

www.the-blackcountry.com

SKILLS FACTORY

Introduction and Overview



**THE BLACK
COUNTRY**
see it in colour

2012 Skills Survey undertaken in EZ localities.

Employers reported skills shortages in technical skills :-

- Programme Logic Computer Programmers
- Electrical & Mechanical Engineering
- Computer Aided Design
- CNC Programmers
- Electrical Design
- Material Production Engineers
- General Hydraulic Engineering
- Maintenance Engineers & Fitters
- Skilled Machine Setters
- Finite Element Analysis
- Fit for purpose Castings training
- Toolmakers
- Welders

+ Management & leadership skills

Mainly,
Higher level, practical skills
in high value manufacturing



Technician level skills

Set up the Black Country Skills Factory (using GIF funding from UKCES)

The Black Country Skills Factory: –

is an employer- led pilot project (2013 – 2015) aiming to address the current skills shortfall in the High Value Manufacturing sector (HVM) in the Black Country for both large and small employers

Key point : - Recruit credible Industry specialist to lead the project

The 4 Activity Strands

| | STRANDS | MAIN PURPOSE |
|---|-----------------------------------|---|
| 1 | Up-skilling of Existing Workforce | Counteract ageing workforce. Reflect new technology. |
| 2 | Apprenticeships | Penetrate into SME's |
| 3 | School Engagement | Increase pipeline of people wanting to enter into the HVM sector. |
| 4 | Skills Factory Profile | First point of contact for skills in HVM |

“Voice” of the Employer (> 250 employers directly engaged)

1) Delivery method required -

“Bite-sized” practical training in specific topics.

(Right content, trainer and equipment)

2) Priority skills shortage areas identified

**(Maintenance Multi-skilling, CNC Machining, Welding,
Toolroom, Metals & Foundry)**

***Skills Factory subsidised - 30% of Employers
Training Fees (Sep 2013 – Mar 2015)***

“Bite-Sized” modules for Maintenance Multi-Skilling

| Mechanical maintenance for electrical engineers | | | | | | | Pilot Courses |
|---|--------------|---|--------|-----------|----------|--|---------------|
| Topic | Level | Example of competence level | Theory | Practical | Length | | |
| 1 Motors & pumps - basic constructions | | Understand types of motors / pumps/ bearings -uses and construction | Y | | 1 day | | |
| 2 Changing motors / pumps - bearings | | Able to strip and replace bearings on range of pumps / motors. | Y | Y | 1 day | | |
| 3 Gear boxes & couplings | | Examine / test gearbox for function - identify faults. Replace couplings. | Y | Y | 1 day | | |
| 4 | Basic | Identify & exchange basic components in pneumatic system | Y | Y | 2 days | | |
| 5 Pneumatic systems | Intermediate | Identify and exchange complex components. Simple troubleshooting. | Y | Y | 2 days | | |
| 6 | Advanced | Able to troubleshoot complex pneumatic systems (inc PLC controlled) | | Y | 1 day | | |
| 7 Hydraulic systems (pumps and systems) | Basic | Identify & exchange basic components in hydraulic system | Y | Y | 1.5 days | | |
| 8 | Advanced | Identify and exchange complex components. Troubleshooting. | Y | Y | 2 days | | |
| 9 Pipework systems | | Able to safely change components with high pressure pipelines. | Y | | 0.5 days | | |
| 10 Compressors - factory air systems | | Understand and safely troubleshoot various compressed air systems | Y | | 0.5 days | | |
| 11 Machine bearings / slides | | Understand different types of bearing & able to recognise malfunction. | Y | | 0.5 days | | |
| 12 Pullies, sprockets, Chains & belts | | Able to troubleshoot drive systems, change and tension belts / chains. | Y | Y | 0.5 days | | |
| 13 Oils, greases, seals, Fasteners, adjustors, shims | | Understand uses & identification of different types. | Y | | 0.5 days | | |
| 14 Troubleshooting at machine system level | | Troubleshoot elec & mech faults in machine systems on "simulator" | | y | 1 day | | |
| Electrical maintenance for mechanical engineers | | | | | | | |
| Topic | Level | Example of competence level | Theory | Practical | Length | | |
| 1 Power supplies (single & 3 phase) | | Principles of factory power supplies. Trestring of simple circuits | Y | Y | 2 day | | |
| 2 Isolate & lock off equipment | | Safely isolate and lock off electrical equipment. | | | | | |
| 3 Single Phase Power supplies | | Can install simple equipment on single phase as per IEE wiring regs | Y | Y | 1 day | | |
| 4 Direct Current Power supplies. | | Can safely test and change components in direct power circuit | Y | | 0.5 day | | |
| 5 17th Edition Wiring Regulations | | Understand 17th edition wiring regulations | Y | | 3 days | | |
| 6 Motors and Starters | | Test motor drives, check and change brushes / motors | Y | Y | 1 day | | |
| 7 Switches, Relays and Sensors | | Test, change and adjust variety of sensors, relays and switches. | Y | Y | 1 day | | |
| 8 Trasformers, Capacitors, Solenoids. | | Undertand principles and testing. | Y | | 0.5 day | | |
| 9 Siemens PLC system - understanding ladder diagram | | Can read ladder diagram - can interpret & troubleshoot | Y | Y | 2 days | | |
| 10 Mitsubishi PLC system - understanding ladder diagram | | Can read ladder diagram - can interpret & troubleshoot | Y | Y | 2 days | | |
| 11 Omron PLC system - understanding ladder diagram | | Can read ladder diagram - can interpret & troubleshoot | Y | Y | 2 days | | |
| Co-Investment from machine system level | | Troubleshoot elec & mech faults in machine systems on "simulator" | | Y | 1 day | | |

Training Equipment in colleges and training providers

[illegible]

Identify and Use the best training providers (right equipment and right capability)

Training Equipment in colleges and training providers

[illegible]

No Equipment in
Black Country providers

Use equipment in industry for training

Skills Factory :-

- Broker “Bite-sized” training in industry specific topics at the best training provider for that topic.
- Market to manufacturing employers
- Aggregate SME demand to make viable numbers.

100+ bite sized courses delivered Sep 2013 – Mar 2015)


(Welding CNC Machining Foundry Skills Toolmaking Maintenance)

Further courses being delivered Apr 2015 onwards

675 training days brokered for 50+ companies (up to Mar 15)

Skills Factory Bite-Sized Course Calendar

All courses £190 / day

| <div>Co-Investment from</div> <div><div>UK COMMISSION FOR EMPLOYMENT AND SKILLS Growth and Innovation Fund</div></div> | | Black Country Skills Factory - Bite Sized Course Calendar | | | | | | | | | |
|---|---|--|-----------------------------------|--|-------|-------|-------|-------|--|--|--|
| | | KEY:- | | <div>Black Country Skills Factory</div> <div><div></div><div></div><div></div><div></div><div></div></div> | | | | | | | |
| | | Places Available | | | | | | | | | |
| | | Course Full | | | | | | | | | |
| Skills Factory Brokered Courses | | | | | | | | | | | |
| Skill Area | Course | Duration | 2015 - 1st half | | | | | | | | |
| | | | Jan | Feb | March | April | May | June | | | |
| | | | | | | | | | | | |
| Maintenance Multi-Skill (& Production Setter) | Factory Electrical Power Supplies | 2 days | | 24/25 | | | | | | | |
| | Switches Relays & Sensors | 1 day | | 16 | | | | | | | |
| | Motors & Drives | 1 day | | 17 | | | | | | | |
| | Basic Pneumatics | 1.5 day | 12/13 | 09/10 | 09/10 | 13/14 | 11/12 | 08/09 | | | |
| | Basic Hydraulics | 1.5 day | 05/06 | 02/03 | 02/03 | 07/08 | 05/06 | 01/02 | | | |
| | Intermediate pneumatics/hydraulics (electro control) | 1.5 day | 19/20 | 16/17 | 16/17 | 20/21 | 18/19 | 15/16 | | | |
| | Advanced pneumatics/hydraulics (PLC) | 1.5 day | | 23/24 | | 27/28 | | 22/23 | | | |
| | 17th Edition wiring regulations | 4 days | | | | | | | | | |
| | Siemens PLC - intermediate level | 2 days | | | | | | | | | |
| | Introductory Mitsubishi PLC | 2 days | | 18/19 | | | | | | | |
| | | | | | | | | | | | |
| Welding & Fabrication | Arc (Stick) / Mig Welding - Introductory | 2 days | various dates available | | | | | | | | |
| | Mig Welding - Improvers | 2 days | various dates available | | | | | | | | |
| | Tig Welding Improvers | 2 days | various dates available | | | | | | | | |
| | Tig Welding Introductory | 2 days | various dates available | | | | | | | | |
| | Aluminium Tig Welding | 2 days | various dates available | | | | | | | | |
| | Safe operation & setting of Amada press brake | 1 day | various dates available | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| CNC Machining & Setting | Vertical & Horizontal Milling - Fanuc Control 31i Programming | 2 days | various dates & courses available | | | | | | | | |
| | CNC turning – Fanuc programing and operating | 1 day | various dates & courses available | | | | | | | | |
| | Vertical & Horizontal Milling - Heidenhain 530 / 540i Control Programming | 2-4 days | various dates & courses available | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Metal treatment, Metallurgy & Toolroom | Metallurgy for non-metallurgists (Introduction to metallurgy) | 2 days | | 18/19 | | | | | | | |
| | Principles of Heat Treatment | 1 day | | | | 16 | | | | | |
| | Non Destructive testing of metals - (principles) | 1 day | 15 | | | | 21 | | | | |
| | Understanding drawing tolerances | 1 day | | | | | | | | | |

+ range of supported (subsidised) courses from specialist providers

For information on all courses :- www.blackcountyskillsfactory.co.uk



‘Bite-sized’ management & leadership training for SME’s in manufacturing sectorInnovation

- 12 off (6 ‘hard’ and 6 ‘soft’) 1 day management & leadership courses being developed by cross sector group of manufacturing companies.
- Each accredited course developed & delivered by specialist training provider.
- Training delivered within a ‘better practise’ manufacturing company (opportunity for best practise sharing and ‘go & see’)
- Individual coaching to run alongside ‘soft’ skills training

| ‘Hard’ Skills | ‘Soft Skills’ |
|-----------------------------------|------------------------------------|
| Problem Solving & Decision Making | Developing & coaching staff |
| Quality Control in the workplace | Basics of employment law |
| Management of Health & Safety | Time Management |
| Material & Production Control | Appraisal & Performance Management |
| Production Efficiency | Communication Skills |
| Lean Manufacturing | Training the Workforce |

Pilot Courses
Apr– Dec
2015



School of Technology

BEng (Hons) Manufacturing Engineering

A new course to enhance the skills of your workforce.

ASSOCIATION WITH

Black Country Skills Factory

- New 2 year BEng (Hons) degree
Unique in UK
- 45 week per year delivery
Every Friday and 12 Saturday per year
- 4 days in Company
- Real Live projects completed in work
- **Subsidised up to 30% subsidies
of 1st year fees** (for Oct 2014 start)

Next Start date :- October 2015

2 Cohorts of students commenced since Jan 2014

Strand 2 - Apprenticeships

a) Aim :- Increase the number of SME's in the HVM sector taking apprentices.

The Skills Factory, in collaboration with Apprenticeship providers, will :-

- Raise awareness and clarify options.
 - Offered Wage subsidies (in conjunction with existing government offers).
 - Support employment costs during less productive early stages.
 - Increase the calibre of candidates applying for apprenticeships
 - Support progression into advanced apprenticeships
- (subject to Skills Factory qualifying terms and conditions).

1st Apprentice to receive subsidy

Result |:-

113 Companies with subsidised apprentices

Lauren Speed
3DT Tooling Ltd
Wolverhampton



b) Trial different Apprenticeship models to offer SME's flexibility
(supported by Wage Subsidies - subject to Skills Factory qualifying terms and conditions).

This scheme operated Jun 13 until Mar 2015 – Now closed



Strand 3 - Schools Engagement

Aim :- Increase the number of people wishing to consider high value manufacturing as a career choice

Activities :- Engagements with schools & industry (both staff & pupils)

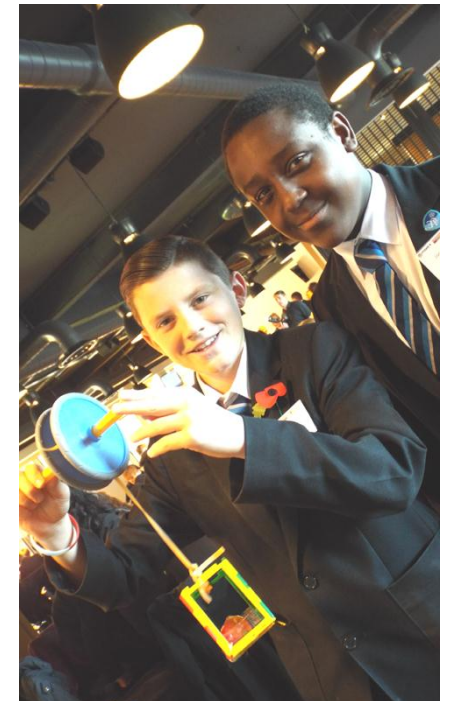
Skills Challenge

Teacher Placement days in Industry

Careers Fairs

Visits to Industry

Work Placements



Skills Factory Schools Challenge 7th November
12 Schools – 100 pupils – 11 employers

Resources :- Developed Careers Information for pupils and parents



MANUFACTURE YOUR FUTURE

Fancy earning serious money

in an industry with loads of great jobs up for grabs?

What is HVM?

HVM stands for High Value Manufacturing. If you choose a career in HVM, you could become a tester of aircraft components, work with robotics or even design components for oil rigs.

SAME CAREER, DIFFERENT PATH

BUT WHICH ROUTE WILL YOU TAKE?

Apprenticeship

You'll need GCSEs

Ideally in English, Maths and Science

You'll study part-time at college whilst also helping in employment

It could cost you **£0** you can actually earn as you learn

At 16, you could start work as an **apprentice**

Example of what's next: **machinist, electrician or welder**

By the age of 20 you could be earning **£22,000**

You could then study HNC/HND and become a **technician or toolmaker**

Vocational

You'll need GCSEs mainly A*-C in maths, English and ideally science

You'll study full-time at college completing a BTEC before starting work

It could cost you **£0** as there are no student fees associated

At 18, you could start work as an **advanced apprentice or trainee**

Example of what's next: **machinist, electrician or welder**

By the age of 23 you could be earning **£22,000**

You could then study HNC/HND and become a **technician or toolmaker**

Academic

You'll need GCSEs mainly A*-B in maths, English and ideally science

You'll study full-time at Sixth form, college or university completing A levels and a Degree

It could cost you **£21,000** in student fees (student loan)

At 21, you could start work as a **graduate trainee**

Example of what's next: **manufacturing engineer or designer**

By the age of 23 you could be earning **£25,000**

You could then become a **senior engineer or supervisor**

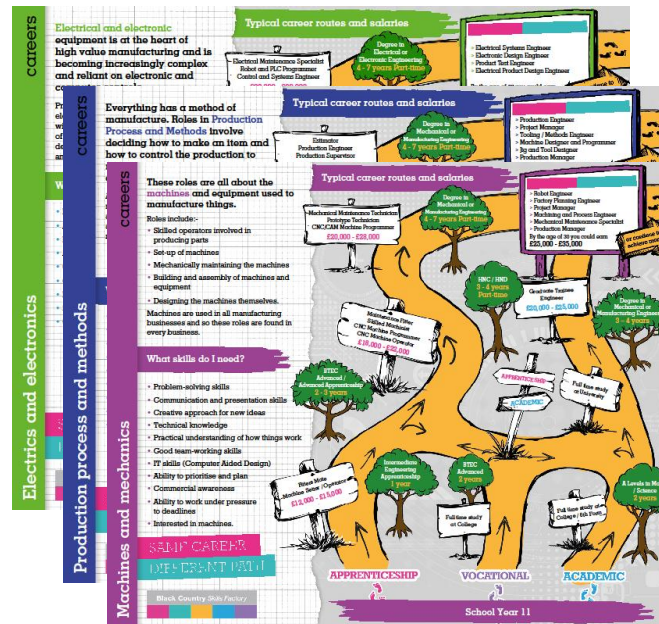
By the age of 30 you could be earning **£35,000**

For further information about a career in HVM, contact us online and ask for one of our 'career wheels', or speak to your careers advisor to help you decide the route you should take.

www.blackcountryskillsfactory.co.uk/contact-us

@BCSkillsFactory

Black Country Skills Factory

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Detailed typical career paths with real case studies

Career Pathways into High Value Manufacturing

Fancy earning serious money in an industry with loads of upward lift for you?

TREMENDOUS BENEFITS FOR TODAY

NO FEELING OF BEING LEFT BEHIND

Choose your path

FUTURE

MANUFACTURE YOUR FUTURE

SOME CAREER DIFFERENT PATH

Download the app NOW!

www.manufactureyourfuture.co.uk

Career Wheel



**QUAD
RUN**

New App for HVM Careers (Jun 2014)

Careers website :- www.manufactureyourfuture.co.uk



Black Country *Skills Factory*



CONTACT DETAILS:

Skills Factory :- 01384 471160

Project Director

Colin Parker - 07944 268709

Colin_Parker@blackcountryconsortium.co.uk

www.blackcountryskillsfactory.co.uk

www.manufactureyourfuture.co.uk (careers)