

SSCAR12 Product Development Technologist

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 (fibres, yarns, backings, coatings) • Planning and executing product trials and pilot runs • Defining process parameters for tufting, coating and finishing • Coordinating testing and validation (performance, compliance) • Managing product BOMs, routings and documentation • Liaising with suppliers for materials and components • Implementing design changes and maintaining 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 CAD, ERP/MES and 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
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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 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
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8. Classification

Australian Qualifications Framework	Level 4-7
Australian Bureau of Statistics (ABS) Skill Levels	Skill Level 2-3
Open Source Classification of Occupations for Australia (OSCA)	Product Development Technologist / Materials Technologist - Manufacturing



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