## Syllabus  Spring 2013 SSU

**Course** : P116  **Friday** 1 – 3:40 pm  Darwin Hall 308  
**Instructor** : Dr. So Young Han, hanso@sonoma.edu, www.sonoma.edu/users/h/hanso/ 
**Office Hours** : W: 10 – 10:45 am, Th: 1 – 3 pm, Tel.: 664-3242  
**Course Description**: The laboratory component of the calculus based physics P114. It covers classical mechanics, momentum, energy conservation, rotation. GE: Category B1 or B3 and GE laboratory requirements.  
**Prerequisite**: Previous or concurrent enrollment in P114  

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### University Policies

There are important University policies that you should be aware of, such as the add/drop policy; cheating and plagiarism policy, grade appeal procedures; accommodations for students with disabilities and the diversity vision statement. [http://www.sonoma.edu/uaffairs/policies/studentinfo.shtml](http://www.sonoma.edu/uaffairs/policies/studentinfo.shtml)

### Accommodations for Students with Disabilities

If you need disability related accommodations for this class, such as a note taker, test taking services, special furniture, use of service animal, etc., please contact the office of Disabled Student Services (DSS) located in Salazar Hall, Room 1049, Tel: 664-2677

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### Objective:

1. Reinforce physics concepts learned from lectures with hand-on experiments.  
2. Develop ability to design and perform physics experiments and use scientific instrumentation.  
3. Practice analyzing and interpreting experimental data and compare them with theory.  
4. Prepare future experimental physicist  
5. Practice leadership and cooperative working skills.

### Attitudes in this lab:

1. Your goal is **not** blindly following lab procedures, generate preliminary results, and leave.  
2. You are the main operator in this lab. You need to know what you are doing in each step of your action.  
3. Always try to obtain the best. Don’t be satisfied with a proper/expected result. Think about how you can make it better.  
4. The group with the best results (fast) will be rewarded bonus points.  
5. When you obtain data from your measurement (sometimes with large errors), think about what this result means and why you have these errors in your measurements. If you can obtain logical scientific reasoning for your errors/and results, you will be also rewarded bonus points.
Physics 116 Introductory Laboratory Experience

Materials to bring: Lab worksheet (From the instructor at the beginning of each lab.)
Pre-lab report (Down load it from the web and finish it before labs),
Lab Notebook with permanent binding (Points deduction for not bringing to the lab)
Calculator and a memory stick

Attendance: Attendance is mandatory. To pass you cannot miss 3 labs or more. You can make up only one lab at the end of the semester.
1 point will be deducted from the lab worksheet score for students showing up late (15 minute). It is your responsibility to check for late attendance.

Grade:

Pre- Lab report 20%
Lab notebook 10%
Lab worksheet (one per group) 40%
Individual Lab Report 30%

A [93 above], A- [92-89], B+ [88-86], B [85-83], B- [82-79], C+ [78-76], C [75-73], C- [72-69], D [68-60], F [Below 60]

*(www.sonoma.edu/users/h/hanso/)
Most communication and the important dates will be posted on this web page. Check the instructor’s website frequently.

* In the Lab Texting or using personal laptops is not allowed. Lab computers should be only used for the laboratory activity.

* Lab Note Your lab-note will be graded 2 times throughout the semester.
Record all information obtained during the lab. Use it for lecture notes, diagrams, and relevant information. Keep tract of all data, calculation, discussion with partners, and other idea.

[Your Lab Note should include…]
• The table of content with date and title of experiment
• Title of the experiment, Date, and all partners’ names participated.
• Outline the plan for the experiment and the steps taken to conduct it.
• Simple sketch: the experiment setup and equipment with labels.
• Write down raw data and calculations. Also sketch graphical data.

* Lab worksheet (10point each)
You may get the lab worksheet from the instructor at the beginning of each lab. Complete the worksheet at least 15 minute before the lab ends.
Turn in one lab worksheet per group.

* Individual lab report
You need to complete 2 formal individual lab reports this semester. You may submit a late report no later than 1 week after the due. You will have 10% grade deduction for late works. Your lab report should be typed, single spaced with font size 12, and more than 3pages.

*Grades are based on an absolute scale, not a curve. To pass you cannot miss 3 labs or more.
Physics 116 Introductory Laboratory Experience

Tentative Schedule

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Spring Break

[Individual Lab Report Format]

Title

Purpose and Objectives
Short abstract and objective of the lab. (~1-2 sentences)

Concepts and Theory
Describe concepts and theory used in the lab. What is the physics behind the lab? Include all physics equations and constants used. Use complete sentences. A list of topics (or bulleted topics) is not good enough. (~1/2 of page)

Equipment and Setup
List of all equipment used
Sketch a block diagram of the instrument set up with labels

Procedures
1. Describe each step of experiments.
2. Number each step.

Data and Data analysis
All data should be labeled and should have proper units.
Show all calculation and works. (Ex) 2.0 x 3.0 = 6.0
Present raw data and calculated values neatly using available tools such as tables and graphs.

Discussion and Conclusion
Compare your data with theory. Evaluate your data.
What is a possible source of error? How can you improve your measurement? (Be specific and explain. ‘human error’ or ‘being careful’ is not good enough.)
This part should be at least ½ of page long.

Do your part.
What was your role in the group. (Write down what you did physically in the lab.)