

COURSE CREDIT BY EXAMINATION
PHYS 2002—Introduction to Physics
Four Semester Hours

CB
03/14

PREREQUISITES:

University Requisite: PHYS 2001 and WARNING: not PHYS 2052 or 2301

COURSE DESCRIPTION:

Continuation of 2001. Second course in physics; open to students from all areas. Students should have a background in algebra, trigonometry, and geometry, but no calculus required. Recommended for students in liberal arts, architecture, industrial technology, geological sciences, plant biology, and premedicine. Includes electricity, magnetism, waves, sound, light, relativity, quantum, atomic, and nuclear physics.

TEXTBOOK AND SUPPLIES:

Cutnell, John D. and Kenneth W. Johnson. *Physics*. 9th ed. Wiley, 2012.
[ISBN: 9780470879528]

There is no **required** textbook for this Course Credit by Examination. Any modern textbook on introductory college physics will do. We are currently using Cutnell and Johnson, 9th edition, on Ohio University's main campus, and the structure of the suggested study format and sample questions below follow the order of topics in the Cutnell textbook. However, if you already have a current general physics book set at the algebra level, go ahead and use it. **Do not** try to pass this course without reading and studying the material covered as outlined below in at least one current general physics text written at the algebra level.

READING ASSIGNMENTS:

You should be familiar with all of the topics and terms listed here before you attempt to take the CCE examination for Physics 2002.

Note: This listing of topics is only a guide to show you what you should study to pass this CCE course. It is **not** designed to present all the necessary material or to teach you everything that you need to know about these topics to pass the examination.

We do hope that, as an outline, it is helpful and that you do well on your examination.

Waves and Sound
Superposition and Interference
Phenomena in Waves
Electrical Forces and Electric Fields

Electric Potential Energy and
Electric Potential
Electronic Circuits involving Direct
Currents

Magnetic Forces and Magnetic Fields
Electromagnetic Induction
Alternating Current Circuits
Electromagnetic Waves

Reflection of Light: Mirrors
Refraction of Light: Lenses and
Other Optical Devices

The Wave Nature of Light and
Interference of Light Waves
Special Relativity
Particles and Waves
The Nature of the Atom
Nuclear Physics and Radioactivity
Ionizing Radiation, Nuclear Energy,
and Elementary Particles

The CCE exam will **not** follow the outline shown above sequentially. Questions from all parts of this course will be mixed together to test your knowledge of the entire range of material covered in this textbook.

NATURE OF THE EXAMINATION:

The examination consists of 25 multiple-choice questions that must be answered **and** your choice of any 15 out of 18 problems (exercises) that may each have several parts. This allows you to have a chance to do well on this exam even if you have not studied the specific material needed to answer two or three of the questions. You will be given three hours to complete the examination and will be provided with all of the materials necessary to complete it. The use of textbooks, notes, or supplementary aids is prohibited with the exception of a calculator which is allowed if you bring your own.

Remember that no numerical answer is complete unless the proper **units** are also given. In the case of vector quantities, you will also be expected to give the appropriate **direction** for that vector. You should also use the correct **number of significant figures** in your answers. It is very important that you write numbers and symbols clearly and carefully indicate your final answer to all problems. It is also a good idea to indicate the actual formula that you decide to use to solve problems so that I can see what you were trying to do, even if you make some algebra or other math error during your calculations. I will try to give as much partial credit as possible, but if you only provide an answer, and it is incorrect, all I can do is take away all of the points assigned to that section of the problem.

GRADING CRITERIA:

All multiple-choice questions are worth one point. Each of the 15 problems that you choose to answer will be worth 5 points, so the entire exam will be graded on a 100-point basis.