

Stoke-on-Trent & Staffordshire

Enterprise Partnership



Advanced Manufacturing and Engineering Hub

Improving skills and employability in
Stoke-on-Trent and Staffordshire

FESTO



Advanced Manufacturing and Engineering Hub

The Advanced Manufacturing and Engineering Hub is a network of colleges, private training providers and sector bodies under the umbrella of the Stoke-on-Trent and Staffordshire Local Enterprise Partnership.

The Hub provides world-class vocational environments in the manufacturing and engineering sector. It has been developed in two phases through £14m of LEP Growth Deal funding and private investment in facilities at six spokes. Each spoke has a lead specialism, world-class equipment and trains to the latest industry standards, enabling the delivery of high quality training to support sector growth. The Hub is a centre of good practice and acts as a mechanism for sharing industry-standard training and technologies to improve the capacity of the sector to respond to employer needs. The Hub increases the LEP's ability to deliver the talent pipeline of skills required by local industry. The Hub is delivering these key activities:

- ◆ Promoting the AME Hub as a centre of good practice and sharing industry-standard training to improve the capacity to respond to employer needs
- ◆ Growing and developing advanced manufacturing and engineering

apprenticeships and traineeships

- ◆ Reskilling and upskilling the current workforce to improve productivity
- ◆ Upskilling and retraining the unemployed and NEET young people to gain employment
- ◆ Providing specialist facilities and training to meet employer needs
- ◆ Promoting AME career pathways in schools.

The Phase 1 spokes offer specialist provision in automotive and hybrid technologies in Newcastle-under-Lyme, delivered by Martec Training, renewable pneumatics and hydraulics in Stoke-on-Trent, delivered by Stoke-on-Trent College, and construction, electrical installation, motor vehicle and engineering provision in Tamworth, delivered by South Staffordshire College.

The Phase 2 spokes offer specialist provision in agricultural engineering and technology in Rodbaston, delivered by South Staffordshire College, advanced manufacturing, technical design and scientific engineering in Stafford, delivered by Newcastle and Stafford Colleges Group, and engineering, mechatronics, computer aided design and metrology in Rocester, Uttoxeter, delivered by the JCB Academy.

Improving skills and employability



Case Study - Stoke-on-Trent College

Chris Banks: Level 3 Apprenticeship, Engineering and manufacturing

Chris, aged 20, joined the college at the age of 14 on a two-year school link course as a young apprentice in Construction. The course gave Chris the opportunity to work with employers in various aspects of the construction industry. As well as gaining valuable life skills Chris was put forward by his tutors for an apprenticeship opportunity which he successfully achieved with Morgan Sindall.

Since joining the company in 2014 Chris's enthusiasm and appetite to learn has shone through. He works within a small manufacturing team and has shown great perseverance

and patience when introducing new equipment into the company. This has made a significant impact on the company's production effectiveness and costs.

Chris's interest in the job and passion for learning have rubbed off on colleagues, and he is now involved in training senior staff members on modern work methods using the new technology. Despite a football injury setback in his first year, Chris's determination has enabled him to catch back up and achieve his apprenticeship units with distinction. He is now well on his way to becoming a great engineer.

Technology Hub - Stoke-on-Trent College

Stoke-on-Trent College is a hub for engineering and motor vehicle specialisms, and also has specialist facilities for all building services professions.

The motor vehicle department supports full and part-time learners, as well as an extensive range of apprenticeships and commercial training, to meet local employers' requirements.

This includes light and heavy vehicle maintenance, paint and body repair, utilising the latest water-based paint spray-booth and mixing room, and an advanced vehicle body repair jig.

The new Technology Hub has seen existing engineering equipment up-graded with MIG welding plants, welding simulators, hydraulic and pneumatic rigs, laser cutting machine and sheet metal forming machine.

Building Services are based in the industry-leading John Seddon Building, where investment in renewable technology includes a solar power laboratory, heat pump, solar water heating and photovoltaic panels, along with electricity generator bikes, to enable the full range of renewable technologies to be taught.



Hybrid Technology Centre - Martec Training

Martec Training, leading on the spoke at Newcastle-under-Lyme, has set up a dedicated area within its existing training facilities to deliver hybrid and electrical training.

Its new equipment includes an electric car and a hybrid car, specialised tools and interactive white boards. Courses offered at Martec Training include an 'Introduction to Alternative Energy Cars' which is a specialised course developed by the training organisation and IMI Level 2 and 3 in electric and hybrid tech-

nology for those students who have completed Level 2/3 Vehicle Maintenance.

Martec Training has recently engaged with two large employers to deliver more than 300 qualifications to their employees.

Approximately 20 further companies have been engaged and successfully completed training following the launch of the centre and approximately 500 training courses have been delivered to date.



Case Study - Martec Training

Police forces - hybrid and electric vehicles

Martec has delivered training to Staffordshire and West Midlands Police on awareness in the maintenance and repair of hybrid and electric vehicles. The courses are IMI-accredited and candidates received IMI recognised qualifications.

The candidates were from the accident investigation departments of both forces. With the number of hybrid and electric vehicles increasing on Britain's roads it has become essential to train technicians and emergency services in how to work with these vehicles, and the potential issues that they may present.

The training ranges from basic operating procedures to more in-depth system diagnostics. With industry professionals and modern resources all of the candidates received the best tuition on offer and all candidates achieved outstanding results. Areas covered included haz-

ards of high energy systems, personal protection, health and safety, identification of dangerous components, operating procedures, component design and construction, isolating procedure, tools and equipment, and system faults.

With the increasing popularity of these vehicles, it is inevitable that they will be involved in road accidents at some point. The potential of further damage, injury or even death due to insufficient training is also increasing.

Additionally lack of the correct training could leave vehicles unsuitable for the road, leaving technicians and companies liable. As vehicles and industry change companies are looking to future-proof operations. The police are preparing for the changing environment and many more professional sectors are following suit.

Tamworth Automotive & Engineering Hub

The Tamworth spoke has been set up by South Staffordshire College at the Torc Professional & Technical Centre (the former Torc Vocational Centre) and at the college's campus in the town. The college received a £2m investment for equipment and refurbishment works and offers provision in construction, electrical engineering and other sectors.

The Tamworth campus offers provision in motor vehicle (petrol and diesel), welding, welding simulators, robotics, CNC milling, 3D printing/rapid prototyping and mechanical engineering. The new equipment

includes hydraulics and pneumatics rigs, MIG welding plants, welding simulators, paint booth and mixing room and a vehicle body repair rig.

South Staffordshire College has revised its study programmes in Engineering and delivers EAL in Engineering Technology levels 1-3 alongside a BTEC level 3 route.

It introduced a new Electrical Installation Apprenticeship standard delivered at Torc and an entry level 3 study programmes to provide progression opportunities in motor vehicle and construction.

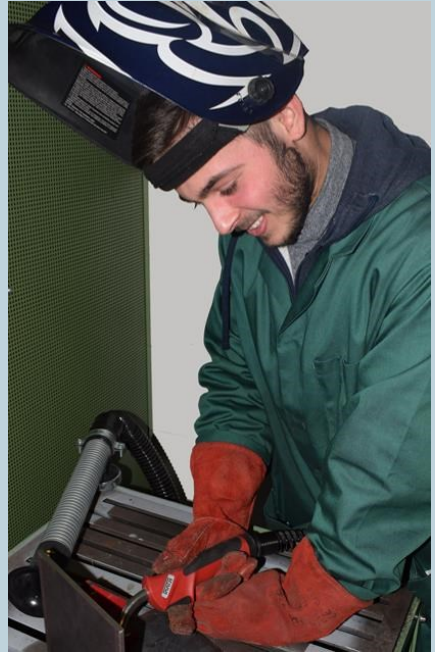


Case Study - Tamworth campus

Jack Watts: Level 3 Apprenticeship, Advanced engineering

The South Staffordshire College Tamworth spoke of the AME Hub is already achieving outstanding results. Apprentice Jack Watts commented: "The experience that I am gaining during my Level 3 Advanced Engineering Apprenticeship is amazing.

"I attend Tamworth campus on a day release basis, and we do a 50/50 mix of practical and theory work which links in well with my job at Digbits Ltd. Both the teaching support from the college and support from my employer have made it a great experience and I am looking forward to starting my Level 4 Higher Apprenticeship in Management."





AgriSTEM Academy - South Staffordshire College

The £5.4m AgriSTEM Academy at the college's Rodbaston Campus delivers industry relevant training for the advanced manufacturing and engineering and agricultural engineering and technology sectors in the region.

This state-of-the-art facility was created by repurposing a derelict farm building and transforming existing workspaces. It comprises:

- ◆ An advanced mechatronic lab
- ◆ Agricultural engineering and automotive/hybrid engineering workshops
- ◆ AgriTech/precision farming simulation lab
- ◆ Performing manufacturing operations (PMO) training/assessment area
- ◆ CAD/CAM classrooms
- ◆ Multi-occupation construction area
- ◆ Renewables workshop for solar thermal, solar PV, air & ground Source heat pump technologies.
- ◆ Gas heating and unvented hot water assessment areas
- ◆ Digitally connected classrooms
- ◆ Digitally connected independent study/collaboration areas
- ◆ Energy dashboard linked to solar panels and wind energy scheme.

South Staffordshire College has recently introduced new apprenticeships in the following areas: L4 agriculture, L2/L3 land based engineering, L2 Animal care - dog grooming, new apprenticeship standards in green keeping (golf courses) and sports turf (football pitches).

Science & Technology Centre - NSCG Stafford Campus

The LEP has part-funded the creation of a £3.5m STEM Centre based on the Stafford campus of the Newcastle & Stafford Colleges Group. The centre has the primary focus of developing STEM-related curriculum at levels 3, 4 and 5. The centre boasts fantastic science and engineering facilities, plus a Lego innovation hub focusing on the technical aspects of learning through the medium of Lego. The Centre also has its own robot to help computing students develop their programming skills and incorporate the emerging technology of artificial intelligence.

The curriculum is focused on level 3, with the delivery of A Level sciences, engineering and computing. The centre also hosts level 4 full time, part time and apprenticeship programmes along with level 2 and level 3 engineering apprenticeship activity. The college offers a series of primary and secondary taster

activities at key stage 3 and 4 where pupils from local schools visit the Centre for a day and experience on the sciences, Lego and computing. The plan is to inspire the students of the future to consider STEM when making their career choices. The college's specialisms are:

- ◆ Computer aided design/manufacturing
- ◆ 3D design, scanning and printing
- ◆ Robotics, mechatronics and programmable logic controls
- ◆ Building information modelling
- ◆ Design for manufacturing
- ◆ Building energy management systems
- ◆ Construction design, architecture, surveying and civil engineering
- ◆ Technical construction management
- ◆ Mechanical, electrical and electronic design, implementation and servicing
- ◆ Applied maths.



**Prof Brian Cox and
Christ Church
Academy pupils at the
Lego hub**

Dove Engineering Centre - JCB Academy

The JCB Academy has refurbished the former Dove First School in Rocester and equipped it with state of the art specialist equipment, with the help of a £1m contribution from the LEP.

The centre has the capability to develop technical skills across a variety of engineering disciplines.

The JCB Academy has worked with the JCB technical and professional development apprenticeship manager to develop a new standard programme.

The programme is to be used as a "standard" for other often smaller firms to sign up for through the apprenticeship matching service, increasing the number of starts in small businesses.

The centre includes:

- ◆ Engineering Science Lab – equipped to teach learners the science related to mechanical and electronic principles with the technology for learners to carry out experiments relating to structures, statics and electrical theory.
- ◆ Mechatronics Training Room– equipment includes Festo units that include Siemens PLCs that require the integration of electronic control and mechanical systems. Each unit will be stand alone and can be brought together to replicate a manufacturing cell.
- ◆ Computer Aided Design Training Room– equipment to enable learners to model and test engineering solutions through both virtual realisation, element analysis, and also mathematically through MATLAB. The equipment will also include a laser scanner to enable parts to be scanned, imported into software, adapted dimensionally and then prepared for modelling.
- ◆ Metrology Lab – to aid learners in the analysis of the properties of materials. The room has a tensometer, hardness tester, impact tester, microscopes and sectioning machine used to destructively test and examine materials.





Contacts:

David Poole, Skills & Further Learning
Manager, Staffordshire County Council
david.poole1@staffordshire.gov.uk

Peter Walters, Head of Faculty,
Stoke-on-Trent College
pwalt1sc@stokecoll.ac.uk

Julie Sizer, Principal, Rodbaston
Campus, South Staffordshire College
julie.sizer@southstaffs.ac.uk

Tracey Marson, Director
Martec Training
traceymarson@martectraining.co.uk

Craig Hodgson, Vice Principal
Newcastle & Stafford Colleges Group
craig.hodson@nscg.ac.uk

John Cox, Director of Finance &
Operations, JCB Academy
j.cox@jcbacademy.com

**Stoke-on-Trent
& Staffordshire**
Enterprise Partnership

Stoke-on-Trent & Staffordshire LEP
Judges' Chambers, County Buildings
Martin Street
Stafford
ST16 2LH

t: +44(0) 1785 719000
e: contactus@stokestaffslep.org.uk
www.stokestaffslep.org.uk

**MIDLANDS
ENGINE**  HM Government