

## What is Industrial and Manufacturing Engineering?

Industrial and manufacturing engineering is about the combined art and science of designing, developing and managing the manufacture of quality products. The industrial and manufacturing engineering team are responsible for both manufacturing technology and management. They are constantly challenged to use both innovation and imagination to find better ways to make the products that we need such as MP3 players, mobile phones, cars, planes, food, pharmaceuticals, in fact almost everything we come across needs to be manufactured!

What do Industrial and Manufacturing Engineers do?

Industrial and manufacturing engineers design and develop the process that makes a product, always striving to meet the challenges of producing high quality products at the fast pace that our society now demands. They are concerned with developing processes and systems that improve quality and productivity in the manufacture of a product, while meeting the highest requirements in health and safety.



Industrial and manufacturing engineering offers graduates a variety of areas to specialise in including:

- **Tool design:** inventing and designing the tools for the machines used in the manufacturing process, ensuring the parts work properly to produce quality products.
- **Robotics:** designing, developing and operating robotic systems in a variety of industries including the automotive and spacecraft sectors.
- **Industry management:** developing new models and processes to assist in areas including higher levels of production, analysing manufacturing systems, risk analysis and improvements to environmental and operational efficiencies.
- **Quality engineering:** developing and implementing quality management systems in manufacturing industries.
- **Material processes:** measuring the performance of materials and components and establishing systems to plan and control the manufacture of products.
- **Manufacturing Design:** New products from conceptualisation to finished product.





## Career opportunities

With global demands for the faster delivery of new and exciting products, the demand for the industrial and manufacturing engineering graduate is very strong. They can enjoy a rewarding future in industrial and manufacturing engineering, with a wide variety of career paths to choose to from both locally and internationally.

As an industrial and manufacturing engineering graduate you can work in:

- Manufacturing industries including aerospace products, food, chemical, computer and electronics, automotive to name but a few.
- Public services.
- Management and Design consultancy.
- Purchasing and logistics industry.



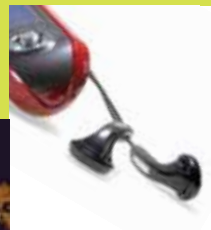
### Did you know?

Industrial and manufacturing engineers have developed a system called rapid prototyping. This system can be used with medical imaging devices to create models of a patient's brain and help surgeons develop best surgical procedures before operating.

*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	
Biomedical engineering	
Biosystems, Agriculture & Food	
Building Services	
Chemical Engineering	
Civil Engineering	
Computer & Software Engineering	
Electrical Engineering	
Electronic Engineering	
INDUSTRIAL & MANUFACTURING	Industrial Management
Mechanical Engineering	Manufacturing Design
	Material Processes
	Tool Design
	Robotics
	Quality Engineering

[www.steps.ie](http://www.steps.ie)



As an industrial and manufacturing engineering graduate you can:

- Manufacture a safer and better cockpit to improve the performance of a fighter pilot.
- Design and manufacture a Pacemaker that could save someone's life.
- Research innovations in manufacturing to produce better quality batteries for mobile phones and laptops

Employers of industrial and manufacturing engineering graduates include:

ABB, Airbus, Bausch & Lomb, BOC, Boeing, Boston Scientific, Ericsson, Ford, GSK, IBM, Hewlett Packard, Intel, Nokia, Pfizer, Roche, Xilinx to name but a few.

 ENGINEERS IRELAND

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