

Textile Centre of Excellence | SHOW NEWS

Première Vision special edition, September 2012

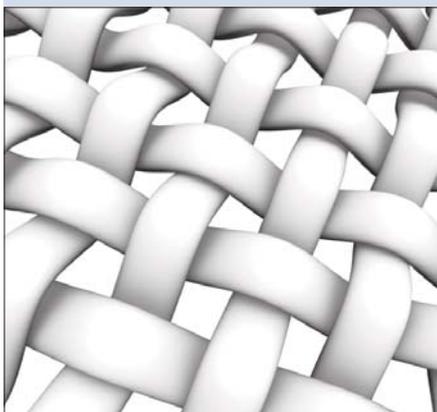
See us at
Hall 5
Stand 5C18

ABOUT THE TEXTILE CENTRE OF EXCELLENCE

The Huddersfield and District Textile Training Company was established in 1976 and in 1999 established the Textile Centre of Excellence, a £2 million development, providing a wide range of 'state of the art' textile and clothing research and development, training and production facilities including:

- a technical workshop;
- a research and product-testing laboratory;
- a fully-equipped clothing studio;
- the world's first 3D weaving machine;
- ground-breaking laser/plasma processing technology.

The Centre has more than 70 member companies. To learn more, go to www.textile-training.com



Anti-counterfeiting technology on show at Première Vision

The Textile Centre of Excellence (TCoE), Huddersfield, UK, is exhibiting for the first time at Première Vision to be held at the Paris Nord Villepinte Exhibition Centre on 19-21 September 2012.

The Centre will be launching its revolutionary anti-counterfeiting SigNature@ DNA technology, which provides a unique, uncopyable approach to brand protection and has been developed in partnership with Applied DNA Sciences, USA. The technology provides forensic evidence that is recognised by law enforcement agencies.

Previewed for the first time will be the Centre's Textile Innovation Knowledge Platform website ahead of its official launch and live webinar in October 2012, which will feature key 'technical textiles' to be presented by Professor Carl Lawrence of the University of Leeds, UK.

The webinar will introduce a range of key subjects in the field of 'technical textiles' and give users a tour of the site and

information on the available training options.

The site is available to preview now and users are able to register for the free live webinar at www.tikp.co.uk

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To learn more about the Textile Centre of Excellence, go to www.textile-training.com

SigNature DNA

Unique. Uncopyable. Uncompromising.

Let's start a revolution...

The timeless, personal signature of your life exists purely in your deoxyribonucleic acid (DNA). This genetic code, which is written into each cell of your body, makes you uniquely you. And no one can take that away from you.

Therein lies the solution to one of the greatest global threats to businesses, brands and the people who buy into them: black market counterfeit goods.

Given the escalating global scale of forgeries, fakes and copies, there is a critical need for suppliers, manufacturers, retailers and brand owners to have a means to determine the authenticity of their products by being able to assure the consumer that products throughout the supply chain are 100% genuine.

Finally, after years of research and development, the answer is here. It's not just evolutionary, it's revolutionary. It's called SigNature® DNA – the unique, uncopyable, uncompromising mark of authenticity to protect your brand and your customers.

Textiles – an easy target

Counterfeit textile and apparel items represent a significant and growing problem with many billions of euros worth of seizures and losses incurred in Europe, the USA and elsewhere around the world.

The four most counterfeited areas are:

- high-quality woven worsteds with selvedge;
- 'noble fibres', including cashmere;
- interior textiles;
- branded apparel and accessories ('knock-offs').

Counterfeiters use an identical or substantially identical mark on goods in order to pass them off as genuine (whether or not the purchaser is fooled by it). This is a serious problem that goes beyond fashion into other consumer goods, pharmaceuticals and even aviation components.

Protecting the fabric of our society

The strong reputation and popularity of designer labels and global brands make them an easy target for those looking to

profit from criminal activity. As a result, counterfeit merchandise is flooding into the market – sometimes mere hours after it debuts on the catwalk.

While clothing designs are generally not protectable by copyright law, a designer can protect components of its design, such as fabric and lace design, but with little protection offered under design, patent or trade law.

However, given the prevalence and ease of taking photos at fashion shows, sending them to overseas factories to make fakes and selling quickly via the internet, monitoring and enforcement can be very difficult, if not impossible.

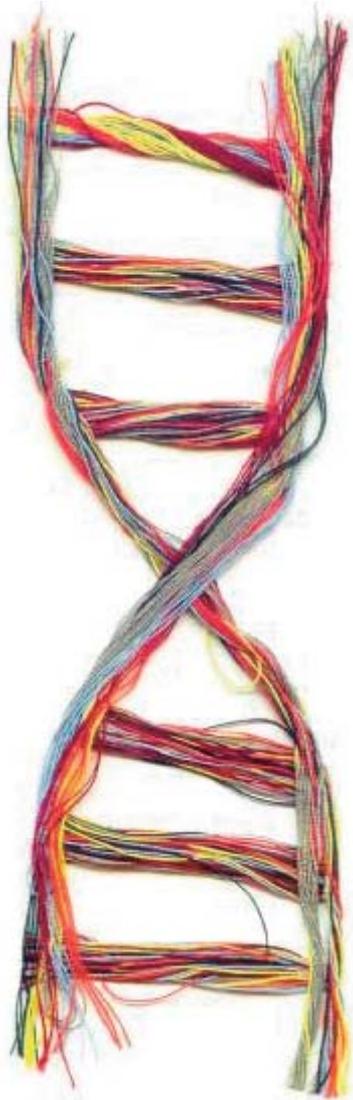
The need for a 'fits all' solution

For the textile and apparel industry, more advanced, covert methods that cannot be copied or digitally reproduced are needed. With the development of SigNature DNA, we have created the solution – a solution as unique as your own DNA or fingerprint.

SIGNATURE DNA USPs

SigNature DNA markers can protect the textile, apparel and accessory sectors against counterfeiting, aid supply chain management and provide product verification – essentially proving that yours is the authentic article. Its unique selling points (USPs) are:

- eco-friendly 'green' technology based on plant DNA
- anti-counterfeit protection that cannot be copied, viewed under a microscope or re-created
- forensic proof of authenticity
- totally reliable, affordable and accessible
- invisible to the human eye and touch, so it will not affect the quality, feel or fit of a garment
- no major changes to the manufacturing process or logistics chain required
- bespoke solutions that are chemically compatible in a wide range of applications
- stable and persistent, even in extreme conditions
- cost-effective and applied in low concentrations
- instantly detectable with a hand-held device so it can be tracked, traced and forensically authenticated
- can be layered with other security measures, including bar-codes, holograms and radio-frequency identification (RFID)



Unique

When impregnated into the fabric of any product, our unique SigNature DNA code created from modified, natural plant DNA provides guaranteed anti-counterfeit protection for textile, apparel and other goods to aid supply chain management and product verification.

It is the only anti-counterfeit technology that provides forensic evidence – laboratory evidence that can be presented in a court of law, backed by an expert witness statement – that criminal prosecution services will accept.

Uncopyable

By using the DNA from plants to mark and authenticate products in a unique manner, SigNature DNA essentially cannot be copied; it covertly marks products, identifies points of origin and provides information throughout the supply chain.

This offers our industry a unique and powerful means to authenticate originality. Yarn, wool, fabric and other materials marked with SigNature DNA can easily prove their origins, providing the ultimate

protection for customer safety, brands and revenues.

Uncompromising

SigNature DNA markers provide the ultimate in forensic power and protection for a wide array of applications. Highly secure, robust, durable and cost-effective, SigNature DNA markers can be used to fortify brand protection efforts; mark, track, trace and help to convict criminals; and strengthen supply chain security.

Why DNA?

DNA provides the blueprint for all of life on the planet. With a capacity for content that is often compared to computer machine code, the information content that DNA is capable of storing is massive, highly customised and capable of fitting into infinitesimally small spaces on any surface, finish, material or application.

Forensic technology for fabric

With stringent detection methods that readily identify single molecules of a unique sequence – a detectability that will never be matched by any chemical or physical assay – DNA has become the 'gold standard' of forensics.

Challenged by courts around the globe since 1980, it is the ultimate proof of identity. Used by forensic laboratories worldwide, including the FBI, DNA authentication is absolute in character.

When used to identify individuals or to establish paternity, the error frequency for false positives is less than one in a trillion.

Impregnated into textiles, apparel and luxury designer labels, there can be no doubt of manufacturer, producer, supplier or brand. DNA is absolute.

Cutting edge technology

For textile and apparel products, the primary method of impregnation is undertaken by treating yarn or fabric with water or a lubricant that contains a unique DNA sequence.

We have perfected the process at the Textile Centre of Excellence in Huddersfield, using standard industry machinery such as a lick roller on a standard winding machine – making it both convenient and cost-effective.

Services and support

All processes can be carried out via your existing production or processing operation or by the Centre.

And if you require assistance in prosecuting counterfeiters, our expert laboratory team can work with you at each stage of the proceedings, undertaking laboratory tests, providing advice and expert witness statements.

FACTS AND FIGURES

- In November 2009, the Organisation for Economic Co-operation and Development (OECD) estimated that the share of counterfeit and pirated goods in world trade had increased from 1.85% in 2000 to 1.95% – an increase to US\$250 billion worldwide.
- More recent forecasts from the OECD predict the global counterfeiting losses will now reach US\$1.7 trillion by 2015.
- Counterfeit goods entering the European market in the past year have increased by 900% (source: BBC News, 8 August 2010).
- Counterfeit medications kill an estimated 100,000 people a year and costs the pharmaceutical industry an estimated US\$600 billion in global trade (source: FBI).
- 30% of pharmaceuticals in developing countries have been identified as fake (source: World Health Organization).
- Food counterfeiting and piracy is a serious threat in Europe; according to the EU's Taxation and Customs Commissioner, 'a secret wave of dangerous fakes is threatening the people in Europe'.
- In 2005, EU customs seized more than 75 million counterfeited and pirated goods, including food, alcohol products, drink and other goods.
- Counterfeit electronic parts are 'flooding' into critical US military systems, including special operations helicopters and surveillance planes (source: US Senate committee report, 2012); companies take discarded electronic parts from other countries, remove any identifying marks, wash and refurbish them, and then resell them as brand new – 'a practice that poses a significant risk to the performance of US military systems'.



Live webinar launch for Textile Innovation Knowledge Platform

FOR INDUSTRY

The TIKP site provides information on:

- regulations and standards
- labelling
- technology updates
- market information
- news

FOR EDUCATION

The TIKP site provides:

- a comprehensive 'knowledge area' explaining the use of and science behind textile materials and their functionalities, with pictures, diagrams and videos
- a range of links aimed across the learning levels to support knowledge transfer
- a 'Skills and Education' area providing information on and access to a range of training courses
- an interactive Question and Answer Forum.

The TIKP site also provides a virtual learning environment to support flexible learning in key technical textiles subject areas.

The Textile Centre of Excellence will launch its Textile Innovation Knowledge Platform (TIKP) website in October 2012 with a live webinar hosted by Professor Carl Lawrence of the University of Leeds, UK.

The webinar will introduce a range of key subjects in the field of 'technical textiles' and give users a tour of the site and information on the available training options. The site is available to preview now and users are able to register for the free live webinar at www.tikp.co.uk

The TIKP is a new interactive resource of information and intelligence for the growing field of technical textiles, serving both industrial and educational audiences with an online resource to support innovation and learning.

Technical textiles

Technical textiles are materials and products manufactured primarily for their technical performance properties rather than for their aesthetic or decorative characteristics¹.

The demand shift from aesthetics to performance requires new approaches to developing products to meet functional specifications.

Today's industry is shifting towards knowledge-intensive products and demand for innovative high-tech materials with special properties and added functions².

Visit us at www.tikp.co.uk

Register now for the free live webinar, post your comments on the noticeboard and provide your site feedback

The EU textile and clothing sector is an industry based on small and medium-sized enterprises (SMEs) as companies of less than 50 employees account for more than 90% of the workforce and produce almost 60% of the value added³.

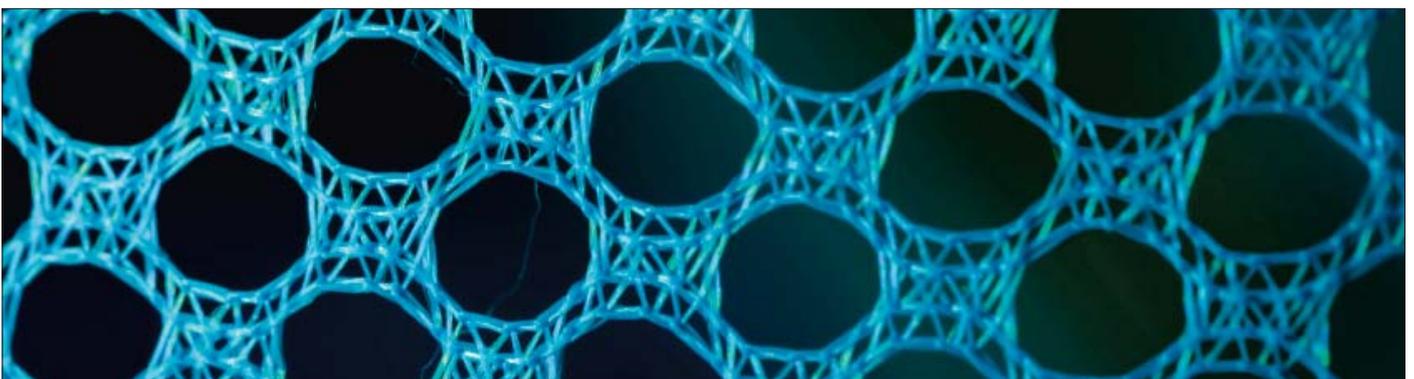
The TIKP provides a range of tools to inform and signpost a range of topics relevant to the technical textiles industry.

The increase in 'smart' textile technology represents a crossover where different technologies require increased collaboration and knowledge sharing and communication between practitioners from relevant areas of expertise⁴.

User participation

The TIKP site's interactive noticeboard and promotion of user participation, with items such as news stories and guest blogs, will support increased collaboration and knowledge transfer.

As the focus of innovation shifts to meet new challenges or consumer demands,





<http://twitter.com/TextileCentre>



<http://www.facebook.com/TextileCentreofExcellence>

the site aims to bring current information to its users on the developments of new technologies, policy initiatives and product launches. Its main aims are:

- informing and signposting;
- promoting knowledge sharing and supporting collaboration;
- educating.

Knowledge

The site contains knowledge sections covering:

- materials;
- materials functionalities;
- market sectors;
- technologies.

The platform provides a first stop offering an informative guide to new product

possibilities. It delivers statistical data on market sectors and informative guides on how materials are currently being used, as well as the basic scientific principles behind material functionality, regulations and test standards.

Features

The TIKP sites features:

- no information duplication – direct links to specialist sites;
- information databases on publications and journals, exhibitions, conferences and seminars;
- an interactive live noticeboard.

References

- ¹ The Textile Institute Terms and Definitions
- ² Nierstrasz, V A, 2009. Enzyme surface modification of textiles. In: Wei, Q, 2009. Surface modification of textiles. Cambridge: Woodhead Publishing, pp.139-163.
- ³ http://ec.europa.eu/enterprise/sectors/textiles/single-market/eu27/index_en.htm
- ⁴ McCann, J, 2009. End-user based design of innovative smart clothing. In: McCann, J, Bryson, D, 2009. Smart clothes and wearable technology. Cambridge: Woodhead publishing, pp.45-69.

KNOWLEDGE AREAS AVAILABLE ON THE SITE

Technologies

- advanced technologies
- coating and lamination
- weaving
- knitting
- nonwovens

Materials functionalities

- antimicrobials
- flame and heat resistance
- UV resistance
- stain resistance
- breathability
- conductivity
- antistatic
- biodegradable
- bio-absorbable
- pill resistance
- crease resistance
- luminescence

Materials

- fibres
- smart materials
- softeners
- dyes and pigments

Market sectors

- automotive
- aerospace
- medical and hygiene
- construction
- interiors
- technical apparel
- personal protective equipment (PPE)
- geotextiles
- sports and leisure
- agriculture and horticulture
- filtration
- general engineering
- packaging

For details about advertising on the TIKP website, please contact Judy Holland, Textile Media Services, UK. Tel: +44 1603 308158. E-mail: jholland@textilemedia.com

Multiple Laser Surface ENHANCEMENT

The Multiple Laser Surface Enhancement (MLSE) process has the potential to revolutionise the textile processing industry across Europe.

MLSE produces technically superior products and significantly reduces the environmental impact of materials processing in a sector that traditionally uses high levels of water, energy and chemicals.

Expert analysis of the unique MLSE process suggests the following reductions can be achieved:

- greenhouse gas reduction over baseline of 90.9%;
- resource (chemical) use reduced by 94.8%;
- water consumption reduced by 75.5%;
- energy consumption reduced by 90.9%.

MLSE is a dry process, carried out at atmospheric pressures using safe, inert gases (nitrogen, oxygen, argon and carbon dioxide). The combination of plasma and photonic energy creates material synthesis in the surface of a substrate.

The MLSE process can be used for material cleaning and performance enhancements, including low-temperature dyeing, water-proofing, and fire retardant and antimicrobial treatments.

Patented and licensed

The process, which operates at up to 20 metres a minute, has been fully patented

and licensed. The technology can be integrated into an existing process line as a 'modular' unit, operating at the speed of the existing process, using the same materials handling system, or as an additional, stand-alone unit.

MLSE offers companies opportunities to increase their market share and to process products that have previously been processed offshore owing to the restrictions operating across the EU regarding chemical usage.

Technology

MLSE is an example of technology transfer between industries, which has facilitated a leading-edge development in both the processing and the performance of textiles.

The use of photonics and plasma in a controlled vacuum environment of gases and sol-gels has long been established, particularly for the production of electronic components and metallic and non-textile polymeric substrates.

The unique feature of MLSE technology is the combination of combining energy sources in a controlled atmospheric environment in the presence of a material substrate. The net result is conversion and material synthesis in, or optionally on, the surface of the substrate.

MLSE technology works through the

creation of high-frequency radio-frequency (RF) plasma in an envelope between rotating and driven rollers that extends across the width of the processing window. The plasma field generated has the unique benefit of operating at atmospheric pressures.

A high-power ultraviolet (UV) laser is shaped into a rectangular cross-section that has a consistent power density over its entire length of more than 2 metres. Sophisticated optics deflect the laser beam into the plasma zone.

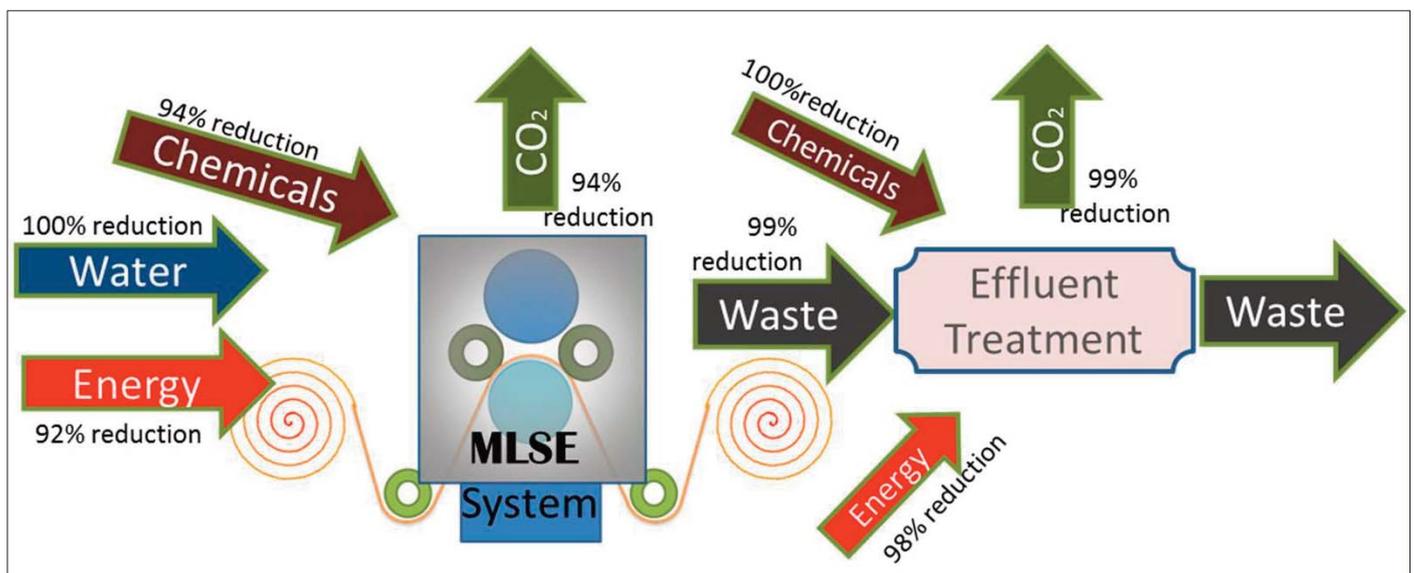
A gas delivery system is able to combine any combination of four environmental gases into a single feed that populates the plasma chamber.

The fourth element is the sol-gel delivery system, which is capable of applying a thin, consistent layer of precursors or process accelerants to the fabric, either pre- or post-processing.

Changing the power intensity and laser pulse profiles of the laser and the plasma, and then varying the environmental gases or the addition of precursors (i.e. changing the 'recipe') will allow the MLSE system to generate the wide variety of process applications.

Competitive systems

In recent years the textile industry has embraced several technological advances



Environmental benefits of the MLSE technology (based on fire retardancy treatment for textiles)



The Multiple Laser Surface Enhancement (MLSE) system

that have provided the performance enhancements described above.

In all cases to date, treatments have involved coating systems, such as conventional spray, lick roller and vacuum physical vapour deposition processes, whereby a film is laid onto the textile to impart the necessary technical characteristics.

Most waterproofing and stain resistance has been achieved with Teflon-based finishes, using heat to set the finished treatment. As this process is a coating, cleaning of finished fabric causes degradation and ultimately the elimination of the required property.

Fire retardancy and antimicrobial treatments are complex and costly and again rely primarily on treatments, using multi-stage wet and heated processes.

Development work

There has been substantial academic and industry development work utilising plasma over recent years, with the best re-

sults being achieved using vacuum-based plasma systems for batch processing.

Some success has also been reported from Porton Down, the UK Ministry of Defence Development Centre, where plasma and fluorocarbon materials have been utilised to impart waterproofing treatments to a variety of fabrics.

However, the process has not been adopted appreciably by the industry. (The MLSE process uses plasma and laser energies together, which allows synthesis onto the surface within atmospheric conditions.)

UV lasers have been used by some researchers to investigate their effect on surface structure and functionality, but much has remained at the 'laboratory bench' level of curiosity. Other developments include the use of infrared lasers for textile cutting and textile marking and UV systems, which have been utilised for cleaning water and effluent.

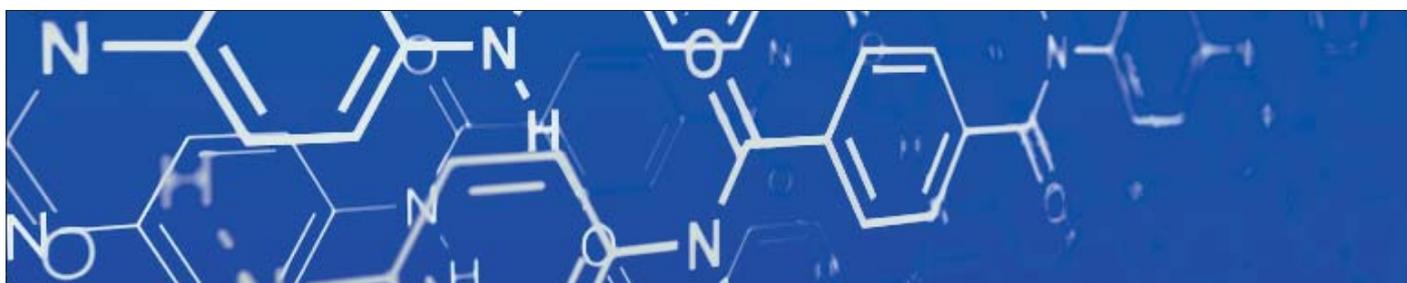
While this latter process has been used for cleaning sheet materials in paper, polymeric materials and metallic sheets, there do not appear to be any documented results of tests on its application on textiles to the level currently being demonstrated by the MLSE process.

Prior to commissioning the development of the MLSE prototype system, the Textile Centre of Excellence (TCoE) commissioned an extensive work programme to review the state of the art in textile processing.

This concluded that the MLSE technology was both innovative and unique, and that the patent protection it enjoyed was both significant and strong.

Worldwide exclusivity

Through a development contract with the technology provider, the TCoE has secured worldwide exclusivity on the use of the MLSE technology in textile applications until 2019.



Training and Development at the Textile Centre of Excellence

Training and development forms a key part of the Textile Centre of Excellence's offer, providing businesses and individuals with opportunities to participate in a wide range of industry-related programmes.

Our expert team of trainers, tutors and assessors can help you find the right course, delivered on a flexible basis and to a high standard, helping you to get the most out of your training. We also have comprehensive access to training and research grants.

Our portfolio includes training that can be delivered at a subsidised cost through government-funded initiatives. We also regularly secure funding for businesses and individuals.

Even if your search for training is purely speculative, register your interest now to ensure you can take full advantage of financial support at the appropriate time. Our mission is to provide an excellent training service that meets client need.

Vocational training

We offer traditional, knowledge-based, classroom training combined with work-based vocational training.

The National Vocational Qualifications (NVQs) offered at the Centre cover such subjects as manufacturing textile products, apparel, print operations, customer service, business administration, information and communications technology (ICT), management, team leading, retail, enterprise, distribution and warehousing. Most programmes are available at levels 2 and 3, with some programmes available at level 4.

Apprenticeships

The Centre operates as a group training organisation for Fashion & Textiles. Apprenticeships, offered at levels 2, 3 and 4, allow learners to undertake work-based training while in employment and give students an important start in the sector.

The structure of our programmes has been designed to take into account specific industry requirements and client needs. We deliver a blend of knowledge-based teaching and vocational competence in the workplace with dedicated assessment throughout to ensure students know the fundamental aspects of general textile technology.

New: Level 4 Diploma in Textiles and Apparel (Technical Textiles)

The Centre is proud to announce that from 1 September 2012, we will launch the very first level 4 vocational qualification in technical textiles.

The Centre led the development of this new qualification based on evidence of demand from the industry following our dedicated consultation phase.

Working with the Sector Skills Council (Creative Skillset), ABC Awards and the North West Textile Network (NWtexnet), we are excited about the launch, which contains two framework pathways: technical textiles and product development/sourcing.

Modules have been developed by the Centre to cover the key areas of technical textile applications and functionality, such as fibres and technical textiles, fire and heat resistance, stain resistance, UV resistance and treatments, antimicrobial tex-

tile applications, fabric wear and durability, breathability, antistatic and conductive textiles, biodegradable textiles, outsourcing manufacturing, strategic marketing, managing intellectual property and global business management.

Commercial

Commercial training services, courses and consultancy are available throughout the year. This includes services in:

- Health and safety
- ICT
- Management
- Team leading
- Transport
- NEBOSH
- IOSH
- First aid
- Fork lift truck
- CoSHH
- Fire risk assessment
- Fire marshal
- Occupational health screening
- Safety audit
- Noise surveys
- Dust and air sampling
- LEV testing
- other services upon request.

Further information

We would be happy to discuss training needs with you, so if you would like further information on any of our training services, please do not hesitate to contact: Martin Jenkins, Training Team Manager, Textile House, Red Doles Lane, Huddersfield, HD2 1YF. Tel: +44 1484 346500, email: martinjenkins@textile-training.com or visit www.textile-training.com



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