Honolulu Community College
General Education – DIVERSIFICATION DESIGNATION
Certification and Recertification
Application Form
Spring 2012

APPLICANT: Paul Sherard

E-MAIL: sherard@hawaii.edu

COURSE ALPHA and NUMBER: PHYS 100L

COURSE TITLE: Survey of Physics Laboratory

ESTIMATED NUMBER OF SECTIONS:
Fall: 1
Spring: 1

APPLICATION IS FOR:
[ ] New Course  [ ] Modified Course  X Existing Course  [ ] Re-designation

[ ] Certification  X Re-Certification. Date of last certification: [ ]

DIVERSIFICATION AREA DESIGNATION SOUGHT:
[ ] DA (Arts)  [ ] DP (Physical Sciences)
[ ] DB (Biological Sciences)  [ ] DS (Social Sciences)
[ ] DH (Humanities)  X DY (Laboratory)
[ ] DL (Literature and Language)

What percentage of the CONTENT of this course focuses on this diversification area? 100%

What percentage of CLASS MEETINGS focuses on this diversification area? 100%
1. **Hallmarks and SLOs.** Please explain how course-specific SLOs align with the diversification area's hallmarks.

   DY.1 uses the laboratory methods of the biological or physical sciences:
   SLO1: Employ proper techniques when making scientific measurements.
   SLO2: Demonstrate the ability to use select measuring devices.
   SLO3: Apply the appropriate physics to the physical situation presented.

   Course incorporates physics laboratory techniques which includes having students apply basic principles they are investigating in lecture, i.e. conservation of momentum, and then set up an apparatus to investigate the validity of these concepts.

   DY.2 involves processes and issues of design, testing, and measurement:
   SLO2: Demonstrate the ability to use select measuring devices.
   SLO4: Quantitatively analyze experimental data.

   All of the physics labs require some form of measurement, whether using simple measuring devices such as a ruler or data acquired by a computer interface. Students are encouraged to test all equipment before running an experiment.

   DY.3 demonstrates the strengths and limitations of the scientific method:
   SLO4: Quantitatively analyze experimental data.
   SLO5: Formulate and report scientific conclusions based on data analysis.

   Students are required to write up reports and explain how there results verify (or not) the particular physics concept. Students are asked to compare their results with what was "expected" from theory. The reinforces the scientific method which requires experimental observation to verify a theory or hypothesis. In laboratory reports students are asked to discuss possible systematic errors involved in the experiment. This is reinforce the fact that scientific experiments must also consider effects out of the control of the experimenter.

2. **Assessment strategies.** Explain assessment strategies you have used (or plan to use) to measure the degree to which students exit the course with the course-specific SLOs. If there are multiple sections of the course taught by different instructors, please discuss how assessment is (or will be) carried out across instructors.

   Formative assessment is done during lab period. Instructor makes sure that students complete all data tables and calculations properly. Instructor assists students with experimental setups when needed. Students learn that feedback and teamwork are useful in a laboratory setting.

   Summative assessment is done from the grading of laboratory reports which are handed in at the end of every lab period. Laboratory reports are graded according to the course SLOs. For instance:
   (SLO1) Students are observed in lab setting to make sure proper experimental techniques are
employed.
(SLO2) Students learn to use proper measuring instruments, such as vernier caliper, for precision measurements.
(SLO3) Students must use proper physics formulas to analyze raw data.
(SLO4) Students must calculate, based on raw data, experimental results in lab reports.
(SLO5) Students indicate conclusions in their lab reports based on calculated results.

3. **Assessment of assessment.** How have you used (or plan to use) the assessment findings to modify or improve this course? If there are multiple sections of the course taught by different instructors, please discuss how review of assessment results is (or will be) carried out across instructors.

Feedback from student suggestions for improving lab techniques have led to improvements in laboratory procedures. As changes have been made in lecture material, the types of laboratories presented has changed also.

If there are more than one instructor teaching the course they would meet to make sure the courses are congruent. It would be understood that similar labs would be used across the board.

5/9/12 -
Assessment of assessment (Q. #3) will be conducted.
DIVERSIFICATION BOARD DECISION:

☑ Approved
Re-Certification Due: Spring 2017

☐ Not approved
If not approved, reasons for disapproval:

Diversification Board Chair Signature: [Signature]
Date: 5/9/12
Syllabus
PHYS 100L - Survey of Physics Lab

Instructor: Prof. Paul Sherard
Office: Bldg 5; 102-F
Phone: 847-9862
Email: sherard@hawaii.edu

Catalog Description:
Simple experiments in the basic concepts of physics, illustrating the role of physics in society to the nonscientist.

Articulation:
The course fulfills a DY (Laboratory) requirement for AA degrees at HCC and UHM.

General Student Learning Outcomes:
Upon the successful completion of PHYS 100L, the student should be able to:
• Employ proper techniques when making scientific measurements.
• Demonstrate the ability to use select measuring devices.
• Apply the appropriate physics to the physical situation presented.
• Quantitatively analyze experimental data.
• Formulate and report scientific conclusions based on data analysis.

General Course Description:
This lab course PHYS 100L is required for students taking PHYS 100 - Survey of Physics. The lab introduces the student to the basic principles of physics. The course will consist of a number of laboratory experiments that will reinforce and relate physics concepts learned in the lecture course.

Subject Matter:
Among the labs to be explored are the following:
Graphing, Measurement, Velocity and Acceleration, Friction, Collisions, Conservation of Energy, Buoyancy, Specific Heat, Oscillations, Sound, Ohm’s Law, Simple Circuits

Make-up Labs:
Students are expected to attend every lab session. It is best that you do the labs at the appropriate time such that it reinforces what you are presently studying. It is also best for your learning experience to work together in groups when doing labs. If a student does miss a lab there will be 1-2 opportunities to make up labs. The time of such make-up lab sessions will be announced in advance by your instructor. Note: A student cannot make up more than two labs for the entire semester and students can only make up one lab at a time.

Lab Reports:
Worksheets with instructions will be handed out at the beginning of every lab. Students will fill out data tables, examine data, and answer all questions. These reports will then be handed in by the end of the lab period. Reports are not to be taken out of class unless instructed by your Instructor.

Grading for PHYS 100L (Lab):
Your grade in this course will be determined as follows:
Lab Report: 80%
Participation: 20%

Participation will include how much you contribute to the lab group. Note: All data analysis must be done individually. Bring your calculator! Copying from your lab partner is unacceptable. Duplicate lab reports will have their grade lowered accordingly.
Re: PHYS 100L

Paul Sherard <sherard@hawaii.edu>  
To: Jennifer Higa-King <higaking@hawaii.edu>

PHYS 100L course
How often do you plan to do assessment of assessment? Each semester? Once an academic year?

Once an academic year.

Paul Sherard  
Physics Instructor  
Honolulu Community College  
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On Thu, May 10, 2012 at 9:01 AM, Jennifer Higa-King <higaking@hawaii.edu> wrote:

Hi Paul,

Just wanted to let you know that your PHYS 100L course has been certified for DY designation, pending the following question:

How often do you plan to do assessment of assessment? Each semester? Once an academic year? Let me know and I'll just append your appl.

Re-certification will be due Spring 2017. At that time, please keep in mind that you'll be asked to provide evidence (data) of assessment and assessment of assessment. Also, please note that in some cases, course descriptions and SLOs differ from what appears in the catalog and/or the HCC website. Diversification approval is based on the information provided in the application and course syllabus submitted.

Thank you for your patience and cooperation with the process. Much appreciated! Let me know if you have any questions.

Jennifer
Diversification Board Chair

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