

Sustainable Development (20 credits)

The carbon cycle, its impact on climate, and the need to change this by introducing hydrogen and fuel cell technologies will be covered. The influence of Government legislation on technology and the growth of sustainable businesses will be emphasised.

In the second term, the module introduces the technology associated with recycling. Established technologies such as metal, paper and glass recovery will be contrasted with newer approaches. Good and bad examples such as doorstep sorting will be described from around the UK and the world.

The packaging problem will be evaluated. A particular example of lead-acid batteries will be studied in depth. Processes and practices will be investigated. There will be a coursework project on Resource Recycling.

The overall movement of materials within the environment will be addressed during the second semester. An assignment on the mass and energy flows in cities will be carried out. There will be two short oral presentations.

There are four key areas that will be covered :

- The carbon cycle and the need for hydrogen and fuel cells.
- Legislation and building sustainable hydrogen industries.
- Metals recycling.
- Mass and energy balances on human activities such as cities.