

SSCAR12 Product Development Technologist

Disclaimer

These Occupational Frameworks and Skill Profiles have been developed as workforce planning, occupational mapping and skills reference resources for the Australian textile, clothing and footwear (TCF) industry. They are intended to describe the typical functions, responsibilities, skills and capabilities associated with occupations across the industry.

These documents are not intended to replace or override industrial instruments or employment arrangements, including awards, enterprise agreements, employment contracts, position descriptions, classification structures, licensing or regulatory requirements, or other statutory obligations. Where differences arise, the relevant industrial, legislative or regulatory requirements take precedence. The Skill Profiles should be used as complementary reference documents to support workforce planning, career development, training and skills recognition.

1. Job role

TCF sub-sector	Carpet and Textile Floor Covering Manufacturing
Functional area	Product Design and Development
Job role	SSCAR12 Product Development Technologist
Job role description	Leads the technical development of carpet products from concept through to commercial production, ensuring designs are manufacturable, compliant and meet performance, cost and sustainability targets. In Australia's carpet manufacturing industry, the Product Development Technologist integrates design intent with manufacturing capability across tufting, backing/coating and finishing processes. The role defines specifications, trials materials and processes, and validates performance through testing and pilot runs. Working closely with design, R&D, production, quality and supply chain teams, the technologist ensures smooth scale-up from sample to full production, managing risks, timelines and documentation in a highly automated, quality-driven environment.
Performance expectations	- Delivering products that meet technical specifications and customer requirements. - Ensuring manufacturability and efficient scale-up to production. - Achieving targets for quality, cost, performance and sustainability. - Managing trials, validation and product approval processes. - Minimising development rework and time-to-market. - Maintaining accurate technical documentation and change control. - Collaborating effectively across functions and suppliers. - Complying with standards, safety and environmental requirements.

Specialisation	Tufted carpet constructions, backing systems, fibre/yarn selection, colour and pattern realisation, standards compliance (AS/ISO), sustainable materials.
Application in other sectors	• Textile and apparel product development. • Flooring and building materials. • Automotive interiors and technical textiles. • Industrial product development and process industries. • Any design-to-manufacture environment.

2. Key tasks and critical work functions

Key tasks	• Translating design concepts into technical specifications. • Selecting materials, including fibres, yarns, backings and coatings. • Planning and executing product trials and pilot runs. • Defining process parameters for tufting, coating and finishing operations. • Coordinating testing and validation activities, including performance and compliance requirements. • Managing bills of materials (BOMs), production routings and technical documentation. • Liaising with suppliers regarding materials, components and product requirements. • Implementing design changes and maintaining document and version control.
Critical work functions	• Ensuring products are manufacturable at required quality and cost. • Validating performance against standards and specifications. • Managing risk during scale-up from sample to production. • Maintaining configuration control and traceability. • Enabling efficient cross-functional collaboration. • Supporting on-time product launches. • Driving continuous improvement in product and process design.

3. Technical skills

Product specification	Developing detailed technical specs, BOMs and tolerances.
Materials selection	Selecting fibres, yarns, backings and coatings for performance.
Process integration	Aligning design with tufting, coating and finishing capabilities.
Trial design and execution	Planning pilots and interpreting results.
Standards and compliance	Applying AS/ISO methods and customer standards.
Quality and testing liaison	Coordinating lab and production testing.
Change control	Managing revisions, approvals and documentation.
Data and tools	Using computer-aided design (CAD), enterprise resource planning (ERP), manufacturing execution systems (MES) and data analysis tools.

4. Generic Skills

Analytical thinking	Evaluating trade-offs between cost, quality and performance.
Problem solving	Resolving development and scale-up issues.
Communication	Coordinating across design, production and suppliers.
Attention to detail	Maintaining accuracy in specifications and documentation.
Project coordination	Managing timelines, priorities and deliverables.
Collaboration	Working across multidisciplinary teams.
Adaptability	Responding to changing requirements and constraints.

5. Emerging skills

Emerging skills	• Sustainable materials and circular design principles. • Digital prototyping and simulation (e.g. virtual trials). • Integration with Industry 4.0 systems (MES/IoT). • Advanced coatings and backing technologies. • Data-driven optimisation and predictive performance modelling. • Lifecycle assessment and ESG-aligned product development.
-----------------	--

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 bachelor's program in product design or industrial design or equivalent bachelor's degree in Textile Technology, Materials Engineering, Product Development or related field.

7. Job progression

Possible job progression	CAD/Production Role → Product Development Technologist → Senior Technologist → Product Development Manager → Head of Product/Innovation.
--------------------------	--

8. Classification

Australian Qualifications Framework	Level 4-7.
Australian Bureau of Statistics (ABS) Skill Levels	Skill Level 1.
Open Source Classification of Occupations for Australia (OSCA)	242234 - Textile Designer



Skills Insight is a Jobs and Skills Council funded by the Australian Government Department of Employment and Workplace Relations.