Recommended Books for First Level Physics and Astronomy 2009-10

All students may wish to read *Learn How to Study* (3rd edition), a programmed text by D Rowntree (Macdonald 1998) which provides training in study techniques.

Physics

The text book recommended for purchase for Physics 1A and Physics 1B, and a book that is also very useful for level-two physics, is Halliday, Resnick, and Walker, Fundamentals of Physics, 8th Edition (extended), Wiley, 2007. Earlier editions of the extended version are usually fine, though you may need to "translate" chapter numbers and the like. If you plan to buy the book new, then we recommend that you consider waiting until you are in St Andrews, and go to the bookshop in the Students Union Building and get it there, using ISBN number 0470136863. This version, for no extra charge, gives you online access to the electronic materials associated with the book, and which we tailor for our classes here. For those who choose not to purchase the book we will provide, at no cost to the student, electronic access to the same online materials. This book is also recommended for the second level modules Physics 2A and Physics 2B.

Alternative texts are:-

- *Physics for Scientists and Engineers: A Strategic Approach with Modern Physics* by R D Knight, Addison Wesley, 2004,
- *Understanding Physics*, 1st Edition by K Cummings, PW Laws, E F Redish, P J Cooney, Wiley, 2004,
- *Sears and Zemansky's University Physics* by H D Young and R A Freedman (12^{th} edition, Addison-Wesley 2008), and
- *Physics for Scientists and Engineers* by P A Tipler and G PMosca (6th edition, Freeman 2008).

Astronomy & Astrophysics 1

The main recommended book for this module is *Astronomy – a Physical Perspective* by M L Kutner (CUP 2003), which is sufficient also for the second level module on Astronomy & Astrophysics. This text can be accessed as an ebook via www.netlibrary.com. An Athens account is required for off-site access.

The Physical Universe

The recommended books are *Astronomy, a Beginner's Guide to the Universe* by E Chaisson and S McMillan (5th edition, Prentice Hall, 2006) covering concepts in astronomy, and *Conceptual Physics* by P Hewitt (10th edition, Addison-Wesley 2005) providing a background to concepts in physics.

Recommended Books for Second Level Physics and Astronomy 2009-10

Physics

A recommended text book for Physics 2A and Physics 2B is Halliday, Resnick, and Walker, Fundamentals of Physics, 8th Edition (extended), Wiley, 2007. Earlier editions of the extended version are usually fine, though you may need to "translate" chapter numbers and the like. If you plan to buy the book new, then we recommend that you consider waiting until you are in St Andrews, and go to the bookshop in the Students Union Building and get it there, using ISBN number 0470136863. This version, for no extra charge, gives you online access to the electronic materials associated with the book, and which we tailor for our classes here. For those who choose not to purchase the book we will provide, at no cost to the student, electronic access to the same online materials.

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- *Physics for Scientists and Engineers* by P A Tipler and G P Mosca (6th edition, Freeman 2008).

These all provide wide coverage of the lecture courses (though not always up to the level that the course gets to), examples of how physics is applied in realistic situations, and many problems together with hints for solving them.

For Physics 2A, a useful textbook for the mechanics part of the module is *Analytical Mechanics* by Grant R Fowles and George Cassiday (Brooks/Cole, 7^{th} edition, 2004). Another useful textbook for Physics 2A is *Classical Mechanics* by John R Taylor (University Science Books 2005). This is good for the oscillations and special relativity parts of this module.

Not particularly recommended for purchase, but useful reading in the library for the special relativity course within Physics 2A is *Nonclassical Physics. Beyond Newton's View* by Randy Harris (Addison Wesley Longman, CA, 1999). *Relativity Visualised* is a popular text by Lewis Carroll Epstein (insight Press, CA, 1985) and is also well worth a read.

Although not recommended for purchase *An introduction to Thermal Physics* by D V Schroeder (Pearson, 2004) gives a very nice introduction to many of the concepts taught in Thermodynamics in level two.

For Physics 2B, a useful additional book is *Quantum Mechanics* by A. I. M. Rae (fifth edition, 2007, published by Chapman and Hall, and costing about £23. This is an affordable introductory textbook for undergraduate-level quantum mechanics, and would also be useful for study in level three. This

text can be accessed as an ebook via www.netlibrary.com. An Athens account is required for off-site access.

Astronomy and Astrophysics 2

The recommended book for Astronomy & Astrophysics 2 is *Astronomy – A Physical Perspective* byM L Kutner (CUP 2003). This text can be accessed as an ebook via www.netlibrary.com. An Athens account is required for off-site access.

An alternative text is *Introductory Astronomy and Astrophysics* (4th edition) by M Zeilik and S A Gregory (Saunders College 1998).

Access to ebooks

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