

# The Diploma

Bringing learning to life



IN MANUFACTURING AND PRODUCT DESIGN

“The Diploma in Manufacturing and Product Design offers employers a qualification that has been tailored to the needs of the industry, ensuring learners will have knowledge and experience of the main aspects of working in manufacturing in the 21st century.”

Vanessa Ayres,  
HR Manager,  
W.T. Johnson and Sons



# Join a massive and growing sector

Manufacturing is one of the largest and most diverse sectors in the whole of the UK. It includes food and drink, textiles and apparel, processing industries and print, chemicals, pharmaceuticals, polymers and engineering.

Employing around 4.3 million people, manufacturing generates two-thirds of what the UK exports every year, and offers a host of exciting career opportunities for young people – from technicians and craftspeople, to research and laboratory assistants, to marketing directors and quality assurance managers.

If you're motivated, creative, have a grasp of all aspects of manufacturing and can apply your knowledge in a range of different settings, the sector is bursting with potential for personal success.

## **ABSORB ESSENTIAL SKILLS AND EXPERIENCE**

The Diploma in Manufacturing and Product Design will give you an insight into the fascinating business of manufacturing. It will equip you with the skills and knowledge necessary to keep the UK at the forefront of global manufacturing.

# What will I learn?



The Diploma in Manufacturing and Product Design is built around four main themes:

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**Product design and science:** Looks at the process of manufacturing a product, from the purchasing of raw materials to the sale of the finished product.

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**Business and enterprise:** Provides an introduction to manufacturing as a business.

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**Production systems:** The skills, techniques and processes to turn your ideas into reality.

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**Creative businesses and enterprise:** Looks at working practices.

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Learning can be in any of the five sub-sectors: food; textiles and apparel; processing; chemicals, polymers and pharmaceuticals; and engineering materials.

## HOW IS THE DIPLOMA MADE UP?

### Principal learning (subject learning you have to do)

At the heart of the Diploma are your core manufacturing and product design subjects. These will teach you the main things you need to know about the sector. You'll learn about the issues that are affecting the industry today, how it works and what skills you need to have to work within it.

## ACTIVITIES YOU MIGHT DO IN YOUR PRINCIPAL LEARNING

These are just some examples of the kind of learning you'll be doing

FOUNDATION DIPLOMA	HIGHER DIPLOMA	ADVANCED DIPLOMA
<p><b>Product design and science</b> You'll learn about the properties and characteristics of different materials. You could, for example, perform appropriate testing, analysis and measurement techniques to investigate the nature and compositions of materials and substances.</p> <p><b>Business and enterprise</b> You'll learn how manufacturing businesses operate and how they're affected by price, cost and competition. You could, for example, calculate the cost of materials and labour needed to design and manufacture a new product.</p> <p><b>Production systems</b> You'll learn about the departments and job roles in one of the sub-sectors, the key laws that apply in the workplace and activities carried out independently and in a team. Working in a team, you could, for example, put together a product design specification for a new product.</p>	<p><b>Product design and science</b> You'll learn about the various stages in product design and development, and draw up a product design specification. You could, for example, develop a product design specification for a new brand of football boots using computer-aided design to illustrate your proposals.</p> <p><b>Business and enterprise</b> You'll learn how a manufacturing business is structured and how it uses financial records. You could, for example, produce a financial schedule showing income and expenditure for a small business making jewellery.</p> <p><b>Production systems</b> You'll learn how to follow a design specification and how to contribute to safety and efficiency when manufacturing a product. You could, for example, use a production plan to make a product, safely using tools and manufacturing processes.</p>	<p><b>Product design and science</b> You'll learn about different development techniques used in manufacturing. You could, for example, investigate the difference between manufacturing companies and approaches in the UK and Europe.</p> <p><b>Business and enterprise</b> You'll learn about manufacturing and business principles, and the implications that financial planning and cost management have on profitability. You could, for example, construct a budget and accounts for a small company making pre-packed sandwiches and other foods for local businesses, then work out the benefits and costs of expanding production.</p> <p><b>Production systems</b> You'll learn how to contribute to safety and efficiency and environmental impact when manufacturing a product. You could, for example, carry out health and safety and environmental risk assessments.</p>



## **ADDITIONAL AND SPECIALIST LEARNING (CHOICES YOU CAN MAKE)**

At each level, you can develop your particular manufacturing and product design interests further by taking more specialist courses relating to your chosen subject and career ambitions. You could, for example, learn about robot technology and how it benefits modern-day manufacturers. Or you could delve deeper into sales and marketing, customer service, computer-aided design, corporate social responsibility, maintenance operations or textiles.

Or you might choose a GCSE or A level in subjects like chemistry, physics and art and design, which would help you get onto a university course.

You can also broaden your course by taking an additional subject that reflects another of your interests and career ambitions – like a language, or a creative subject like music. Studying a foreign language can be particularly beneficial in a sector with so many international opportunities.

## **FUNCTIONAL SKILLS IN ENGLISH, MATHS AND ICT**

Like all Diploma students, you'll develop a good standard of English, maths and ICT. These subjects are essential to succeed in any business or learning environment, whether you decide to continue in the manufacturing and product design sector or not.

## **PERSONAL, LEARNING AND THINKING SKILLS**

All Diploma students will develop personal, learning and thinking skills, such as team-working, creative thinking and self-management. These are vital skills in both life and work, and will be useful to you in the future, no matter which path you take.

## **WORK EXPERIENCE**

Your Diploma will give you the opportunity to do at least 10 days' work experience. This is a great way to use the skills you have learnt in the classroom, and experience what work is like from the inside.

## **STUDENT PROJECTS**

During your Diploma, you'll complete a student project to demonstrate the skills and knowledge that you have learnt. You might decide to compete in the Formula One Technology Challenge, which invites schools and colleges to design and manufacture CO<sub>2</sub>-powered Formula One cars. Or why not try your hand at the Schools Food and Drink Challenge?

# What a **Diploma** will lead to

A Diploma in Manufacturing and Product Development will give you the skills you need for either university or work, and is a first step towards a career in the sector.

It could lead you to a university degree or to further training and employment in a variety of roles, working in areas like process and maintenance operations, a laboratory for a pharmaceutical company or as a quality control assistant.

However, the Diploma in Manufacturing and Product Design doesn't mean you have to opt for a career in this sector. Because a Diploma teaches a mix of subjects, it will give you the skills that will be welcomed by colleges, universities and employers, no matter what you choose to do.

# Case study

**THE YEAR IS 2010. THIS COULD BE THE EXPERIENCE OF ONE DIPLOMA STUDENT.**

**MEET VICTORIA,  
A DIPLOMA IN MANUFACTURING  
AND PRODUCT DESIGN STUDENT**

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Victoria, 16, from Manchester, is studying for an Advanced Diploma in Manufacturing and Product Design.

‘I’ve always been fascinated by the process of manufacturing, so the Diploma in Manufacturing and Product Design seemed like the natural choice.’

## **WHAT I WILL LEARN...**

The Diploma gives me a unique opportunity to learn about every stage of the manufacturing process, from the purchasing of raw materials right through to the sale of the finished product. I get to witness the whole journey first hand.

Right now, I’m combining my Diploma with specialist learning in sales and marketing, and food manufacturing.

## **I’M LOOKING FORWARD TO...**

The highlight for me will be the extended project. Together with other students in my class, we’ll develop a new food or drink product as part of the Schools Food and Drink Challenge. We get to decide the product values, manufacturing requirements, how it’s marketed and the costings. Who knows? Maybe our sandwich, pizza or smoothie will be a prizewinner.

## **THE FUTURE...**

I would like to study for a degree in Food Marketing and Business Economics, then go on to become a buyer for a major supermarket after I’ve graduated.

I can’t wait to work with a growing business and be part of such a vibrant sector.

This case study is an illustration of how and why a student might decide to do a Diploma. It does not refer to a real individual.

**“The Diploma in Manufacturing and Product Design promises to deliver not only an excellent educational background, but also the skills and abilities we look for in our employees. We are looking forward to seeing talented young people in the market with the skills we need clearly identified and developed.”**

Jonathan Cooper,  
Technical Training Manager,  
Cadbury Trebor Bassett





# Want to find out **more?**

To find out more about the Diploma in Manufacturing and Product Design, speak to your teacher or careers adviser. You can also find more information about Diplomas on these websites:

[www.direct.gov.uk/diplomas](http://www.direct.gov.uk/diplomas)

[www.connexions-direct.com](http://www.connexions-direct.com)

[www.manufacturingdiploma.co.uk](http://www.manufacturingdiploma.co.uk)

## **DOWNLOADING THIS LEAFLET**

If you'd like to download this leaflet, go to

[http://yp.direct.gov.uk/diplomas/explore\\_more/media\\_centre](http://yp.direct.gov.uk/diplomas/explore_more/media_centre)

## **FINDING A COURSE IN YOUR AREA**

If you'd like to find out where you can study for this Diploma in your area, go to

[http://yp.direct.gov.uk/diplomas/where\\_to\\_study](http://yp.direct.gov.uk/diplomas/where_to_study)

or have a look at the prospectus showing all courses in your area: follow the link on [www.dcsf.gov.uk/14-19/](http://www.dcsf.gov.uk/14-19/)

You can download this leaflet or order copies online at [www.teachernet.gov.uk/publications](http://www.teachernet.gov.uk/publications) Search using reference DCSF-00496-2008.

You can also order more copies by calling 0845 60 222 60; textphone 0845 60 555 60. Please quote reference 00496-2008LEF-EN.

For further information, see [www.teachernet.gov.uk/diplomas](http://www.teachernet.gov.uk/diplomas)

For more information about the new 14–19 curriculum, visit [www.dcsf.gov.uk/14-19](http://www.dcsf.gov.uk/14-19)

Information about the structure of Diplomas and resources to support their delivery by schools and colleges are available from the Qualifications and Curriculum Authority at [www.qca.org.uk/diploma](http://www.qca.org.uk/diploma)

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