Senior Cycle - Physics and Chemistry

Subject Group: Science
These subjects demonstrate how to explore nature using carefully planned methods, and teach the basic methods and findings of scientific investigation.

What is Physics and Chemistry?

This course combines parts of both Leaving Cert Physics and Leaving Cert Chemistry into a single course which is examined separately. It includes mandatory practical experiments which must be completed and written up, as well as a written examination on the theory and applications of both disciplines.

Due to large amounts of overlap, it is not possible to take with either Physics or Chemistry.

What kind of student might Physics and Chemistry suit?

- Anyone considering a career in a scientific discipline, such as physics, chemistry, environmental science, or medicine.
- Students who have an interest in both physics and chemistry, but don't have enough time to commit to both subjects separately. Biology students may fall into this category.

Third Level Entry Requirements.

This subject is not an essential requirement for any courses in the CAO system but is now accepted as a science subject in most third level institutions.

Subject Content
The syllabus consists of the following main topics:

- Mechanics including velocity, acceleration, mass, work, and energy
- Light - optics: the laws of reflection and refraction, mirrors and lenses
- Light - wave theory; electromagnetic spectrum and photoemission
- Introduction to static and current electricity
- Magnetism and electromagnetism
- Heat, temperature and kinetic theory

- Structure of the atom and the Periodic Table,
- Radioactivity
- Molecular theory; structure and shape of simple molecules
- Chemical bonding - ionic, covalent and metallic bonds
- Chemical reactions and chemical equations including relative atomic mass
- Introduction to thermochemistry and the First law of Thermodynamics
- Chemical reactions: acid-base theory; oxidation and reduction
- Electrochemistry and the activity series
- The chemistry of hydrogen, oxygen and chlorine
- Introduction to organic chemistry

Physics and Chemistry is an experimental and practical subject and practical work by students is regarded as an integral part of the course. A list of suitable experiments to be undertaken by students is included in each section of the syllabus.

Exam Structure

Leaving Certificate Physics and Chemistry is examined at two levels, Ordinary level and Higher level. Assessment is by a terminal examination paper. Higher level candidates are expected to demonstrate a greater depth of understanding than Ordinary level candidates. Records of practical work done by students should be kept and be available for inspection.