories,
- b. Electromagnetic Spectrum and Color,
- c. Reflection, Geometric Optics: Mirrors
- d. Refraction and Total Internal Reflection,
- e. Geometric Optics: Lenses
- f. Diffraction, Interference, Coherence
- g. And Lasers: Uses and Applications

V. Electricity and Magnetism

- a. Atomic Structure, Electric Charge,
- b. And Electrostatic Laws
- c. Electric Fields, Electric Potential,
- d. Energy and Capacitance
- e. Electric Current and Ohm's Law
- f. Electric Circuits: Basic Components,
- g. Series Circuits, Parallel Circuits and
- h. Compound Circuits
- i. Magnetism and Magnetic Fields

VI. Special Topics:

- a. Instructor's Choice of additional review of above topics or
- b. Special topics (i.e. Relativity, Atomic/Nuclear Physics, Astrophysics, or others as deemed relevant to current events)

Board-Approved Instructional Materials

Serway, Raymond A. and Jerry S. Faughn (2006). *Physics*. Holt, Rinehart, & Winston.

Methods of Assessment

Final exams should be cumulative in nature, emphasizing the most essential benchmarks for the course. Results of the final exam represent 20 percent of the final grade, but this single measure *may not* drop a student's grade by more than one letter grade. In courses that rely heavily on a major project, performance exhibition, etc., the project should be divided into stages or components and each of those should be graded separately, providing students with frequent and specific feedback.

Board-Approved Grading Scale

Excerpts taken from School Board Rule 6452

GRADING SCALE

A+=98-100 percent	B+=86-89 percent	C+=76-79 percent	D+=66-69 percent
A=93-97 percent	B=83-85 percent	C=73-75 percent	D=63-65 percent
A-=90-92 percent	B-=80-82 percent	C-=70-72 percent	D-=60-62 percent
			F=0-59 percent

MAKE-UP WORK

Students submitting work up to ten school days late without prior approval may receive up to two grades lower on the work than they would have received if the work had been submitted on time (i.e., B+ lowered to a D+). Student work submitted after ten school days without prior approval shall not be accepted for credit and shall be recorded with a score of zero.

Upon returning to school after an absence, a student has the responsibility within the number of days equal to the length of the absence or suspension to meet with the teacher to develop a plan for making up missed work, quizzes, and examinations. A truant student has the responsibility on the first day he or she returns to the course/class to meet with the teacher to develop a plan for making up missed work, quizzes, and examinations. Lower grades may not be given for late work due to excused absences, suspension, or truancy unless the work is submitted later than agreed upon deadlines.

See Rule 6452 in its entirety at: www.kusd.edu.