

LABOUR MARKET INFORMATION

ADVANCED MANUFACTURING & ENGINEERING



WHAT IS THE ADVANCED MANUFACTURING & ENGINEERING SECTOR?

The advanced manufacturing and engineering sector is all about using the coolest new technology to make and improve products. Think robots, 3D printers, and smart machines that help build everything from cars to gadgets.

This sector covers tons of industries, like aerospace and electronics, and is all about making things faster, better, and more innovative. It's a key player in driving technological advancements and creating exciting new products.

DID YOU KNOW...

Tees Valley is a global leader in **advanced manufacturing and engineering**, home to multinational businesses operating in **manufacturing, engineering and process industries?**



Teesworks, the site of the former Redcar Steelworks, is the largest and most connected industrial zone in the UK and is expected to **create up to 20,000 jobs.**

Approx...

19,000

people are employed in the **advanced manufacturing and engineering sector.**



The sector makes up

7.4%

of jobs in Tees Valley and is worth

£3.8

 billion

Estimated...

20,000

more **people needed by 2026** for jobs related to advancements in **technology, increased automation and investments in high value manufacturing processes.**

ADVANCED MANUFACTURING & ENGINEERING

WHAT JOBS COULD YOU DO?



**AUTOMATION
ENGINEER**



**3D PRINTING
TECHNICIAN**



**MAINTENANCE
FITTER**



**PRODUCTION
MANAGER**



ERGONOMIST



**MECHANICAL
ENGINEER**



**ENERGY
ENGINEER**



**DESIGN &
DEVELOPMENT
ENGINEER**



**MATERIALS
SCIENTIST**

WHERE ARE THE JOBS MOST NEEDED?



**AUTOMATION
& ROBOTICS**



**PRODUCT
DESIGN**



**MAINTENANCE
ENGINEERING**



**PROCESS
OPTIMISATION**



**ENERGY
EFFICIENCY**



**QUALITY
ASSURANCE**



**DATA &
INFORMATION
TECHNOLOGY**



**3D PRINTING &
ADDITIVE
MANUFACTURING**

LOCAL EMPLOYERS INCLUDE...



Jacobs



Francis Brown



AtkinsRéalis



**Sir Robert
McALPINE**



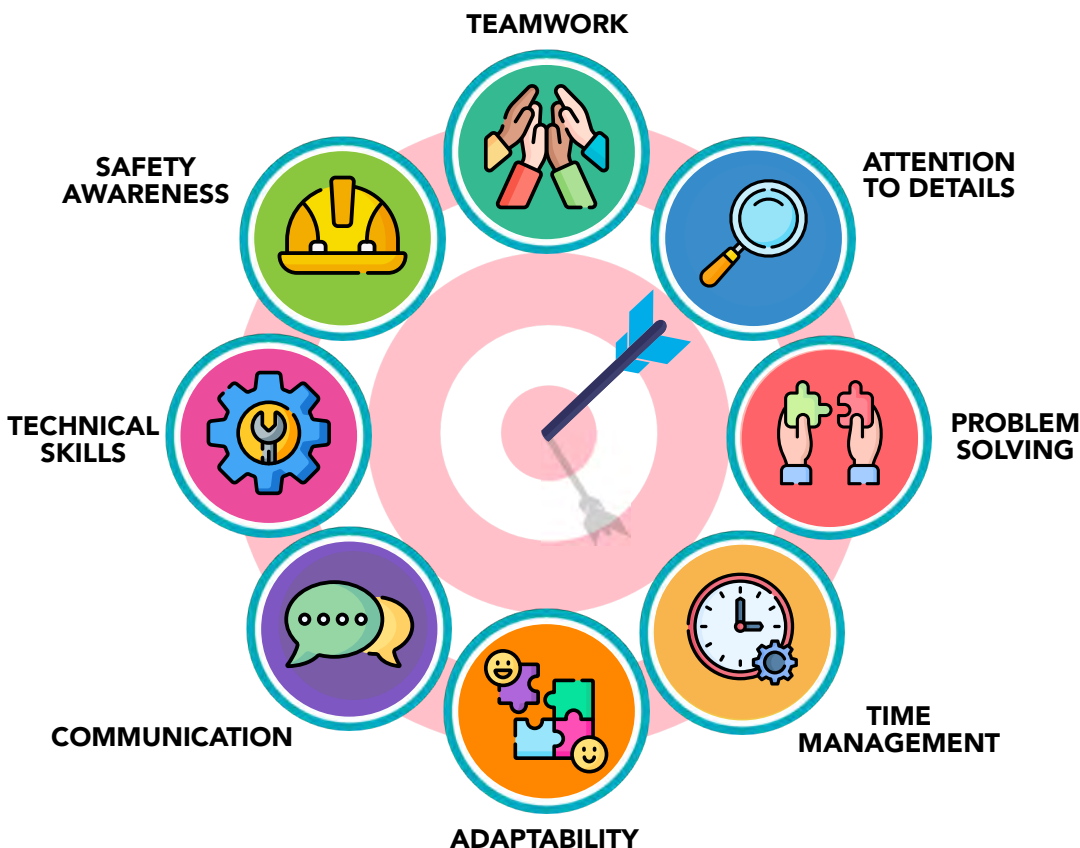
Balfour Beatty



**TEES
VALLEY**

WHAT SKILLS CAN HELP YOU?

Advanced manufacturing and engineering jobs require diverse skills, and adapting your current abilities is key to success.



SKILLS IN ACTION



TEAMWORK

Collaborating with others to build a new product.



ATTENTION TO DETAIL

Checking a product to ensure it meets quality standards.



PROBLEM SOLVING

Fixing a machine that's not working properly.



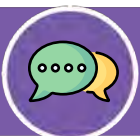
TIME MANAGEMENT

Completing tasks within set deadlines to keep production on track.



ADAPTABILITY

Learning to use new technology or tools as they are introduced.



COMMUNICATION

Explaining a technical issue to a colleague clearly.



TECHNICAL SKILLS

Operating advanced machinery like CNC machines.



SAFETY AWARENESS

Following safety protocols to prevent accidents while operating heavy equipment.

WHAT QUALIFICATIONS CAN HELP YOUR CAREER?

GCSE

SECONDARY SCHOOL



Mathematics: Essential for calculations, technical design, and problem-solving in engineering and manufacturing.

Physics: Key for understanding mechanics, energy systems and material properties.

Design & Technology: Useful for developing practical skills in product design, modelling and manufacturing techniques.

Computer Science/IT: Important for working with automation, digital systems and engineering software.

Engineering: Provides foundation knowledge in mechanical and electronic systems.

FURTHER EDUCATION



A-LEVELS

Mathematics: Crucial for engineering calculations, modelling and technical analysis.

Physics: Builds understanding of forces, motion, and energy systems crucial for advanced manufacturing and engineering.

Design & Technology: Focuses on practical skills in designing and testing engineering solutions.

Computer Science: Useful for understanding software, automation and digital manufacturing technologies.

VOCATIONAL COURSES

Engineering: Covers mechanical, electrical and advanced manufacturing principles with practical applications.

Manufacturing Engineering: Focuses on production processes, materials science and quality control.

Design Engineering: Includes product design, prototyping and manufacturing techniques.

T-LEVELS

Design and Development for Engineering and Manufacturing: Specialises in mechanical, electrical and advanced manufacturing technologies with a focus on industry design and development skills.

Design & Development for Engineering and Manufacturing: Focuses on product design, prototyping and engineering development.

Maintenance, Installation, and Repair: Covers maintaining and repairing complex engineering systems and machinery.

SCAN OR CLICK
THE QR CODE
TO EXPLORE
THE DIFFERENT
PATHWAYS





APPRENTICESHIPS

TEES
VALLEY

Engineering Technician: Gain hands-on experience in mechanical, electrical or manufacturing engineering.

Click or Scan the QR code to visit the IfATE Occupational Maps to explore the different Apprenticeships available

Manufacturing Engineer Apprentice: Work on production processes, materials handling and quality control.



Design Engineering Apprentice: Learn about product design, prototyping and manufacturing techniques.



Robotics Technician: Develop skills in installing, maintaining and programming robotic systems.

HIGHER EDUCATION



UNDERGRADUATE DEGREE

Mechanical Engineering (BEng/BSc): Focuses on designing, developing, and testing mechanical systems and products.

Manufacturing Engineering (BEng/BSc): Specialises in production processes, materials and manufacturing technologies.

Electrical Engineering (BEng/BSc): Covers electrical systems, automation, and control technologies used in manufacturing.

Industrial Design (BDes/BSc): Concentrates on designing products with a focus on functionality and manufacturability.

Robotics Engineering (BEng/BSc): Studies the design and application of robots and automation systems in manufacturing.

POSTGRADUATE DEGREE

Masters in Advanced Manufacturing (MSc): Focuses on modern manufacturing techniques, smart factories and production efficiency.

Masters in Mechanical Engineering (MSc): Advanced study in mechanical systems, design and manufacturing.

Masters in Robotics (MSc): Specialises in robotic systems, automation and intelligent manufacturing technologies.

Masters in Industrial Design (MSc): Focuses on advanced product design and manufacturing processes.

MORE INFORMATION

Scan or click on the QR codes to become more informed about the different jobs and education and training options available to you.

TEES VALLEY JOBS

Explore graduate roles, apprenticeships, or volunteering opportunities.

SCAN ME



NATIONAL CAREERS SERVICE

Explore over 750 different careers. Find out what a job involves and if it's right for you.

SCAN ME



BBC BITESIZE

Explore job profiles for tips and advice from young people working in the sector.

SCAN ME



TEES VALLEY KEY SECTORS

Explore what's happening across other sectors in the Tees Valley region.

SCAN ME



WHAT NEXT?

TEES
VALLEY

Name:

Date:

I would like to be:

The reasons I chose this are:

**Qualifications and training
required:**

Skills I have:

Skills I need to develop:

My next steps are:

Reviewing my progress: