Ohio Articulation Number (OAN)
Course Submission Form
2005-2006

College/University  Lorain County Community College

Course(s) Submitted (Title & Course #)  General Physics II PHYC 152  E  for
Ohio Articulation Number  OSC015

Date  April 25, 2006  Course  1  of a  1  Course OAN mapping.

Name and title of individual submitting on behalf of the college/university

Name  Rosemary Schestag  Title  Project Manager

Address  1005 Abbe Road N, CC219
         Elyria, OH 44035

E-mail  rschesta@lorainccc.edu

Phone  440-366-7412

Fax  440-366-4150

Credit Hours  5  qtr  ______  sem  X
Lecture Hours  4
Laboratory Hours  3  (if applicable)
Pre-Requisites(s) Course work (if applicable)
PHYC 151 (General Physics I).

Placement Score (if applicable)
(Name of test)
(Domain)  (Score)

Catalog/Course Description (Includes Course Title and Course #)
General Physics II PHYC 152 - Waves; sound; optics; electricity and magnetism; modern physics. Laboratory required. (A special fee will be assessed.) Prerequisite: PHYC 151 (General Physics I).
## Texts/Outside Readings/Ancillary Materials

<table>
<thead>
<tr>
<th>REQUIRED TEXTBOOK(S)/MATERIAL(S):</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Physics, 5th edition, by Wilson</td>
</tr>
<tr>
<td>General Physics 152 Lab Manual, by Johnson</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER RESOURCES INCLUDING EQUIPMENT AND SOFTWARE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific calculators</td>
</tr>
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</table>

<table>
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<tr>
<th>LIBRARY AND LEARNING RESOURCES:</th>
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<tbody>
<tr>
<td>All students are expected to fully utilize periodical and reference literature available in the Library and/or via Library computer.</td>
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</tbody>
</table>

## Course Objectives and/or Plan of Work

### SYNOPSIS OF SUGGESTED COURSE OUTCOMES:
The student shall:
- be able to explain sound phenomena in terms of wave motion.
- be able to explain optical phenomena in terms of rays and wave motion.
- be able to describe and solve DC circuits built of resistors, capacitors and energy sources.
- be able to explain the basic tenets of the Quantum Theory, the wave-particle duality of matter and special relativity.

## Description of Assessment and/or Evaluation of Student Learning

### SUGGESTED INSTRUCTIONAL METHOD(S) AND TECHNIQUE(S):

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>30%</td>
</tr>
<tr>
<td>Tests and Final Exam</td>
<td>50%</td>
</tr>
<tr>
<td>Lab Reports’</td>
<td>20%</td>
</tr>
</tbody>
</table>

*The lab report grade must be at least 70% of the possible points to pass the course.*

<table>
<thead>
<tr>
<th>Grade Range</th>
<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% - 100%</td>
<td>A</td>
</tr>
<tr>
<td>80% - 89.99%</td>
<td>B</td>
</tr>
<tr>
<td>70% - 79.99%</td>
<td>C</td>
</tr>
<tr>
<td>60% - 69.99%</td>
<td>D</td>
</tr>
</tbody>
</table>
Master Syllabi and Working Syllabi (if both are used)

Course Description Sheet
General Physics 152
Lorain County Community College

Course Number: PHYC 152 E D1601

Faculty: Mr. David VanArsdale
Email: dvanarsd@lorainccc.edu
Office: PS210
Phone 440-458-6016 home
Phone 440-366-7202 lab office

Course Hours:
Lecture: 1:00 – 1:50 pm MTWR
Lab: 2:00 – 4:50 pm T

General Physics 152 Lab Manual, by Anne Johnson, latest edition, RonJon

Course Topics:
Chapter 13 Vibrations and Waves
14 Sound
15 Electric Charges, forces and fields
16 Electric Energy
17 Electric Current
18 Basic Electric Circuits
19 Magnetism
20 E-M Induction
21 AC Circuits
22 Geometrical Optics
23 Mirrors and Lenses
24 Physical Optics
25 Vision and Optical Instruments
26 Relativity
27 Quantum Physics
28 Quantum Mechanics and Atomic Physics
29 The Nucleus
30 Nuclear Reactions and Elementary Particles

Evaluation: The final grade is calculated from a total percentage of points obtained from quizzes and tests (45%), lab reports and any other graded activities (30%), and final exam (25%). In addition, at least 70% of the possible lab points must be achieved in order to pass the course.

Grading Scale: 90% - 100% A
80% - 89.9% B
70% - 79.9% C
60% - 69.9% D
Absence/Make-up Policy:
If you know in advance that you will be absent the day a test is to be given, make alternate arrangements prior to the test date. Missed tests will be handled on a case-by-case basis. Missed quizzes cannot be made up. After an excused absence, problem assignments may be submitted at the next scheduled class.

In general, labs cannot be made up. Anticipated lab absences can be avoided by attending the alternate lab (Wednesday) on a space available basis.

Late Assignments:
Problem assignments and lab reports will be reduced by 20% for each class day they are late.

Academic Dishonesty:
Cheating on a test will result in a zero for that test. Students will work in small groups during lab sessions to plan, gather data, and organize results. Collaboration on lab write-ups is not permitted. No original text which becomes part of a lab report is to be shared with anyone else in the class.

Instructor Office Hours:
The instructor will be available for individual consultation 30 minutes before and after each lecture/lab session, and at other times by appointment.

Tutoring:
The Individualized Learning Support Center (ILSC/Tutoring Center) located in the Learning Resources Center. Tutoring may take place in small study groups or workshops, walk-in tutoring or one-to-one (private) tutoring. Students are entitled to two free hours of tutoring each week. To make an appointment for tutoring services, call the ILSC 366-4057.

Reading Days:
Reading days are scheduled during the semester to provide students time to work on special assignments, prepare for final exams, meet with professors, etc. On Tuesday, May 11, and Wednesday, May 12, I will be available in the lab (PS 101) during normal lecture and lab hours.

Special Needs:
The Office for Special Needs Services exists to serve the needs of students with disabilities – physical, learning and/or emotional. If you are a person with a disability who needs accommodations or assistance, contact the O.S.N.S. located in Room 115 in the Learning Resource Center. The coordinator is Ruth Porter (X4058). To receive accommodations, one must be registered with the O.S.N.S. office, and notify the instructor during the first week of class.

Miscellaneous:
No food or beverage in lab at any time.
No use of cell phones, pagers, etc. in class or lab
Easiest method of communication is email: dvanarsd@lorainccc.edu
Messages may be left in PS 210, or by calling the Division of Science and Math, X4022.

If special circumstances warrant, changes to this course description will be made, and students will be notified of those changes as soon as possible.

### Lecture Schedule

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Chapter</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20-Jan</td>
<td>T 13</td>
<td>Vibrations and Waves - SHM</td>
</tr>
<tr>
<td>2</td>
<td>21-Jan</td>
<td>W</td>
<td>Equations of Motion</td>
</tr>
<tr>
<td>3</td>
<td>22-Jan</td>
<td>R</td>
<td>Wave Motion</td>
</tr>
<tr>
<td>4</td>
<td>26-Jan</td>
<td>M</td>
<td>Wave Properties</td>
</tr>
<tr>
<td>5</td>
<td>27-Jan</td>
<td>T</td>
<td>Standing Waves and Resonance</td>
</tr>
<tr>
<td>6</td>
<td>28-Jan</td>
<td>W 14</td>
<td>Sound - Sound Waves, Speed of Sound</td>
</tr>
<tr>
<td>7</td>
<td>29-Jan</td>
<td>R</td>
<td>Sound Intensity</td>
</tr>
<tr>
<td>8</td>
<td>2-Feb</td>
<td>M</td>
<td>Sound Phenomena, Doppler Effect</td>
</tr>
<tr>
<td>9</td>
<td>3-Feb</td>
<td>T</td>
<td>Physics of Music</td>
</tr>
<tr>
<td>10</td>
<td>4-Feb</td>
<td>W</td>
<td>TEST 1</td>
</tr>
<tr>
<td>11</td>
<td>5-Feb</td>
<td>R 15</td>
<td>Electric Charges, Forces and Fields - Charge</td>
</tr>
<tr>
<td>12</td>
<td>9-Feb</td>
<td>M</td>
<td>Electric Force</td>
</tr>
<tr>
<td>13</td>
<td>10-Feb</td>
<td>T</td>
<td>Electric Fields</td>
</tr>
<tr>
<td>14</td>
<td>11-Feb</td>
<td>W</td>
<td>Conductors</td>
</tr>
<tr>
<td>15</td>
<td>12-Feb</td>
<td>R</td>
<td>Gauss's Law</td>
</tr>
<tr>
<td>16</td>
<td>16-Feb</td>
<td>M 16</td>
<td>Electric Energy - Potential Energy and EPD</td>
</tr>
<tr>
<td>17</td>
<td>17-Feb</td>
<td>T</td>
<td>Equipotential Surfaces</td>
</tr>
<tr>
<td>18</td>
<td>18-Feb</td>
<td>W</td>
<td>Capacitance</td>
</tr>
<tr>
<td>19</td>
<td>19-Feb</td>
<td>R</td>
<td>Dielectrics</td>
</tr>
<tr>
<td>20</td>
<td>23-Feb</td>
<td>M</td>
<td>Capacitance in Series and Parallel</td>
</tr>
<tr>
<td>21</td>
<td>24-Feb</td>
<td>T 17</td>
<td>Electric Current - Batteries and DC</td>
</tr>
<tr>
<td>22</td>
<td>25-Feb</td>
<td>W</td>
<td>Current</td>
</tr>
<tr>
<td>23</td>
<td>26-Feb</td>
<td>R</td>
<td>Resistance and Ohm's Law</td>
</tr>
<tr>
<td>24</td>
<td>1-Mar</td>
<td>M</td>
<td>Electric Power</td>
</tr>
<tr>
<td>25</td>
<td>2-Mar</td>
<td>T 18</td>
<td>Electric Circuits - Series and Parallel Resis</td>
</tr>
<tr>
<td>26</td>
<td>3-Mar</td>
<td>W</td>
<td>Complex networks - Kirchoff's Rules</td>
</tr>
<tr>
<td>27</td>
<td>4-Mar</td>
<td>R</td>
<td>RC Circuits</td>
</tr>
<tr>
<td>28</td>
<td>8-Mar</td>
<td>M</td>
<td>Meters, Household Circuits, Safety</td>
</tr>
<tr>
<td>29</td>
<td>9-Mar</td>
<td>T</td>
<td>TEST 2 - Mid-Term</td>
</tr>
<tr>
<td>30</td>
<td>10-Mar</td>
<td>W 19</td>
<td>Magnetism - Magnets, Poles, Fields</td>
</tr>
<tr>
<td>31</td>
<td>11-Mar</td>
<td>R</td>
<td>Magnetic Field Strength</td>
</tr>
<tr>
<td>32</td>
<td>22-Mar</td>
<td>M</td>
<td>Applications, Charged particles in Magnetic F</td>
</tr>
<tr>
<td>33</td>
<td>23-Mar</td>
<td>T</td>
<td>Applications, Magnetic Forces on Wires</td>
</tr>
<tr>
<td>34</td>
<td>24-Mar</td>
<td>W</td>
<td>Electromagnetism</td>
</tr>
<tr>
<td>35</td>
<td>25-Mar</td>
<td>R</td>
<td>Magnetic Materials, Geomagnetism</td>
</tr>
<tr>
<td>36</td>
<td>29-Mar</td>
<td>M 20</td>
<td>E-M Induction - Induced emf</td>
</tr>
<tr>
<td>37</td>
<td>30-Mar</td>
<td>T</td>
<td>Faraday's and Lenz's Laws, Generators</td>
</tr>
<tr>
<td>38</td>
<td>31-Mar</td>
<td>W</td>
<td>Transformers and Power Transmission</td>
</tr>
<tr>
<td>39</td>
<td>1-Apr</td>
<td>R</td>
<td>Electromagnetic Waves</td>
</tr>
<tr>
<td>40</td>
<td>5-Apr</td>
<td>M 21</td>
<td>AC Circuits - Resistive Circuits</td>
</tr>
</tbody>
</table>
Lab Schedule

Week
1. Simple Harmonic Motion
2. Standing Waves
3. Speed of Sound in Air
4. Planck’s Constant
5. Line Spectra
6. Coulomb’s Law
7. Electric Field and Equipotential Lin
8. Resistance and Ohm’s Law
9. Simple DC Circuits
10. RC Circuits
11. Magnetic Induction
12. Reflection/Refraction of Light
13. Lenses
15. Polarized Light
16. Interferometry
This information is from the Equivalency Guide in CAS.

It shows how our indicated courses are accepted by BGSU, KSU, U of Akron, and U of Toledo.

Blue font indicates that the school submitted that course as indicated OAN.

### COURSE DESCRIPTION WITH STUDENT OUTCOMES

**Lorain County Community College**

**DIVISION:** Science and Mathematics

**COURSE TITLE:** General Physics II

**COURSE NUMBER:** PHYC 152

**HOURS-CREDIT:** 5

**CONTACT:** 7

**LECT:** 4

**LAB:** 3

**REC/CLINICAL:**

**TOTAL COURSE ILUs:** 6.55

**LECTURE:** 1.0

**LAB:** .85

**REC/CLINICAL:** 0

**LECTURE SEATS:** 48

**LAB SEATS:** 24

**CLINICAL SEATS:** 0

**IS THERE A SEPARATELY SCHEDULED LAB:** Yes

**IS THERE A SEPARATELY SCHEDULED CLINICAL:** No

**FEES:** Yes

**SPECIAL FACILITIES:** None

**FAS ACCOUNT NO.:** 1-02-02-350-450

**GEN. EDUCATION REQ. CHANGES:** Yes

**START YEAR/SEMESTER:** Fall 1998

**TRANSFER MODULE REQ. CHANGES:** Yes

**PREREQUISITES:** PHYC 151 (General Physics I).

**COREQUISITES/CONCURRENT:** None

**CATALOG DESCRIPTION:**

Waves; sound; optics; electricity and magnetism; modern physics. Laboratory required. (A special fee will be assessed.) Prerequisite: PHYC 151 (General Physics I).

**REQUIRED TEXTBOOK(S)/MATERIAL(S):**

College Physics, 5th edition, by Wilson

General Physics 152 Lab Manual, by Johnson

**OTHER RESOURCES INCLUDING EQUIPMENT AND SOFTWARE:**

Scientific calculators
LIBRARY AND LEARNING RESOURCES: All students are expected to fully utilize periodical and reference literature available in the Library and/or via Library computer.

SYNOPSIS OF SUGGESTED COURSE OUTCOMES:
The student shall:
- be able to explain sound phenomena in terms of wave motion.
- be able to explain optical phenomena in terms of rays and wave motion.
- be able to describe and solve DC circuits built of resistors, capacitors and energy sources.
- be able to explain the basic tenets of the Quantum Theory, the wave-particle duality of matter and special relativity.

TOPICAL OUTLINE: (COMMON CORE TOPICS)
- Waves
- Sound
- Optics
- Electricity and magnetism
- Modern physics
- Quantum Theory and Planck’s Constant,
- Wave-Particle Nature of Matter,
- Special Relativity

SUGGESTED INSTRUCTIONAL METHOD(S) AND TECHNIQUE(S):
Quizzes 30% of Total Grade
Tests and Final Exam 50% of Total Grade
Lab Reports* 20% of Total Grade

*The lab report grade must be at least 70% of the possible points to pass the course.

90% - 100% A
80% - 89.9% B
70% - 79.9% C
60% - 69.9% D

GENERAL EDUCATION REQUIREMENT:
Meets General Education Outcomes: 1, 2, 3, 6, 7, 8 and 9. Refer to LCCC catalog for a complete description of the eleven General Education Outcomes.

TRANSFER MODULE REQUIREMENT CHANGES:
Add to Natural/Physical Sciences area of Transfer Module.
**Comment:** Combines PHYS 151/152/153 in Semester Conversion.
Date Revised for Semester Conversion: November 1996

<table>
<thead>
<tr>
<th>OBR Use</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved</td>
<td></td>
</tr>
<tr>
<td>Additional Information</td>
<td>Requested</td>
</tr>
<tr>
<td>Rejected</td>
<td></td>
</tr>
<tr>
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