What is chemical engineering?

Chemical engineering is the design operation and improvement of ways we make everyday products.

All industries involved with manufacturing require environmental and economic efficiency.

That is where chemical engineers step in!

Where do chemical engineers work?

Chemical engineers are needed everywhere, because where there is a product, there is a process!

Food and beverage, pharmaceuticals, renewable energy, petroleum and natural gas, water treatment, metal, cosmetics…the list goes on.

What do chemical engineering students study?

1st year – the foundations
Maths, chemistry, physics, programming and design

2nd year – the toolbox
Thermodynamics, reaction engineering, separation processes and design

3rd year – the implementation
Process modelling, analysis dynamics and more design

4th year – the practice
Design project and thesis

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Chemical engineering or chemical product engineering?

Chemical Engineers design chemical processes and equipment.

The aim of a chemical engineer is to optimise the process that develops a product.In industry, this is often referred to as process engineering.

Chemical Product Engineers design a product. The work of a chemical product engineer is to create new material and products that add value to people's lives.

What subjects should I take in high school?

Mathematics extension 1 or higher is valuable for a UNSW chemical engineering degree. Getting by without this base knowledge will be challenging (in all disciplines of engineering!)

Physics and chemistry subjects will also be very helpful, but learning the content for physics and chemistry in your first year courses is achievable!

What non-academic skills are useful?

Trouble shooting and problem solving
We need to identify root causes of problems and analyse data to prevent or address issues that may arise.

The ability to communicate
We work in teams to present findings and recommendations and keep people safe in plants.

Will to address pressing challenges facing the world
We need technical solutions to climate change, energy production and storage, and water and air pollution.

Attention to detail
We strive for precision, reliability and accuracy so that processes can work safely and correctly.