

TTNA Industry Training Program

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Over the last twenty years, the labour market and industry skills needs have undergone unprecedented change as a result of a wide range of factors including globalisation and technological change.

There is little doubt that education and training play a significant role in assisting the technical textiles and nonwoven industry to meet the challenges faced by manufacturing.

The TTNA closely examines emerging needs in order that management and workforce skills match these changes in business operations and systems. For the future, the industry requires a rising number of skilled workers who are able to cover broad areas of employment with the support of flexible training. To this end, the TTNA in collaboration with the International Fibre Centre, CSIRO, Manufacturing Skills Australia and RMIT have developed the following program of workshops and courses.

The Nonwovens Basics Program: two-day training program

Covering nonwovens technologies and markets, this program is aimed at personnel who purchase, use or specify nonwovens or those who are considering nonwovens applications. Topics include raw material for nonwovens, web forming and bonding technologies, conversion and finishing technologies, test methods, applications and environmental issues.

The Nonwovens Product Development Workshop: three-day intensive program

Combining class work, lectures and hands on practice this program covers the entire nonwoven product development process. In small teams, participants develop a new product from design to product testing. They learn to select the correct fibre and process combination to achieve the desired results. Participants learn about all factors in fabric design for the medical, filtration, home furnishings, consumer and wipes markets including market need, product design, material selection, finishing, cost, performance testing.

The above two units are designed to educate nonwoven industry personnel and supply chain partners on nonwoven technologies and end-use applications. The second workshop expands upon the curriculum of the first and is aimed at personnel who work directly with nonwovens manufacturing.

Fibre, Yarn, Textile and Apparel Tests Course: two day course

This course features the latest developments in tests and testing methods for fibres and yarns (natural and synthetic) and textiles for both apparel and technical textile end uses. Held at CSIRO's world class Textile and Fibre Technology facilities in Geelong, it includes lectures, testing demonstrations using world class equipment and discussions on the results and a tour of the NATA accredited laboratory.

Participants come away with an understanding of how international standards add value to a product through marketability and technological competitiveness. The course includes lectures and a tour of the textile testing laboratory and all participants receive a manual for future reference. Themes addressed include:

- The Value of Standards and Quality
- Advances and Changes in Standard Test Methods
- Testing of Durability, Weatherability, Flammability, Colour Fastness, Dimensional Stability
- Yarn, & Protective Clothing
- Apparel Performance Fabrics
- The Changing Textile Market Test Equipment
- Occupational Health & Safety

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Carding: Theory and Practice in the Work Place

This workplace training program includes workplace lectures on carding theory, including:

- transfer efficiencies between rollers
- card wire types, choice and impact
- effects of fibre parameters - diameter, length, crimp, friction etc.
- card design comparisons
- demonstration of computer model

The Carding Practice element involves practical demonstrations of theory on companies' own equipment. Using various coloured fibres, video cameras (including high speed video), and the variation of various relevant carding parameters and fibre types, the effects of various carding parameters is demonstrated and visualised on the carding equipment within each factory. Systematic problem solving techniques are included. The course is tailored to each company's products and problems, including a day spent by the course developer with the company prior to the course for this purpose.

The Coatings & Laminates Program (including the Mechanics of Adhesion): 3 day program

Used in almost all end use textile applications including, but not limited to, automotive, medical, filtration, interiors and functional and fashion apparel, coatings and laminates are in increasing demand.

Suitable for textile and apparel industry personnel, the program will deliver information to transform and enhance natural, synthetic and blended textiles to create functional properties for a competitive edge.

Personnel from all sectors of the textile industry are urged to attend!

Course content will cover all aspects of the application of chemicals used in:

- Water and oil repellency
- Water/air/wind proofness
- Protection against sunlight
- Flame retardation
- Anti microbial
- Optical effects (metallic, glitter, wash-out effects)
- Improving the properties of the base material (seam slippage, anti-fraying, rub fastness, pile fixation)
- Flocking, drying and various techniques used for lamination
- Process drying

The knowledge gained by participants will:

- Promote innovation in current textile manufacturing processes
- Encourage novel uses of fibre, yarn and textile manufacturing technologies
- Facilitate development of new markets for fibre, yarn and textile products

CSIRO's experts in adhesion present the optional day of lectures on "The Mechanics of Adhesion", including information on Mechanical, Chemical, Dispersive, Electrostatic and Diffusive adhesives.

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The TTNA participates in the Manufacturing Skills Australia Industry Advisory Committee (MSA-IAC) in order to contribute to the VET system for the betterment of the Australian technical textiles and nonwoven industry.

Controlling the Fibre Orientation in Nonwoven Technology

This two day program provides existing industry personnel with the latest skills, knowledge and technologies required to specify and ultimately control fibre orientation in nonwoven manufacturing, enabling a competitive advantage. Themes include:

- Fibre alignment and materials rheology
- Materials characterization and mechanical properties obtained through fibre orientation
- Specification and selection of Card Wire for specific Non Woven applications
- The advent of Sirolock and its application in both technical textiles and non woven applications
- Needle punching woven upholstery cloth felting needle wear and rotation
- Needle designs and their effect on the needled nonwoven
- Needled structures in automotive applications
- Barb kick-up; how much is enough?
- Why do needles break?
- Needle selection as it pertains to fibre type
- Fibre Blending
- The need for fibre opening pre Blending
- The carding process
- Carding design for specific non woven applications

The New Technical Textiles & Nonwovens Qualification Framework

The technical textiles and nonwoven industry qualifications framework developed through this union is included in the TCF Training Package LMT00 Version 2. This framework includes units of competency from current training package qualifications and new units written specifically for technical textiles & nonwovens:

LMTTN2001A	Set up and operate a dry laid web forming machine
LMTTN2002A	Set up and operate a spun bond web forming machine
LMTTN2003A	Use basic recognition techniques to identify technical and nonwoven textiles
LMTTN2004A	Undertake web bonding processes
LMTTN2005A	Undertake web conversion and finishing
LMTTN2006A	Identify purpose and performance outcomes of technical textile product
LMTTN2007A	Conduct technical textile mechanical finishing processes
LMTTN2008A	Conduct heat setting on technical textiles
LMTTN2009A	Apply surface coating to technical textiles
LMTTN2010A	Apply laminations and fusible interlinings to technical textiles
LMTTN2011A	Undertake fibre blending and feeding for nonwoven technical production processes

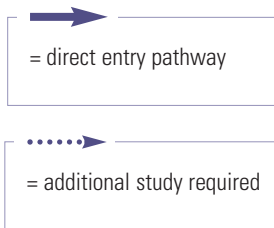
Also included in this qualification framework is a series of newly endorsed units from the Competitive Manufacturing Training Package MCM04. These units cover lean, agile and other modern manufacturing practices and principles which are common across all manufacturing. They are singled out for inclusion in this qualification framework due to their strong relevance for application in technical textile and nonwoven production.



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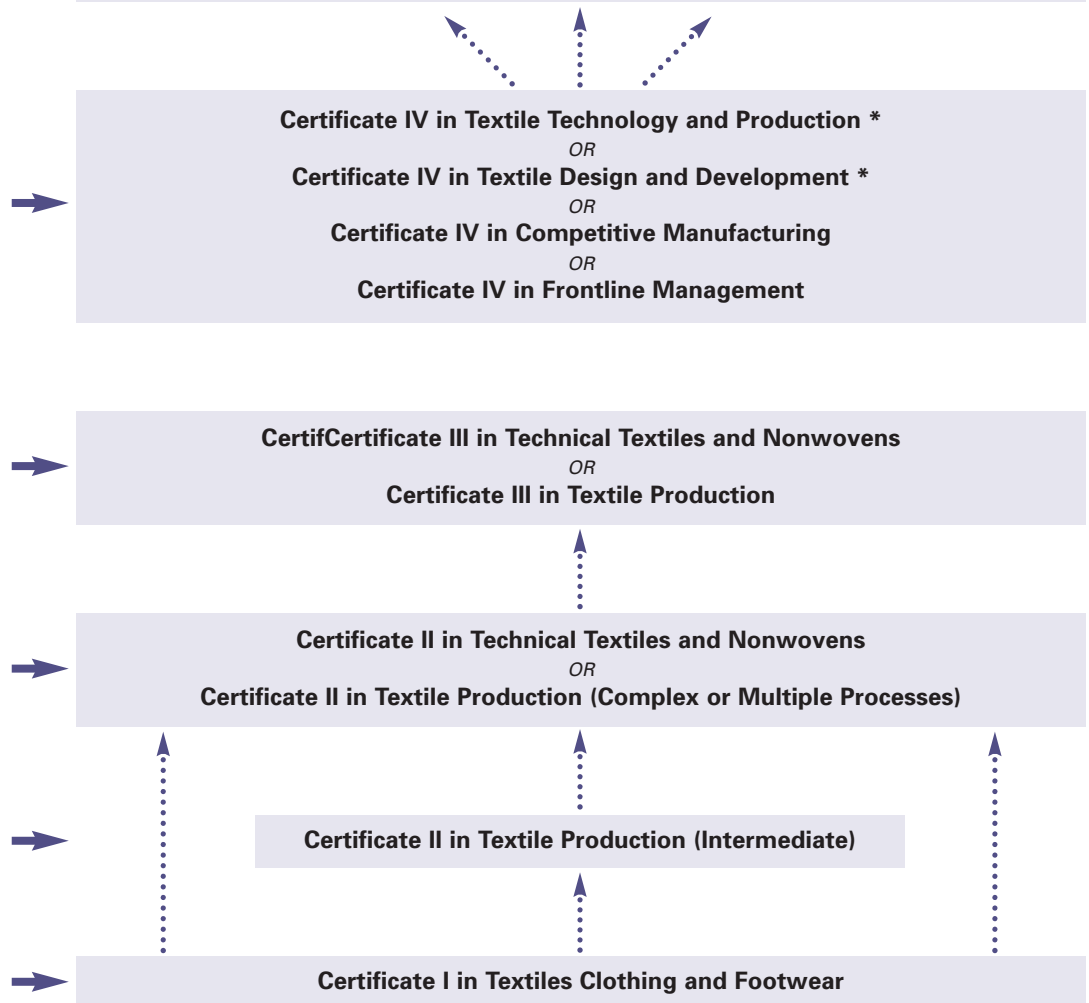
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The Technical Textiles and Nonwoven qualifications framework



Further appropriate qualifications for those working in the technical textiles and nonwovens industries include:

- **Diploma of Textile Design and Development ***
- **Advanced Diploma of Textile Design and Development ***
- **Diploma of Textile Technology and Production ***
- **Diploma of Competitive Manufacturing**
- **Advanced Diploma of Competitive Manufacturing**
- **Diploma of Frontline Management**
- **Advanced Diploma of Frontline Management**



A higher skill set is required to meet the challenge of producing higher value-added products more efficiently, and at a higher quality. The objective of industry is to increase the value-added potential of the workforce in order to help reduce manufacturing costs, thereby fortifying a competitive advantage. MSA - Data & Information Project: Technical and Nonwoven Textiles, July 2006