UNIVERSITY OF HAWAII COMMUNITY COLLEGES

PROPOSAL TO INITIATE, MODIFY OR DELETE A COURSE

1. TYPE OF ACTION
   A. Addition
   B. Deletion
   C. Modification

2. NEW ALPHA, NUMBER AND TITLE

3. CREDITS

4. OLD ALPHA, NUMBER AND TITLE

5. CREDITS

6. NEW CATALOG DESCRIPTION
   Lab experiments illustrating topics and methods in the Physical Sciences with emphasis in Physics and Chemistry. Designed for Non-science majors. WCC & UHM: NS2, UHWO: NS.

7. PREREQUISITES

8. STUDENT CONTACT HOURS PER WEEK
   Lecture Lab

9. PROPOSED DATE OF FIRST OFFERING
   Fall 1997

10. THIS COURSE
    □ IS REQUIRED
    □ IS AN ELECTIVE FOR THE WCC PROGRAM/CORE
    □ CAN FULFILL REQUIREMENT

11. THIS COURSE
    □ INCREASES
    □ DECREASES
    □ MAKES NO CHANGE IN NUMBER OF CREDITS REQUIRED FOR THE PROGRAM/CORE

12. SIMILAR COURSES OFFERED ELSE WHERE:
   College(s):
   UH Manoa
   Alpha, Number, Title:
   PHYS 122L: Introduction to Physical Lab

13. THIS COURSE IS
    □ ALREADY ARTICULATED WITH UH, UHWO
    □ APPROPRIATE FOR ARTICULATION
    □ NOT YET APPROPRIATE FOR ARTICULATION

14. REASON FOR INITIATING, MODIFYING OR DELETING COURSE OR OTHER PERTINENT COMMENT:
   Re-name alpha and catalog description to be consistent with UH Manoa's course which recently underwent an alpha/catalog description change.

REQUESTED BY: ____________________________ 12-2-96
   Department Chairperson
   Date

APPROVED BY: ____________________________ 1/16/97
   Curriculum Committee
   Date

__________________________ 01/24/97
   Faculty Senate
   Date

__________________________ 01/27/97
   Dean of Instruction
   Date

__________________________ 03/11/97
   Provost
   Date

CCC #6100
(Amended for WCC use Sept. 1991)
<table>
<thead>
<tr>
<th>Signatures</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Area (one or more instructors in the area)</td>
<td>11/12/96</td>
</tr>
<tr>
<td></td>
<td>11/12/96</td>
</tr>
<tr>
<td>2. Department</td>
<td>12-2-96</td>
</tr>
<tr>
<td>Department Chairperson</td>
<td></td>
</tr>
<tr>
<td>Was this course discussed in a dept. mtg.</td>
<td>11-12-96</td>
</tr>
<tr>
<td>3. Division</td>
<td>12-2-96</td>
</tr>
<tr>
<td>Assistant Dean of Instruction</td>
<td></td>
</tr>
<tr>
<td>4. Curriculum Committee Review</td>
<td></td>
</tr>
<tr>
<td>Approved</td>
<td>X</td>
</tr>
<tr>
<td>Disapproved</td>
<td></td>
</tr>
<tr>
<td>Reason:</td>
<td></td>
</tr>
<tr>
<td>David Denison</td>
<td>1/16/97</td>
</tr>
<tr>
<td>Curriculum Committee Chairperson</td>
<td></td>
</tr>
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</table>
COURSE ARTICULATION FORM

ORIGINATING CAMPUS: WCC DATE SUBMITTED: 11-4-96
COURSE ALPHA & NUMBER: PHYS 122L SEMESTER CREDITS: 1
COURSE TITLE: INTRODUCTION TO PHYSICAL LAB

DATE OF OUTLINE: (Fall or Spring) FALL Year 1996

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

   A. Standing Committees
      - Written Communication [ ]
      - Mathematical & Logical Thinking [ ]
      - World Civilizations [ ]
      - Languages [ ]
      - Arts & Humanities [ ]
      - Natural Science [X]
      - Social Science [ ]

   B. Special Discipline/Program Committee [ ]
      Specify discipline/program

     Campus with which this course should be articulated (special articulation only):
     - UH Manoa [X]
     - UH Hilo [ ]
     - Community Colleges [X]
     - UH West Oahu [X]

2. In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories:

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Hilo</td>
<td>PHYS 122L</td>
<td></td>
</tr>
<tr>
<td>UH Manoa</td>
<td>PHYS 122L</td>
<td></td>
</tr>
<tr>
<td>UH West Oahu</td>
<td>SCI 122</td>
<td></td>
</tr>
<tr>
<td>Hawaii CC</td>
<td>PHYS 122L</td>
<td></td>
</tr>
<tr>
<td>Honolulu CC</td>
<td>SCI 122</td>
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<tr>
<td>Kapiolani CC</td>
<td>PHYS 122L</td>
<td></td>
</tr>
<tr>
<td>Kauai CC</td>
<td>SCI 122</td>
<td></td>
</tr>
<tr>
<td>Leeward CC</td>
<td>SCI 122</td>
<td></td>
</tr>
<tr>
<td>Maui CC</td>
<td>SCI 122</td>
<td></td>
</tr>
<tr>
<td>Windward CC</td>
<td>SCI 122</td>
<td></td>
</tr>
</tbody>
</table>

3. Notes

Revised 1/29/93
**ARTICULATED COURSE CHANGE IN ALPHA / NUMBER / TITLE**

**OLD COURSE**

<table>
<thead>
<tr>
<th>Course (alpha &amp; number):</th>
<th>SCI 122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>INTRODUCTION TO SCIENCE: PHYSICAL SCIENCE</td>
</tr>
</tbody>
</table>

**REVISED COURSE**

<table>
<thead>
<tr>
<th>Course (alpha &amp; number):</th>
<th>PHYS 122L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>INTRODUCTION TO PHYSICAL LAB</td>
</tr>
</tbody>
</table>

**Semester and Year when the revised course was/will be first offered:**

FALL 1997

**Reason for the change in Alpha and/or Number:**

TO MATCH THE ALPHA DESIGNATION ALREADY IN PLACE AT UH MANOA

**Note:** A current outline of the renumbered course must be submitted with this form. Undated outlines are not acceptable.

I certify that this course has had its alpha, number and/or title changed, but that it is substantially the same course as the course that was reviewed and approved for articulation.

**Campus** Windward C.C.

**Certifying authority**

**Signature and Title** Assistant Dean

**Date** 2-7-97

**SUBMIT TO:** UCA Clearinghouse, Attn: John Muth

Chancellor's Office for CC, 2327 Dole Street.

12/14/94
WOC FORM FOR TRANSFER COURSES

(To be completed for articulation with any 4-year UH campus)

Course PHYS 122L Submitted by JOSEPH CIOTTI Date 11-4-96

1. List the counterpart to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area.

UH MANOA PHYS 122L

THIS COURSE IS IDENTICAL TO THE LAB COURSE TAUGHT AT MANOA AND IS ONE OF THE PHYSICAL LABS CREDITED TO A DEGREE IN COLLEGE OF EDUCATION.

2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples.

YES.

UH MANOA PHYS 122L
HPU SCI 102

3. Please attach a complete course outline, if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.

SEE ATTACHED.
1. What change is proposed in the course? Provide specific information comparing both the "new" and "old" course.
   - change in alpha: SCI 122 (old) to PHYS 122L (new)
   - re-write catalog description to match Manoa's
   - separate lecture/lab credits to match Manoa's:
     SCI 122 4 credits (old) to PHYS 122L 1 credit + PHYS 122 3 credits (new)

2. What is the rationale for the change?
   Consistency with Manoa's designation to facilitate transfer of credits for this already articulated course.

3. Is the change substantive enough to require a change in course identification? If so, explain thoroughly.
   No

4. Is the course articulated with any 4-year program? Yes
   If yes, give details of the agreement(s) and explain any impact the proposed modifications may have on articulation.
   - articulation is identified in all course catalogs
   - no impact on articulation

5. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial considerations that would be required to implement this course modification. What has been done to provide for these additional costs? Who will teach the course? Is additional preparation needed?
   None

6. Will this course modification result in any alterations in the number of hours required to attain a certificate or degree? No
   If yes, provide details and justification for these alterations.

7. If the course is renumbered to 100 or above, does it meet the criteria for transfer level courses? (See attached criteria for transfer courses.)
   N/A
COURSE NAME: INTRODUCTION TO PHYSICAL SCIENCE LAB

COURSE NUMBER: PHYS 122L

COURSE CREDITS: 1 credit

CATALOG DESCRIPTION: Laboratory experiments illustrating topics and methods in the physical science, with emphasis in physics and chemistry. Designed for non-science majors.

PREREQUISITES: Credit or concurrent registration in PHYS 122 or consent of instructor

ARTICULATION BY CAMPUS:
- WCC: Natural Sciences: Group 2—Physical Sciences (NS2)
- Manoa: Natural Sciences: Group 2—Physical Sciences (NS2)
- West Oahu: Natural Sciences (NS)

REQUIRED TEXT/MATERIAL:
- Laboratory Handouts (distributed in class)
- Metric ruler and graph paper
- Bound notebook

RECOMMENDED MATERIALS:
- Physical Science (2th Edition)
  Jerry Faughn, Raymond Chang and Jon Turk
- Pocket calculator

ACTIVITIES REQUIRED AT TIMES OTHER THAN CLASS TIMES: None

INSTRUCTOR: Dr. JOSEPH CIOTTI

OFFICE: Iolani 106

OFFICE HOURS: Schedule posted on office door

OFFICE PHONE: 235-7319 (WCC Office)
               235-2631 (Aerospace Lab)

EFFECTIVE DATE: Fall 1996
### PHYS 122L  Fall 1996
Introduction to Physical Science Lab

<table>
<thead>
<tr>
<th>Monday</th>
<th>Monday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 26</td>
<td>Oct 21</td>
</tr>
<tr>
<td>Lab 1: Measurements</td>
<td>MID-TERM EXAM</td>
</tr>
<tr>
<td>Sep 2</td>
<td>Oct 28</td>
</tr>
<tr>
<td>LABOR DAY</td>
<td>Lab 8: Boyle's Law</td>
</tr>
<tr>
<td>Sep 9</td>
<td>Nov 4</td>
</tr>
<tr>
<td>Lab 2: Hooke's Law</td>
<td>Lab 9: Ohm's Law</td>
</tr>
<tr>
<td>Sep 16</td>
<td>Nov 11</td>
</tr>
<tr>
<td>Lab 3: Pendulum</td>
<td>VETERANS DAY</td>
</tr>
<tr>
<td>Sep 23</td>
<td>Nov 18</td>
</tr>
<tr>
<td>Lab 4: Motion via Air Track</td>
<td>Lab 10: Magnetism</td>
</tr>
<tr>
<td>Sep 30</td>
<td>Nov 25</td>
</tr>
<tr>
<td>Lab 5: Conservation of Energy</td>
<td>Lab 11: Law of Definite Proportion</td>
</tr>
<tr>
<td>Oct 7</td>
<td>Dec 2</td>
</tr>
<tr>
<td>Lab 6: Density</td>
<td>Lab 12: Radioactivity</td>
</tr>
<tr>
<td>Oct 14</td>
<td>Dec 9</td>
</tr>
<tr>
<td>Lab 7: Specific Heat</td>
<td>Lab: Student Demos</td>
</tr>
</tbody>
</table>

No FINAL EXAM
A. Goal of the Course

The primary goal of this basic physics laboratory course is to provide the student with an in-depth feeling for the scientific method through the use of physical investigations. Although many of the hypotheses which will be considered have previously been accepted as laws via numerous experimental approaches, the purpose here will be to carry out independent experiments whose results may possibly be used to evaluate and/or verify existing contemporary scientific facts, theories and/or laws.

B. Objectives of the Course

Upon completion of the course, the student should:

1. have a general understanding for the basic procedures and methods of experimental analysis as applied to a selected fundamental topics in physics;
2. have the ability to comprehensively report all work conducted in a laboratory environment in a manner exhibiting both organization and proper documentation;
3. have an understanding and working knowledge of experimental data and error analyses as well as problem solving; and
4. have an increased awareness of some types of environmental factors which affect the outcome of an experimental approach.

C. Instructional Materials

Laboratory handouts for the various experiments will be distributed to the student prior to the day of each scheduled experiment. This handout must be brought to the laboratory session. The student is required to use a bound notebook for recording all information related to the laboratory experiment. The use of a scientific calculator is strongly recommended.

The instructor will at times provide other instructional handouts necessary for the course.

D. Mode of Instruction

The instructor will give a preliminary discussion of each experiment at the start of each lab period. This overview will usually include demonstrations and explanations pertaining to the use of the apparatus and the objective(s) of the experiment. This discussion is intended to supplement, rather than replace, the student's preparation prior to coming to class. Students will work in teams setting up the necessary apparatus, collecting data, and disassembling equipment. The instructor will be available during each lab session to assist and answer questions concerning the experiment.
E. Method of Evaluation

1. Evaluative Instruments:

Evaluation of the successful completion of the objectives of this course will be determined by grades received on all lab reports.

Lab reports are completed according to the instructions given on the handouts distributed at each lab session. Ordinarily, the report consists of a completed data and analysis sheet provided in the handout plus any other appropriate sheet of observed data and graphical analysis. Graphical analysis can be computed using computer software. A brief visit to the Computer Lab in Hale 'Imiloa (Science Building) will act as an introduction to computer graphical analysis.

Lab Reports are worth 10 points each. The lowest lab score will be dropped from the student's records. All graded Lab Reports are to be turned in at the beginning of the next scheduled lab period. Penalty for a late lab report will be two (2) points per school day the report is late. Under special circumstances, this penalty may be waived at the discretion of the instructor.

2. Grading System:

Each letter grade and its respective level of achievement is provided in the following table:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100% of cumulative points possible</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89% of cumulative points possible</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79% of cumulative points possible</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69% of cumulative points possible</td>
</tr>
<tr>
<td>F</td>
<td>below 60% of cumulative points possible</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete: This temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond the student's control. All required work must be completed by the last day of instruction of the succeeding semester.</td>
</tr>
</tbody>
</table>

The Cr/NC option must be declared by the end of the 10th week of classes. Written consent of instructor is required for this option.

Cr  Achievement of objectives at the C level or higher.
NC  Achievement of objectives at less than C level. (Formal grade)
N   Achievement of objectives at less than C level. (Optional instructor's grade)
W   Official withdrawal after the third week of a 16-week course and prior to the end of the 10th week. If a student officially withdraws by the end of the 3rd week of a 16-week course, the record of registration in this course will not appear on the student's transcript.
F. Other Information

1. Make-up labs are normally not permitted.

2. The student is responsible for keeping abreast with any changes in syllabus which are announced in class.

3. A student can determine his/her current grade during any time of the semester by dividing his/her cumulative score by the cumulative points possible and converting into a percentage and referring to the table of Letter Grades.

4. Any student wishing to be informed of his/her semester grade in advanced of the official mailing of report cards should provide the instructor a stamped, self-addressed postcard or envelope at the end of the semester.