



Want to study Physics at UTAS??

But don't have the necessary pre-requisites?

**Then why not enrol in the
Physics Foundation Unit
which is held in November**

SCHOOL OF MATHEMATICS & PHYSICS

Faculty of Science, Engineering & Technology

Foundation Unit

KYA004: Physics Foundation Unit

November – December 2009

How is the course delivered?

This unit is taught through a combination of independent learning, lectures and tutorials, and **includes a prac day which is held in Hobart only.**

Dependent upon your previous scholastic background, you will need to allow 80-100 hours of study time.

This unit is also offered on-line, although it is recommended students attend the lectures and tutorials offered as part of this free unit.

Alternatively, if considering completing this unit by distance education the lectures, assignments and other information will be available through MyLo. **Students who undertake this unit by distance education are required to hire a tutor.**

It is important that you access your **University email account** as all important messages will be sent to you via this. (This information will be sent to you as confirmation of your enrolment).

KYA004
Physics Foundation Unit
November-December 2009
Unit Outline

David Hughes

CRICOS Provider Code: 00586B

Contact Details

Unit Co-ordinator

Unit coordinator/lecturer: Karen Bradford
Campus: Sandy Bay
Email: Karen.Bradford@utas.edu.au
Phone: 03 6226 2439
Fax: 03 6226 2410
Post: **Please note** exams and assignments should be sent to the following address:

Karen Bradford
RE: Physics Foundations Unit
School of Mathematics and Physics
University of Tasmania
Private Bag 37
HOBART TAS 7001

Unit lecturer

Unit coordinator/lecturer: David Hughes
Campus: Sandy Bay
Email: D.G.Hughes@utas.edu.au
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PHYSICS FOUNDATION UNIT SPRING SCHOOL 2009

HOW TO ACCESS THE COURSE

IF YOU ENROL IN THE COURSE, PLEASE KEEP THIS DOCUMENT. IT PROVIDES YOU ADDITIONAL INFORMATION ABOUT THE COURSE AND WITH THE NECESSARY LINKS TO COMMENCE THE COURSE.

Karen Bradford is your course co-ordinator for the Physics Foundation Unit and she will be responsible for all aspects of the course and should be your first point of contact if you have any problems.

Karen can be contacted by email at Karen.Bradford@utas.edu.au (please put KYA004 or Spring School in the subject line).

When you receive notification from Student Administration that your enrolment for KYA004 has been accepted you will also be given your student id number and your University email address and password.

The University Email system Webmail (<http://webmail.utas.edu.au/>) can be accessed via a browser using your student id (the part of your email address before the @utas.edu.au) and password.

PLEASE CHECK YOUR WEBMAIL PRIOR TO COMMENCING FOR ANY UPDATES TO THE COURSE.

Email, using webmail, will be the main means of communication between you and your lecturer and course co-coordinator. Check your email daily and respond promptly to any requests.

Text Book

The textbook for the course is:

New Century Senior Physics Concepts in Context 2nd edn. Richard Walding, Greg Rapkins, Glenn Rossiter, ISBN: 0 19 551 777 6.

The text can be borrowed for limited periods from Reserve Section at the Hobart Campus Library (using your student card). However, it is recommended that you purchase your own copy from the University Bookshop and start reading the textbook as soon as possible to familiarize yourself with the course content.

Accessing the Course

Lectures will commence 12th November 2009 and will be video conferenced from Hobart to Launceston and the Cradle Coast Campus.

The course management system, MyLo, can be accessed from any browser using your POP name (the portion of your email address before @utas.edu.au) and e-mail password.

The login page is located at <http://www.utas.edu.au/coursesonline/>.

For an introduction to MyLO click on MyLO Support for STUDENTS

Once you are logged in, follow the links to your course and then read through the link **KYA004** on the course homepage. This link will tell you how to utilize the course materials

If you do not intend to proceed with the course at any time make sure you contact Student Administration to withdraw immediately.

Contents

Unit description	8
Learning outcomes	8
Prior knowledge &/or skills	8
Learning resources required	9
Details of teaching arrangements	10
Unit schedule	12
Learning expectations	13
Assessment	13
How your final result is determined	14
Submission of assignments	14
Requests for extensions	14
Penalties	14
Academic referencing	14
Plagiarism	15
Further information and assistance	15

Unit description

This subject aims to provide students with an understanding of some key areas of physics: scientific notation and the use of equations and vectors to solve problems involving motion in one and two dimensions considering both constant and accelerated cases, projectile motion, work, energy and momentum, as well as an introduction to circular motion. It also helps students in analysing and synthesising information, problem solving and scientific experiments.

Students who successfully complete the Physics Foundation Unit with a grade of Pass and who have satisfied one of the following – pass in MAP5C or MME5C, or KMA003– will be eligible for enrolment in first year Physics units at the University of Tasmania. In addition, students who successfully complete the unit will qualify for entry into any other units or degree programs which have PHY5C or equivalent as a prerequisite.

Learning outcomes

On completion of this unit, you should have acquired knowledge of fundamental skills and techniques that are necessary to succeed in subjects that demand pre-tertiary physics.

You should be able to:

- Use appropriate mathematical and graphical techniques together with the associated technical skills to solve basic problems and arrive at solutions that are logically sound
- Understand and be able to apply the equations of motion to solve problems involving constant and accelerated motion in one and two dimensions
- Understand and be able to apply the concepts of conservation of energy and momentum, and use stated rules and equations to make predictions about the motion of objects subject to external forces and collisions
- Understand and be able to apply concepts related to circular motion
- Have experienced practical laboratory work and practiced analysing and summarising results

Prior knowledge &/or skills

This subject aims to provide students with an understanding of some key areas of physics: mechanics, electric and magnetic fields, waves, atoms and nuclei. It also helps students in analysing and synthesising information, problem solving and scientific experiments.

Learning resources required

Requisite texts

The textbook for this unit is *New Century Senior Physics: Knowledge, Processes and Reasoning* by R. Walding, G. Rapkins and G. Rossiter (2002, Oxford University Press, Melbourne, ISBN: 0 19 551084 4).

You are advised to purchase a copy of the book from The Co-op Bookshop's campus stores or online (<http://www.coop-bookshop.com.au/bookshop>) as you are expected to complete weekly readings and assignment questions from the text. Copies of the text are also available in the Science Library on reserve.

Recommended reading

Additional reading material may be found in *Halliday, Resnick and Walker's, Fundamentals of Physics*, which is the text book for first year physics students at the university. The Science Library has several copies available for you to read at your leisure.

E- (electronic) resources - MyLO

MyLo is an abbreviation for *My Learning Online*. *MyLo* is a web-based application that allows you to access course materials, information and assessments that support your study of a unit. As *MyLo* is web-based, you can access materials at any time and from any computer with internet access and the appropriate software.

Lecture materials in the form of MS Power Point presentations can be found on the *Physics Foundation Unit MyLo* site. In addition, a number of introductory mathematics quizzes have been placed in the *Unit Outline, Learning Outcomes and Foundation Materials* folder. The quizzes do not contribute to your grades – rather they give you the opportunity to test your understanding of some of the basic mathematical concepts that are essential to an understanding of physics.

For information about accessing and using *MyLo*, see *Accessing your course in MyLo*.

Where do I go for help with MyLo?

The University has a Service Desk dedicated to queries regarding MyLo and other university information technology services. There are several ways to contact the Service Desk:

In person: at the Morris Miller Library (Sandy Bay campus) or the Launceston Campus Library.

On the web at: <http://www.utas.edu.au/servicedesk/feedback/index2.html>

By telephone: 1300 304 903 (within Tasmania) or (03) 6226 1818.

Download help sheets from: <http://www.utas.edu.au/coursesonline/mylo-support.htm>.

Computer hardware & software

For MyLO

To access MyLo from your own computer you will need the appropriate software, and the hardware to run that software. Please see UConnect at <http://uconnect.utas.edu.au/> for information about the computer software you will need.

Note: Older computers may not have the hardware to run some of the required software applications. Contact your local IT support person or the Service Desk on 03 6226 1818 if you experience difficulties.

See *MyLo: Information for Students* for further information about accessing MyLo.

Details of teaching arrangements

The unit runs over a six-week period commencing 12th November and concluding 18th December 2009, including a one-day compulsory practical session (Hobart only) to be held on a date to be agreed upon during the first lecture. External (distance) students will be sent a practical session package to be completed and returned to teaching staff.

The subject is taught through a combination of lectures, tutorials, and practical classes, and independent learning (readings and assignment questions).

Lectures (via video conference)

Lectures will be held each Thursday (commencing 12th November) from 6 pm to 8 pm. Lectures will be held live (Hobart) and by video conference (Launceston and Burnie campuses) in the following rooms:

- Hobart – Social Science Room 209 -SB.SocSci.209
- Launceston – NH.X117
- Cradle Coast (Burnie) – CC.A119

For information about videoconferencing at UTAS and how to participate effectively, see the *Students' guide to Videoconferencing* available at: <http://www.utas.edu.au/itr/videoconf/StudentGuide2006.pdf>.

Tutorials

You will be required to attend one tutorial per week (distance students will be required to find their own tutor). Tutorial dates and times will be discussed at the first lecture and will be conducted at a time that is most convenient to the majority of students. One tutorial will usually immediately precede the lecture to minimise travel time for students outside the main centres.

An additional online tutorial will be provided subject to student interest. The tutorial will be conducted via a web conferencing platform and requires you to have access to a computer with an internet connection, speakers (or headset) and a microphone. This tutorial is provided primarily to assist external students, but is open to all class members.

Practicals

There will be a practical session held in Hobart towards the end of the course. This will require student attendance from 9.00 am until approximately 4.00 pm, with a half hour lunch break. The date for the practical will be discussed at the first lecture. Attendance is compulsory unless other arrangements have been made previously with the unit lecturer or Ms Bradford. External (distance) students will be sent a practical session package to be completed and returned to teaching staff.

Occupational health and safety (OH&S)

The University is committed to providing a safe and secure teaching and learning environment. In addition to specific requirements of this unit you should refer to the University's policy at:

http://www.admin.utas.edu.au/hr/ohs/pol_proc/ohs.pdf

Unit schedule

Physics Foundation Unit KYA004 - 2009

Week	Topics	Reading (from <i>New Century Senior Physics</i>)	Assignment (from <i>New Century Senior Physics</i>)	questions	Other good problems (from <i>New Century Senior Physics</i>)
1	Introduction Units Scientific Notation Rounding Vectors	1.1,1.2 1.3 1.4 3.1-3.4	3 6 12,15 2,4,6,10,13		2 7,8 9 to 11,13,14 1,3,5,9,11,12,15
2	Kinematics Definitions of s,v and a Graphs of s,v and a Equations of motion Projectile motion	2.2-2.8 2.9,2.10,2.11 5.1-5.3	1,8,14 18 22,30,67 1,2,3,23,44 test your understanding, page 55		2 to 7,10,12,13,15,17 19,20 21,23-25,27-29,31,75,76 4 to 7,24,26 to 28 ch2: 60,62,64, ch5: 45
3	Forces and Newton's laws Forces Newton's 1st Newton's 2nd Newton's 3rd Inclined Plane Friction	4.1-4.3 4.4 4.5-4.6 4.7 4.10 4.12,4.13	1,2 3,4 6,10 13 - 21,24,26 46,50		- - 5,8,9,12 14 - 22,23,27 45,47,48,49
4	Energy Forms of Energy Work and Power Kinetic Energy Gravitational Potential Energy Conservation of Mech. Energy Elastic Potential Energy	9.1-9.2 9.3,9.7 9.4,9.5 9.6 9.8 9.9	- 1,2,12,13 10 16 19 22,23,25,26,41 test your understanding, page 220		- 3,11,14,15 8,9 17,18 20,21 27 to 31,36,38,42,43
5	Momentum, Circular Motion Conservation of Momentum	8.1-8.7	3,7,10,18		4 to 6,8,9,11,14 to 17
6	Circular Motion Circular motion Torque Angular momentum	5.4,5.6 8.8 8.9-8.11	12,15,17 20 22 28,35 test your understanding, page 192		8 to 10,16 - 21 24-26,29-32

Learning expectations

Expectations

The University is committed to high standards of professional conduct in all activities, and holds its commitment and responsibilities to its students as being of paramount importance. Likewise, it holds expectations about the responsibilities students have as they pursue their studies within the special environment the University offers.

The University's Code of Conduct for Teaching and Learning states:

Students are expected to participate actively and positively in the teaching/learning environment. They must attend classes when and as required, strive to maintain steady progress within the subject or unit framework, comply with workload expectations, and submit required work on time.

As a student you will need to dedicate between 80 and 100 hours of study time to this unit.

Assessment

Assessment schedule

Assessment task	Date due	Percent weighting
Continual assessment (of assignments and practical work):	Weekly	50%
2-hr exam	Friday 18 th Dec 2009	50%

Assessment details

Continuous assessment

Description / conditions Continuous assessment is via weekly assignments. Assignments provide 40% of the unit result.

The practical session has pre-laboratory work and a lab report, and comprises 10% of the unit result.

Date

*Assignments are due at the lecture the week after they are set
Distance students may post their assignments to the lecturer
care of Ms Karen Bradford.*

Final exam

Description / conditions The final examination is a 2-hr exam

How your final result is determined

The unit is examined and the grades to be awarded will be on a pass/fail basis. Therefore, grades of UP (ungraded pass) and NN (failure) will be awarded. Assessment will be in the form of continual assessment (50%) which includes assignments and practical work. The (2-hour) exam will be 50% of the final mark. **Students must achieve a pass in the exam to pass this unit.**

Submission of assignments

Assignments should be handed to the lecturer at the Thursday lecture, or postmarked no later than 5.00 pm that day.

Requests for extensions

Requests for extensions will be considered on an individual basis.

Penalties

Late submission of the examination without prior arrangement will result in a penalty of 10% of the maximum possible mark per day

Academic referencing

In your written work you will need to support your ideas by referring to scholarly literature, works of art and/or inventions. It is important that you understand how to correctly refer to the work of others and maintain academic integrity.

Failure to appropriately acknowledge the ideas of others constitutes academic dishonesty (plagiarism), a matter considered by the University of Tasmania as a serious offence.

The appropriate referencing style for this unit is

Harvard (for information about the Harvard referencing system visit

<http://www.utas.edu.au/library/assist/gpoa/gpoa2.html>

Please read the following statement on plagiarism. Should you require clarification please see your unit coordinator or lecturer.

Plagiarism

Plagiarism is a form of cheating. It is taking and using someone else's thoughts, writings or inventions and representing them as your own; for example, using an author's words without putting them in quotation marks and citing the source, using an author's ideas without proper acknowledgment and citation, copying another student's work.

If you have any doubts about how to refer to the work of others in your assignments, please consult your lecturer or tutor for relevant referencing guidelines, and the academic integrity resources on the web at <http://www.academicintegrity.utas.edu.au/>

The intentional copying of someone else's work as one's own is a serious offence punishable by penalties that may range from a fine or deduction/cancellation of marks and, in the most serious of cases, to exclusion from a unit, a course or the University. Details of penalties that can be imposed are available in the Ordinance of Student Discipline – Part 3 Academic Misconduct, see <http://www.utas.edu.au/universitycouncil/legislation/>

The University and any persons authorised by the University may submit your assessable works to a plagiarism checking service, to obtain a report on possible instances of plagiarism. Assessable works may also be included in a reference database. It is a condition of this arrangement that the original author's permission is required before a work within the database can be viewed.

For further information on this statement and general referencing guidelines, see <http://www.utas.edu.au/plagiarism/> or follow the link under 'Policy, Procedures and Feedback' on the **Current Students** homepage.

Further information and assistance

If you are experiencing difficulties with your studies or assignments, have personal or life-planning issues, disability or illness which may affect your course of study, you are advised to raise these with your lecturer in the first instance.

There is a range of University-wide support services available to you including Teaching & Learning, Student Services, and International Services. Please refer to the **Current Students** homepage at: <http://www.utas.edu.au/students/>.

Should you require assistance in accessing the Library visit their website for more information at: <http://www.utas.edu.au/library/>.