PHYS 2020: Non-Calculus Based Physics II

Instructor Information:
Name
Office phone
Office location
Office hours
E-mail address

I. Course Description
An algebra/trigonometry-based course in the concepts and principles of wave motion, sound, electricity and magnetism, light and optics, and elements of modern physics.

Credit Hours: 4 Credits (3 Class Hours, 3 Lab Hours)
Prerequisite: PHYS 2010

II. Course Outcomes and Topics
Upon successful completion of this course, the student will be able to:
- Describe the general properties of waves and explain the properties of mechanical sound waves
- Illustrate the nature of electric charge, explain electrostatic forces, and describe the properties of the electric field from both the force and energy points of view.
- Appraise the behavior of simple electric circuits including the properties of capacitors, resistors, and sources of electromotive force.
- Discuss magnetism, magnetic field, and the Lorentz force.
- Discuss electromagnetic induction, and electromagnetic waves.
- Employ various aspects of geometric and physical optics.
- Illustrate the concepts involved in the theory of special relativity and briefly examine the general theory of relativity.
- Examine introductory quantum theory and wave-particle duality, including black-body radiation, the photoelectric effect, and the Bohr model of the atom.

Topics
- Wave motion
- Electrostatics
- Electric force and field
- Electric potential
- Potential difference
- Electric current
- Direct current circuits
- Magnetism
- Induction
- Motors and generators
- Reflection and refraction of light
- Optical instruments
- Relativity
- Elementary quantum mechanics
Laboratory Topics
- Properties of Waves
- Resonance and the Speed of Sound
- Electrostatics
- Electric Field Mapping
- Capacitance of a Capacitor
- Joule’s Law of Heating
- Internal Resistance of Power Supplies
- Voltmeters and Ammeters
- Induced Electromotive Forces
- Lenses and Optical Instruments
- Fraunhofer Diffraction
- Spectroscopy
- Charge to Mass Ratio of the Electron

III. Required Materials
- College Physics, 7th Edition by Jerry D. Wilson, Anthony J. Buffa, and Bo Lou. Addison-Wesley. ISBN: 978-0321601834,
- Second Semester Physics Lab Manual, Provided by NSCC Staff.

IV. Course Policies

Attendance
Each Instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of “FA” or “FN” (see explanation below) depending on the individual instructor’s course policy.

FA= failure, attendance-related (unofficial withdrawal) Last recorded date of attendance required
FN= failure, never attended class (unofficial withdrawal)

Method of Assessment and Evaluation: **Subject to change at instructor’s discretion

Course Average
* Average of the four unit tests = 37.5 - 75%
  Average of the highest ten lab reports = 25%
* Final Examination = 37.5 - 0%

* The Final Examination will replace the lowest unit test and the next higher one also if the final is higher. No MAKE-UP TESTS. Up to two missed tests are replaced by the final; more count as zeros. One 4”x 6”index card with general information and a copy of the conversion factors from the text cover may be used on the tests. No worked-out problem details may be on the index card. The Final is optional if your test average is 59.5 or higher.

Course Grade Your course average will be rounded to the nearest whole number and the course letter grade determined according to the following grade ranges: 0-59 = F, 60-69 = D, 70-79 = C, 80-89 = B, and 90-100+ = A
Safety
The instructor will go over new regulations regarding safety in lab classes. You must turn in a signed copy of the regulations, and you will have a copy to keep.

Student Communication Channels

It is the student’s responsibility to check NSOnline and their MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through those channels.

V. Classroom Behavior

Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College.

Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Please be aware that children are not allowed in class or unattended on campus.

VI. Academic Dishonesty (Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words” (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an “F” or a “Zero” for the exercise, paper, or examination or to assign an “F” for the course.
VII. **ADA Statement**

Nashville State Technical Community College complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Disability Coordinator at 353-3721. Such services must have proof of documentation that is not over three years old.

**NOTE:** This syllabus is meant simply as a guide and overview of the course, the topics, the general assessments, and some standard college policies. Some items are subject to change or revision at the instructor’s discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc.