

SSBIO11 Advanced Fabrication Technician

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	Biomedical Textiles
Functional area	Manufacturing – Biomaterials and Implantable Textile Products
Job role	SSBIO11 Advanced Fabrication Technician
Job role description	Performs advanced fabrication processes for biomaterials and implantable textile products, using specialised techniques and equipment to create high-performance medical-grade textile structures that meet stringent clinical and regulatory requirements. In the Australian biomedical textiles sector, this role is critical in the production of sophisticated products such as implantable meshes, scaffold structures, bioengineered textiles and advanced wound care materials. These products require precise fabrication methods that ensure structural integrity, biocompatibility, durability and consistency. The role involves applying advanced joining, bonding, forming and finishing techniques to textile and composite materials. It requires working within controlled environments and adhering to ISO 13485, TGA requirements and validated manufacturing processes. The technician collaborates closely with process engineers, R&D teams, cleanroom operators and quality assurance personnel to ensure that fabricated products meet exact design specifications, performance requirements and regulatory standards suitable for clinical and implantable applications.
Performance expectations	- Producing advanced textile and biomaterial structures to exact specifications - Applying specialised fabrication techniques with high precision - Maintaining integrity and performance of materials during fabrication - Minimising defects, inconsistencies and material waste

	- Ensuring compliance with validated processes and regulatory standards - Maintaining full traceability of materials and fabrication processes - Recording detailed production and quality data - Supporting continuous improvement and innovation in fabrication processes
Specialisation	Advanced textile fabrication, biomaterial processing, implantable textile structures, composite textile systems, precision bonding and forming
Application in other TCF sectors	- Medical device manufacturing - Biotechnology and biomaterials engineering - Aerospace and advanced composites manufacturing - Defence and high-performance textile systems - Research and development environments

2. Key tasks and critical work functions

Key tasks	- Performing advanced textile fabrication processes (bonding, welding, forming, layering) - Preparing and handling specialised biomaterials and technical textiles - Operating advanced fabrication equipment and tools - Producing complex textile structures and assemblies - Monitoring fabrication parameters and adjusting processes - Inspecting fabricated components for defects and compliance - Recording production data and maintaining traceability - Maintaining clean and controlled work environments - Collaborating with engineering and quality teams
Critical work functions	- Ensuring fabricated products meet clinical and structural performance requirements - Maintaining biocompatibility and integrity of implantable materials - Preventing contamination and defects during fabrication - Ensuring compliance with ISO and regulatory frameworks - Supporting innovation and development of new materials and processes - Maintaining traceability and documentation for audit and compliance - Ensuring repeatability and consistency in fabrication processes - Supporting safe and effective clinical use of final products

3. Technical skills

Advanced fabrication techniques	Applying bonding, ultrasonic welding, thermal forming and composite layering methods
Biomaterial processing	Handling and manipulating implantable and sensitive materials
Equipment operation	Using advanced fabrication machinery and tools
Process control	Monitoring and adjusting fabrication parameters
Material science knowledge	Understanding behaviour of technical and biomaterials

Quality inspection	Identifying defects and ensuring compliance
Documentation and traceability	Maintaining detailed production records
Regulatory compliance	Applying ISO 13485 and TGA requirements

4. Generic Skills

Attention to detail	Ensuring precision in fabrication processes
Communication	Working with engineering, R&D and production teams
Problem solving	Resolving fabrication and process issues
Teamwork	Supporting integrated technical operations
Time management	Meeting production and development timelines
Adaptability	Working with evolving technologies and materials
Professionalism	Maintaining compliance and high standards

5. Emerging skills

Emerging skills	• Advanced biomaterials and bioengineered textile systems • Automation and robotics in fabrication processes • Additive manufacturing and hybrid textile fabrication • Digital process control and data analytics • Nanotechnology and smart biomaterials • Sustainable and bio-based material innovations
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6. VET Qualifications and Skill Sets

Entry-level preparation	No qualification
Advanced development	Diploma or Degree in Biomedical Engineering, Materials Science, Textile Technology or Advanced Manufacturing

7. Job progression

Possible job progression	Fabrication Technician → Advanced Fabrications Technician → Senior Specialist → Process Engineer / R&D Technologist → Technical Manager
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8. Classification

Australian Qualifications Framework	Level 4-6
Australian Bureau of Statistics (ABS) Skill Levels	Skill Level 2-3
Open Source Classification of Occupations for Australia (OSCA)	311599 Science Technicians nec.



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