

Advanced Manufacturing and Engineering

Labour Market Information

Advanced Manufacturing and Engineering covers a wide range of sub-sectors including automotive, aerospace, machinery and equipment manufacturing, and intelligent mobility technology. It also includes automation, robotics, biotechnology, pharmaceuticals, music and nuclear.

The West Midlands has one of the strongest automotive industries in the world.

- Over 2,000 specialist automotive firms in the region.
- 50,000 people employed in vehicle manufacturing.
- 160,000 employed in the wider advanced engineering sector.

More than a quarter of the UK's aerospace sector is based in the region, with core competencies in systems that power and control aircraft.



Advanced or high-value manufacturing is a priority sector for the West Midlands region. Knowledge-intensive jobs, such as those within this sector, tend to concentrate in clusters of similar businesses. The West Midlands is already home to hundreds of globally competitive businesses from Jaguar Land Rover to Cadbury, which provides a strong foundation for growth (the regional economy has grown faster than the national economy).

The area has a globally significant concentration of leading advanced manufacturing and engineering businesses, with a particularly high concentration in the Black Country. Coventry and Warwickshire has a strong base

of employment in the sector, particularly motor vehicles (automotive), aerospace, architectural and engineering.

Many of these businesses are firmly rooted in international supply chains, manufacturing essential components such as aerospace actuation and transmission systems. The high number of high value manufacturing companies in the region has led to it being widely recognised as an established leader in the design, development, and deployment of low carbon vehicles and powertrain. The work has been a natural progression from the area's expertise in vehicle engineering.

Local employers and colleges are creating hundreds of opportunities for people in the area so that they can develop the skills needed to access the many jobs which will be available over the next decade or so – jobs that are vital to the local economy.

HS2 presents an unprecedented opportunity to establish the West Midlands as a world-class business location. It will transform connectivity, provide significant supply chain opportunities and provide a focus on driving up skill levels.

Sector Facts and Figures

- In 2017, women account for only 1 in 8 of those in engineering jobs in the UK but this is not a new problem.
- Only around 20% of A-level physics students are girls - a statistic which, has not changed in 25 years².
- Boys are three and a half times more likely to take up the subject at A-level, and five times more likely to study engineering at university.
- 20% predicted shortfall of engineering graduates every year
- However, the sector is keen for its workforce to reflect the diversity of the country it serves. This is especially important as studies have shown that mixed teams (of age and race, as well as gender) are naturally less competitive, more creative and better communicators.
- In the West Midlands three quarters (75%) of those employed in the sector are male.
- Manufacturing and engineering contributes £13 billion to the West Midlands Combined Authority economy
- Around 50% of all vacancies in the Engineering market are in manufacturing. The need for skilled engineers has never been more pressing than it is today.
- Around 203,000 people with Level 3+ engineering skills will be needed each year to meet demand through to 2024³.
- The automotive (motor vehicles) sector employs around 814,000 people across the UK 169,000 of them directly in manufacturing. It expects to need 50,000 more by 2020, half of those will be to build connected and driverless vehicles (SMMT).
- Greater Birmingham accounts for 42% of the UK's automotive Research & Development

² according to the Women's Engineering Society (WES)

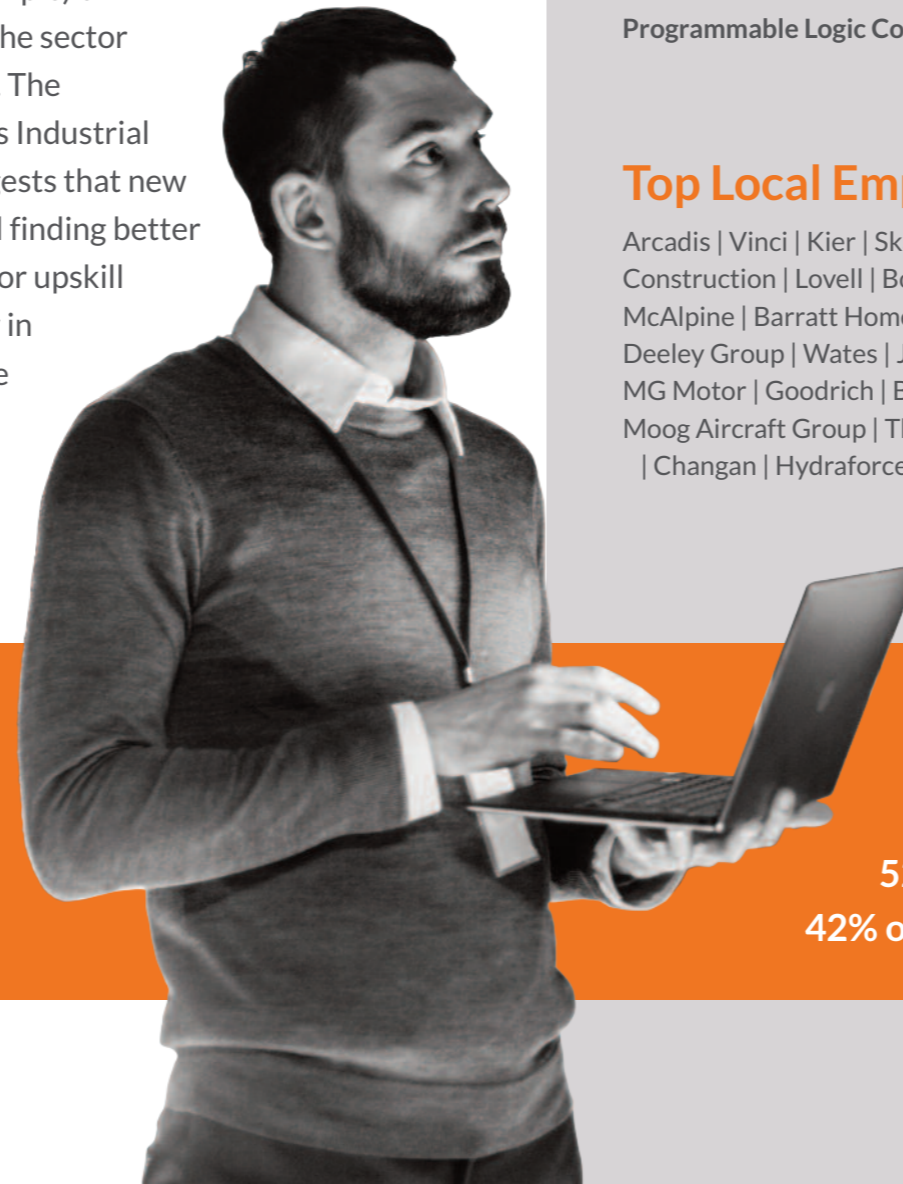
³ Engineering UK

https://www.engineeringuk.com/media/1576/7444_enguk18_synopsis_standalone_aw.pdf

SKILLS

There is an increasing demand for highly skilled labour throughout the whole global workforce due to technological advances and the growth of knowledge-intensive services. In the manufacturing sector this is particularly relevant – highly skilled, digital and IT literate staff are sought after. At the same time the routine and semi routine nature of many low and middle-skilled occupations in manufacturing makes them especially vulnerable to automation.

There is a current drive to improve the recognition and status of technicians and to encourage more people into technician careers and apprenticeships. As well as encouraging more young people to study physics, the industry wants to increase the numbers of people returning to engineering (after a career break for example) or switching to the sector from another. The Government's Industrial Strategy suggests that new pathways and finding better ways to train or upskill those already in the workforce should be tackled.



Some of the TOP SKILLS needed in the industry are listed below:

Engineering Management	Lathes
Leadership	Engineering Drawing
Building Services Engineering	Tooling
Mechanical Engineering	Repairing (Computer Systems)
Maintenance	Testing
Communications	Hydraulics
Heating And Cooling	Engineering
Computer-Aided Design	Electrical Engineering
Management	Maintenance
SolidWorks (CAD)	Installations
Manual/Mechanical	
3D Modeling	Grinding
AutoCAD	Electrical Wirings
Machining	
Computer Numerical Control (CNC)	
Programmable Logic Controllers	Polishing

Top Local Employers

Arcadis | Vinci | Kier | Skanska | RGB Group | Westpoint Construction | Lovell | Bovis | VolkerFitzpatrick | Sir Robert McAlpine | Barratt Homes Mercia | Benniman | Bouygues | Deeley Group | Wates | Jaguar Land Rover | Rolls Royce | MG Motor | Goodrich | BMW | Timet | GKN Aerospace | Moog Aircraft Group | ThyssenKrupp Aerospace | Maier Ltd | Changan | Hydraforce | Gestamp Tallent | IMI

Jobs and Salaries

These are the average salaries that might be expected in the manufacturing and engineering sector .

Metal working machine operative	£22,800
Quality assurance technician	£25,700
Motor vehicle technician	£26,850
Motor vehicle assembler	£34,000
Engineering technician	£35,550
Design and development engineer	£40,100
CNC (computer control) programmer	£41,500
Electronics engineer	£43,850

⁴ Annual Survey of Hours and Earnings 2017

Future Trends

The sector is becoming more hi-tech and the UK is playing its part in leading the way in innovation and cutting-edge technology. This means employers are on the look-out for people with:

STEM qualifications | creative talent | problem solving skills | digital skills | flexibility

These are all areas where innovation will create new roles:

*robotics *cyber security *biomedical technologies
 *telecommunications and satellites *driverless vehicles
 *smart energy *agri-tech *low-carbon technologies
 *intelligent mobility technologies *mechatronics *coding

We can also expect to see growth in these areas:

smart design and manufacturing | low carbon and sustainable materials |energy-saving homes | new materials and techniques | 3D modelling and printing | big data and analytics | off-site manufacturing | robotics | smart sensors | artificial intelligence |virtual and augmented reality | autonomous (driverless) vehicles and drones

Small and Medium Enterprises make up 99.6% of all businesses in the West Midlands

80% of engineering enterprises have four or fewer employees

52% of employees work in an enterprise with 100 or more people

42% of employees work in an enterprise with 250 or more people

Routeways into the sector

Qualifications such as GCSEs, A levels, NVQs, BTECs, HNC/Ds and a degree can all lead to work in this sector; some are more hands on than others. As well as BTECs, HNC/Ds or a degree route, higher and degree apprenticeships will play a larger part in training the engineers and technicians of the future allowing an employer to train somebody up while working in partnership with a higher education institution.

There are around 125 apprenticeship types in the new standards across the whole manufacturing and engineering sector.

Check out which courses or apprenticeships local colleges and universities offer and search for employer apprenticeship vacancies on www.findapprenticeship.service.gov.uk.

Career Learning Pilot

The Career Learning Pilot can support individuals to grow their skills and identify their career goals. This is intended to drive up skill levels of people in work and help to improve productivity where higher skill levels are associated with higher earning and being in work.

For instance

- those qualified to Level 3 earn 10% more than those without this level of skills
- advanced apprentices at Level 3 can earn £117,000 more over their career.
- those with Level 4 skills earn on average twice as much as those with no qualifications.

(prospects.ac.uk)

Visit www.wmca.org.uk/what-we-do/productivity-skills

STEAMhouse is a £48.3m scheme which aims to transform the former Typhoo tea factory in Birmingham into a new form of collaborative innovation centre focused around STEAM (science, technology, engineering, arts and maths), ensuring that the needs of the creative economy are more closely aligned to scientific and technological developments.

Further info

www.engineeringuk.com/research

www.semta.org.uk/careers

www.jaguarlandrovercareers.com

www.automotiveapprenticeships.co.uk

<http://careers.rolls-royce.co.uk>