

**SKILLS FRAMEWORK FOR FOOD MANUFACTURING
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

TSC Category	Research and Development					
TSC	Advanced Processing Technology					
TSC Description	Design and apply advanced processing technology to manufacture food products that are appealing, tasty, nutritious and have a long shelf life					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		FMF-RND-2008-1.1	FMF-RND-3008-1.1	FMF-RND-4008-1.1	FMF-RND-5008-1.1	FMF-RND-6008-1.1
		Operate food manufacturing equipment utilising advanced processing technology	Deploy advanced food processing techniques and technology in production workflows	Evaluate effectiveness and sustainability of implemented advanced food processing techniques and technology for process improvements	Formulate new advanced food processing workflows to streamline manufacturing processes in line with organisational strategies	Explore wider applications of advanced food processing technology methods in the organisation
Knowledge		<ul style="list-style-type: none"> Principles of various advanced food processing techniques to achieve desired attributes of shelf life, functionality, safety, nutritional value, convenience, attractiveness and cost in mass food production Product and process planning required for advanced processing technology Advanced processing technology set-ups and operational procedures Parameters and rules for advanced processing technology Infrastructure and resources required for advanced processing technology processes Methods of costing and lead-time estimation Relevant workplace safety and health (WSH) practices, guidelines and regulations Relevant quality assurance and quality 	<ul style="list-style-type: none"> Client requirements Principles of current and advanced food processing and preservation methods Advanced processing technology processes and general applications in food manufacturing The use of various food processing equipment Techniques to optimise advanced processing technology Strengths and limitations of advanced processing technology techniques Applications and operational parameters of thermal and non-thermal processing techniques Post-handling of packaged food Microwave-assisted processing, thermal sterilisation, high pressure processing, food irradiation processing and/or other types of food processing technology 	<ul style="list-style-type: none"> Advanced processing technology characteristics, techniques and systems Requirements of different advanced processing technology processes Factors to be considered when selecting advanced processing technology solutions Impact of advanced processing technology to food manufacturing operations Methods for reviewing advanced processing technology performance Benefits and trade-offs of advanced processing technology Methods of ensuring long-term sustainability of advanced processing technology 	<ul style="list-style-type: none"> Applications of emerging advanced processing technologies Impact of advanced processing technology to supply chain operations Impact of external conditions to advanced processing technology implementation Building a business case for implementing advanced processing technology 	<ul style="list-style-type: none"> Parameters and rules for advanced processing technology Principles of various advanced food processing techniques to achieve desired attributes of shelf life, functionality, safety, nutritional value, convenience, attractiveness and cost in mass food production Product and process planning required for advanced processing technology Methods of costing and lead-time estimation Relevant quality assurance and quality control (QA&QC) policies and procedures Hazard Analysis And Critical Control Point (HACCP) Good manufacturing practices (GMPs)

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		control (QA&QC) policies and procedures				
Abilities		<ul style="list-style-type: none"> Apply suitable advanced processing technology techniques based on product specifications and functions Operate advanced processing technology equipment Carry out troubleshooting on advanced processing technology equipment and machinery Report anomalies in production and escalate issues for further action 	<ul style="list-style-type: none"> Determine advanced processing technology techniques to be applied based on product specifications and functions Deploy suitable advanced processing technology processes based on food product requirements Organise advanced processing technology process sequencing to maximise efficiency Ensure main process conformance through use of relevant analysis and error-checking software Estimate lead-times, costs and schedules 	<ul style="list-style-type: none"> Analyse process-related issues for using various advanced processing technology Determine processes and procedures for various advanced processing technology Apply optimisation techniques to improve advanced processing technology process efficiency and product quality Assess the impact of manufacturing process improvements Review advanced processing technology processes and procedures for food production 	<ul style="list-style-type: none"> Review methodology used in advanced processing technology for food production Analyse the effect of nutritional quality, taste, texture and appearance of food products to determine appropriate advanced processing technology application Evaluate the use of various advanced processing technology Ensure procedures and operations are implemented according to plans and workplace safety and health (WSH) requirements Determine post-processing operations for food produced by advanced processing technology 	<ul style="list-style-type: none"> Evaluate the benefits and trade-offs of implementing advanced processing technology to the organisation Assess the impact and risks of advanced processing technology to manufacturing operations and supply chain operations Assess the impact and risks of external conditions to implementation of advanced processing technology Develop organisational advanced processing technology application strategy in alignment with assessment results Prepare business cases for implementing advanced processing technology that satisfy business and legislative requirements Evaluate the advanced processing technology integration plans to satisfy manufacturing requirements