VICTORIA UNIVERSITY OF WELLINGTON
Te Whare Wananga o te Upoko o te Ika a Maui

SCHOOL OF CHEMICAL AND PHYSICAL SCIENCES

Te Wânanga Matû

PHYS 122

Introduction to Physics and Applied Physics

(15 points)

Course Outline – Trimester 1 2013

Course Coordinator, Lecturer

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About the Course

This course develops an understanding of introductory physics by focussing on the underlying concepts of motion and interactions, forces and energy, and the behaviour of waves and electric circuits. It is designed for students with little background in physics or mathematics who wish to gain a deeper understanding of elementary physics and its application to technological problem-solving.

A pass (B- or better) in PHYS122, together with either at least 12 credits in mathematics including standards AS91578 (differentiation) and AS91579 (integration) or a pass in MATH141 may allow entry to PHYS114.

You should consult the Physics Undergraduate Programme Director, Dr Gillian Turner, Laby 521, gillian.turner@vuw.ac.nz, 463 6478, if you have questions about future physics courses.

Course Objectives

On passing this course students should be able to

1. Identify and use the concepts of the course to discuss physics related questions and solve problems
2. Develop basic physics laboratory skills
3. Clearly represent and communicate ideas in physics using appropriate language and symbols
4. Use critical thinking to apply knowledge and understanding to new situations

Dates, Times and Places

Trimester dates:	Monday 4 March 2013 to Sunday 9 June 2013.
Easter break	Thursday 28 March 2013 to Wednesday 4 April 2013.
Mid-trimester break	Monday 22 April 2013 to Sunday 28 April 2013

Lectures	Tuesday	5:10-6:00 pm, CO122
	Thursday	12:50-1:00 pm, MC103
	Friday	5:10-6:00 pm, CO122

Labs One 3-hour lab/week, chosen from the times shown below, LB203.

PHYS122	Monday	Tuesday	Wednesday	Thursday	Friday
9 - 10					
10 - 11					
11 - 12					
12 - 1				P122 MC103	
1 - 2	Lab LB203		Lab LB203	Lab LB203	Lab LB203
2 - 3		Lab LB203			
3 - 4					
4 - 5	Lab LB203		Lab LB203	Lab LB203	
5 - 6		P122 CO122			P122 CO122
6 - 7					

Course Operation

Students attend **three** lectures per week covering examinable material.

There are **ten** three-hour labs spread out over the trimester. The lab exercises roughly match progress through the course content and they play a key role in extending and clarifying basic ideas.

Blackboard

This course uses BlackBoard: **13.1. PHYS122: Introduction to Physics & Applied Physics**

All enrolled students should confirm their access. Notices and information relating to this course will be posted on this site and it is assumed that students will check this site regularly.

Mandatory Course Requirements.

Satisfactory completion of the module and all ten lab exercises.

A mark of at least 40% must be gained in the final exam.

Assessment

Assessments for PHYS122 involves assignments, lab work, modules, a mid-course test, and the final exam, as detailed below.

The percentage weighting below. All marks gained, high or low, contribute to the final grade.

Class Exercises (20%) comprising:

1. **Assignments**

   Formative reflective exercises are scheduled, one for each of weeks 1 – 11.

   Each assignment will be posted on Blackboard by 9 am Monday; completed assignments are to be delivered in class the following Friday. They will be returned in class the following Tuesday.

   The nature of reflective exercises, and the delivery procedures, will be explained in detail during the first class of the course.

   Submission of the assignments earns a proportion of 7½%.

2. **Tutorial Exercises**

   Ten problem-solving exercises are scheduled for ½ hour of lab time, Weeks 2 – 11. Attendance and participation in these exercises earns a proportion of 5%.

3. **Module**

   Students choose, on the basis of intended major (ECEN, NWEN, SWEN or other) one of three on-line extension exercises to be completed during Weeks

   Completion of the module earns a proportion of 7½%.

Laboratory Exercises (30%)

Ten laboratory exercises are scheduled for Weeks 2 – 11. There is time for you to work through the exercise and write a lab report. Satisfactory completion of these exercises is a mandatory course requirement.

Mid-course Test (10%)

This is a 50 min closed-book assessment, with multi-choice and extended-answer questions, which will test mastery of material covered in class during the first half of the trimester.

Exam (40%)

This is a three-hour closed-book Faculty-operated examination of extended-answer questions, which will test mastery of material covered in class during the whole course.

	Duration	Dates	% of final grade	Objectives assessed
Exercises:				
1. Assignments	2 hours weekly	Set weekly on BB, all to count. Due in class Thursday from Week 1.	7½%	
2. Tutorial	½ hour weekly	Ten problem-solving tutorials, one per week during lab time, beginning Week 2, all to count. Hand in at end of class.	5%	1, 3, 4
3. Module	9 hours total	One long on-line extension exercise to be completed over 3 weeks. Due date TBA.	7½%	
Lab work	2½ hours weekly	Ten labs, one per week, beginning Week 2, all to count. Hand in at end of class.	30%	1, 2, 3, 4
Test (closed book)	50 min	12 - 12:50 Thursday 2 May 2013, MC103	10%	1, 3, 4
Examination (closed book)	3 hours	TBA	40%	1, 3, 4

Group Work

Lab work is customarily performed and results discussed in groups of two, or three at the most. The work presented to the demonstrator for marking must be your own record of measurements, calculations, graph-plotting and discussion.

Attendance/Participation

Attendance and participation is an important aspect of engaging with the learning process, and you are required to attend all the lectures and labs.

If extraordinary circumstances arise that require you to be absent from some class sessions, you should discuss the situation with the Course Coordinator as soon as possible.

Expected Workload

On average, students should plan to spend a **minimum** of 10 hours per point, ie, 150 hours for a 15 point course, or about 13 hours per week, including exam periods, in order to achieve an average grade in this course.

Class attendance 6 hours per week
(3 lectures per week for 12 weeks + 1 lab per week for 10 weeks)

Class exercises 3 hours per week for 11 weeks

Reading / review 4 hours per week minimum

Reading

Recommended text: *Conceptual Physics* 11th edition, Hewitt, Pearson 2010

VicBooks stocks this book. It is also available as an e-book from physicsplace.com

The University Library has copies of a parallel text *Conceptual Integrated Science*, Hewitt, Pearson 2009, on 3-day loan and closed reserve.

Materials & Equipment

A Lab Manual folder is provided, and write-on lab scripts will issued at each lab class.

Students can use laptops and calculators in lectures and labs. Calculators used in the exam must be battery-powered and non-programmable. An acceptable calculator for exam use is a Casio fx-82 or equivalent.

Recording of Work

Students are advised to keep a portfolio of assignments and lab work, and a record of marks, as they accumulate during the course.

Submission of Work

Assignments, with the standard cover page, are handed in at Friday's class weeks 2 – 12.

Lab work is handed in at the end of the lab session.

The module due date will be announced in due course.

In the event of an aegrotat application, regular submission and performance in all classwork will contribute substantially to the outcome.

Late submissions will be penalised as set out below, unless an extension is approved by the Course Coordinator.

Extensions

Sometimes, through illness or some other extraordinary circumstance, a student cannot attend a lab class. It may be possible to attend another lab class in the same week by request in advance from the Laboratory Coordinator. Otherwise you will have to attend catch-up sessions in week 12. Caught-up labs carry a 25% mark penalty unless suitable mitigating evidence is provided at the original time.

Penalties

Late submissions of required work for the module will not be penalised in the event of illness or other extraordinary circumstances provided the Course Coordinator has approved a request for an extension of time in advance of the due date.

Module work submitted late without the prior agreement of the Course Coordinator will be penalised by 10% of the full mark for each day late. Work will not be marked if more than 1 week late.

Late assignments are not penalised.

Class Representative

A class representative will be elected in the first two weeks of study. The name and contact details of the class representatives will be available to VUWSA, the Course Coordinator, and students on the course.

Communication of Additional Information

Additional information or information on changes will be announced on Blackboard as needed.

Withdrawal Dates

15 March 2013 is the Trimester 1 withdrawal date. Information on withdrawals and refunds may be found at victoria.ac.nz/home/admisenrol/payments/withdrawlsrefunds.aspx

Where To Find More Detailed Information

Find key dates, explanations of grades and other useful information at
victoria.ac.nz/home/study.

Find out about academic progress and restricted enrolment at
victoria.ac.nz/home/study/academic-progress.

The University's statutes and policies are available at
victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at victoria.ac.nz/home/study/calendar (See Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at
victoria.ac.nz/home/about_victoria/avcacademic/default.aspx

Find out about Student Learning Support Service at
victoria.ac.nz/st_services/slss

Academic Integrity and Plagiarism

Academic integrity means that university staff and students, in their teaching and learning are expected to treat others honestly, fairly and with respect at all times. It is not acceptable to mistreat academic, intellectual or creative work that has been done by other people by representing it as your own original work.

Academic integrity is important because it is the core value on which the University's learning, teaching and research activities are based. Victoria University's reputation for academic integrity adds value to your qualification.

The University defines plagiarism as presenting someone else's work as if it were your own, whether you mean to or not. 'Someone else's work' means anything that is not your own idea. Even if it is presented in your own style, you must acknowledge your sources fully and appropriately. This includes:

- Material from books, journals or any other printed source
- The work of other students or staff
- Information from the internet
- Software programs and other electronic material
- Designs and ideas
- The organisation or structuring of any such material

Find out more about plagiarism, how to avoid it and penalties, on the University's website:
victoria.ac.nz/home/studying/plagiarism.html