

SSNST02 Technical Textile Designer

1. Job role

TCF sub-sector	Natural and Synthetic Textile Manufacturing
Functional area	Technical Product Development
Job role	SSNST02 Technical Textile Designer
Job role description	Develops and designs functional, performance-oriented yarns, fabrics and textile systems within the natural and synthetic textile manufacturing sector of the Textile, Clothing and Footwear (TCF) industry. This role is identified as a core occupation within the Technical Product Development function of the Natural and Synthetic Textile Manufacturing Occupational Framework. The Technical Textile Designer combines creative textile design capability with engineering, materials science and textile technology principles to create technically advanced textile products for commercial, industrial and specialised applications. The role focuses on developing textile products and material systems that deliver specific performance outcomes such as durability, breathability, thermal regulation, strength, abrasion resistance, flexibility, water resistance, UV stability, flame retardancy, antimicrobial functionality, sustainability and advanced functional behaviour. The Technical Textile Designer works across the full textile development lifecycle from concept development and textile specification through yarn engineering, fabric construction, testing, prototyping, production trials and commercial implementation. The role requires detailed understanding of fibre science, yarn technology, fabric engineering, textile chemistry, colouration, coatings, laminations, finishing systems and advanced material performance. The position supports the development of products for sectors including apparel textiles, technical textiles, industrial textiles, automotive textiles, furnishing fabrics, medical textiles, protective systems, sports and performance textiles, composites and advanced textile manufacturing. The role works closely with textile technologists, product developers, laboratory technicians, production teams, machinery specialists, CAD technicians, suppliers, quality specialists and commercial teams to ensure developed materials are aesthetically suitable, technically compliant, manufacturable and commercially viable.

	The Technical Textile Designer also contributes to innovation programs, sustainable material development, advanced fibre research and continuous improvement activities supporting competitiveness and capability development within Australian textile manufacturing.
Performance expectations	• Designing technically functional and commercially viable textile products and systems • Ensuring textile designs meet performance, durability and compliance requirements • Applying standards industry design software packages. • Supporting efficient transition from concept development to production implementation • Coordinating effectively with technical, production and commercial stakeholders • Producing accurate textile specifications, development documentation and technical records • Supporting testing, prototyping and textile validation activities • Integrating sustainability and innovation principles into textile design solutions • Minimising technical design failures, development delays and production inefficiencies • Supporting competitiveness and innovation within textile manufacturing
Specialisation	Technical textile design, yarn engineering, textile performance systems, fabric construction, textile chemistry, advanced materials development and sustainable textile innovation
Application in other TCF sectors	Technical textiles, industrial textiles, furnishing textiles, automotive textiles, medical textiles, defence textiles, sports and performance textiles, composites and advanced material manufacturing

2. Key tasks and critical work functions

Key tasks	• Designing yarns, fabrics and technical textile systems for functional performance outcomes • Selecting fibres, yarn structures, constructions and finishing systems appropriate to product requirements • Developing woven, knitted, braided and nonwoven textile constructions • Preparing textile specifications, colour standards and technical documentation • Coordinating textile sampling, prototyping and trial production activities • Supporting textile testing, validation and performance analysis • Liaising with suppliers, production teams and commercial stakeholders regarding textile development requirements • Reviewing compliance against customer, regulatory and technical standards • Supporting sustainability, fibre innovation and advanced material development initiatives • Contributing to continuous improvement and textile innovation programs
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Critical work functions	• Ensuring textile products achieve required functional and aesthetic outcomes • Maintaining alignment between textile design concepts and manufacturing capability • Supporting durability, performance and compliance requirements across textile products • Preventing technical failures, material incompatibilities and quality issues • Supporting efficient scale-up from textile development into production • Maintaining specification accuracy and technical traceability • Supporting competitiveness and innovation within textile manufacturing • Contributing to sustainability and advanced materials capability development
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3. Technical skills

Technical textile design	Developing functional yarns, fabrics and textile systems using relevant software packages as required
Fibre and yarn engineering	Understanding natural and synthetic fibre properties and yarn structures
Fabric construction	Designing woven, knitted, braided and nonwoven textile structures
Textile chemistry	Applying dyeing, coating, lamination and finishing knowledge
Performance specification	Designing textiles for strength, breathability, durability and functionality
Testing and validation	Supporting textile performance evaluation and analysis
Standards compliance	Applying customer, regulatory and industry requirements
Documentation management	Maintaining technical specifications, samples and development records

4. Generic Skills

Creative problem solving	Developing innovative textile solutions for functional requirements
Communication	Coordinating with technical, production and commercial teams
Analytical thinking	Evaluating textile performance and technical feasibility
Teamwork	Working across multidisciplinary textile development environments
Time management	Managing development schedules and project timelines
Attention to detail	Maintaining specification accuracy and quality consistency
Adaptability	Responding to changing market, technical and sustainability requirements
Professionalism	Maintaining compliance, quality and technical integrity

5. Emerging skills

Emerging skills	• Smart and responsive textile systems • Sustainable and circular textile material development • Advanced composite and hybrid textile technologies • Digital textile simulation and virtual prototyping systems • Functional coatings, conductive textiles and wearable technologies • Industry 4.0 integration in textile development and manufacturing
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6. VET Qualifications and Skill Sets

Entry-level preparation	MST40122 Certificate IV in Textile Design and Technology or equivalent
Advanced development	MST50122 Diploma of Apparel, Fashion and Textiles or equivalent or bachelor's degree in Textile Design, Textile Engineering, Materials Engineering or Product Development

7. Job progression

Possible job progression	Textile Design Assistant → Technical Textile Designer → Senior Technical Textile Designer → Product Development Manager → Innovation or Technical Director
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8. Classification

Australian Qualifications Framework	Level 5-7
Australian Bureau of Statistics (ABS) Skill Levels	Skill Level 1-2
Open Source Classification of Occupations for Australia (OSCA)	Technical Textile Designer - Natural and Synthetic Textile Manufacturing



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