

Profile plan for Andrew McLeod - Open University Degree with Honours [BSc \(Hon\) \(Open\)](#)

I am currently studying with the Open University in the hope of gaining a Bachelor of Science degree with honours in which I am coming to the end of my second year of study. This year, I have been studying towards a Certificate in Natural Science and, while I have not sat the exam, my continuous assessment score is well above the level for a pass with distinction.

My profile is a mixture of physics and engineering. This profile will give me personal growth in the physics subjects and career growth through the engineering subjects. As engineering principles are drawn from physics I think this makes for a good combination of courses.

Study history:

Level 1

[T171 You, Your Computer and the Net](#)

Summary

How did the PC and the internet get to their present state? What are the implications of the computer revolution? How does the internet affect business? This course will help you develop an understanding of the computer industry, the internet and e-business. It will also help you to use your computer for effective information searching and analysis.

[S103 Discovering Science](#)

Summary

This course introduces a range of topics from global warming to the origin of life, ecology and genetics to earthquakes and volcanoes, chemical reactions and the structure of atoms to the origin of the universe.

[SXR103 Practising Science](#)

Summary

This course is based on a one-week residential school during which you will undertake a series of interdisciplinary scientific investigations, mostly in laboratories but also at a field location.

Planned Study

[MST121 Using Mathematics](#)

Summary

This broad introduction to the nature of mathematics and its uses in the modern world shows how mathematics can be used to investigate and answer questions from science, technology and everyday life. It uses a range of fundamental techniques, in particular discrete mathematics (including matrices), calculus and statistics. The skills of communicating results and defining problems are also developed.

Level 2

[S207 The Physical World](#)

Summary

This course offers a wide-ranging introduction to physics and its applications, covering classical mechanics, thermal physics and fluids, fields, waves and electromagnetism, relativity and quantum physics

[SXR207 Physics By Experiment](#)

Summary

This residential school course is designed primarily to give you 'hands-on' experience of doing experimental physics in well-equipped laboratories and under professional supervision.

[T235 Engineering Mechanics: Solids](#)

Summary

This course teaches the basic methods of analysis used by engineers in the design of products and systems, concentrating on solid bodies. The course covers the analysis of motion of bodies and mechanisms; forces in equilibrium; structural analysis; forces not in equilibrium and resulting accelerations including vibration; stress analysis and design of load-bearing components.

T235 will be withdrawn and replaced by T207 Engineering in 2003. No course description is available yet but T207 will be a 60 point course based on T235 and

[T203 Materials: Engineering and Science](#)

Summary

This introduction to materials science and engineering explores the interrelationships between structure, properties and processes for a range of materials including plastics, metals, ceramics, glasses, composites and natural materials.

Level 3

[T331 Engineering Mechanics: Solids and Fluids](#)

Summary

With emphasis on problem-solving in a design context, this course is about the principles and application of engineering mechanics. The first part is essentially about control of motion, leading to the study of kinematic principles, including calculation of velocities and accelerations in simple mechanisms. Then comes structural analysis, considering beam deflections, structural instability, buckling problems and indeterminate structures. Part three investigates the forces exerted by fluids, with examples such as the design of cars and aircraft, wind forces on buildings and wave forces on offshore structures. It ends with vibration, introducing concepts such as natural frequencies, mode shapes and resonance.

T331 will be withdrawn and replaced by T3ee, Structural Integrity from 2004. Again no course description is available but T3ee will be drawn from T331 and

[T353, Failure of stressed materials](#)

Summary

Materials under stress sometimes fail, with costly or tragic results. This course explains the principal modes and conditions of failure, examining metals, plastics and ceramics. All the failures we consider are to do with fracture or excessive change of dimensions, with emphasis on slow and fast crack growth. The theory of linear elastic fracture is introduced to describe such events.

T302 Innovation: Design, Environment and Strategy

Summary

This course will help you to understand the technological innovation process, from market research and creative invention to design, manufacture and sales. It emphasizes the practice and management of innovative product development, taking into account commercial, social and environmental concerns.

Includes residential school

S381 The Energetic Universe

Summary

This astrophysics course is concerned with the energetic processes that occur in stars and galaxies. The topics covered are 'The life and death of stars', 'Interacting binary stars', and 'Active galaxies'. We present the results of recent multi-wavelength observational and theoretical research, including topics such as supernovae, black holes and quasars.

Study Plan

The following table shows when and in which order I plan to take the courses.

| Year | Course code | Level 1 | Level 2 | Level 3 | Notes | Cost |
|---------------|-------------|---------|---------|---------|--|------|
| 2000 | T171 | 30 | | | S103 gives a Certificate in Natural Science | £205 |
| 2001 | S103 | 60 | | | | £405 |
| 2001 | SXR103 | 10 | | | | £270 |
| 2002 | MST121 | 30 | | | | £195 |
| 2003 | S207 | | 60 | | T235 will be rewritten and increased to 60 pts | £415 |
| 2003 | SXR207 | | 10 | | | £300 |
| 2004 | T235 | | 30+30 | | | £500 |
| 2005 | T331 | | | 30 | T331 will be re-written and replaced in 2004 | £210 |
| 2006 | T302 | | | 60 | | £705 |
| 2007 | S381 | | | 30 | | £210 |
| Total Level 1 | | 130 | | | Requirements for a BSc with Honours are: 360pts with 240pts at Levels 2 and 3 for honours 120pts must be at Level 3 | |
| Total Level 2 | | | 130 | | | |
| Total level 3 | | | | 120 | | |
| Total points | | | | 380 | | |

Commitment

A 60-point course involves on average 600 hours of study; a 30-point course takes 300 hours. The courses run over 9 months from February to October. This requires 14-16 hours study per week for a 60 point course and 6-8 hrs per week for a 30 point course.