

## What is Aeronautical Engineering?

Aeronautical engineering involves the exciting challenge of designing and developing machines that can fly. The aeronautical engineering team are responsible for the creation of newer, safer and more energy-efficient, economical methods for travel including airplanes, helicopters, missiles, satellites and spacecraft. They contribute to the amazing world of air travel where airplanes that weigh over half a million pounds can soar into the sky and spacecraft can travel 17,000 miles an hour.

### What do Aeronautical Engineers do?

Aeronautical engineers work at the forefront of developing technology to meet the ever-increasing global travel demands. They bring concepts into reality by applying the principles of engineering to design, develop and maintain highly sophisticated technologies for use in aviation, defence systems and space exploration. They ensure that aircraft, spacecraft and missiles meet safety requirements by creating new and more environmentally friendly designs and manufacturing methods. They often use Computer Aided Design (CAD), robotics, lasers and advanced electronics to assist them.



As an aeronautical engineer graduate you can specialise in many areas including:

- **Structural design:** designing the body of the aircraft - includes shape testing, manufacturing materials selection, and strength and structural modelling.
- **Flight mechanics and control systems:** studying and modelling the performance of an aircraft for stability and control, developing automated control systems and testing of aircraft.
- **Aerodynamics:** study of aerodynamic forces of moving aircraft, examining machine profile for reduction of drag in aircraft, trains, automobiles.
- **Instrumentation and communication:** designing and improving performance of aircraft components and systems.
- **Manufacturing and maintenance:** supervising construction of aircraft in line with safety and design requirements, maintaining aircraft.



## Career opportunities

Aeronautical engineers interact with some of the most exciting elements of technology, designing vehicles to operate in extreme environments and under exacting conditions. With the global demands for high-speed travel, the continuing dramatic growth in commercial air travel, and the recent radical designs of commercial space travel and double-decker aircraft, there has never been a better or more interesting time to participate in the field of aeronautical engineering. Aeronautical engineers, technologists and technicians can specialise in a particular area or pursue a career in other areas including the automotive industry, power generation and the armed forces. This profession has global appeal and a qualification in aeronautical engineering is a genuine passport to an exciting career almost anywhere in the world.

As an aeronautical engineering graduate you can work for:

- commercial aviation industry.
- government defence forces.
- flight crew in both commercial and defence aviation.
- research institutes.
- space exploration centres.



### Did you know?

Aeronautical engineers are designing and developing un-manned aircraft which are currently being used to fly high altitude reconnaissance missions over many of the world's trouble spots.

There are nine universities and thirteen institutes of technology offering a wide range of engineering programmes nationwide.

Engineering provides a host of exciting opportunities for individual enterprise and job flexibility with rapid progress to creative, responsible and financially rewarding careers.

For more information check [www.steps.ie](http://www.steps.ie).



AERONAUTICAL	Aerodynamics
Biomedical engineering	Flight Mechanics & Control
Biosystems, Agriculture & Food	Instrumentation & Communication
Building Services	Manufacturing & Maintenance
Chemical Engineering	Structural design
Civil Engineering	
Computer & Software Engineering	
Electrical Engineering	
Electronic Engineering	
Industrial & Manufacturing	
Mechanical Engineering	

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As an aeronautical engineering graduate you can:

- create new, innovative methods of transportation to meet future demands.
- improve the safety of air travel.
- develop and manufacture rockets and satellites.
- research and develop formula one racing cars.
- perform and supervise the design of military aircraft.

Employers of aeronautical engineering graduates include:

Aer Lingus, Aerospatiale, Airbus, the Air Corps, FLS Aerospace, Rolls Royce and Ryanair to name but a few.



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STEPS to engineering is an Engineers Ireland programme supported by Discover Science & Engineering, the Department of Education & Science, FÁS and industry.