



# Government Gazette Staatskoerant

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**No. 22221**



**AIDS HELPLINE: 0800-123-22 Prevention is the cure**

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## GENERAL NOTICES

### NOTICE 829 OF 2001

#### PUBLIC NOTICE BY NSB 09, HEALTH SCIENCES AND SOCIAL SERVICES, TO REGISTER AN SGB FOR OCCUPATIONAL HEALTH AND SAFETY

NSB 09 hereby registers an SGB for Occupational Health and Safety for NQF levels 1 – 8.

#### Brief of the SGB

1. Develop learning pathways for potential qualifications and unit standards in the area of Occupational Health and Safety from level 1 through to level 8 [Regulation 24 (1)(a)].
2. Generate qualifications and standards in the areas of occupational health and safety in terms of requirements of relevant legislation and the establishment of best practises and ethics across the working environment. These will include:
  - Certificates in Occupational Health and Safety from levels 1 – 4;
  - Diploma in Occupational Health and Safety at level 5;
  - Bachelors' degrees in Occupational Health and Safety (including Occupational Nursing and Occupational Medical Practice) at level 6 and 7;
  - Bachelor of Technology degree in Occupational Health and Safety at level 7;
  - Master's and Doctoral degrees at level 8 [Regulation 24 (1)(a)].
3. Recommend qualifications and standards generated under 1 and 2 above to the NSB [Regulation 24 (1)(c)].
4. Recommend criteria for the registration of assessors and moderators or moderating bodies [Regulation 24 (1)(d)].
5. Liaise with other NSBs and SGBs – within and outside NSB 09 – which have vested interests in the subject of occupational health and safety [Regulation 24(1)(e)].
6. Perform such other functions as may from time to time be delegated by NSB 09 : Health Sciences and Social Services [Regulation 24 (1)(e)].

#### COMPOSITION OF THE SGB

NOMINEE	WORKPLACE	NOMINATING BODY	QUALIFICATION / EXPERIENCE
Botha, P	Anglo Gold Training & Development Services	Mining Qualifications Authority (MQA)	Senior Training & Development Officer; Examiner – N1 & N2 (DoE); MQA Facilitator
Bovim, A	City of Cape Town	Cape Town Local Authority	Occupational Risk Advisor
Clarke, J W	Action for Children	Action for Children	Emergency Care Trainer
Cornelissen, J J	ESKOM	ESKOM	Senior Advisor in Risk Management Training
Grobler, J	Mobile Telephone Network (MTN)	MTN	Nat Dip in Safety Management
Gcilitshana, S E	Western Platinum Mine	National Union of Mineworkers (NUM)	Certificates in Health and Safety; HIV/AIDS Counselling

Hodge, L	Consultancy – Education, Training and Development	Consultancy – Education, Training and Development	M Ed (OH&S); OH&S Trainer
Joubert, MCN	Technikon SA	Committee of Technikon Principles (CTP)	B Mil; NHD: Safety Management
Kistnasamy, B	N R Mandela School of Medicine – University of Natal	Dept of Health	M Med (Community Health); 10 years' experience in community medicine
Labuschagne, I	SASOL	SASOL	M Cur; Training Manager for OH&S
Lesenyego, S	National Education, Health and Allied Workers Union (NEHAWU), Free State Regional Office	NEHAWU	Certificate in Nursing; Certificate in Occupational Health and Safety
Lötter, T	South African First Aid League	South African First Aid League	National Training Manager
Mahlangu, B	Dept of Labour Chief Directorate: OH&S	Dept of Labour	MSc Mathematics; Experience in plant engineering
Mayixale P E	Harmony Gold Mining Co Ltd	MQA	BBA; Management Training Coach; 14 years' experience in HR
Molefe, F B C	MAKROSAFE Holdings (Pty) Ltd	MAKROSAFE Holdings (Pty) Ltd	OH&S Training & Development Officer
Nundlall, A R	Dept of Minerals and Energy	Dept of Minerals and Energy	Senior Inspector of Mines : Occupational Hygiene
Pienaar, W F	National Occupational Safety Association (NOSA)	NOSA	PhD; Dip in Advanced Labour Law; Business Development Manager
Potgieter, L J	Dept of Labour	Dept of Labour	H Dip in Chemistry; Dip in Explosives Technology
Pretorius, L	NOSA	South African Society of Occupational Health Nursing Practitioners (SASOHN)	B Sc Nursing (Hons); Dip Occ Health Nur; Dip Nur Admin; 15 years' experience in OH&S
Randolph, B	Technikon Natal	CTP	M Med Sc; Senior lecturer – Environmental Health
Schoeman, J J	Operations Manager : Consulting NOSA	NOSA	D Phil; 20 years' experience in Occupational Hygiene and Environmental Health
Smith, FCA	Faculty of Medicine: University of Pretoria	University of Pretoria	21 years' experience in Community and Industrial Health
Strydom R	Building Industries Federation of South Africa	Building Industries Federation of South Africa	35 years' experience in OH&S



Unsted, D	Private Practitioner	Mine Ventilation Society of South Africa	40 years' experience in mining and general industry; Cert.- Mine Environmental Control; Air Quality Analysis' Cert; Occupational Hygiene Dip; Blasting Cert
van der Westhuizen, HWJ	P E Technikon	CTP	Nat H Dip in Public Health; 8 years' experience in Environment Health Education

**NOTICE 830 OF 2001****PUBLIC NOTICE BY NSB 09, HEALTH SCIENCES AND SOCIAL SERVICES, OF THE  
REGISTRATION OF AN SGB FOR SOCIAL WORK**

NSB 09 hereby registers an SGB for Social Work for NQF levels 4 – 8

**Brief of the SGB**

1. Develop learning pathways for potential qualifications and unit standards in the area of Social Work from level 4 through to level 8 [Regulation 24 (1)(a)].
2. Generate qualifications and standards in the areas of social work in terms of requirements of relevant legislation and the establishment of best practises and ethics across the working environment. These will include:
  - Certificate for Social Auxiliary Workers at level 4;
  - Diploma for Social Auxiliary Workers at level 5;
  - First Bachelor's degree in Social Work at level 6;
  - Professional degree in Social Work at level 7;
  - Master's and Doctoral degrees at level 8 [Regulation 24 (1)(a)].
3. Ensure that practicing professionals are able to fulfil the requirements for registration with the South African Council for Social Service Professions [Regulation 24 (1) (e)].
4. Recommend qualifications and standards generated under 1 and 2 above to the NSB [Regulation 24 (1)(c)].
5. Recommend criteria for the registration of assessors and moderators or moderating bodies [Regulation 24 (1)(d)].
6. Liaise with other NSBs and SGBs – within and outside NSB 09 – which have vested interests in the subject of occupational health and safety [Regulation 24(1)(e)].
7. Perform such other functions as may from time to time be delegated by NSB 09 : Health Sciences and Social Services [Regulation 24 (1)(e)].

**COMPOSITION OF THE SGB**

NOMINEE	WORKPLACE	NOMINATING BODY	QUALIFICATION / EXPERIENCE
Coughlan, F J	Rhodes University	Rhodes University	D Phil; Social Worker
Drower, S J	University of the Witwatersrand	Joint Universities Committee for Social Work (JUC)	D Phil; Social Worker and Lecturer
Grobbelaar, M	National Coalition for Social Services (NACOSS)	NACOSS	BA Social Work (Hons); 36 years' field experience including 4 years' NGO experience
Harrison, E S	South African National Defence Force (SANDF)	SANDF	Hons in Social Work; 20 years' experience in social work
Harrison, J	University of the Witwatersrand	University of the Witwatersrand	M A (Social Work); 11 years' social work experience; lecturer

Kandawire-Moila, T E V	Dept of Public Service	South African Black Social Workers Association (SABSWA)	MBA; Social Worker; Director
Lombard, A	University of Pretoria;	South African Council for Social Service Professions (SACSSP)	D Phil; 7 years' social work and 13 years' lecturing experience
Mzizi, T	Private Consultant;	NACOSS	BA; Soc Sc (Hons); Social Worker
Nel, L	Pretoria Child Welfare Society	Pretoria Child Welfare Society	M Phil; Social Worker; Director
Noyoo, N	University of the Witwatersrand	University of the Witwatersrand	MA (SW); Social Worker; Lecturer
Ntaleng, B	Dept of Social Welfare, North West Province	Dept of Social Welfare, North West Province	MA (SW); Social Worker
Oliphant, E	Rand Afrikaans University (RAU)	Rand Afrikaans University	PhD; Social Worker; Lecturer
Prinsloo, F H	DEAFSA	DEAFSA	MA (SW)
Pruis, S E	SACSSP	SACSSP	M Soc Sc (SW); Social Worker; Specialist: Social Auxiliary Work
Ramphal, R	University of Durban-Westville	University of Durban-Westville	PhD; Social Worker; 20 years' experience as lecturer
Schenk, C J	UNISA	UNISA	D Phil; Social Worker; Lecturer
Schoeman, H P	University of Orange Free State	University of Orange Free State	PhD; Social Worker; Lecturer
Sewpaul, V	University of Natal	SACSSP	PhD; 7 years' Social Work and 14 years' lecturing experience
Simon, H	Eastern Cape Council for the Aged	Eastern Cape Council for the Aged	Dip in Social Work; Social Worker; Director
Swanepoel, E	Dept of Social Development	Public Servants Association of South Africa (PSA)	Social Worker
Toyiya, T K	Dept of Welfare;	National Education and Health Allied Workers' Union (NEHAWU)	BA (Social Work); Social Worker
van Delft, W F	UNISA	UNISA	D Phil; Social Worker; Psychologist; Lecturer
van Schalkwyk, H M	Technikon SA	CTP	D Litt et Phil (Social Work); Senior Lecturer, Public Management and Development
Wessels, G J J	Suid-Afrikaanse Vrouefederasie (SAVF)	NACOSS	D Phil; Social Worker
Wolpert, A	Private Practitioner and Consultant	South African Association of Social Workers in Private Practice (SAASWIPP)	BA Social Work (Hons); 11 years' field experience

**NOTICE 831 OF 2001****SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

**FOOD**

Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards-based qualifications for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications and unit standards can be accessed via the SAQA web-site at [www.saqa.co.za](http://www.saqa.co.za). Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the qualifications and unit standards should reach SAQA at the address **below and no later than 12 May 2001**. All correspondence should be marked **Standards Setting – SGB for Higher Education and Training** and addressed to

The Director: Standard Setting and Development  
SAQA

Attention: Mrs S. Vasuthevan  
Postnet Suite 248  
Private Bag X06  
Waterkloof  
0145  
or faxed to 012 – 346 5812



**SAMUEL B.A. ISAACS**  
**EXECUTIVE OFFICER**

# **NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: FOOD PROCESSING SPECIALISATION NQF 3**

**FIELD:** Manufacturing, Engineering and Technology

**SUB-FIELD:** Manufacturing and Assembly

**NQF LEVEL:** 3

**CREDITS:** 140

**PURPOSE:** A person acquiring this qualification will be able to manufacture a safe, quality assured food product by operating, controlling and maintaining a specialized food product manufacturing line, from the raw materials until the final product is manufactured.

A choice can be made from the following specialised food manufacturing domains:

- Cereals, Spices, Snacks and Condiments Processing, or
- Fats and Oils processing, or
- Chocolate Confectionery Processing, or
- Sugar Confectionery Processing, or
- Fish or Seafood processing, or
- Meat processing, or
- Fruit and Vegetable Processing.

## **QUALIFICATION TITLE MATRIX**

Fundamental		
Level 3	• Language	20
	• Mathematics	16
	Total 36	
Core		
Level 2	• Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.	4
	• Clean and sanitise a food processing system using an automated cleaning-in-place system.	5
	• Demonstrate knowledge of introductory principles of chemistry and physics (To be submitted by the Dairy Technology SGB).	4



<b>Level 3</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of and produce computer spreadsheets using base functions (Registered).</li> </ul>	3
	<ul style="list-style-type: none"> <li>Demonstrate an understanding of food safety practices and procedures in the food manufacturing environment.</li> </ul>	7
	<ul style="list-style-type: none"> <li>Monitor quality control practices in a food manufacturing environment.</li> </ul>	4
	<ul style="list-style-type: none"> <li>Demonstrate an understanding of heating and cooling procedures.</li> </ul>	4
	<ul style="list-style-type: none"> <li>Apply microbiological principles in a food environment (To be submitted by the Dairy Technology SGB).</li> </ul>	6
	<ul style="list-style-type: none"> <li>Apply continuous first line maintenance on processing equipment</li> </ul>	10
	<ul style="list-style-type: none"> <li>Demonstrate understanding of supply chain management</li> </ul>	3
	<ul style="list-style-type: none"> <li>Demonstrate understanding of introductory business principles.</li> </ul>	4
		<b>Total 54</b>

### CEREALS, SPICES, SNACKS AND CONDIMENTS PROCESSING

#### Compulsory Electives

<b>Level 2</b>	<ul style="list-style-type: none"> <li>Pre-batch food raw materials.</li> </ul>	4
	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment.</li> </ul>	4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Grade and sort food raw materials.</li> </ul>	6
		<b>Total 14</b>

#### Choice Electives

(Choose a minimum of 16 credits)

<b>Level 2</b>	<ul style="list-style-type: none"> <li>Store and route food raw materials.</li> </ul>	6
	<ul style="list-style-type: none"> <li>Coat or dip a food product using automated equipment.</li> </ul>	6
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Receive food raw materials.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Fumigate food raw materials before further processing.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Fry food products using vacuum or atmospheric frying equipment.</li> </ul>	8

<b>Level 4</b>	• Extrude food products using a continuous extruder.	9
	• Dehydrate food products.	10
	• Dry mill a food product.	20
	• Roast beans or nuts.	8
	• Monitor the temperature of food products and their environment for quality control purposes.	2
	• Demonstrate an understanding of the relationship between micro-organisms and food spoilage.	8
	• Determine the quality of food products using sensory evaluation.	4
	• Manufacture wafer products.	20
		<b>Total 16</b>
<b>GRAND TOTAL</b>		<b>140</b>

**FATS AND OILS PROCESSING****Compulsory  
Electives**

<b>Level 3</b>	• Refine crude oils using automated processing equipment.	20
	• Convert edible oils into fats using automated equipment.	20
	<b>Total 40</b>	

**Choice  
Electives** (Choose a minimum of 10 credits)

<b>Level 2</b>	• Pre-batch food raw materials.	4
	• Mix or blend food raw materials for processing using automated equipment.	4
	• Store and route food raw materials.	6
<b>Level 3</b>	• Receive food raw materials.	8
	• Fumigate food raw materials before further processing.	8
	• Grade and sort food raw materials.	6
	• Condition and express oil from oil plant seeds.	20
	• Extract and filter oils using a chemical process.	20
	• Freeze or chill a food product.	8

Level 4	<ul style="list-style-type: none"> <li>Monitor the temperature of food products and their environment for quality control purposes.</li> </ul>	2
	<ul style="list-style-type: none"> <li>Determine the quality of food products using sensory evaluation.</li> </ul>	4
		<b>Total 10</b>
<b>GRAND TOTAL</b>		<b>140</b>

### CHOCOLATE CONFECTIONERY PROCESSING

#### Compulsory Electives

Level 2	<ul style="list-style-type: none"> <li>Pre-batch food raw materials.</li> </ul>	4
	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment.</li> </ul>	4
Level 3	<ul style="list-style-type: none"> <li>Temper liquid chocolate manually.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Cook confectionery mixtures using continuous equipment.</li> </ul>	12
	<ul style="list-style-type: none"> <li>Monitor the temperature of food products and their environment for quality control purposes.</li> </ul>	2
Level 4	<ul style="list-style-type: none"> <li>Determine the quality of food products using sensory evaluation.</li> </ul>	4
		<b>Total 34</b>

#### Choice Electives (Choose a minimum of 16 credits)

Level 3	<ul style="list-style-type: none"> <li>Manufacture layered confectionery products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Mould confectionery products.</li> </ul>	16
	<ul style="list-style-type: none"> <li>Temper liquid chocolate using automated tempering equipment.</li> </ul>	12
	<ul style="list-style-type: none"> <li>Manufacture confectionery products using the single shot moulding process.</li> </ul>	16
	<ul style="list-style-type: none"> <li>Aerate a confectionery product.</li> </ul>	20
	<ul style="list-style-type: none"> <li>Enrobe confectionery products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Manufacture hollow-moulded chocolate confectionery products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Roast beans or nuts.</li> </ul>	8
Level 4	<ul style="list-style-type: none"> <li>Pan confectionery products.</li> </ul>	18

	<ul style="list-style-type: none"> <li>• Manufacture starch moulded confectionery products.</li> </ul>	12
	<ul style="list-style-type: none"> <li>• Refine and conch a chocolate mass or compound.</li> </ul>	16
	<ul style="list-style-type: none"> <li>• Manufacture wafer products.</li> </ul>	20
	<ul style="list-style-type: none"> <li>• Manufacture chocolate crumb.</li> </ul>	35
		<b>Total 16</b>
<b>GRAND TOTAL</b>		<b>140</b>

**SUGAR CONFECTIONERY PROCESSING****Compulsory  
Electives**

<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Pre-batch food raw materials.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Mix or blend food raw materials for processing using automated equipment.</li> </ul>	4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Cook confectionery mixtures using continuous equipment.</li> </ul>	12
	<ul style="list-style-type: none"> <li>• Monitor the temperature of food products and their environment for quality control purposes.</li> </ul>	2
<b>Level 4</b>	<ul style="list-style-type: none"> <li>• Determine the quality of food products using sensory evaluation.</li> </ul>	4
		<b>Total 26</b>

**Choice  
Electives (Choose a minimum of 24 credits)**

<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Temper sugar confectionery mass.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Cut-and-wrap confectionery products using automated production equipment.</li> </ul>	6
	<ul style="list-style-type: none"> <li>• Form and press confectionery tablets.</li> </ul>	6
	<ul style="list-style-type: none"> <li>• Manufacture fondant.</li> </ul>	6
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Manufacture layered confectionery products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Mould confectionery products.</li> </ul>	16
	<ul style="list-style-type: none"> <li>• Manufacture confectionery products using the single shot moulding process.</li> </ul>	16
	<ul style="list-style-type: none"> <li>• Aerate a confectionery product.</li> </ul>	20
<b>Level 4</b>	<ul style="list-style-type: none"> <li>• Pan confectionery products.</li> </ul>	18

	<ul style="list-style-type: none"> <li>• Manufacture starch moulded confectionery products.</li> </ul>	12
		<b>Total 24</b>
<b>GRAND TOTAL</b>		<b>140</b>

**FISH OR SEAFOOD PROCESSING****Compulsory Electives**

<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Freeze or chill a food product.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Prepare raw fish or seafood for further processing.</li> </ul>	12
	<ul style="list-style-type: none"> <li>• Monitor the temperature of food products and their environment for quality control purposes.</li> </ul>	2
<b>Level 4</b>	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of the relationship between micro-organisms and food spoilage.</li> </ul>	8

**Choose at least one of the following compulsory electives**

<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Fleck and fillet fish manually.</li> </ul>	5
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Cut fish by the use of automated equipment.</li> </ul>	8

**Choose at least one of the following compulsory electives**

<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Manufactured cured fish or meat products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Smoke fish or meat.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Salt and dry fish or meat.</li> </ul>	4
		<b>Min 39</b>

**Choice Electives (Choose a minimum of 11 credits)**

<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Pre-batch food raw materials.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Mix or blend food raw materials for processing using automated equipment.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Sort and handle raw seafood manually.</li> </ul>	5
	<ul style="list-style-type: none"> <li>• Trim and portion cut fish fillets manually.</li> </ul>	3
	<ul style="list-style-type: none"> <li>• Mince fish or meat by using automated equipment.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Coat or dip a food product using automated equipment.</li> </ul>	6
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Sterilise a food product using retorting equipment.</li> </ul>	12



<b>Level 4</b>	<ul style="list-style-type: none"> <li>Fry food products using vacuum or atmospheric frying equipment.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Form or fill raw minced fish or meat products using automated equipment.</li> </ul>	5
	<ul style="list-style-type: none"> <li>Process and pack live seafood.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Determine the quality of food products using sensory evaluation.</li> </ul>	4
		<b>Total 11</b>
<b>GRAND TOTAL</b>		<b>140</b>

<b>MEAT PROCESSING</b>		
<b>Compulsory Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Mince fish or meat by using automated equipment.</li> </ul>	4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Freeze or chill a food product.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Form or fill raw minced fish or meat products using automated equipment.</li> </ul>	5
	<ul style="list-style-type: none"> <li>Monitor the temperature of food products and their environment for quality control purposes.</li> </ul>	2
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate an understanding of the relationship between micro-organisms and food spoilage.</li> </ul>	8
<b>Choose at least one of the following compulsory electives</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Split and cut pig carcasses into primal cuts.</li> </ul>	3
	<ul style="list-style-type: none"> <li>Break beef sides and debone primal cuts.</li> </ul>	8
<b>Choose at least one of the following compulsory electives</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Manufacture emulsified meat products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Manufactured cured fish or meat products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Smoke fish or meat.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Salt and dry fish or meat.</li> </ul>	4
		<b>Min 34</b>
<b>Choice Electives (Choose a minimum of 16 credits)</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Pre-batch food raw materials.</li> </ul>	4
	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using</li> </ul>	4

	automated equipment.	
<b>Level 3</b>	• Prepare pig carcasses for splitting.	3
	• Derind and debone various pork cuts.	3
	• Sort pork cuts for further processing.	3
	• Coat or dip a food product using automated equipment.	6
	• Sterilise a food product using retorting equipment.	12
	• Fry food products using vacuum or atmospheric frying equipment.	8
<b>Level 4</b>	• Determine the quality of food products using sensory evaluation.	4
	• Manufacture fermented meat products.	10
		<b>Total 16</b>
<b>GRAND TOTAL</b>		<b>140</b>

### FRUIT AND VEGETABLE PROCESSING

#### Compulsory Electives

<b>Level 2</b>	• Store and route food raw materials.	6
<b>Level 3</b>	• Grade and sort food raw materials.	6
	• Process prepared fruit raw materials.	20
		<b>Total 32</b>

#### Choice Electives (Choose a minimum of 18 credits)

<b>Level 2</b>	• Pre-batch food raw materials.	4
<b>Level 3</b>	• Mix or blend food raw materials for processing using automated equipment.	4
	• Peel fruit and vegetables for further processing.	5
	• Coat or dip a food product using automated equipment.	6
	• Receive food raw materials.	8
	• Fumigate food raw materials before further processing.	8
	• Shape fruit and vegetables for further processing.	8
	• Sterilise a food product using retorting equipment.	12

<b>Level 4</b>	<ul style="list-style-type: none"> <li>• Fry food products using vacuum or atmospheric frying equipment.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Freeze or chill a food product.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Pasteurise a food product by means of a batch pasteuriser.</li> </ul>	6
	<ul style="list-style-type: none"> <li>• Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger (To be submitted by the dairy technology SGB).</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Evaporate a food product by means of an atmospheric or vacuum type evaporator.</li> </ul>	12
	<ul style="list-style-type: none"> <li>• Dehydrate food products.</li> </ul>	10
	<ul style="list-style-type: none"> <li>• Monitor the temperature of food products and their environment for quality control purposes.</li> </ul>	2
	<ul style="list-style-type: none"> <li>• Determine the quality of food products using sensory evaluation.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of the relationship between micro-organisms and food spoilage.</li> </ul>	8
	<ul style="list-style-type: none"> <li>• Evaporate a food product by means of a falling or rising film evaporator. (To be submitted by the Dairy technology SGB).</li> </ul>	20
		<b>Total 18</b>
<b>GRAND TOTAL</b>		<b>140</b>

### UNIT STANDARDS FOR FOOD PROCESSING SPECIALISATION NQF 3

#### FUNDAMENTAL UNIT STANDARDS:

Title 1: Language unit standards (Interim registered unit standards).

Title 2: Mathematics unit standards (Interim registered unit standards).

#### CORE UNIT STANDARDS:

#### UNIT STANDARDS AT NQF LEVEL 2

Title 1: Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment.

Title 2: Clean and sanitise a food processing system using an automated cleaning-in-place system.

Title 3: Demonstrate knowledge of introductory principles of chemistry and physics.

- Title 4: Demonstrate knowledge of and produce computer spreadsheets using base functions (Registered ).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Demonstrate an understanding of food safety practices and procedures in the food manufacturing environment.
- Title 2: Monitor quality control practices in a food manufacturing environment.
- Title 3: Demonstrate an understanding of heating and cooling procedures.
- Title 4: Apply microbiological principles in a food environment.
- Title 5: Apply continuous first line maintenance on processing equipment.
- Title 6: Demonstrate understanding of supply chain management.
- Title 7: Demonstrate understanding of introductory business principles.

## **CEREALS, SPICES, SNACKS AND CONDIMENTS PROCESSING**

### **UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.
- Title 3: Store and route food raw materials.
- Title 4: Coat or dip a food product using automated equipment.

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Receive food raw materials.
- Title 2: Fumigate food raw materials before further processing.
- Title 3: Grade and sort food raw materials.
- Title 4: Fry food products using vacuum or atmospheric frying equipment.
- Title 5: Extrude food products using a continuous extruder.
- Title 6: Dehydrate food products.
- Title 7: Dry mill a food product.
- Title 8: Roast beans or nuts.

- Title 9: Monitor the temperature of food products and their environment for quality control purposes.

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Demonstrate an understanding of the relationship between micro-organisms and food spoilage.
- Title 2: Determine the quality of food products using sensory evaluation.
- Title 3: Manufacture wafer products.

### **FATS AND OILS PROCESSING**

#### **UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.
- Title 3: Store and route food raw materials.

#### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Receive food raw materials.
- Title 2: Fumigate food raw materials before further processing.
- Title 3: Grade and sort food raw materials.
- Title 4: Freeze or chill a food product.
- Title 5: Condition and express oil from oil plant seeds.
- Title 6: Extract and filter oils using a chemical process.
- Title 7: Refine crude oils using automated processing equipment.
- Title 8: Convert edible oils into fats using automated equipment.
- Title 9: Monitor the temperature of food products and their environment for quality control purposes.

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Determine the quality of food products using sensory evaluation.



## **CHOCOLATE CONFECTIONERY PROCESSING**

### **UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Manufacture layered confectionery products.
- Title 2: Mould confectionery products.
- Title 3: Temper liquid chocolate using automated tempering equipment.
- Title 4: Temper liquid chocolate manually.
- Title 5: Manufacture confectionery products using a single shot moulding process.
- Title 6: Enrobe confectionery products.
- Title 7: Manufacture hollow-moulded chocolate confectionery products.
- Title 8: Aerate a confectionery product.
- Title 9: Roast beans or nuts.
- Title 10: Cook confectionery mixtures using continuous equipment.
- Title 11: Monitor the temperature of food products and their environment for quality control purposes.

### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Determine the quality of food products using sensory evaluation.
- Title 2: Pan confectionery products.
- Title 3: Manufacture starch moulded confectionery products.
- Title 4: Refine and conch chocolate mass or compound.
- Title 5: Manufacture wafer products.
- Title 6: Manufacture chocolate crumb.

**SUGAR CONFECTIONERY PROCESSING****UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.
- Title 3: Temper sugar confectionery mass.
- Title 4: Cut-and-wrap confectionery products using automated production equipment.
- Title 5: Form and press confectionery tablets.
- Title 6: Manufacture fondant.

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Manufacture layered confectionery products.
- Title 2: Mould confectionery products.
- Title 3: Manufacture confectionery products using a single shot moulding process.
- Title 4: Cook confectionery mixtures using continuous equipment.
- Title 5: Monitor the temperature of food products and their environment for quality control purposes.
- Title 6: Aerate a confectionery product.

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Determine the quality of food products using sensory evaluation.
- Title 2: Pan confectionery products.
- Title 3: Manufacture starch moulded confectionery products.

**FISH OR SEAFOOD PROCESSING****UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.
- Title 3: Sort and handle raw seafood manually.

- Title 4: Fleck and fillet fish manually.
- Title 5: Trim and portion cut fish fillets manually.
- Title 6: Mince fish or meat using automated mincing equipment.
- Title 7: Coat or dip a food product using automated equipment.

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Sterilise a food product using retorting equipment.
- Title 2: Fry food products using vacuum or atmospheric frying equipment.
- Title 3: Freeze or chill a food product.
- Title 4: Form or fill raw minced fish or meat products using automated equipment.
- Title 5: Manufacture cured fish or meat products.
- Title 6: Process and pack live seafood.
- Title 7: Prepare raw fish or seafood for further processing.
- Title 8: Cut fish by use of automated equipment.
- Title 9: Smoke fish or meat.
- Title 10: Salt and dry fish or meat.
- Title 11: Monitor the temperature of food products and their environment for quality control purposes.

### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Demonstrate an understanding of the relationship between micro-organisms and food spoilage.
- Title 2: Determine the quality of food products using sensory evaluation.

## **MEAT PROCESSING**

### **UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.
- Title 3: Prepare pig carcasses for splitting.

- Title 4: Derind and debone various pork cuts.
- Title 5: Sort deboned pork cuts for further processing.
- Title 6: Mince fish or meat using automated mincing equipment.
- Title 7: Coat or dip a food product using automated equipment.

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Sterilise a food product using retorting equipment.
- Title 2: Fry food products using vacuum or atmospheric frying equipment.
- Title 3: Freeze or chill a food product.
- Title 4: Split and cut pig carcasses into primal cuts.
- Title 5: Break beef sides and debone primal beef cuts.
- Title 6: Form or fill raw minced fish or meat products using automated equipment.
- Title 7: Manufacture emulsified meat products.
- Title 8: Manufacture cured fish or meat products.
- Title 9: Smoke fish or meat.
- Title 10: Salt and dry fish or meat.
- Title 11: Monitor the temperature of food products and their environment for quality control purposes.

### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Demonstrate an understanding of the relationship between micro-organisms and food spoilage.
- Title 2: Determine the quality of food products using sensory evaluation.
- Title 3: Manufacture fermented meat sausages.

### **FRUIT AND VEGETABLE PROCESSING**

#### **UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Pre-batch food raw materials.
- Title 2: Mix or blend food raw materials for processing using automated equipment.
- Title 3: Peel fruit and vegetables for further processing.

Title 4: Store and route food raw materials.

Title 5: Coat or dip a food product using automated equipment.

### **UNIT STANDARDS AT NQF LEVEL 3**

Title 1: Receive food raw materials.

Title 2: Fumigate food raw materials before further processing.

Title 3: Grade and sort food raw materials.

Title 4: Shape fruit and vegetables for further processing.

Title 5: Process prepared fruit and vegetables.

Title 6: Sterilise a food product using retorting equipment.

Title 7: Fry food products using vacuum or atmospheric frying equipment.

Title 8: Freeze or chill a food product.

Title 9: Pasteurise a food product by means of a batch pasteuriser.

Title 10: Evaporate a food product by means of an atmospheric or vacuum type evaporator.

Title 11: Dehydrate food products.

Title 12: Monitor the temperature of food products and their environment for quality control purposes.

### **UNIT STANDARDS AT NQF LEVEL 4**

Title 1: Demonstrate an understanding of the relationship between micro-organisms and food spoilage.

Title 2: Determine the quality of food products using sensory evaluation.



**CORE UNIT STANDARDS:****UNIT STANDARDS AT NQF LEVEL 2**

- 1. TITLE: DEMONSTRATE AN UNDERSTANDING OF OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL LEGISLATION RELEVANT TO THE FOOD OR BEVERAGE ENVIRONMENT.**
  - Specific outcome 1.1: Demonstrate an understanding of personal health, safety and environmental legislation in the food or beverage manufacturing environment.
  - Specific outcome 1.2: Demonstrate an understanding of safe working practices in a food or beverage manufacturing environment.
  - Specific outcome 1.3: Deal with safety emergencies.
- 2. TITLE: CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.**
  - Specific outcome 2.1: Demonstrate knowledge of cleaning-in-place systems.
  - Specific outcome 2.2: Prepare to clean and sanitise a food processing system.
  - Specific outcome 2.3: Clean and sanitise a food processing system.
  - Specific outcome 2.4: Perform end of cleaning-in-place procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

- 1. TITLE: DEMONSTRATE AN UNDERSTANDING OF FOOD SAFETY PRACTICES AND PROCEDURES IN THE FOOD MANUFACTURING ENVIRONMENT.**
  - Specific outcome 1.1: Demonstrate an understanding of food safety practices and procedures in food manufacturing environment.
  - Specific outcome 1.2: Identify critical control points or HACCP's in a food manufacturing environment.
  - Specific outcome 1.3: Identify good manufacturing practices.
- 2. TITLE: MONITOR QUALITY CONTROL PRACTICES IN A FOOD MANUFACTURING ENVIRONMENT.**
  - Specific outcome 2.1: Demonstrate an understanding of quality control practices in a food manufacturing environment.
  - Specific outcome 2.2: Integrate quality control practices into a food production or packing line.

Specific outcome 2.3: Monitor the quality on a food production or packaging line.

Specific outcome 2.4: Resolve non-conformance to quality in food products or containers.

**3. TITLE: DEMONSTRATE AN UNDERSTANDING OF HEATING AND COOLING PROCEDURES.**

Specific outcome 3.1: Demonstrate an understanding of heating and cooling principles.

Specific outcome 3.2: Demonstrate an understanding of heat preservation and processing used in the food manufacturing environment.

Specific outcome 3.3: Demonstrate an understanding of cold preservation and processing used in the food manufacturing environment.

**CEREALS, SPICES, SNACKS AND CONDIMENTS PROCESSING**

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of pre-batching.

Specific outcome 1.2: Prepare for pre-batching of raw materials.

Specific outcome 1.3: Weigh and measure raw materials.

Specific outcome 1.4: Perform end of pre-batching procedures.

**2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**

Specific outcome 4.1: Demonstrate an understanding of the role of mixing or blending in product formulation.

Specific outcome 4.2: Prepare for mixing or blending of food raw materials.

Specific outcome 4.3: Mix or blend food raw materials.

Specific outcome 4.4: Perform end of mixing or blending procedures.

**3. TITLE: STORE AND ROUTE FOOD RAW MATERIALS.**

Specific outcome 3.1: Demonstrate an understanding on storage and routing of food raw materials.

Specific outcome 3.2: Prepare to store and route food raw materials.

Specific outcome 3.3: Store and route food raw materials.

Specific outcome 3.4: Perform end of storing and routing procedures.

**4. TITLE: COAT OR DIP A FOOD PRODUCT USING AUTOMATED EQUIPMENT.**

Specific outcome 4.1: Demonstrate an understanding of coating or dipping procedures for food products.

Specific outcome 4.2: Prepare for coating or dipping of a food product.

Specific outcome 4.3: Coat or dip a food product.

Specific outcome 4.4: Perform end of coating or dipping procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: RECEIVE FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of receiving food raw materials.

Specific outcome 1.2: Prepare for food raw materials receiving.

Specific outcome 1.3: Receive food raw materials.

Specific outcome 1.4: Perform end of receiving procedures.

**2. TITLE: FUMIGATE FOOD RAW MATERIALS BEFORE FURTHER PROCESSING.**

Specific outcome 2.1: Demonstrate an understanding of fumigation of food raw materials for further processing.

Specific outcome 2.2: Prepare for fumigation of food raw materials for further processing.

Specific outcome 2.3: Fumigate food raw materials for further processing.

Specific outcome 2.4: Perform end of fumigation procedures.

**3. TITLE: GRADE AND SORT FOOD RAW MATERIALS.**

Specific outcome 3.1: Demonstrate an understanding of grading and sorting of food raw materials.

Specific outcome 3.2: Prepare for grading and sorting of food raw materials.

Specific outcome 3.3: Grade and sort food raw materials.

Specific outcome 3.4: Perform end of grading and sorting procedures.

- 4. TITLE: FRY FOOD PRODUCTS USING VACUUM OR ATMOSPHERIC FRYING EQUIPMENT.**
- Specific outcome 4.1: Demonstrate an understanding of the frying principles of food products.
- Specific outcome 4.2: Prepare for frying of food products.
- Specific outcome 4.3: Fry food products.
- Specific outcome 4.4: Perform end of frying procedures.
- 5. TITLE: EXTRUDE FOOD PRODUCTS USING A CONTINUOUS EXTRUDER.**
- Specific outcome 5.1: Demonstrate an understanding of extrusion.
- Specific outcome 5.2: Prepare for extrusion.
- Specific outcome 5.3: Extrude food products.
- Specific outcome 5.4: Perform end of extrusion procedures.
- 6. TITLE: DEHYDRATE FOOD PRODUCTS.**
- Specific outcome 6.1: Demonstrate an understanding of dehydration of food products.
- Specific outcome 6.2: Prepare for dehydrating of food products.
- Specific outcome 6.3: Dehydrate food products.
- Specific outcome 6.4: Perform end of dehydration procedures.
- 7. TITLE: DRY MILL A FOOD PRODUCT.**
- Specific outcome 7.1: Demonstrate an understanding of on the milling of food products.
- Specific outcome 7.2: Prepare for milling of a food product.
- Specific outcome 7.3: Mill a food product.
- Specific outcome 7.4: Perform end of milling procedures.
- 8. TITLE: ROAST BEANS OR NUTS.**
- Specific outcome 8.1: Demonstrate an understanding of bean or nut roasting.

- Specific outcome 8.2: Prepare for bean or nut roasting.
- Specific outcome 8.3: Clean beans or nuts for roasting.
- Specific outcome 8.4: Roast the beans or nuts.
- Specific outcome 8.5: Perform end of roasting procedures.

**9. TITLE: MONITOR THE TEMPERATURE OF FOOD PRODUCTS AND THEIR ENVIRONMENT FOR QUALITY CONTROL PURPOSES.**

- Specific outcome 9.1: Demonstrate an understanding of temperature monitoring in the food environment.
- Specific outcome 9.2: Prepare for monitoring temperature in the food environment.
- Specific outcome 9.3: Monitor the temperature of food products and their environment.
- Specific outcome 9.4: Perform end of temperature monitoring procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN MICRO-ORGANISMS AND FOOD SPOILAGE.**

- Specific outcome 1.1: Demonstrate an understanding of the occurrence of micro-organisms in a food environment.
- Specific outcome 1.2: Demonstrate an understanding of the effect of food manufacturing processes on microbiological growth.
- Specific outcome 1.3: Demonstrate an understanding of determining the microbiological status in food products or a food manufacturing environment.
- Specific outcome 1.4: Demonstrate an understanding of microbiological food safety procedures and practices in a food environment.

**2. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**

- Specific outcome 2.1: Demonstrate an understanding of the sensory quality of a food product.
- Specific outcome 2.2: Prepare for the determination of the sensory quality of a food product.
- Specific outcome 2.3: Determine the sensory quality of a food product.

Specific outcome 2.4: Report on the sensory quality of a food product.

**3. TITLE: MANUFACTURE WAFER PRODUCTS.**

Specific outcome 3.1: Demonstrate an understanding on wafer manufacturing.

Specific outcome 3.2: Prepare to manufacture wafer products.

Specific outcome 3.3: Manufacture wafer products.

Specific outcome 3.4: Perform end of wafer manufacturing procedures.

**FATS AND OILS PROCESSING**

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of pre-batching.

Specific outcome 1.2: Prepare for pre-batching of raw materials.

Specific outcome 1.3: Weigh and measure raw materials.

Specific outcome 1.4: Perform end of pre-batching procedures.

**2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**

Specific outcome 2.1: Demonstrate an understanding of the role of mixing or blending in product formulation.

Specific outcome 2.2: Prepare for mixing or blending of food raw materials.

Specific outcome 2.3: Mix or blend food raw materials.

Specific outcome 2.4: Perform end of mixing or blending procedures.

**3. TITLE: STORE AND ROUTE FOOD RAW MATERIALS.**

Specific outcome 3.1: Demonstrate an understanding on storage and routing of food raw materials.

Specific outcome 3.2: Prepare to store and route food raw materials.

Specific outcome 3.3: Store and route food raw materials.

Specific outcome 3.4: Perform end of storing and routing procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3****1. TITLE: RECEIVE FOOD RAW MATERIALS.**

- Specific outcome 1.1: Demonstrate an understanding of receiving food raw materials.
- Specific outcome 1.2: Prepare for food raw materials receiving.
- Specific outcome 1.3: Receive food raw materials.
- Specific outcome 1.4: Perform end of receiving procedures.

**2. TITLE: FUMIGATE FOOD RAW MATERIALS BEFORE FURTHER PROCESSING.**

- Specific outcome 2.1: Demonstrate an understanding of fumigation of food raw materials for further processing.
- Specific outcome 2.2: Prepare for fumigation of food raw materials for further processing.
- Specific outcome 2.3: Fumigate food raw materials for further processing.
- Specific outcome 2.4: Perform end of fumigation procedures.

**3. TITLE: GRADE AND SORT FOOD RAW MATERIALS.**

- Specific outcome 3.1: Demonstrate an understanding of grading and sorting of food raw materials.
- Specific outcome 3.2: Prepare for grading and sorting of food raw materials.
- Specific outcome 3.3: Grade and sort food raw materials.
- Specific outcome 3.4: Perform end of grading and sorting procedures.

**4. TITLE: FREEZE OR CHILL A FOOD PRODUCT.**

- Specific outcome 4.1: Demonstrate an understanding of freezing or chilling of food products.
- Specific outcome 4.2: Prepare for freezing or chilling of a food product.
- Specific outcome 4.3: Freeze or chill a food product.
- Specific outcome 4.4: Perform end of freezing or chilling procedures.



**5. TITLE: CONDITION AND EXPRESS OIL FROM OIL PLANT SEEDS.**

Specific outcome 5.1: Demonstrate an understanding on conditioning and expressing oil from oil plant seeds.

Specific outcome 5.2: Prepare the oil plant seeds for conditioning and expressing of oil.

Specific outcome 5.3: Condition oil seeds using automated equipment.

Specific outcome 5.4: Express oil from conditioned oil plant seeds.

Specific outcome 5.5: Perform end of conditioning and expressing procedures.

**6. TITLE: EXTRACT AND FILTER OILS USING A CHEMICAL PROCESS.**

Specific outcome 6.1: Demonstrate an understanding of extracting and filtering of oils using a chemical process.

Specific outcome 6.2: Prepare for extracting and filtering of oils using a chemical solvent.

Specific outcome 6.3: Extract and filter oils using a chemical solvent.

Specific outcome 6.4: Perform end of filtering and extracting procedures.

**7. TITLE: REFINE CRUDE OILS USING AUTOMATED PROCESSING EQUIPMENT.**

Specific outcome 7.1: Demonstrate an understanding of crude refining oils.

Specific outcome 7.2: Prepare for refining of crude oils.

Specific outcome 7.3: Refine crude oils.

Specific outcome 7.4: Perform end of refining procedures.

**8. TITLE: CONVERT EDIBLE OILS INTO FATS USING AUTOMATED EQUIPMENT.**

Specific outcome 8.1: Demonstrate an understanding on converting edible oils into fats.

Specific outcome 8.2: Prepare for the conversion of processes of edible oils into fats.

Specific outcome 8.3: Convert edible oil into a fat.

Specific outcome 8.4: Perform end of oil into fat converting procedures.

**9. TITLE: MONITOR THE TEMPERATURE OF FOOD PRODUCTS AND THEIR ENVIRONMENT FOR QUALITY CONTROL PURPOSES.**

- Specific outcome 9.1: Demonstrate an understanding of temperature monitoring in the food environment.
- Specific outcome 9.2: Prepare for monitoring temperature in the food environment.
- Specific outcome 9.3: Monitor the temperature of food products and their environment.
- Specific outcome 9.4: Perform end of temperature monitoring procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**

- Specific outcome 1.1: Demonstrate an understanding of the sensory quality of a food product.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of a food product.
- Specific outcome 1.3: Determine the sensory quality of a food product.
- Specific outcome 1.4: Report on the sensory quality of a food product.

**CHOCOLATE CONFECTIONERY PROCESSING**

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**

- Specific outcome 1.1: Demonstrate an understanding of pre-batching.
- Specific outcome 1.2: Prepare for pre-batching of raw materials.
- Specific outcome 1.3: Weigh and measure raw materials.
- Specific outcome 1.4: Perform end of pre-batching procedures.

**2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**

- Specific outcome 2.1: Demonstrate an understanding of the role of mixing or blending in product formulation.
- Specific outcome 2.2: Prepare for mixing or blending of food raw materials.

Specific outcome 2.3: Mix or blend food raw materials.

Specific outcome 2.4: Perform end of mixing or blending procedures.

### UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

**1. TITLE: MANUFACTURE LAYERED CONFECTIONERY PRODUCTS.**

Specific outcome 1.1: Demonstrate an understanding of layered confectionery manufacturing.

Specific outcome 1.2: Prepare for layering confectionery products.

Specific outcome 1.3: Manufacture layered confectionery products.

Specific outcome 1.4: Perform end of layered confectionery procedures.

**2. TITLE: MOULD CONFECTIONERY PRODUCTS.**

Specific outcome 2.1: Demonstrate an understanding of moulding of confectionery products.

Specific outcome 2.2: Prepare for moulding.

Specific outcome 2.3: Mould confectionery products.

Specific outcome 2.4: Perform end of moulding procedures.

**3. TITLE: TEMPER LIQUID CHOCOLATE USING AUTOMATED TEMPERING EQUIPMENT.**

Specific outcome 3.1: Demonstrate an understanding of automated tempering equipment.

Specific outcome 3.2: Prepare to temper liquid chocolate.

Specific outcome 3.3: Temper liquid chocolate.

Specific outcome 3.4: Perform end of tempering procedures.

**4. TITLE: TEMPER LIQUID CHOCOLATE MANUALLY.**

Specific outcome 4.1: Demonstrate an understanding of manual tempering of chocolate.

Specific outcome 4.2: Prepare to temper liquid chocolate manually.

Specific outcome 4.3: Temper liquid chocolate manually.

Specific outcome 4.4: Perform end of manual tempering procedures.

**5. TITLE: MANUFACTURE CONFECTIONERY PRODUCTS USING A SINGLE SHOT MOULDING PROCESS.**

Specific outcome 5.1: Demonstrate an understanding of the single shot moulding process.

Specific outcome 5.2: Prepare to manufacture confectionery products using the single shot moulding process.

Specific outcome 5.3: Manufacture confectionery products using the single shot moulding process.

Specific outcome 5.4: Perform end of single shot moulding procedures.

**6. TITLE: ENROBE CONFECTIONERY PRODUCTS.**

Specific outcome 6.1: Demonstrate an understanding of enrobing of confectionery products.

Specific outcome 6.2: Prepare for enrobing of confectionery products.

Specific outcome 6.3: Enrobe confectionery products.

Specific outcome 6.4: Perform end of enrobing procedures.

**7. TITLE: MANUFACTURE HOLLOW-MOULDED CHOCOLATE CONFECTIONERY PRODUCTS.**

Specific outcome 7.1: Demonstrate an understanding of hollow- moulded confectionery products.

Specific outcome 7.2: Prepare for hollow- moulding of confectionery products.

Specific outcome 7.3: Hollow-mould chocolate confectionery products.

Specific outcome 7.4: Perform end of moulding procedures.

**8. TITLE: AERATE A CONFECTIONERY PRODUCT.**

Specific outcome 8.1: Demonstrate an understanding of aerating of confectionery products.

Specific outcome 8.2: Prepare for aerating of a confectionery product.

Specific outcome 8.3: Aerate confectionery products.

Specific outcome 8.4: Perform end of aerating procedures.

**9. TITLE: ROAST BEANS OR NUTS.**

- Specific outcome 9.1: Demonstrate an understanding of bean or nut roasting.
- Specific outcome 9.2: Prepare for bean or nut roasting.
- Specific outcome 9.3: Clean beans or nuts for roasting.
- Specific outcome 9.4: Roast the beans or nuts.
- Specific outcome 9.5: Perform end of roasting procedures.

**10. TITLE: COOK CONFECTIONERY MIXTURES USING CONTINUOUS EQUIPMENT.**

- Specific outcome 10.1: Demonstrate an understanding of cooking of confectionery mixtures.
- Specific outcome 10.2: Prepare for cooking of confectionery mixtures.
- Specific outcome 10.3: Cook a confectionery mixture.
- Specific outcome 10.4: Perform end of cooking procedures.

**11. TITLE: MONITOR THE TEMPERATURE OF FOOD PRODUCTS AND THEIR ENVIRONMENT FOR QUALITY CONTROL PURPOSES.**

- Specific outcome 11.1: Demonstrate an understanding of temperature monitoring in the food environment.
- Specific outcome 11.2: Prepare for monitoring temperature in the food environment.
- Specific outcome 11.3: Monitor the temperature of food products and their environment.
- Specific outcome 11.4: Perform end of temperature monitoring procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4****1. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**

- Specific outcome 1.1: Demonstrate an understanding of the sensory quality of a food product.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of a food product.

Specific outcome 1.3: Determine the sensory quality of a food product.

Specific outcome 1.4: Report on the sensory quality of a food product.

**2. TITLE: PAN CONFECTIONERY PRODUCTS.**

Specific outcome 2.1: Demonstrate an understanding of panning confectionery products.

Specific outcome 2.2: Prepare to pan confectionery products.

Specific outcome 2.3: Pan confectionery products.

Specific outcome 2.4: Perform end of panning procedures.

**3. TITLE: MANUFACTURE STARCH MOULDED CONFECTIONERY PRODUCTS.**

Specific outcome 3.1: Demonstrate an understanding on starch moulding of confectionery products.

Specific outcome 3.2: Prepare for starch moulding and depositing of confectionery mass.

Specific outcome 3.3: Manufacture starch moulds.

Specific outcome 3.4: Mould confectionery products.

Specific outcome 3.5: Perform end of starch moulding procedures.

**4. TITLE: REFINE AND CONCH CHOCOLATE MASS OR COMPOUND.**

Specific outcome 4.1: Demonstrate an understanding of refining and conching a chocolate mass or a compound.

Specific outcome 4.2: Prepare to refining and conching a chocolate mass or compound.

Specific outcome 4.3: Refine a chocolate mass or a compound.

Specific outcome 4.4: Conch a chocolate mass or a compound.

Specific outcome 4.5: Perform end of refining and conching procedures.

**5. TITLE: MANUFACTURE WAFER PRODUCTS.**

Specific outcome 5.1: Demonstrate an understanding on wafer manufacturing.

Specific outcome 5.2: Prepare to manufacture wafer products.

Specific outcome 5.3: Manufacture wafer products.

Specific outcome 5.4: Perform end of wafer manufacturing procedures.

**6. TITLE: MANUFACTURE CHOCOLATE CRUMB.**

Specific outcome 6.1: Demonstrate understanding of chocolate crumb manufacturing.

Specific outcome 6.2: Prepare to manufacture chocolate crumb.

Specific outcome 6.3: Manufacture chocolate crumb.

Specific outcome 6.4: Perform end of chocolate crumb manufacturing procedures.

**SUGAR CONFECTIONERY PROCESSING**

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of pre-batching.

Specific outcome 1.2: Prepare for pre-batching of raw materials.

Specific outcome 1.3: Weigh and measure raw materials.

Specific outcome 1.4: Perform end of pre-batching procedures.

**2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**

Specific outcome 2.1: Demonstrate an understanding of the role of mixing or blending in product formulation.

Specific outcome 2.2: Prepare for mixing or blending of food raw materials.

Specific outcome 2.3: Mix or blend food raw materials.

Specific outcome 2.4: Perform end of mixing or blending procedures.

**3. TITLE: TEMPER SUGAR CONFECTIONERY MASS.**

Specific outcome 3.1: Demonstrate an understanding of tempering sugar confectionery.

Specific outcome 3.2: Prepare to temper sugar confectionery cooked mass.

Specific outcome 3.3: Temper sugar confectionery cooked mass.



Specific outcome 3.4: Perform end of tempering procedures.

**4. TITLE: CUT-AND-WRAP CONFECTIONERY PRODUCTS USING AUTOMATED PRODUCTION EQUIPMENT.**

Specific outcome 4.1: Demonstrate an understanding of cutting-and-wrapping of confectionery products.

Specific outcome 4.2: Prepare for cutting-and-wrapping of confectionery products.

Specific outcome 4.3: Cut-and-wrap confectionery products.

Specific outcome 4.4: Perform end of cutting-and-wrapping procedures.

**5. TITLE: FORM AND PRESS CONFECTIONERY TABLETS.**

Specific outcome 5.1: Demonstrate an understanding of the forming and pressing of confectionery tablets.

Specific outcome 5.2: Prepare for forming and pressing of confectionery tablets.

Specific outcome 5.3: Form and press of confectionery tablets.

Specific outcome 5.4: Perform end of tablet, forming and pressing procedures.

**6. TITLE: MANUFACTURE FONDANT.**

Specific outcome 6.1: Demonstrate an understanding of fondant manufacturing.

Specific outcome 6.2: Prepare for fondant manufacturing.

Specific outcome 6.3: Manufacture a fondant.

Specific outcome 6.4: Perform end of fondant manufacturing procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: MANUFACTURE LAYERED CONFECTIONERY PRODUCTS.**

Specific outcome 1.1: Demonstrate an understanding of layered confectionery manufacturing.

Specific outcome 1.2: Prepare for layering confectionery products.

Specific outcome 1.3: Manufacture layered confectionery products.

Specific outcome 1.4: Perform end of layered confectionery procedures.

**2. TITLE:                    MOULD CONFECTIONERY PRODUCTS.**

- Specific outcome 2.1: Demonstrate an understanding of moulding of confectionery products.
- Specific outcome 2.2: Prepare for moulding.
- Specific outcome 2.3: Mould confectionery products.
- Specific outcome 2.4: Perform end of moulding procedures.

**3. TITLE:                    MANUFACTURE CONFECTIONERY PRODUCTS USING A SINGLE SHOT MOULDING PROCESS.**

- Specific outcome 3.1: Demonstrate an understanding of a single shot moulding process.
- Specific outcome 3.2: Prepare to manufacture confectionery products using the single shot moulding process.
- Specific outcome 3.3: Manufacture confectionery products using the single shot moulding process.
- Specific outcome 3.4: Perform end of single shot moulding procedures.

**4. TITLE:                    COOK CONFECTIONERY MIXTURES USING CONTINUOUS EQUIPMENT.**

- Specific outcome 4.1: Demonstrate an understanding of cooking of confectionery mixtures.
- Specific outcome 4.2: Prepare for cooking of confectionery mixtures.
- Specific outcome 4.3: Cook a confectionery mixture.
- Specific outcome 4.4: Perform end of cooking procedures.

**5. TITLE:                    MONITOR THE TEMPERATURE OF FOOD PRODUCTS AND THEIR ENVIRONMENT FOR QUALITY CONTROL PURPOSES.**

- Specific outcome 5.1: Demonstrate an understanding of temperature monitoring in the food environment.
- Specific outcome 5.2: Prepare for monitoring temperature in the food environment.
- Specific outcome 5.3: Monitor the temperature of food products and their environment.
- Specific outcome 5.4: Perform end of temperature monitoring procedures.

**6. TITLE: AERATE A CONFECTIONERY PRODUCT.**

- Specific outcome 6.1: Demonstrate an understanding of aerating of confectionery products.
- Specific outcome 6.2: Prepare for aerating of confectionery products.
- Specific outcome 6.3: Aerate confectionery products.
- Specific outcome 6.4: Perform end of aerating procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4****1. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**

- Specific outcome 1.1: Demonstrate an understanding of the sensory quality of a food product.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of a food product.
- Specific outcome 1.3: Determine the sensory quality of a food product.
- Specific outcome 1.4: Report on the sensory quality of a food product.

**2. TITLE: PAN CONFECTIONERY PRODUCTS.**

- Specific outcome 2.1: Demonstrate an understanding of panning of confectionery products.
- Specific outcome 2.2: Prepare to pan confectionery products.
- Specific outcome 2.3: Pan confectionery products.
- Specific outcome 2.4: Perform end of panning procedures.

**3. TITLE: MANUFACTURE STARCH MOULDED CONFECTIONERY PRODUCTS.**

- Specific outcome 3.1: Demonstrate an understanding of starch moulding of confectionery products.
- Specific outcome 3.2: Prepare for starch moulding and depositing of confectionery mass.
- Specific outcome 3.3: Manufacture starch moulds.
- Specific outcome 3.4: Mould confectionery products.
- Specific outcome 3.5: Perform end of starch moulding procedures.

**FISH OR SEAFOOD PROCESSING****UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2****1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of pre-batching.

Specific outcome 1.2: Prepare for pre-batching of raw materials.

Specific outcome 1.3: Weigh and measure raw materials.

Specific outcome 1.4: Perform end of pre-batching procedures.

**2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**

Specific outcome 2.1: Demonstrate an understanding of the role of mixing or blending in product formulation.

Specific outcome 2.2: Prepare for mixing or blending of food raw materials.

Specific outcome 2.3: Mix or blend food raw materials.

Specific outcome 2.4: Perform end of mixing or blending procedures.

**3. TITLE: SORT AND HANDLE RAW SEAFOOD MANUALLY.**

Specific outcome 3.1: Demonstrate an understanding of identifying seafood species and their handling procedures.

Specific outcome 3.2: Prepare to sort and handle raw seafood.

Specific outcome 3.3: Sort and handle raw seafood.

Specific outcome 3.4: Perform end of sorting and handling procedures.

**4. TITLE: FLECK AND FILLET FISH MANUALLY.**

Specific outcome 4.1: Demonstrate an understanding of the flecking and fillet cutting process.

Specific outcome 4.2: Prepare to fleck and fillet cut fish manually.

Specific outcome 4.3: Fleck and fillet cut fish manually.

Specific outcome 4.4: Perform end of flecking and fillet cutting procedures.

**5. TITLE: TRIM AND PORTION CUT FISH FILLETS MANUALLY.**

Specific outcome 5.1: Demonstrate an understanding of the manual trimming and

- portioning process for cut fish fillets.
- Specific outcome 5.2: Prepare to trim and portion cut fish fillets manually.
- Specific outcome 5.3: Trim and portion cut fish fillets manually.
- Specific outcome 5.4: Perform end of trimming and portion cutting of fish fillets.
- 6. TITLE: MINCE FISH OR MEAT USING AUTOMATED MINCING EQUIPMENT.**
- Specific outcome 6.1: Demonstrate understanding of mincing fish or meat.
- Specific outcome 6.2: Prepare for the mincing fish or meat.
- Specific outcome 6.3: Mince the fish or meat.
- Specific outcome 6.4: Perform end of mincing procedures.
- 7. TITLE: COAT OR DIP A FOOD PRODUCT USING AUTOMATED EQUIPMENT.**
- Specific outcome 7.1: Demonstrate an understanding of coating or dipping procedures for food products.
- Specific outcome 7.2: Prepare for coating or dipping of a food product.
- Specific outcome 7.3: Coat or dip a food product.
- Specific outcome 7.4: Perform end of coating or dipping procedures.

### UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

- 1. TITLE: STERILISE A FOOD PRODUCT USING RETORTING EQUIPMENT.**
- Specific outcome 1.1: Demonstrate an understanding of sterilisation using a retort.
- Specific outcome 1.2: Prepare a retort for sterilisation.
- Specific outcome 1.3: Sterilise a food product in a retort.
- Specific outcome 1.4: Perform end of sterilisation procedures.
- 2. TITLE: FRY FOOD PRODUCTS USING VACUUM OR ATMOSPHERIC FRYING EQUIPMENT.**
- Specific outcome 2.1: Demonstrate an understanding of the frying principles of food products.

Specific outcome 2.2: Prepare for frying of food products.

Specific outcome 2.3: Fry food products.

Specific outcome 2.4: Perform end of frying procedures.

**3. TITLE: FREEZE OR CHILL A FOOD PRODUCT.**

Specific outcome 3.1: Demonstrate an understanding of freezing or chilling of food products.

Specific outcome 3.2: Prepare for freezing or chilling of a food product.

Specific outcome 3.3: Freeze or chill a food product.

Specific outcome 3.4: Perform end of freezing or chilling procedures.

**4. Title: Title: Form or fill raw minced fish or meat products using automated equipment.**

Specific outcome 4.1: Demonstrate an understanding of forming or filling of raw minced fish or meat products.

Specific outcome 4.2: Prepare for forming or filling of raw minced fish or meat products.

Specific outcome 4.3: Form or fill raw minced fish or meat products.

Specific outcome 4.4: Perform end of forming or filling of raw minced fish or meat products procedures.

**5. TITLE: MANUFACTURE CURED FISH OR MEAT PRODUCTS.**

Specific outcome 5.1: Demonstrate an understanding of the curing process for fish or meat products.

Specific outcome 5.2: Prepare for curing fish or meat products.

Specific outcome 5.3: Cure fish or meat products.

Specific outcome 5.4: Perform end of fish or meat curing procedures.

**6. TITLE: PROCESS AND PACK LIVE SEAFOOD.**

Specific outcome 6.1: Demonstrate an understanding of the processing and packing procedures of live seafood.

Specific outcome 6.2: Prepare to process and pack live seafood.

Specific outcome 6.3: Process and pack live seafood.

Specific outcome 6.4: Perform end of processing and packing procedures.

**7. TITLE: PREPARE RAW FISH OR SEAFOOD FOR FURTHER PROCESSING.**

Specific outcome 7.1: Demonstrate an understanding of preparation techniques for raw fish or seafood for processing.

Specific outcome 7.2: Prepare raw fish or seafood for processing.

Specific outcome 7.3: Perform raw fish or seafood preparation procedures.

Specific outcome 7.4: Perform end of raw fish or seafood preparation procedures.

**8. TITLE: CUT FISH BY USE OF AUTOMATED EQUIPMENT.**

Specific outcome 8.1: Demonstrate an understanding of the automated fish cutting process.

Specific outcome 8.2: Prepare to automatically cut fish.

Specific outcome 8.3: Cut fish using automated equipment.

Specific outcome 8.4: Perform end of cutting procedures.

**9. TITLE: SMOKE FISH OR MEAT.**

Specific outcome 9.1: Demonstrate an understanding of smoking procedures for fish or meat products.

Specific outcome 9.2: Prepare for smoking of fish or meat products.

Specific outcome 9.3: Smoke fish or meat products.

Specific outcome 9.4: Perform end of fish or meat smoking procedures.

**10. Title: Salt and dry fish or meat.**

Specific outcome 10.1: Demonstrate an understanding of salting and drying of fish or meat.

Specific outcome 10.2: Prepare to salt and dry fish or meat.

Specific outcome 10.3: Salt and dry fish or meat.

Specific outcome 10.4: Perform end of salting and drying procedures.



**11. Title: Monitor the temperature of food products and their environment for quality control purposes.**

Specific outcome 11.1: Demonstrate an understanding of temperature monitoring in the food environment.

Specific outcome 11.2: Prepare for monitoring temperature in the food environment.

Specific outcome 11.3: Monitor the temperature of food products and their environment.

Specific outcome 11.4: Perform end of temperature monitoring procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

- 1. TITLE: DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN MICRO-ORGANISMS AND FOOD SPOILAGE.**
- Specific outcome 1.1: Demonstrate an understanding of the occurrence of micro-organisms in a food environment.
- Specific outcome 1.2: Demonstrate an understanding of the effect of food manufacturing processes on microbiological growth.
- Specific outcome 1.3: Demonstrate an understanding of determining the microbiological status in food products or a food manufacturing environment.
- Specific outcome 1.4: Demonstrate an understanding of microbiological food safety procedures and practices in a food environment.
- 2. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**
- Specific outcome 2.1: Demonstrate an understanding of the sensory quality of a food product.
- Specific outcome 2.2: Prepare for the determination of the sensory quality of a food product.
- Specific outcome 2.3: Determine the sensory quality of a food product.
- Specific outcome 2.4: Report on the sensory quality of a food product.

**MEAT PROCESSING****UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

- 1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**
- Specific outcome 1.1: Demonstrate an understanding of pre-batching.
- Specific outcome 1.2: Prepare for pre-batching of raw materials.
- Specific outcome 1.3: Weigh and measure raw materials.
- Specific outcome 1.4: Perform end of pre-batching procedures.

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- 2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**
- Specific outcome 2.1: Demonstrate an understanding of the role of mixing or blending in product formulation.
- Specific outcome 2.2: Prepare for mixing or blending of food raw materials.
- Specific outcome 2.3: Mix or blend food raw materials.
- Specific outcome 2.4: Perform end of mixing or blending procedures.
- 3. TITLE: PREPARE PIG CARCASSES FOR SPLITTING.**
- Specific outcome 3.1: Demonstrate an understanding of preparing pig carcasses for splitting.
- Specific outcome 3.2: Prepare for pig carcasses preparation procedures.
- Specific outcome 3.3: Perform pig carcasses preparation procedures.
- Specific outcome 3.4: Perform end of pig carcasses preparation procedures.
- 4. TITLE: DERIND AND DEBONE VARIOUS PORK CUTS.**
- Specific outcome 4.1: Demonstrate an understanding of derinding and deboning various pork cuts.
- Specific outcome 4.2: Prepare for derinding and deboning of various pork cuts.
- Specific outcome 4.3: Derind and debone various pork cuts.
- Specific outcome 4.4: Perform end of derinding and deboning procedures.
- 5. TITLE: SORT DEBONED PORK CUTS FOR FURTHER PROCESSING.**
- Specific outcome 5.1: Demonstrate an understanding of sorting deboned pork cuts for further processing.
- Specific outcome 5.2: Prepare for sorting of deboned pork cuts for further processing.
- Specific outcome 5.3: Sort deboned pork cuts for further processing.
- Specific outcome 5.4: Perform end of sorting of deboned pork cuts procedures.

6. **TITLE:** **MINCE FISH OR MEAT USING AUTOMATED MINCING EQUIPMENT.**
- Specific outcome 6.1: Demonstrate understanding of mincing fish or meat.
- Specific outcome 6.2: Prepare for the mincing fish or meat.
- Specific outcome 6.3: Mince the fish or meat.
- Specific outcome 6.4: Perform end of mincing procedures.
7. **TITLE:** **COAT OR DIP A FOOD PRODUCT USING AUTOMATED EQUIPMENT.**
- Specific outcome 7.1: Demonstrate an understanding of coating or dipping procedures for food products.
- Specific outcome 7.2: Prepare for coating or dipping of a food product.
- Specific outcome 7.3: Coat or dip a food product.
- Specific outcome 7.4: Perform end of coating or dipping procedures.

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

1. **TITLE:** **STERILISE A FOOD PRODUCT USING RETORTING EQUIPMENT.**
- Specific outcome 1.1: Demonstrate an understanding of sterilisation using a retort.
- Specific outcome 1.2: Prepare a retort for sterilisation.
- Specific outcome 1.3: Sterilise a food product in a retort.
- Specific outcome 1.4: Perform end of sterilisation procedures.
2. **TITLE:** **FRY FOOD PRODUCTS USING VACUUM OR ATMOSPHERIC FRYING EQUIPMENT.**
- Specific outcome 2.1: Demonstrate an understanding of the frying principles of food products.
- Specific outcome 2.2: Prepare for frying of food products.
- Specific outcome 2.3: Fry food products.
- Specific outcome 2.4: Perform end of frying procedures.

- 3. TITLE: FREEZE OR CHILL A FOOD PRODUCT.**
- Specific outcome 3.1: Demonstrate an understanding of freezing or chilling of food products.
- Specific outcome 3.2: Prepare for freezing or chilling of a food product.
- Specific outcome 3.3: Freeze or chill a food product.
- Specific outcome 3.4: Perform end of freezing or chilling procedures.
- 4. TITLE: SPLIT AND CUT PIG CARCASSES INTO PRIMAL CUTS.**
- Specific outcome 4.1: Demonstrate an understanding of the splitting and cutting of pig carcasses into primal cuts.
- Specific outcome 4.2: Prepare for splitting and cutting of pig carcasses into primal cuts.
- Specific outcome 4.3: Split and cut pig carcasses into primal cuts.
- Specific outcome 4.4: Perform end of splitting and cutting procedures.
- 5. TITLE: BREAK BEEF SIDES AND DEBONE PRIMAL BEEF CUTS.**
- Specific outcome 5.1: Demonstrate an understanding of breaking beef sides and deboning primal beef cuts.
- Specific outcome 5.2: Prepare for breaking of beef sides and deboning of primal beef cuts.
- Specific outcome 5.3: Break beef sides and debone primal beef cuts.
- Specific outcome 5.4: Perform end of breaking and deboning procedures.
- 6. TITLE: FORM OR FILL RAW MINCED FISH OR MEAT PRODUCTS USING AUTOMATED EQUIPMENT.**
- Specific outcome 6.1: Demonstrate an understanding of forming or filling of raw minced fish or meat products.
- Specific outcome 6.2: Prepare for forming or filling of raw minced fish or meat products.
- Specific outcome 6.3: Form or fill raw minced fish or meat products.
- Specific outcome 6.4: Perform end of forming or filling of raw minced fish or meat products procedures.

**7. TITLE: MANUFACTURE EMULSIFIED MEAT PRODUCTS.**

- Specific outcome 7.1: Demonstrate an understanding of emulsifying meat products.
- Specific outcome 7.2: Prepare for emulsification of meat products.
- Specific outcome 7.3: Emulsify and process meat products.
- Specific outcome 7.4: Perform end of emulsifying and processing procedures.

**8. TITLE: MANUFACTURE CURED FISH OR MEAT PRODUCTS.**

- Specific outcome 8.1: Demonstrate an understanding of the curing process for fish or meat products.
- Specific outcome 8.2: Prepare for curing fish or meat products.
- Specific outcome 8.3: Cure fish or meat products.
- Specific outcome 8.4: Perform end of fish or meat curing procedures.

**9. TITLE: SMOKE FISH OR MEAT.**

- Specific outcome 9.1: Demonstrate an understanding of smoking procedures for fish or meat products.
- Specific outcome 9.2: Prepare for smoking of fish or meat products.
- Specific outcome 9.3: Smoke fish or meat products.
- Specific outcome 9.4: Perform end of fish or meat smoking procedures.

**10. TITLE: SALT AND DRY FISH OR MEAT.**

- Specific outcome 10.1: Demonstrate an understanding of salting and drying of fish or meat.
- Specific outcome 10.2: Prepare to salt and dry fish or meat.
- Specific outcome 10.3: Salt and dry fish or meat.
- Specific outcome 10.4: Perform end of salting and drying procedures.

**11. TITLE: MONITOR THE TEMPERATURE OF FOOD PRODUCTS AND THEIR ENVIRONMENT FOR QUALITY CONTROL PURPOSES.**

- Specific outcome 11.1: Demonstrate an understanding of temperature monitoring in the food environment.

Specific outcome 11.2: Prepare for monitoring temperature in the food environment.

Specific outcome 11.3: Monitor the temperature of food products and their environment.

Specific outcome 11.4: Perform end of temperature monitoring procedures.

#### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN MICRO-ORGANISMS AND FOOD SPOILAGE.**

Specific outcome 1.1: Demonstrate an understanding of the occurrence of micro-organisms in a food environment.

Specific outcome 1.2: Demonstrate an understanding of the effect of food manufacturing processes on microbiological growth.

Specific outcome 1.3: Demonstrate an understanding of determining the microbiological status in food products or a food manufacturing environment.

Specific outcome 1.4: Demonstrate an understanding of microbiological food safety procedures and practices in a food environment.

**2. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**

Specific outcome 2.1: Demonstrate an understanding of the sensory quality of a food product.

Specific outcome 2.2: Prepare for the determination of the sensory quality of a food product.

Specific outcome 2.3: Determine the sensory quality of a food product.

Specific outcome 2.4: Report on the sensory quality of a food product.

**3. Title: Manufacture fermented meat sausages.**

Specific outcome 3.1: Demonstrate an understanding of fermented meat sausages.

Specific outcome 3.2: Prepare for fermentation of meat sausages.

Specific outcome 3.3: Ferment meat sausages.

Specific outcome 3.4: Perform end of meat fermentation procedures.



**FRUIT AND VEGETABLE PROCESSING****UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2****1. TITLE: PRE-BATCH FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of pre-batching.

Specific outcome 1.2: Prepare for pre-batching of raw materials.

Specific outcome 1.3: Weigh and measure raw materials.

Specific outcome 1.4: Perform end of pre-batching procedures.

**2. TITLE: MIX OR BLEND FOOD RAW MATERIALS FOR PROCESSING USING AUTOMATED EQUIPMENT.**

Specific outcome 2.1: Demonstrate an understanding of the role of mixing or blending in product formulation.

Specific outcome 2.2: Prepare for mixing or blending of food raw materials.

Specific outcome 2.3: Mix or blend food raw materials.

Specific outcome 2.4: Perform end of mixing or blending procedures.

**3. TITLE: PEEL FRUIT AND VEGETABLES FOR FURTHER PROCESSING.**

Specific outcome 3.1: Demonstrate an understanding of peeling fruit and vegetables.

Specific outcome 3.2: Prepare for the peeling of fruit and vegetables.

Specific outcome 3.3: Peel fruit and vegetables.

Specific outcome 3.4: Perform end of peeling procedures.

**4. TITLE: STORE AND ROUTE FOOD RAW MATERIALS.**

Specific outcome 4.1: Demonstrate an understanding on storage and routing of food raw materials.

Specific outcome 4.2: Prepare to store and route food raw materials.

Specific outcome 4.3: Store and route food raw materials.

Specific outcome 4.4: Perform end of storing and routing procedures.

**5. TITLE: COAT OR DIP A FOOD PRODUCT USING AUTOMATED EQUIPMENT.**

Specific outcome 5.1: Demonstrate an understanding of coating or dipping procedures for food products.

Specific outcome 5.2: Prepare for coating or dipping of a food product.

Specific outcome 5.3: Coat or dip a food product.

Specific outcome 5.4: Perform end of coating or dipping procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: RECEIVE FOOD RAW MATERIALS.**

Specific outcome 1.1: Demonstrate an understanding of receiving food raw materials.

Specific outcome 1.2: Prepare for food raw materials receiving.

Specific outcome 1.3: Receive food raw materials.

Specific outcome 1.4: Perform end of receiving procedures.

**2. TITLE: FUMIGATE FOOD RAW MATERIALS BEFORE FURTHER PROCESSING.**

Specific outcome 2.1: Demonstrate an understanding of fumigation of food raw materials for further processing.

Specific outcome 2.2: Prepare for fumigation of food raw materials for further processing.

Specific outcome 2.3: Fumigate food raw materials for further processing.

Specific outcome 2.4: Perform end of fumigation procedures.

**3. TITLE: GRADE AND SORT FOOD RAW MATERIALS.**

Specific outcome 3.1: Demonstrate an understanding of grading and sorting of food raw materials.

Specific outcome 3.2: Prepare for grading and sorting of food raw materials.

Specific outcome 3.3: Grade and sort food raw materials.

Specific outcome 3.4: Perform end of grading and sorting procedures.

**4. TITLE: SHAPE FRUIT AND VEGETABLES FOR FURTHER PROCESSING.**

Specific outcome 4.1: Demonstrate an understanding of shaping fruit and vegetables.

Specific outcome 4.2: Prepare for the shaping of fruit and vegetables.

Specific outcome 4.3: Shape fruit and vegetables.

Specific outcome 4.4: Perform end of shaping procedures.

**5. TITLE: PROCESS PREPARED FRUIT AND VEGETABLES.**

Specific outcome 5.1: Demonstrate an understanding of processing prepared fruit and vegetables.

Specific outcome 5.2: Prepare for the processing of prepared fruit and vegetables.

Specific outcome 5.3: Process prepared fruit and vegetables.

Specific outcome 5.4: Perform end of processing procedures.

**6. TITLE: STERILISE A FOOD PRODUCT USING RETORTING EQUIPMENT.**

Specific outcome 6.1: Demonstrate an understanding of sterilisation using a retort.

Specific outcome 6.2: Prepare a retort for sterilisation.

Specific outcome 6.3: Sterilise a food product in a retort.

Specific outcome 6.4: Perform end of sterilisation procedures.

**7. TITLE: FRY FOOD PRODUCTS USING VACUUM OR ATMOSPHERIC FRYING EQUIPMENT.**

Specific outcome 7.1: Demonstrate an understanding of the frying principles of food products.

Specific outcome 7.2: Prepare for frying of food products.

Specific outcome 7.3: Fry food products.

Specific outcome 7.4: Perform end of frying procedures.

**8. TITLE: FREEZE OR CHILL FOOD PRODUCTS.**

Specific outcome 8.1: Demonstrate an understanding of freezing or chilling of food products.

Specific outcome 8.2: Prepare for freezing or chilling of food products.

Specific outcome 8.3: Freeze or chill food products.

Specific outcome 8.4: Perform end of freezing or chilling procedures.

**9. TITLE: PASTEURISE A FOOD PRODUCT BY MEANS OF A BATCH PASTEURISER.**

Specific outcome 9.1: Demonstrate an understanding of batch pasteurisation of food product.

Specific outcome 9.2: Prepare to pasteurise a food product.

Specific outcome 9.3: Pasteurise a food product in a batch pasteuriser.

Specific outcome 9.4: Perform end of pasteurisation procedures.

**10. TITLE: EVAPORATE A FOOD PRODUCT BY MEANS OF AN ATMOSPHERIC OR VACUUM TYPE EVAPORATOR.**

Specific outcome 10.1: Demonstrate an understanding of evaporation of food products.

Specific outcome 10.2: Prepare for evaporation of a food product.

Specific outcome 10.3: Evaporate a food product.

Specific outcome 10.4: Perform end of evaporation procedures.

**11. TITLE: DEHYDRATE FOOD PRODUCTS.**

Specific outcome 11.1: Demonstrate an understanding of dehydration of food products.

Specific outcome 11.2: Prepare for dehydrating of food products.

Specific outcome 11.3: Dehydrate food products.

Specific outcome 11.4: Perform end of dehydration procedures.

**12. TITLE: MONITOR THE TEMPERATURE OF FOOD PRODUCTS AND THEIR ENVIRONMENT FOR QUALITY CONTROL PURPOSES.**

Specific outcome 12.1: Demonstrate an understanding of temperature monitoring in the food environment.

Specific outcome 12.2: Prepare for monitoring temperature in the food environment.

Specific outcome 12.3: Monitor the temperature of food products and their environment.

Specific outcome 12.4: Perform end of temperature monitoring procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4****1. TITLE: DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN MICRO-ORGANISMS AND FOOD SPOILAGE.**

Specific outcome 1.1: Demonstrate an understanding of the occurrence of micro-organisms in a food environment.

Specific outcome 1.2: Demonstrate an understanding of the effect of food manufacturing processes on microbiological growth.

Specific outcome 1.3: Demonstrate an understanding of determining the microbiological status in food products or a food manufacturing environment.

Specific outcome 1.4: Demonstrate an understanding of microbiological food safety procedures and practices in a food environment.

**2. TITLE: DETERMINE THE QUALITY OF FOOD PRODUCTS USING SENSORY EVALUATION.**

Specific outcome 2.1: Demonstrate an understanding of the sensory quality of a food product.

Specific outcome 2.2: Prepare for the determination of the sensory quality of a food product.

Specific outcome 2.3: Determine the sensory quality of a food product.

Specific outcome 2.4: Report on the sensory quality of a food product.

**NOTICE 832 OF 2001****SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

**BEVERAGES**

Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards-based qualifications for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications and unit standards can be accessed via the SAQA web-site at [www.saqa.co.za](http://www.saqa.co.za). Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the qualifications and unit standards should reach SAQA at the address ***below and no later than 12 May 2001***. All correspondence should be marked **Standards Setting – SGB for Higher Education and Training** and addressed to

The Director: Standard Setting and Development  
SAQA  
*Attention: Mrs S. Vasuthevan*  
Postnet Suite 248  
Private Bag X06  
Waterkloof  
0145  
or faxed to 012 – 346 5812



**SAMUEL B.A. ISAACS**  
**EXECUTIVE OFFICER**

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PACKAGING**

**FIELD:** MANUFACTURING, ENGINEERING AND TECHNOLOGY

**SUB-FIELD:** MANUFACTURING AND ASSEMBLY

**NQF LEVEL:** 3

**CREDITS:** 120

**PURPOSE:**

A qualifying learner will be able to operate and perform basis maintenance on an automated beverage packaging equipment and machinery with in a beverage packaging environment.

Note: The fundamental and core components of this qualification are generic to the food and beverage sector. The elective component is specific to the beverage industry however other unit standard titles have been included from the Food Standard Generating Body.

**RATIONALE:**

The typical learner identified to benefit from this qualification will be a person operating equipment on automated food and beverage packaging line. At present there is no such qualification and this qualification will fill a priority identified by the Food and Beverage SETA sector skills plan. This qualification will provide the basis for further learning in packaging management. This qualification will improve the effectiveness and productivity of the beverage manufacturing process in South Africa and thus provide an impetus for improved global competitiveness



## Qualification Matrix

Component	Standard Title	Level	Credit	Total
<b>FUNDAMENTAL</b>	Communication	3	20	
	Mathematical literacy	3	16	<b>36</b>
<b>CORE</b>	Demonstrate understanding of Occupational Health & Safety, environmental legislation and procedures relevant to the beverage processing environment*	2	5	
	Demonstrate understanding of the principles of science and technology that relate to the beverage processing environment	3	4	
	Demonstrate understanding of food safety, health and hygiene procedures including HACCP in the beverage processing environment	3	8	
	Demonstrate understanding of quality control and continuous improvement techniques in a manufacturing environment	3	12	
	Demonstrate understanding of continuous first-line operation maintenance (including lubrication, hand skills and hand tools)	3	8	
	Demonstrate understanding of basic business principles and supply chain management (including customer orientation)	1	5	
	Apply basic computer skills (Registered)	1	2	<b>44</b>
<b>ELECTIVE</b>	Operate Filling process on a Food and Beverages Automated Packaging Line	3	18	
	Operate Labelling Process on a Food and Beverages Automated Packaging Line	3	12	
	Operate Washing Process on a Food and Beverages Automated Packaging Line	2	10	
	Operate Closing Process on a Food and Beverages Automated Packaging Line	2	8	
	Operate Packaged Product Pasteurising Process on a Food and Beverages Automated Packaging Line	2	8	
	Operate Unpacking Process on a Food and Beverages Automated Packaging Line	2	8	
	Operate the Inspection and Coding Process on a Food and Beverages Automated Packaging Line	2	12	

Component	Standard Title	Level	Credit	Total
<b>ELECTIVE</b>	Operate the Shrink-wrapping Equipment on a Food and Beverages Automated Packaging Line	2	12	
	Operate Packing Process on a Food and Beverages Automated Packaging Line	2	8	
	Operate and control aseptic forming, filling and sealing of containers for food products *	3	18	
	Autopack and palletise food containers manually*	1	2	
	Control and maintain packaging line hoppers *	1	3	
	Operate and control the tamperproof sealing of already filled and closed containers*	2	2	Minimum required <b>40</b>
	* Please note that these unit standards have been submitted to SAQA by the Food Manufacturing SGB			<b>120</b>

## UNIT STANDARDS FOR NATIONAL CERTIFICATE FOOD AND BEVERAGE PACKAGING

### Unit Standards Titles at NQF Level 2

1. Operate washing process on a food and beverages automated packaging line
2. Operate closing process on a food and beverages automated packaging line
3. Operate packaged product pasteurising process on a food and beverages automated packaging line
4. Operate the unpacking process on a food and beverages automated packaging line
5. Operate the inspection and coding process on a food and beverages automated packaging line
6. Operate shrink-wrapping equipment on a food and beverages automated packaging line
7. Operate packing process on a food and beverages automated packaging line

### UNIT STANDARD TITLES AND SPECIFIC OUTCOMES FOR NQF LEVEL 2

**1.Title: Operate washing process on a food and beverages automated packaging line**

- Specific Outcome 1: Prepare and start washing equipment.
- Procedures, preparation and start up of washing equipment
  - Raw material: bottles, crates, trays, barrels, detergent and detergent additives.
- Specific Outcome 2: Operate washing equipment.
- Procedures for monitoring and controlling of washing equipment.
  - Role of the washing process in the packaging of beverages.
  - Statistical techniques for sampling, monitoring and controlling of the quality of the washing process.
- Specific Outcome 3: Shut down washing equipment.
- Procedures for shut down of washing equipment
- Specific Outcome 4: Prepare for and perform changeovers on washing equipment.
- Preparation of and changeover of washing equipment.
- Specific Outcome 5: Perform first line maintenance on washing equipment.
- First line maintenance of washing equipment including lubricants, cleaning materials and basic hand tools.

**2. Title: Operate closing process on a food and beverages automated packaging line**

- Specific Outcome 1: Prepare and start closing equipment:
- Procedures for closing and start up of closing equipment
  - Raw material: bottles, cans cartons, bags, barrels, sachets, pouches, trays, corks, caps, can ends, lids, film, foil and crowns.
- Specific Outcome 2: Operate closing equipment:
- Procedures for the operation of closing equipment.
  - Role of the closing process in the packaging beverages.
  - Statistical techniques for sampling, monitoring and controlling the quality of closing equipment.
- Specific Outcomes 3: Shut down closing equipment:
- Procedures for shut of closing equipment.
- Specific Outcomes 4: Prepare for and perform changeovers on closing equipment:
- Procedures for preparation for and changeover of closing equipment.
- Specific Outcome 5: Perform first line maintenance on closing equipment:
- First line maintenance of closing equipment including lubricants, leaning materials and basic hand tools.

**3. Title: Operate packaged product pasteurising process on a food and beverages automated packaging line**

- Specific Outcome 1: Prepare and start packaged product pasteurising equipment
- Procedures for preparation and start up of packaged product pasteurising equipment
  - Raw material: bottles, cans trays, pouches, barrels bags and detergent additives.
- Specific Outcome 2: Monitor and control packaged product pasteurising equipment
- Procedures for monitoring and controlling of packaged product pasteurising equipment
  - Role of the packaged product pasteurising process in the packaging of beverages.
  - Statistical techniques for sampling, monitoring and controlling the quality of packaged product pasteurising process

- Microbiology and chemistry related to pasteurisation: Pasteurisation Units, Lethal Rate curves, and destruction of micro-organisms.
- Specific Outcome 3: Shut down packaged product pasteurising equipment:
  - Procedures for shut down of packaged product pasteurising equipment.
- Specific Outcome 4: Prepare for and perform changeovers on packaged product pasteurising equipment
  - Preparation for and changeover of packaged product pasteurising equipment is demonstrated as per standard operating procedure.
- Specific Outcome 5: Perform first line maintenance
  - First line maintenance of packaged product pasteurising equipment including lubricants, cleaning materials, water treatment and basic hand tools.

**4. Title: Operate unpacking process on a food and beverages automated packing line**

- Specific Outcome 1: Prepare and start unpacking equipment:
  - Procedures for preparation and start-up of unpacking equipment.
  - Raw materials: bottles, cans, crates, cartons, stand alone pouches, trays, bags, barrels, pallets and layerboards.
- Specific Outcome 2: Operate unpacking equipment:
  - Procedures for operation of unpacking equipment.
  - Role of the unpacking process in the packaging of beverages.
  - Statistical techniques for sampling, monitoring and controlling the quality of the unpacking equipment.
- Specific Outcome 3: Shut down inspection and coding equipment:
  - Procedures for shut down of unpacking equipment.
- Specific Outcome 4: Prepare for and perform changeovers on inspection and coding equipment:
  - Preparation for and changeover of unpacking equipment.
- Specific Outcome 5: Perform first line maintenance:
  - First line maintenance of unpacking equipment including lubricants, cleaning materials and basic hand tools.

**5. Title: Operate the inspection and coding process on a food and beverages automated packaging line**

- Specific Outcome 1: Prepare and start inspection and coding equipment:
- Procedures for preparation and start-up for inspection and coding equipment.
  - Raw materials: bottles, cans, crates, pouches, bags, barrels, boxes, cartons, trays, pallets, ink and bar-coding strips.
- Specific Outcome 2: Operate inspection and coding equipment:
- Procedures for operation of inspection and coding equipment.
  - Role of the inspection and coding process in the packaging of beverages.
  - Statistical techniques for sampling, monitoring and controlling the quality of the inspection and coding equipment.
- Specific Outcome 3: Shut down inspection and coding equipment:
- Procedures for shut down of inspection and coding equipment.
- Specific Outcome 4: Prepare for and perform changeovers on inspection and coding equipment:
- Preparation for and changeover of inspection and coding equipment.
- Specific Outcome 5: Perform first line maintenance:
- First line maintenance of inspection and coding equipment including lubricants, cleaning materials and basic hand tools.

**6. Title: Operate shrink-wrapping equipment on a food and beverage automated packaging line**

- Specific Outcome 1: Prepare and start shrink-wrapping equipment:
- Procedures for preparation and start-up of shrink-wrapping equipment.
  - Raw materials: Shrink-wrapping material (branded and unbranded).
- Specific Outcome 2: Operate shrink-wrapping equipment:
- Procedures for the operation of shrink-wrapping equipment.
  - Role of the shrink-wrapping process in the packing of beverages.
  - Statistical techniques for sampling, monitoring and controlling the quality of shrink-wrapping equipment.

- Specific Outcome 3: Shut down shrink-wrapping equipment:
- Procedure for the shut down of shrink-wrapping equipment.
- Specific Outcome 4: Prepare for and perform changeovers on shrink-wrapping equipment:
- Preparation for and changeover of shrink-wrapping equipment including lubricants, cleaning materials and basic hand tools.
- Specific Outcome 5: Perform first line maintenance:
- First line maintenance of shrink-wrapping equipment including lubricants, cleaning materials and basic hand tools.

**7. Title: Operate packing process on a food and beverages automated packaging line**

- Specific Outcome 1: Prepare and start up packing equipment
- Procedures for preparation and start up of packing equipment
  - Raw materials: bottles, cans, bags, pouches, barrels, trays, foils, film, crates, cartons, pallets, stretchwrapping, layerboards and glue.
- Specific Outcome 2: Operate packing equipment.
- Procedures for the operation of the packing equipment.
  - Role of the packing process in the packing of beverages.
  - Statistical techniques for sampling, monitoring and controlling quality of packing equipment.
- Specific Outcome 3: Shut down packing equipment.
- A procedure for shut down of packing equipment is demonstrated as per standard operating procedure.
- Specific Outcome 4: Prepare for and perform changeovers of packing equipment.
- Preparation for and changeover of packing equipment is demonstrated as per standard operating procedure.
- Specific Outcome 5: Perform first line maintenance.
- First line maintenance of packing equipment including lubricants, cleaning materials and basic hand tools.



**Unit Standards Titles at Level 3**

1. Operate Filling process on a Food and Beverages Automated Packaging Line
2. Operate Labelling Process on a Food and Beverages Automated Packaging Line

**1. Title: Operate filling process on food and a beverage automated packaging line**

Specific Outcome 1: Prepare and start filling equipment:

- Procedures for preparation and start up of filling equipment.
- Raw material: bottles, cans, barrels, bags, trays, pouches, sachets, and in process product.

Specific Outcome 2: Operate filling equipment:

- Procedures for operating of filling equipment.
- Role of the filling process in the packaging of beverages.
- Statistical techniques for sampling, monitoring and controlling the quality of the filling process.

Specific Outcome 3: Shut down filling equipment:

- Procedures for shut down of filling equipment.

Specific Outcome 4: Prepare for and perform changeovers on filling equipment:

- Preparation for and changeover of filling equipment.

Specific Outcome 5: Perform first line maintenance:

- First line maintenance of filling equipment including lubricants, cleaning material, cleaning chemicals and basic hand tools.

**2. Title: Operate labelling process on a food and beverages automated packing line**

Specific Outcome 1: Prepare and start labelling equipment:

- Procedures for preparation and start up of labelling equipment.
- Raw materials: bottles, cans, bags, barrels, trays, labels, foil, glue, pouches and cases.

Specific Outcome 2: Operate labelling equipment:

- Procedures for the operation of labelling equipment.
- Role of the labelling process in the packing of beverages.
- Statistical techniques for sampling, monitoring and controlling of the quality of the labelling equipment

- Specific Outcome 3: Shut down labelling equipment:
- Procedures for shut down of labelling equipment.
- Specific Outcome 4: Prepare for and perform changeovers on labelling equipment:
- Preparation for and changeover of labelling equipment
- Specific Outcome 5: Perform first line maintenance on labelling equipment:
- First line maintenance of labelling equipment including lubricants, cleaning materials and basic hand tools.

**NOTICE 833 OF 2001****SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

**PLASTICS MANUFACTURING**

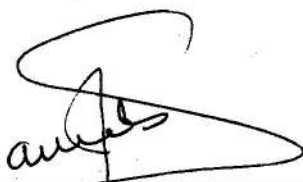
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The Director: Standard Setting and Development  
SAQA

Attention: *Mrs S. Vasuthevan*  
Postnet Suite 248  
Private Bag X06  
Waterkloof  
0145  
or faxed to 012 – 346 5812



**SAMUEL B.A. ISAACS**  
**EXECUTIVE OFFICER**

**CORE AND ELECTIVE UNIT STANDARDS - PLASTICS MANUFACTURING****FIELD: MANUFACTURING ENGINEERING AND TECHNOLOGY****SUB-FIELD: MANUFACTURING AND ASSEMBLY – PLASTICS  
MANUFACTURING****NQF LEVEL: 2****CREDITS**

	<b>Level 2</b>	<b>Credits</b>
Core	1. Monitor the quality of the output	<b>12</b>
Elective	1. Respond to changes in volume production processes	<b>08</b>
	2. Prepare products for the next stage or for storage	<b>04</b>
	3. Use and care for services, tools and equipment	<b>10</b>

**UNIT STANDARDS FOR PLASTICS MANUFACTURING NQF LEVEL 2**

Title 1: Monitor the quality of the output

Title 2: Respond to changes in volume production processes

Title 3: Use and care for services, tools and equipment

Title 4: Prepare products for the next stage or for storage

**UNIT STANDARD TITLES AND SPECIFIC OUTCOMES NQF LEVEL 2**

1. **TITLE: Monitor the quality of the output**
  - Specific outcome 1: Conduct visual checks on incoming and finished materials, components and product
  - Specific outcome 2: Measure products, components and materials and conduct initial/operational/on-line tests
  - Specific outcome 3: Recognise defects and mark or remove defective materials, products or components
  - Specific outcome 4: Record production and/or defects and report incidents
  - Specific outcome 5: Receive and respond to information or communications

- 2. TITLE: Respond to changes in volume production processes**
- Specific outcome 1: Recognise and report changes and/or malfunctions in quality, operation, output or safe working conditions
- Specific outcome 2: Carry out housekeeping and simple maintenance as required by the process
- Specific outcome 3: Monitor material flow and respond to shortages
- Specific outcome 4: Check the product visually and respond to changes
- Specific outcome 5: Determine and record output figures, stoppages and changes
- Specific outcome 6: Discuss and explain incidents and problems related to the process, the materials and the products
- 3. TITLE: Use and care for services, tools and equipment**
- Specific outcome 1: Choose and use the right tool to cut, trim and finish
- Specific outcome 1: Choose and use the right tools to adjust and maintain equipment
- Specific outcome 1: Choose and use the right tools and materials to clean equipment and product
- Specific outcome 1: Lift, load and unload products, equipment and containers
- Specific outcome 1: Adjust, clean and store tools and equipment
- 4. TITLE: Prepare products for the next stage or for storage**
- Specific outcome 1: Determine packing and finishing requirements for product or components and prepare working area
- Specific outcome 2: Determine packing and finishing requirements for product or components and prepare working area
- Specific outcome 3: Apply finishing procedures
- Specific outcome 4: Carry out post-production operations
- Specific outcome 5: Identify, respond to and report problems

**ELECTIVE UNIT STANDARDS - PLASTICS MANUFACTURING****FIELD: MANUFACTURING ENGINEERING AND TECHNOLOGY****SUB-FIELD: MANUFACTURING AND ASSEMBLY – PLASTICS  
MANUFACTURING****NQF LEVEL: 3****CREDITS**

	<b>Level 3</b>	<b>Credits</b>
Elective	1. Perform routine operations on volume manufacturing equipment	<b>10</b>
	2. Move, lift, lower and look after tooling	<b>06</b>
	3. Work with and look after materials in the production process	<b>12</b>

**ELECTIVE UNIT STANDARDS FOR PLASTICS MANUFACTURING NQF LEVEL 3**

Title 1: Perform routine operations on volume manufacturing equipment

Title 2: Move, lift, lower and look after tooling

Title 3: Work with and look after materials in the production process

**UNIT STANDARD TITLES AND SPECIFIC OUTCOMES NQF LEVEL 3**

1. **TITLE:** Perform routine operations on volume manufacturing equipment
  - Specific outcome 1: Monitor equipment and material, conduct quality check and resolve problems
  - Specific outcome 2: Start up, purge and shut down machine
  - Specific outcome 3: Report and record information
2. **TITLE:** Work with and look after materials in the production process
  - Specific outcome 1: Transport and assist with the installation of tooling
  - Specific outcome 2: Maintain condition of tooling during production
  - Specific outcome 3: Recognise and report problems

- 3. TITLE: Move, lift, lower and look after tooling**
- Specific outcome 1: Determine materials requirements and locate materials
- Specific outcome 1: Plan and arrange transport of materials to workstation
- Specific outcome 3: Prepare materials for use, arrange and store
- Specific outcome 4: Look after, transport and store materials and report material usage
- Specific outcome 5: Pre- and post-treat materials and components
- Specific outcome 6: Select and use appropriate protective clothing and equipment
- Specific outcome 7: Record material quantities



**ELECTIVE UNIT STANDARDS - PLASTICS MANUFACTURING****FIELD: MANUFACTURING ENGINEERING AND TECHNOLOGY****SUB-FIELD: MANUFACTURING AND ASSEMBLY – PLASTICS  
MANUFACTURING****NQF LEVEL: 4****CREDITS**

	<b>Level 4</b>	<b>Credits</b>
Elective	1. Maintain production efficiencies	<b>12</b>
	2. Optimise a production process	<b>24</b>
	3. Conduct mould or material trials in volume manufacturing processes	<b>12</b>

**UNIT STANDARDS FOR PLASTICS MANUFACTURING NQF LEVEL 4**

Title 1: Set production equipment

Title 2: Change and set tooling

Title 3: Prepare and process raw materials

**UNIT STANDARD TITLES AND SPECIFIC OUTCOMES NQF LEVEL 4****1. TITLE: Set production equipment**

Specific outcome 1: Determine requirements, plan the process and collect necessary tools and materials

Specific outcome 2: Set and start up machine, adjust machine settings

Specific outcome 3: Conduct quality check on products

Specific outcome 4: Identify and resolve problems

Specific outcome 5: Complete changeover process

**2. TITLE: Change and set tooling**

Specific outcome 1: Store, transport and change tooling

Specific outcome 2: Determine product and process requirements and set up the tooling and connect related services

Specific outcome 3: Recognise and respond to problems with tooling

Specific outcome 4: Explain and discuss issues related to the setting process and product requirements

- 3. TITLE: Prepare and process raw materials**
- Specific outcome 1: Obtain material according to job requirements
- Specific outcome 2: Determine preparation requirements and prepare material for production
- Specific outcome 3: Carry out quality checks related to the materials
- Specific outcome 4: Label and store material
- Specific outcome 5: Feed and maintain material level during the manufacturing process
- Specific outcome 6: Record and report material data
- Specific outcome 7: Explain and discuss material properties related to processing

**ELECTIVE UNIT STANDARDS - PLASTICS MANUFACTURING****FIELD: MANUFACTURING ENGINEERING AND TECHNOLOGY****SUB-FIELD: MANUFACTURING AND ASSEMBLY – PLASTICS  
MANUFACTURING****NQF LEVEL: 5****CREDITS**

	<b>Level 5</b>	<b>Credits</b>
Elective	1. Maintain production efficiencies	12
	2. Optimise a production process	24
	3. Conduct mould or material trials in volume manufacturing processes	12

**UNIT STANDARDS FOR PLASTICS MANUFACTURING NQF LEVEL 5**

Title 1: Maintain production efficiencies

Title 2: Optimise a production process

Title 3: Conduct mould or material trials in volume manufacturing processes

**UNIT STANDARD TITLES AND SPECIFIC OUTCOMES NQF LEVEL 5****1. TITLE: Maintain production efficiencies**

Specific outcome 1: Collect, interpret and respond to information

Specific outcome 2: Check activities, safety, product quality and housekeeping

Specific outcome 3: Share and discuss information and resolve issues which impact on quality and output

Specific outcome 4: Summarise information and generate reports

Specific outcome 5: Identify and solve problems

**2. TITLE: Optimise a production process**

Specific outcome 1: Analyse production data and identify opportunities for improvement

Specific outcome 2: Generate and test options to achieve improvement

- Specific outcome 3: Generate plan for optimisation, brief work group and implement plan
- Specific outcome 4: Collect and evaluate results, review and adjust the optimisation process until objectives have been achieved
- Specific outcome 5: Adjust and update operating procedures
- Specific outcome 6: Explain and discuss optimising issues with workgroup and other partners
- Specific outcome 7: Understand the impact and the inter-relationship of changes on production quality and output and production costs

**3. TITLE: Conduct mould or material trials in volume manufacturing processes**

- Specific outcome 1: Collect data for evaluation
- Specific outcome 2: Formulate project plan
- Specific outcome 3: Select and brief project team
- Specific outcome 4: Arrange necessary tools, equipment and material
- Specific outcome 5: Run trials and report on results
- Specific outcome 6: Present final report and recommendations

**NOTICE 834 OF 2001****SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

**DAIRY**


Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards-based qualifications for public comment.

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Comment on the qualifications and unit standards should reach SAQA at the address ***below and no later than 12 May 2001***. All correspondence should be marked **Standards Setting – SGB for Higher Education and Training** and addressed to

The Director: Standard Setting and Development  
SAQA

Attention: Mrs S. Vasuthevan  
Postnet Suite 248  
Private Bag X06  
Waterkloof  
0145  
or faxed to 012 – 346 5812



**SAMUEL B.A. ISAACS**  
**EXECUTIVE OFFICER**

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**NATIONAL CERTIFICATE IN FOOD AND BEVERAGE PROCESSING: RAW MILK OR CREAM RECEIVING AND STORING**

**Field:** Manufacturing, Engineering and Technology

**Sub-Field:** Manufacturing and Assembly

**NQF Level:** 2

**Credits:** 123

**Purpose of the Qualification :**

A person acquiring this qualification will be able to evaluate the quality of raw milk or cream and receive, store and maintain raw milk or cream for processing and manufacturing of dairy or chocolate confectionery or frozen dairy ice cream products.

This qualification will allow a person to advance to learning for a dairy processing qualification at NQF level 3. The quality evaluation unit standards provide credits that can be carried over to a dairy or food laboratory analyst qualification at level 3. This qualification will enhance the social status and productivity within the dairy industry.

## QUALIFICATION TITLE MATRIX

		Credits
<b>Fundamental</b>		
<b>Level 2</b>	• Language	20
	• Mathematics	16
		<b>Total 36</b>
<b>Core</b>		
<b>Level 1</b>	• Apply personal safety practices in a food manufacturing environment.	4
	• Maintain personal hygiene, health and presentation in a food environment.	3
<b>Level 2</b>	• Clean and sanitise a food processing system using an automated cleaning in-place system.	5
	• Demonstrate knowledge of introductory principles of chemistry and physics.	4
	• Apply knowledge of the effect of micro-organisms on personal health, hygiene and food safety.	4
<b>Level 3</b>	• Demonstrate an understanding of supply chain management	4
		<b>Total 24</b>
<b>Compulsory Electives</b>		
<b>Level 1</b>	• Demonstrate knowledge of dairy terminology, equipment and systems.	4
	• Measure the temperature of food products and evaluate the readings.	1
	• Clean and sanitise food manufacturing equipment and surfaces manually.	3
	• Take a representative food sample.	3
<b>Level 2</b>	• Demonstrate knowledge of heating and cooling media in a food manufacturing environment.	3
	• Receive and store raw milk or cream in a silo at a milk reception facility.	8
	• Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.	5
	• Demonstrate knowledge of the effect of micro-organisms on the quality of raw milk during raw milk handling	3
		<b>Total 30</b>



Choice Electives	(Choose a minimum of 33 credits)	
Level 2	• Evaluate the acceptability of raw milk on the farm for bulk milk collection.	3
	• Evaluate the quality of milk in terms of its protein stability as indicated by the alisarol test.	3
	• Evaluate the quality of milk or a dairy product in terms of its titratable acidity.	3
	• Evaluate the quality of raw milk in terms of its antibiotics content.	3
	• Pre-batch food related raw materials (To be submitted by the Food SGB).	4
	• Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).	4
	• Determine the volume of bulk milk by means of a weigh bridge.	4
	• Maintain food laboratory safety.	4
	• Collate and shrink-wrap packaged products using automated wrapping equipment.	4
	• Use a personal computer operating system (Registered).	3
	• Operate a personal computer system (Registered).	3
		6
Level 3	• Evaluate the quality of milk in terms of its freezing point.	
	• Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.	
	• Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.	4
	• Evaluate the quality of a food product in terms of its pH.	4
	• Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.	4
	• Evaluate the quality of milk in terms of its solids-not-fat content.	4
	• Evaluate the composition of raw milk as determined by an infra-red analyser.	4
		3
		6
		<b>Total 33</b>
<b>GRAND TOTAL</b>		<b>123</b>

**UNIT STANDARDS ON NQF LEVEL 1**

- Title 1: Demonstrate knowledge of dairy terminology, equipment and systems.
- Title 2: Apply personal safety practices in a food manufacturing environment.
- Title 3: Measure the temperature of food products and evaluate the readings.
- Title 4: Take a representative food sample.
- Title 5: Clean and sanitise food manufacturing equipment and surfaces manually.
- Title 6: Maintain personal hygiene, health and presentation in a food environment.

**UNIT STANDARDS ON NQF LEVEL 2**

- Title 1: Demonstrate knowledge of heating and cooling media in a food manufacturing environment.
- Title 2: Maintain food laboratory safety.
- Title 3: Receive and store raw milk or cream in a silo at a milk reception facility.
- Title 4: Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.
- Title 5: Evaluate the quality of milk or a dairy product in terms of its titratable acidity.
- Title 6: Clean and sanitise a food processing system using an automated cleaning-in-place system.
- Title 7: Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.
- Title 8: Demonstrate knowledge of introductory principles of chemistry and physics.
- Title 9: Determine the volume of bulk milk by means of a weigh bridge.
- Title 10: Evaluate the quality of raw milk in terms of its antibiotics content.
- Title 11: Apply knowledge of the effect of micro-organisms on personal health, hygiene and food safety.
- Title 12: Demonstrate knowledge of the effect of micro-organisms on the quality of raw milk during raw milk handling.
- Title 13: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 14: Evaluate the acceptability of raw milk on the farm for bulk milk collection.
- Title 15: Use a personal computer operating system (Registered).

- Title 16: Operate a personal computer system (Registered).
- Title 17: Pre-batch food related raw materials (To be submitted by the Food SGB).
- Title 18: Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).
- Title 19: Language unit standards (Interim registered unit standards).
- Title 20: Mathematics unit standards (Interim registered unit standards).

### **UNIT STANDARDS ON NQF LEVEL 3**

- Title 1: Evaluate the quality of a food product in terms of its pH.
- Title 2: Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.
- Title 3: Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.
- Title 4: Evaluate the quality of milk in terms of its solids-non-fat content.
- Title 5: Evaluate the quality of milk in terms of its freezing point.
- Title 6: Evaluate the composition of raw milk as determined by an infra red analyser.
- Title 7: Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.
- Title 8: Demonstrate an understanding of supply chain management

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1**

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF DAIRY TERMINOLOGY, EQUIPMENT AND SYSTEMS.**
- Specific outcome 1.1: Demonstrate knowledge of dairy equipment used in the dairy industry.
- Specific outcome 1.2: Demonstrate knowledge of dairy terminology used in the dairy industry.
- Specific outcome 1.3: Demonstrate knowledge of dairy supporting functions and equipment used in the dairy industry.
- Specific outcome 1.4: Demonstrate knowledge of dairy processing systems.

- 2. TITLE: APPLY PERSONAL SAFETY PRACTICES IN A FOOD MANUFACTURING ENVIRONMENT.**
- Specific outcome 2.1: Demonstrate knowledge of personal safety in a food manufacturing environment.
- Specific outcome 2.2: Apply personal safe working practices in a food manufacturing environment.
- Specific outcome 2.3: Deal with safety emergencies.
- Specific outcome 2.4: Handle and store raw materials or final products or chemicals in a food manufacturing environment.
- 3. TITLE: MEASURE THE TEMPERATURE OF FOOD PRODUCTS AND EVALUATE THE READINGS.**
- Specific outcome 3.1: Demonstrate knowledge of temperature determination of food products.
- Specific outcome 3.2: Prepare for temperature determination.
- Specific outcome 3.3: Determine temperature(s).
- Specific outcome 3.4: Report on temperature determinations.
- 4. TITLE: TAKE A REPRESENTATIVE FOOD SAMPLE.**
- Specific outcome 4.1: Demonstrate knowledge of representative sampling.
- Specific outcome 4.2: Prepare for sampling.
- Specific outcome 4.3: Take a representative sample.
- Specific outcome 4.4: Maintain records of sampling.
- 5. TITLE: CLEAN AND SANITISE FOOD MANUFACTURING EQUIPMENT AND SURFACES MANUALLY.**
- Specific outcome 5.1: Demonstrate knowledge of the manual cleaning and sanitising procedures for food manufacturing equipment and surfaces.
- Specific outcome 5.2: Prepare to clean and sanitise food manufacturing equipment and surfaces manually.
- Specific outcome 5.3: Clean and sanitise food manufacturing equipment and surfaces manually.
- Specific outcome 5.4: Perform end of process duties.

**6. TITLE: MAINTAIN PERSONAL HYGIENE, HEALTH AND PRESENTATION IN A FOOD ENVIRONMENT**

- Specific outcome 6.1: Maintain personal hygiene.
- Specific outcome 6.2: Maintain personal health and well-being.
- Specific outcome 6.3: Maintain personal grooming and presentation.
- Specific outcome 6.4: Maintain clothing requirements in a food environment.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: DEMONSTRATE KNOWLEDGE OF HEATING AND COOLING MEDIA IN A FOOD MANUFACTURING ENVIRONMENT.**

- Specific outcome 1.1: Demonstrate knowledge of the concept of energy.
- Specific outcome 1.2: Explain the generation and application of steam as a heating medium.
- Specific outcome 1.3: Explain the application of water and gasses as cooling media.
- Specific outcome 1.4: Explain the generation and application of electricity as an energy source for heating and cooling purposes.
- Specific outcome 1.5: Demonstrate knowledge of the safe handling of heating and cooling media.

**2. TITLE: MAINTAIN FOOD LABORATORY SAFETY.**

- Specific outcome 2.1: Demonstrate knowledge of the implication of statutory regulations in a food laboratory.
- Specific outcome 2.2: Demonstrate knowledge of safety aspects in a food laboratory.
- Specific outcome 2.3: Demonstrate and apply knowledge of safe handling and storage of equipment and reagents in a food laboratory.
- Specific outcome 2.4: Practice effective housekeeping in a food laboratory.

- 3. TITLE: RECEIVE AND STORE RAW MILK OR CREAM IN A SILO AT A MILK RECEPTION FACILITY.**
- Specific outcome 3.1: Demonstrate knowledge of milk or cream reception equipment and storage areas.
- Specific outcome 3.2: Prepare for raw milk or cream intake at the milk reception area.
- Specific outcome 3.3: Receive and store raw milk or cream at the milk reception area.
- Specific outcome 3.4: Perform end of process duties.
- 4. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS PROTEIN STABILITY, AS INDICATED BY THE ALISAROL TEST.**
- Specific outcome 4.1: Demonstrate knowledge of determining the protein stability of milk.
- Specific outcome 4.2: Prepare for the alisarol test on a milk sample.
- Specific outcome 4.3: Perform the alisarol test on milk.
- Specific outcome 4.4: Report on the quality of milk in terms of its protein stability.
- 5. TITLE: EVALUATE THE QUALITY OF MILK OR A DAIRY PRODUCT IN TERMS OF ITS TITRATABLE ACIDITY.**
- Specific outcome 5.1: Demonstrate knowledge of the determination of titratable acidity of milk or a dairy product.
- Specific outcome 5.2: Prepare for determining the titratable acidity of milk or a dairy product.
- Specific outcome 5.3: Determine the titratable acidity of milk or a dairy product under laboratory conditions.
- Specific outcome 5.4: Report on the quality of milk or a dairy product in terms of its titratable acidity.
- 6. TITLE: CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.**
- Specific outcome 6.1: Demonstrate knowledge of cleaning-in-place systems.
- Specific outcome 6.2: Prepare to clean and sanitise a food processing system.
- Specific outcome 6.3: Clean and sanitise a food processing system.
- Specific outcome 6.4: Perform end of cleaning-in-place procedures.

**7 TITLE: DEMONSTRATE KNOWLEDGE OF THE NATURE OF MILK AND ITS TRANSFORMATION INTO COMMERCIAL DAIRY PRODUCTS.**

- Specific outcome 7.1: Demonstrate knowledge of the origin of mammal milk.
- Specific outcome 7.2: Demonstrate knowledge of the nutritional importance of mammal milk.
- Specific outcome 7.3: Demonstrate knowledge of the physical-chemical nature of milk components.
- Specific outcome 7.4: Demonstrate knowledge of the physical properties of milk.
- Specific outcome 7.5: Demonstrate knowledge of the transformation of milk into commercial dairy products.

**8. TITLE: DEMONSTRATE KNOWLEDGE OF INTRODUCTORY PRINCIPLES OF CHEMISTRY AND PHYSICS.**

- Specific outcome 8.1: Demonstrate knowledge of the nature of matter.
- Specific outcome 8.2: Demonstrate knowledge of the nature of water.
- Specific outcome 8.3: Demonstrate knowledge of temperature, energy and heat.
- Specific outcome 8.4: Demonstrate knowledge of introductory principles of physics.

**9. TITLE: DETERMINE THE VOLUME OF BULK MILK BY MEANS OF A WEIGH BRIDGE.**

- Specific outcome 9.1: Demonstrate knowledge of volume determination by means of a weigh bridge.
- Specific outcome 9.2: Prepare to determine the volume of milk in a milk tanker.
- Specific outcome 9.3: Determine the volume of milk in a milk tanker.
- Specific outcome 9.4: Perform end of process duties.

**10. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS ANTIBIOTICS CONTENT.**

- Specific outcome 10.1: Demonstrate knowledge of testing for the presence of antibiotics in raw milk.
- Specific outcome 10.2: Prepare for determining the antibiotics content of raw milk.
- Specific outcome 10.3: Test for the presence of antibiotics in raw milk.
- Specific outcome 10.4: Report on the quality of raw milk in terms of its antibiotics content.



11. TITLE: APPLY KNOWLEDGE OF THE EFFECT OF MICRO-ORGANISMS ON PERSONAL HEALTH, HYGIENE AND FOOD SAFETY.

- |                        |  |
|------------------------|--|
| Specific outcome 11.1: | Maintain health and hygiene in a food environment.                             |
| Specific outcome 11.2: | Demonstrate knowledge of the concept of micro-organisms in a food environment. |
| Specific outcome 11.3: | Demonstrate knowledge of the growth and reproduction of micro-organisms.       |
| Specific outcome 11.4: | Identify microbiological critical control points in a food environment.        |

12. TITLE: DEMONSTRATE KNOWLEDGE OF THE EFFECT OF MICRO-ORGANISMS ON THE QUALITY OF RAW MILK DURING RAW MILK HANDLING.

- |                        |   |
|------------------------|---|
| Specific outcome 12.1: | Demonstrate knowledge of hygienic practices during raw milk collection and storage on the farm.   |
| Specific outcome 12.2: | Demonstrate knowledge of hygienic practices during raw milk reception and storage at the factory. |
| Specific outcome 12.3: | Demonstrate knowledge of the characteristics of micro-organisms found in raw milk.                |
| Specific outcome 12.4: | Identify good manufacturing practices during raw milk handling.                                   |

13. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.

- |                        |   |
|------------------------|---|
| Specific outcome 13.1: | Demonstrate knowledge of collating and shrink-wrapping. |
| Specific outcome 13.2: | Prepare to collate and shrink-wrap packaged products.   |
| Specific outcome 13.3: | Collate and shrink-wrap packaged products.              |
| Specific outcome 13.4: | Perform end of shrink-wrapping procedures.              |

**14. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK ON THE FARM FOR BULK MILK COLLECTION.**

- Specific outcome 14.1: Demonstrate knowledge of milk intake tests on the farm.
- Specific outcome 14.2: Prepare for temperature and alisarol tests.
- Specific outcome 14.3: Determine the quality of raw milk on the farm.
- Specific outcome 14.4: Report on the quality of raw milk in terms of its acceptability for bulk milk collection on the farm.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: Evaluate the quality of a food product in terms of its ph.**

- Specific outcome 1.1: Demonstrate knowledge of pH-determination on food products.
- Specific outcome 1.2: Prepare for pH-determination on a food product.
- Specific outcome 1.3: Calibrate a pH-meter.
- Specific outcome 1.4: Determine the pH of a food product.
- Specific outcome 1.5: Report on the quality of a food product in terms of its pH.

**2. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS MICROBIAL LOAD, AS INDICATED BY THE RESAZURIN TEST.**

- Specific outcome 2.1: Demonstrate knowledge of the resazurin test as a microbiological intake test.
- Specific outcome 2.2: Prepare for the resazurin test on raw milk.
- Specific outcome 2.3: Perform the resazurin test on raw milk.
- Specific outcome 2.4: Report on the microbial quality of raw milk in terms of the results of the resazurin test.

- 3. TITLE: EVALUATE THE QUALITY OF A DAIRY PRODUCT IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE GERBER FAT DETERMINATION METHOD.**
- Specific outcome 3.1: Demonstrate knowledge of determining the fat content of dairy products by means of the Gerber fat test.
- Specific outcome 3.2: Prepare for the Gerber fat test on a dairy product.
- Specific outcome 3.3: Determine the fat content of a dairy product with the Gerber fat test.
- Specific outcome 3.4: Report on the quality of a dairy product in terms of its Gerber fat content.
- 4. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS SOLIDS-NON-FAT CONTENT.**
- Specific outcome 4.1: Demonstrate knowledge of determining the solids-non-fat content of milk.
- Specific outcome 4.2: Prepare for determining the solids-non-fat content of milk.
- Specific outcome 4.3: Determine the solids-non-fat in milk content of milk by means of a lactometer.
- Specific outcome 4.4: Report on the quality of milk in terms of its solids-non-fat content.
- 5. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS FREEZING POINT.**
- Specific outcome 5.1: Demonstrate knowledge of the determining the freezing point of milk.
- Specific outcome 5.2: Prepare for determining the freezing point of milk.
- Specific outcome 5.3: Calibrate a cryoscope.
- Specific outcome 5.4: Determine the freezing point of milk.
- Specific outcome 5.5: Report on the quality of milk in terms of its freezing point.

**6. TITLE: EVALUATE THE COMPOSITION OF RAW MILK AS DETERMINED BY AN INFRA RED ANALYSER.**

Specific outcome 6.1: Demonstrate knowledge of the determination of raw milk composition by means of an infra red analyser.

Specific outcome 6.2: Prepare to determine the composition of raw milk with an infra red analyser.

Specific outcome 6.3: Calibrate an infra red analyser.

Specific outcome 6.4: Determine the composition of raw milk with an infra red analyser.

Specific outcome 6.5: Report on the composition of raw milk.

**7. TITLE: EVALUATE THE QUALITY OF CREAM IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE BABCOCK FAT DETERMINATION METHOD.**

Specific outcome 7.1: Demonstrate knowledge of determining the fat content of cream by means of the Babcock method.

Specific outcome 7.2: Prepare for the Babcock test on cream.

Specific outcome 7.3: Determine the fat content of cream with the Babcock test.

Specific outcome 7.4: Report on the quality of cream in terms of its fat content.

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGES QUALITY CONTROL AND ASSURANCE PRACTICES: DAIRY LABORATORY ANALYST**

**Field:** Manufacturing, Engineering and Technology

**Sub-Field:** Manufacturing and Assembly

**NQF Level:** 3

**Credits:** 137

**Purpose:** A person acquiring this qualification will be able to perform quality evaluation techniques and procedures to establish the physical, chemical, sensory, compositional and microbiological quality of a range of dairy products.

This qualification will allow a person to advance to a food and beverages quality control and assurance practices or supervision qualification at NQF level 4. This qualification will enhance the social status and productivity within the dairy industry.

## QUALIFICATION TITLE MATRIX

		Credits
<b>Fundamental</b>		
<b>Level 3</b>	• Language	20
	• Mathematics	16
		<b>Total 36</b>
<b>Core</b>		
<b>Level 2</b>	• Maintain food laboratory safety.	4
<b>Level 3</b>	• Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).	4
	• Apply microbiological principles in a food environment.	6
	• Demonstrate knowledge of chemistry principles	6
	• Produce word processing documents for business (Registered).	5
	• Produce presentation documents for business (Registered).	5
	• Produce and use spread sheets for business (Registered).	5
		<b>Total 35</b>
<b>Compulsory Electives</b>		
<b>Level 2</b>	• Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.	5
	• Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.	3
	• Evaluate the quality of raw milk in terms of its antibiotics content.	3
<b>Level 3</b>	• Evaluate the quality of a food product in terms of its pH.	4
	• Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.	4
	• Evaluate the sensory quality of pasteurised milk.	5
	• Evaluate the quality of milk in terms of its solids-non-fat content.	3
<b>Level 4</b>	• Demonstrate knowledge of the functional components of milk.	7
		<b>Total 34</b>

Choice Electives	(Choose a minimum of 32 credits)	
<b>Level 1</b>	<ul style="list-style-type: none"> <li>• Prepare glassware and media for determination procedures in a food laboratory.</li> </ul>	4
<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Evaluate the quality of a milk or a dairy product in terms of its titratable acidity.</li> <li>• Evaluate the quality of a dairy powder in terms of its solubility.</li> <li>• Evaluate the quality of a dairy powder in terms of the amount of scorched particles.</li> </ul>	3 2 2
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Evaluate the quality of milk in terms of its freezing point.</li> <li>• Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.</li> <li>• Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.</li> <li>• Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.</li> <li>• Evaluate the quality of a food product in terms of its Brix-value.</li> <li>• Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.</li> <li>• Evaluate the microbiological quality of a food product by means of pour plate methods.</li> <li>• Evaluate the quality of a food product in terms of its fat content as indicated by the Mojonnier fat determination method.</li> <li>• Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene Distillation Method.</li> <li>• Evaluate the quality of instant milk powder in terms of its dispersibility.</li> <li>• Evaluate the quality of a dairy powder in terms of its bulk density.</li> <li>• Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.</li> <li>• Evaluate the fat-, salt-, moisture- and solids-non-fat content of butter as indicated by the Kohman test.</li> <li>• Evaluate the quality of a food product in terms of its moisture content using the oven drying method.</li> <li>• Evaluate the activity of a starter culture in terms of its pH or % titratable acidity.</li> <li>• Evaluate the quality of a food product in terms of its viscosity.</li> <li>• Evaluate the composition of raw milk as determined by an infra-red analyser.</li> <li>• Evaluate the quality of cheese in terms of its salt content.</li> </ul>	4 4 4 2 2 2 12 5 3 2 2 4 5 3 2 3 6 3



<b>Level 4</b>	• Evaluate the microbiological quality of a food product as indicated by the test for <i>Salmonella</i> .	5
	• Evaluate the microbiological quality of a food product as indicated by the test for <i>Staphylococcus aureus</i> .	5
	• Evaluate the extent of saturation of butterfat (in cream or butter) as indicated by its iodine value.	4
	• Evaluate the compositional and sensory quality of butter.	6
	• Evaluate the compositional and sensory quality of cheese.	8
	• Evaluate the compositional and sensory quality of dried dairy products.	5
	• Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.	5
	• Evaluate the compositional and sensory quality of fermented dairy products.	6
	• Evaluate the compositional and sensory quality of cottage cheese products.	5
	• Evaluate the compositional and sensory quality of liquid long life dairy products.	5
	• Evaluate the compositional and sensory quality of condensed milk products.	5
	• Evaluate the compositional and sensory quality of process cheese.	5
		<b>Total 32</b>
<b>GRAND TOTAL</b>		<b>137</b>

**UNIT STANDARDS ON NQF LEVEL 1**

- Title 1: Prepare glassware and media for determination procedures in a food laboratory.

**UNIT STANDARDS ON NQF LEVEL 2**

- Title 1: Maintain food laboratory safety.
- Title 2: Evaluate the quality of milk in terms of its protein stability, as indicated by the alisarol test.
- Title 3: Evaluate the quality of milk or a dairy product in terms of its titratable acidity.
- Title 4: Demonstrate knowledge of the nature of milk and its transformation into commercial dairy products.
- Title 5: Evaluate the quality of raw milk in terms of its antibiotics content.
- Title 6: Evaluate the quality of a dairy powder in terms of its solubility.
- Title 7: Evaluate the quality of a dairy powder in terms of the amount of scorched particles.

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Evaluate the sensory quality of pasteurised milk.
- Title 2: Evaluate the quality of a food product in terms of its pH.
- Title 3: Evaluate the quality of raw milk in terms of its microbial load, as indicated by the resazurin test.
- Title 4: Evaluate the quality of a dairy product in terms of its fat content, as indicated by the Gerber fat determination method.
- Title 5: Evaluate the quality of milk in terms of its solids-non-fat content.
- Title 6: Evaluate the quality of milk in terms of its freezing point.
- Title 7: Apply microbiological principles in a food environment.
- Title 8: Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.
- Title 9: Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.
- Title 10: Evaluate the quality of cheese in terms of its salt content.
- Title 11: Evaluate the quality of a food product in terms of its moisture content using the oven drying method.
- Title 12: Evaluate the quality of a dairy powder in terms of its moisture content, as indicated by the Toluene Distillation Method.

- Title 13: Evaluate the quality of a food product in terms of its fat content, as indicated by the Mojonnier fat determination method.
- Title 14: Evaluate the quality of instant milk powder in terms of its dispersibility.
- Title 15: Evaluate the quality of dairy powder in terms of its bulk density.
- Title 16: Evaluate the quality of a food product in terms of its Brix-value.
- Title 17: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.
- Title 18: Evaluate the composition of raw milk as determined by an infra red analyser.
- Title 19: Evaluate the quality of a food product in terms of its viscosity.
- Title 20: Evaluate the microbiological quality of a food product by means of pour plate methods.
- Title 21: Evaluate the activity of a starter culture in terms of its pH or % titratable acidity.
- Title 22: Evaluate the quality of cream in terms of its fat content, as indicated by the Babcock fat determination method.
- Title 23: Evaluate the fat-, salt-, moisture- and solids-non-fat-content of butter as indicated by the Kohman-test.
- Title 24: Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).
- Title 25: Demonstrate knowledge of chemistry principles
- Title 26: Produce word processing documents for business (Registered).
- Title 27: Produce presentation documents for business (Registered).
- Title 28: Produce and use spread sheets for business (Registered).
- Title 29: Language unit standards (Interim registered unit standards).
- Title 30: Mathematics unit standards (Interim registered unit standards).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Evaluate the microbiological quality of a food product, as indicated by the test for *Salmonella*.
- Title 2: Demonstrate knowledge of the functional components of milk.
- Title 3: Evaluate the compositional and sensory quality of butter.
- Title 4: Evaluate the extent of saturation of butterfat (in cream or butter), as indicated by its iodine value.
- Title 5: Evaluate the compositional and sensory quality of cheese.
- Title 6: Evaluate the compositional and sensory quality of dried dairy products.
- Title 7: Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.
- Title 8: Evaluate the compositional and sensory quality of fermented dairy products.
- Title 9: Evaluate the compositional and sensory quality of cottage cheese products.
- Title 10: Evaluate the compositional and sensory quality of liquid long life dairy products.
- Title 11: Evaluate the compositional and sensory quality of condensed milk products.
- Title 12: Evaluate the microbiological quality of a food product as indicated by the test for *Staphylococcus aureus* (*S. aureus*).
- Title 13: Evaluate the compositional and sensory quality of process cheese.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1**

- 1. TITLE: PREPARE GLASSWARE AND MEDIA FOR DETERMINATION PROCEDURES IN A FOOD LABORATORY.**
- Specific outcome 1.1: Demonstrate knowledge of glassware and media preparation.
- Specific outcome 1.2: Prepare glassware and media for determination procedures.
- Specific outcome 1.3: Perform end of glassware and media preparation procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

- 1. TITLE: MAINTAIN FOOD LABORATORY SAFETY.**
  - Specific outcome 1.1: Demonstrate knowledge of the implication of statutory regulations in a food laboratory.
  - Specific outcome 1.2: Demonstrate knowledge of safety aspects in a food laboratory.
  - Specific outcome 1.3: Demonstrate and apply knowledge of safe handling and storage of equipment and reagents in a food laboratory.
  - Specific outcome 1.4: Practice effective housekeeping in a food laboratory.
- 2. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS PROTEIN STABILITY, AS INDICATED BY THE ALISAROL TEST.**
  - Specific outcome 2.1: Demonstrate knowledge of determining the protein stability of milk.
  - Specific outcome 2.2: Prepare for the alisarol test on a milk sample.
  - Specific outcome 2.3: Perform the alisarol test on milk.
  - Specific outcome 2.4: Report on the quality of milk in terms of its protein stability.
- 3. TITLE: EVALUATE THE QUALITY OF MILK OR A DAIRY PRODUCT IN TERMS OF ITS TITRATABLE ACIDITY.**
  - Specific outcome 3.1: Demonstrate knowledge of the determination of titratable acidity of milk or a dairy product.
  - Specific outcome 3.2: Prepare for determining the titratable acidity of milk or a dairy product.
  - Specific outcome 3.3: Determine the titratable acidity of milk or a dairy product under laboratory conditions.
  - Specific outcome 3.4: Report on the quality of milk or a dairy product in terms of its titratable acidity.

- 4. TITLE: DEMONSTRATE KNOWLEDGE OF THE NATURE OF MILK AND ITS TRANSFORMATION INTO COMMERCIAL DAIRY PRODUCTS.**
- Specific outcome 4.1: Demonstrate knowledge of the origin of mammal milk.
- Specific outcome 4.2: Demonstrate knowledge of the nutritional importance of mammal milk.
- Specific outcome 4.3: Demonstrate knowledge of the physical-chemical nature of milk components.
- Specific outcome 4.4: Demonstrate knowledge of the physical properties of milk.
- Specific outcome 4.5: Demonstrate knowledge of the transformation of milk into commercial dairy products.
- 5. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS ANTIBIOTICS CONTENT.**
- Specific outcome 5.1: Demonstrate knowledge of testing for the presence of antibiotics in raw milk.
- Specific outcome 5.2: Prepare for determining the antibiotics content of raw milk.
- Specific outcome 5.3: Test for the presence of antibiotics in raw milk.
- Specific outcome 5.4: Report on the quality of raw milk in terms of its antibiotics content.
- 6. TITLE: EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF ITS SOLUBILITY.**
- Specific outcome 6.1: Demonstrate knowledge of determining the solubility index of a dairy powder.
- Specific outcome 6.2: Prepare for determining the solubility index of a dairy powder.
- Specific outcome 6.3: Determine the solubility index of a dairy powder.
- Specific outcome 6.4: Report on the quality of a dairy powder in terms of its solubility.
- 7. TITLE: EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF THE AMOUNT OF SCORCHED PARTICLES.**
- Specific outcome 7.1: Demonstrate knowledge of the scorched particle test on a dairy powder.
- Specific outcome 7.2: Prepare for the scorched particle test on a dairy powder.
- Specific outcome 7.3: Perform the scorched particle test on a dairy powder.
- Specific outcome 7.4: Report on the quality of a dairy powder in terms of the amount of scorched particles.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3****1. TITLE: EVALUATE THE SENSORY QUALITY OF PASTEURISED MILK.**

- Specific outcome 1.1: Demonstrate knowledge of the sensory quality of pasteurised milk.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of pasteurised milk.
- Specific outcome 1.3: Determine the sensory quality of pasteurised milk.
- Specific outcome 1.4: Report on the sensory quality of pasteurised milk.

**2. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS PH.**

- Specific outcome 2.1: Demonstrate knowledge of pH-determination on food products.
- Specific outcome 2.2: Prepare for pH-determination on a food product.
- Specific outcome 2.3: Calibrate a pH-meter.
- Specific outcome 2.4: Determine the pH of a food product.
- Specific outcome 2.5: Report on the quality of a food product in terms of its pH.

**3. TITLE: EVALUATE THE QUALITY OF RAW MILK IN TERMS OF ITS MICROBIAL LOAD, AS INDICATED BY THE RESAZURIN TEST.**

- Specific outcome 3.1: Demonstrate knowledge of the resazurin test as a microbiological intake test.
- Specific outcome 3.2: Prepare for the resazurin test on raw milk.
- Specific outcome 3.3: Perform the resazurin test on raw milk.
- Specific outcome 3.4: Report on the microbial quality of raw milk in terms of the results of the resazurin test.



- 4. TITLE: EVALUATE THE QUALITY OF A DAIRY PRODUCT IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE GERBER FAT DETERMINATION METHOD.**
- Specific outcome 4.1: Demonstrate knowledge of determining the fat content of dairy products by means of the Gerber fat test.
- Specific outcome 4.2: Prepare for the Gerber fat test on a dairy product.
- Specific outcome 4.3: Determine the fat content of a dairy product with the Gerber fat test.
- Specific outcome 4.4: Report on the quality of a dairy product in terms of its Gerber fat content.
- 5. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS SOLIDS-NON-FAT CONTENT.**
- Specific outcome 5.1: Demonstrate knowledge of determining the solids-non-fat content of milk.
- Specific outcome 5.2: Prepare for determining the solids-non-fat content of milk.
- Specific outcome 5.3: Determine the solids-non-fat in milk content of milk by means of a lactometer.
- Specific outcome 5.4: Report on the quality of milk in terms of its solids-non-fat content.
- 6. TITLE: EVALUATE THE QUALITY OF MILK IN TERMS OF ITS FREEZING POINT.**
- Specific outcome 6.1: Demonstrate knowledge of the determining the freezing point of milk.
- Specific outcome 6.2: Prepare for determining the freezing point of milk.
- Specific outcome 6.3: Calibrate a cryoscope.
- Specific outcome 6.4: Determine the freezing point of milk.
- Specific outcome 6.5: Report on the quality of milk in terms of its freezing point.
- 7. TITLE: APPLY MICROBIOLOGICAL PRINCIPLES IN A FOOD ENVIRONMENT.**
- Specific outcome 7.1: Demonstrate knowledge of the occurrence of micro-organisms in a food environment.
- Specific outcome 7.2: Demonstrate knowledge of the preventative methods and procedures for microbial growth in a food environment.
- Specific outcome 7.3: Maintain microbiological food safety procedures and practices in a food environment.



- 8. TITLE: EVALUATE THE EFFICIENCY OF MILK OR CREAM PASTEURISATION, AS INDICATED BY THE PHOSPHATASE TEST.**
- Specific outcome 8.1: Demonstrate knowledge of determining milk or cream pasteurisation efficiency by means of the phosphatase test.
- Specific outcome 8.2: Prepare for the phosphatase test on milk or cream.
- Specific outcome 8.3: Perform the phosphatase test on milk or cream.
- Specific outcome 8.4: Report on the efficiency of milk or cream pasteurisation in terms of the results of the phosphatase test.
- 9. TITLE: EVALUATE THE QUALITY OF A FRUIT JUICE, FRUIT JUICE CONCENTRATE OR FRUIT-MILK MIXTURE, AS INDICATED BY ITS BRIX-ACID RATIO.**
- Specific outcome 9.1: Demonstrate knowledge of determining the Brix-acid ratio.
- Specific outcome 9.2: Prepare for the determination of the % total soluble solids (°Brix) and titratable acidity.
- Specific outcome 9.3: Determine the % total soluble solids (°Brix), titratable acidity and Brix-acid ratio.
- Specific outcome 9.4: Report on the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio.
- 10. TITLE: EVALUATE THE QUALITY OF CHEESE IN TERMS OF ITS SALT CONTENT.**
- Specific outcome 10.1: Demonstrate knowledge of determining the salt content of cheese.
- Specific outcome 10.2: Prepare for the determination of the salt content of cheese.
- Specific outcome 10.3: Determine the salt content of cheese.
- Specific outcome 10.4: Report on the salt content of cheese.
- 11. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS MOISTURE CONTENT USING THE OVEN DRYING METHOD.**
- Specific outcome 11.1: Demonstrate knowledge of determining the moisture content of a food product.
- Specific outcome 11.2: Prepare for determining the moisture content of a food product.
- Specific outcome 11.3: Determine the moisture content of a food product by means of oven drying.
- Specific outcome 11.4: Report on the quality of a food product in terms of its moisture content.

**12. TITLE: EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF ITS MOISTURE CONTENT, AS INDICATED BY THE TOLUENE DISTILLATION METHOD.**

- Specific outcome 12.1: Demonstrate knowledge of determining the moisture content of a dairy powder by means of toluene distillation.
- Specific outcome 12.2: Prepare for toluene distillation on a dairy powder.
- Specific outcome 12.3: Determine the moisture content of a dairy powder by means of toluene distillation.
- Specific outcome 12.4: Report on the quality of a dairy powder in terms of its moisture content.

**13. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE MOJONNIER FAT DETERMINATION METHOD**

- Specific outcome 13.1: Demonstrate knowledge of determining the fat content of food products by means of the Mojonnier fat test.
- Specific outcome 13.2: Prepare for the Mojonnier fat test on a food product.
- Specific outcome 13.3: Determine the fat content of a food product with the Mojonnier fat test.
- Specific outcome 13.4: Report on the quality of a food product in terms of its Mojonnier fat content.

**14. TITLE: EVALUATE THE QUALITY OF INSTANT MILK POWDER IN TERMS OF ITS DISPERSIBILITY.**

- Specific outcome 14.1: Demonstrate knowledge of determining the dispersibility of instant milk powder.
- Specific outcome 14.2: Prepare for determining the dispersibility of instant milk powder.
- Specific outcome 14.3: Determine the dispersibility of instant milk powder.
- Specific outcome 14.4: Report on the quality of instant milk powder in terms of its dispersibility.

**15. TITLE: EVALUATE THE QUALITY OF A DAIRY POWDER IN TERMS OF ITS BULK DENSITY.**

- Specific outcome 15.1: Demonstrate knowledge of determining the bulk density of a dairy powder.
- Specific outcome 15.2: Prepare for determining the bulk density of a dairy powder.
- Specific outcome 15.3: Determine the bulk density of a dairy powder.
- Specific outcome 15.4: Report on the quality of a dairy powder in terms of its bulk density.

**16. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS BRIX-VALUE.**

- Specific outcome 16.1: Demonstrate knowledge of determining the % total soluble solids (Brix-value) of a food product.
- Specific outcome 16.2: Prepare for the determination of the % total soluble solids (Brix-value).
- Specific outcome 16.3: Determine the % total soluble solids (Brix-value) of a food product.
- Specific outcome 16.4: Report on the quality of a food product in terms of its % total soluble solids (Brix-value).

**17. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**

- Specific outcome 17.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.
- Specific outcome 17.2: Prepare for the determination of the homogenisation index.
- Specific outcome 17.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 17.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

**18. TITLE: EVALUATE THE COMPOSITION OF RAW MILK AS DETERMINED BY AN INFRA RED ANALYSER.**

- Specific outcome 18.1: Demonstrate knowledge of the determination of raw milk composition by means of an infra red analyser.
- Specific outcome 18.2: Prepare to determine the composition of raw milk with an infra red analyser.
- Specific outcome 18.3: Calibrate an infra red analyser.
- Specific outcome 18.4: Determine the composition of raw milk with an infra red analyser.
- Specific outcome 18.5: Report on the composition of raw milk.

**19. TITLE: EVALUATE THE QUALITY OF A FOOD PRODUCT IN TERMS OF ITS VISCOSITY.**

- Specific outcome 19.1: Demonstrate knowledge of determining the viscosity of food products.
- Specific outcome 19.2: Prepare for the determination of the viscosity of food products.
- Specific outcome 19.3: Determine the viscosity of a food product.
- Specific outcome 19.4: Report on the quality of a food product in terms of its viscosity.

**20. TITLE: EVALUATE THE MICROBIOLOGICAL QUALITY OF A FOOD PRODUCT BY MEANS OF POUR PLATE METHODS.**

- Specific outcome 20.1: Demonstrate knowledge of microbiological pour plate methods.
- Specific outcome 20.2: Prepare for pour plate methods on a food product.
- Specific outcome 20.3: Perform pour plate methods on a food product.
- Specific outcome 20.4: Report on the microbiological quality of a food product in terms of the results of the pour plate methods.

**21. TITLE: EVALUATE THE ACTIVITY OF A STARTER CULTURE IN TERMS OF ITS PH OR % TITRATABLE ACIDITY.**

- Specific outcome 21.1: Demonstrate knowledge of determining starter culture activity.
- Specific outcome 21.2: Prepare for the determination the activity of a starter culture.
- Specific outcome 21.3: Determine the activity of a starter culture.
- Specific outcome 21.4: Report on the activity of a starter culture in terms of its pH or % titratable acidity.

**22. TITLE: EVALUATE THE QUALITY OF CREAM IN TERMS OF ITS FAT CONTENT, AS INDICATED BY THE BABCOCK FAT DETERMINATION METHOD.**

- Specific outcome 22.1: Demonstrate knowledge of determining the fat content of cream by means of the Babcock method.
- Specific outcome 22.2: Prepare for the Babcock test on cream.
- Specific outcome 22.3: Determine the fat content of cream with the Babcock test.
- Specific outcome 22.4: Report on the quality of cream in terms of its fat content.

**23. TITLE: EVALUATE THE FAT-, SALT-, MOISTURE- AND SOLIDS-NON-FAT CONTENT OF BUTTER AS INDICATED BY THE KOHMAN TEST.**

- Specific outcome 23.1: Demonstrate knowledge of performing the Kohman test on butter.
- Specific outcome 23.2: Prepare for the Kohman test on butter.
- Specific outcome 23.3: Determine the fat-, salt-, moisture- and solids-non-fat content of butter by means of the Kohman test.
- Specific outcome 23.4: Report on the quality of butter in terms of the results of the Kohman test.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

- 1. TITLE: EVALUATE THE MICROBIOLOGICAL QUALITY OF A FOOD PRODUCT, AS INDICATED BY THE TEST FOR *SALMONELLA*.**
  - Specific outcome 1.1: Demonstrate knowledge of the *Salmonella* test as a microbiological test.
  - Specific outcome 1.2: Prepare for the *Salmonella* test on a food product.
  - Specific outcome 1.3: Perform the *Salmonella* test on a food product.
  - Specific outcome 1.4: Report on the microbiological quality of a food product in terms of the results of the *Salmonella* test.
- 2. TITLE: DEMONSTRATE KNOWLEDGE OF THE FUNCTIONAL COMPONENTS OF MILK.**
  - Specific outcome 2.1: Demonstrate knowledge of the chemical composition of milk proteins, fat and lactose.
  - Specific outcome 2.2: Demonstrate knowledge of the nutritional and health aspects of milk proteins, fat and lactose.
  - Specific outcome 2.3: Demonstrate knowledge of the functional properties of milk proteins, fat and lactose.
  - Specific outcome 2.4: Demonstrate knowledge of the changes in milk proteins, fat and lactose that influence the quality of dairy products.
- 3. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF BUTTER.**
  - Specific outcome 3.1: Demonstrate knowledge of the compositional quality of butter.
  - Specific outcome 3.2: Demonstrate knowledge of the sensory quality of butter.
  - Specific outcome 3.3: Determine the compositional and sensory quality of butter.
  - Specific outcome 3.4: Report on the compositional and sensory quality of butter.
- 4. TITLE: EVALUATE THE EXTENT OF SATURATION OF BUTTERFAT (IN CREAM OR BUTTER), AS INDICATED BY ITS IODINE VALUE.**
  - Specific outcome 4.1: Demonstrate knowledge of determining the iodine value of butterfat.
  - Specific outcome 4.2: Prepare for determining the iodine value of butterfat.
  - Specific outcome 4.3: Determine the iodine value of butterfat.
  - Specific outcome 4.4: Report on the extent of butterfat saturation in terms of its iodine value.

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5. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CHEESE.**
- Specific outcome 5.1: Demonstrate knowledge of the compositional quality of cheese.
- Specific outcome 5.2: Demonstrate knowledge of the sensory quality of cheese.
- Specific outcome 5.3: Determine the compositional and sensory quality of cheese.
- Specific outcome 5.4: Report on the compositional and sensory quality of cheese.
6. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF DRIED DAIRY PRODUCTS.**
- Specific outcome 6.1: Demonstrate knowledge of the compositional quality of dried dairy products.
- Specific outcome 6.2: Demonstrate knowledge of the sensory quality of dried dairy products.
- Specific outcome 6.3: Determine the compositional and sensory quality of a dried dairy product.
- Specific outcome 6.4: Report on the compositional and sensory quality of the dried dairy product.
7. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCTS.**
- Specific outcome 7.1: Demonstrate knowledge of the compositional quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 7.2: Demonstrate knowledge of the sensory quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 7.3: Determine the compositional and sensory quality of a frozen dairy ice cream or ice cream related product.
- Specific outcome 7.4: Report on the compositional and sensory quality of the frozen dairy ice cream or ice cream related product.
8. **TITLE:** **EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FERMENTED DAIRY PRODUCTS.**
- Specific outcome 8.1: Demonstrate knowledge of the compositional quality of fermented dairy products.
- Specific outcome 8.2: Demonstrate knowledge of the sensory quality of fermented dairy products.
- Specific outcome 8.3: Determine the compositional and sensory quality of a fermented dairy product.
- Specific outcome 8.4: Report on the compositional and sensory quality of the fermented dairy product.



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- 9. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF COTTAGE CHEESE PRODUCTS.**
- Specific outcome 9.1: Demonstrate knowledge of the compositional quality of cottage cheese.
- Specific outcome 9.2: Demonstrate knowledge of the sensory quality of cottage cheese.
- Specific outcome 9.3: Determine the compositional and sensory quality of cottage cheese.
- Specific outcome 9.4: Report on the compositional and sensory quality of cottage cheese.
- 10. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF LIQUID LONG LIFE DAIRY PRODUCTS.**
- Specific outcome 10.1: Demonstrate knowledge of the compositional quality of liquid long life dairy products.
- Specific outcome 10.2: Demonstrate knowledge of the sensory quality of liquid long life dairy products.
- Specific outcome 10.3: Determine the compositional and sensory quality of a liquid long life dairy product.
- Specific outcome 10.4: Report on the compositional and sensory quality of the liquid long life dairy product.
- 11. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CONDENSED MILK PRODUCTS.**
- Specific outcome 11.1: Demonstrate knowledge of the compositional quality of condensed milk.
- Specific outcome 11.2: Demonstrate knowledge of the sensory quality of condensed milk.
- Specific outcome 11.3: Determine the compositional and sensory quality of condensed milk.
- Specific outcome 11.4: Report on the compositional and sensory quality of condensed milk.
- 12. TITLE: EVALUATE THE MICROBIOLOGICAL QUALITY OF A FOOD PRODUCT AS INDICATED BY THE TEST FOR *STAPHYLOCOCCUS AUREUS* (*S. AUREUS*).**
- Specific outcome 12.1: Demonstrate knowledge of the *S. aureus* test as a microbiological quality test.
- Specific outcome 12.2: Prepare for the *S. aureus* test on a food product.
- Specific outcome 12.3: Perform the *S. aureus* test on a food product.

Specific outcome 12.4: Report on the microbiological quality of a food product in terms of the results of the *S. aureus* test.

**13. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF PROCESS CHEESE.**

Specific outcome 13.1: Demonstrate knowledge of the compositional quality of process cheese.

Specific outcome 13.2: Demonstrate knowledge of the sensory quality of process cheese.

Specific outcome 13.3: Determine the compositional and sensory quality of process cheese.

Specific outcome 13.4: Report on the compositional and sensory quality of process cheese.



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**NATIONAL CERTIFICATE IN FOOD AND BEVERAGES PROCESSING: DAIRY  
PRIMARY PROCESSING**

**Field** : Manufacturing, Engineering and Technology

**Sub-Field** : Manufacturing and Assembly

**NQF Level** : 3

**Credits** : 120

**Purpose of the Qualification** : The national certificate in food and beverages processing: dairy primary processing has the following purpose:  
A person acquiring this qualification will be able to produce pasteurized liquid milk, cream or fruit-milk mixtures from quality raw materials by operating and controlling an automated or semi-automated dairy primary processing line. These products will be safe for human consumption, quality assured and complying with minimum legislation.

This qualification will allow a person to advance to learning for a dairy manufacturing technology qualification at NQF level 4. The core and fundamental unit standards in the qualification enable the person to pursue an NQF level 3 qualification within the food or beverage environment.

The packaging unit standards provide credits that can be carried over to a food and beverage packaging qualification at NQF level 3. The unit standards on laboratory analysis provide credits that can be carried over to the National Certificate in Food and Beverages Quality Control and Assurance Practices: Dairy Laboratory Analyst at NQF level 3.

**QUALIFICATION TITLE MATRIX**

		Credits
<b>Fundamental</b>		
<b>Level 3</b>	• Language	20
	• Mathematics	16
		<b>Total 36</b>
<b>Core</b>		
<b>Level 2</b>	• Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (To be submitted by the Food SGB).	4
	• Clean and sanitise a food processing system using an automated cleaning-in-place system.	5
	• Demonstrate knowledge of and produce computer spread sheets using base functions (Registered).	3
<b>Level 3</b>	• Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).	7
	• Apply first line maintenance on processing equipment	10
	• Demonstrate an understanding of introductory business principles	4
	• Demonstrate an understanding of supply chain management	3
	• Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).	4
		<b>Total 40</b>
<b>Compulsory Electives</b>		
<b>Level 2</b>	• Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).	4
	• Demonstrate knowledge of heating and cooling media in a food manufacturing environment.	3
<b>Level 3</b>	• Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger.	8
	• Apply microbiological principles in a food environment.	6
	• Evaluate the acceptability of raw milk in a silo for further processing.	5
		<b>Total 26</b>

Choice Electives	(Choose a minimum of 18 credits)	
<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.</li> </ul>	10
	<ul style="list-style-type: none"> <li>• Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products.</li> </ul>	12
	<ul style="list-style-type: none"> <li>• Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Operate and control the filling and closing of glass or rigid plastic containers for food products.</li> </ul>	10
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• Standardise the fat content of a liquid dairy product.</li> </ul>	7
	<ul style="list-style-type: none"> <li>• Separate cream from milk or whey by means of a cream separator.</li> </ul>	5
	<ul style="list-style-type: none"> <li>• Evaluate the sensory quality of pasteurised milk.</li> </ul>	5
	<ul style="list-style-type: none"> <li>• Homogenise a liquid dairy product.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.</li> </ul>	2
	<ul style="list-style-type: none"> <li>• Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.</li> </ul>	2
	<ul style="list-style-type: none"> <li>• Clarify or bactofuge milk by centrifugal force.</li> </ul>	5
<b>GRAND TOTAL</b>		<b>Total 18 120</b>

**UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Demonstrate knowledge of heating and cooling media in a food manufacturing environment.
- Title 2: Clean and sanitise a food processing system using an automated cleaning-in-place system.
- Title 3: Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products.
- Title 4: Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.
- Title 5: Operate and control the filling and closing of glass or rigid plastic containers for food products.
- Title 6: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 7: Demonstrate an understanding of occupational health, safety and environmental legislation relevant to the food or beverage environment (To be submitted by the Food SGB).
- Title 8: Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).
- Title 9: Demonstrate knowledge of and produce computer spread sheets using base functions (Registered).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Evaluate the sensory quality of pasteurised milk.
- Title 2: Standardise the fat content of a liquid dairy product.
- Title 3: Homogenise a liquid dairy product.
- Title 4: Separate cream from milk or whey by means of a cream separator.
- Title 5: Pasteurise or thermise a liquid food product by means of a plate or tubular heat exchanger.
- Title 6: Apply microbiological principles in a food environment.
- Title 7: Evaluate the efficiency of milk or cream pasteurisation, as indicated by the phosphatase test.
- Title 8: Evaluate the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture, as indicated by its Brix-acid ratio.
- Title 9: Clarify or bacto-fuge milk by centrifugal force.

- Title 10: Evaluate the acceptability of raw milk in a silo for further processing.
- Title 11: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.
- Title 12: Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).
- Title 13: Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).
- Title 14: Apply first line maintenance on processing equipment
- Title 15: Demonstrate an understanding of supply chain management
- Title 16: Demonstrate an understanding of introductory business principles
- Title 17: Language unit standards (Interim registered unit standards).
- Title 18: Mathematics unit standards (Interim registered unit standards).

## UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF HEATING AND COOLING MEDIA IN A FOOD MANUFACTURING ENVIRONMENT.**
- Specific outcome 1.1: Demonstrate knowledge of the concept of energy.
- Specific outcome 1.2: Explain the generation and application of steam as a heating medium.
- Specific outcome 1.3: Explain the application of water and gasses as cooling media.
- Specific outcome 1.4: Explain the generation and application of electricity as an energy source for heating and cooling purposes.
- Specific outcome 1.5: Demonstrate knowledge of the safe handling of heating and cooling media.
- 2. TITLE: CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.**
- Specific outcome 2.1: Demonstrate knowledge of cleaning-in-place systems.
- Specific outcome 2.2: Prepare to clean and sanitise a food processing system.
- Specific outcome 2.3: Clean and sanitise a food processing system.
- Specific outcome 2.4: Perform end of cleaning-in-place procedures.

- 2. TITLE:** **CLEAN AND SANITISE A FOOD PROCESSING SYSTEM USING AN AUTOMATED CLEANING-IN-PLACE SYSTEM.**
- Specific outcome 2.1: Demonstrate knowledge of cleaning-in-place systems.
- Specific outcome 2.2: Prepare to clean and sanitise a food processing system.
- Specific outcome 2.3: Clean and sanitise a food processing system.
- Specific outcome 2.4: Perform end of cleaning-in-place procedures.
- 3. TITLE:** **OPERATE AND CONTROL THE FORMING, FILLING AND HERMETIC SEALING OF GABLE TOP OR BRICK TYPE CARTONS FOR FOOD PRODUCTS.**
- Specific outcome 3.1: Demonstrate knowledge of hermetic gable top or brick type carton packaging.
- Specific outcome 3.2: Prepare to pack a food product in gable top or brick type cartons.
- Specific outcome 3.3: Pack a food product hermetically in gable top or brick type cartons.
- Specific outcome 3.4: Perform end of packaging procedures.
- 4. TITLE:** **OPERATE AND CONTROL THE FORMING, FILLING AND HERMETIC SEALING OF PLASTIC SACHETS OR BAGS FOR FOOD PRODUCTS.**
- Specific outcome 4.1: Demonstrate knowledge of packaging of food products in plastic sachets or bags.
- Specific outcome 4.2: Prepare to pack a food product in plastic sachets or bags.
- Specific outcome 4.3: Pack a food product hermetically in plastic sachets or bags.
- Specific outcome 4.4: Perform end of packaging procedures.
- 5. Title:** **Operate and control the filling and closing of glass or rigid plastic containers for food products.**
- Specific outcome 5.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 5.2: Prepare to fill and close glass or rigid plastic containers.
- Specific outcome 5.3: Fill and close glass or rigid plastic containers.
- Specific outcome 5.4: Perform end of filling and closing procedures.

**6. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

- Specific outcome 6.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 6.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 6.3: Collate and shrink-wrap packaged products.
- Specific outcome 6.4: Perform end of shrink-wrapping procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: EVALUATE THE SENSORY QUALITY OF PASTEURISED MILK.**

- Specific outcome 1.1: Demonstrate knowledge of the sensory quality of pasteurised milk.
- Specific outcome 1.2: Prepare for the determination of the sensory quality of pasteurised milk.
- Specific outcome 1.3: Determine the sensory quality of pasteurised milk.
- Specific outcome 1.4: Report on the sensory quality of pasteurised milk.

**2. TITLE: STANDARDISE THE FAT CONTENT OF A LIQUID DAIRY PRODUCT.**

- Specific outcome 2.1: Demonstrate knowledge of fat standardisation of liquid dairy products.
- Specific outcome 2.2: Prepare for standardisation.
- Specific outcome 2.3: Standardise a liquid dairy product.
- Specific outcome 2.4: Perform end of standardisation procedures.

**3. TITLE: HOMOGENISE A LIQUID DAIRY PRODUCT.**

- Specific outcome 3.1: Demonstrate knowledge of homogenisation of liquid dairy products.
- Specific outcome 3.2: Prepare to homogenise a liquid dairy product.
- Specific outcome 3.3: Homogenise a liquid dairy product.
- Specific outcome 3.4: Perform end of homogenisation procedures.



**4. TITLE: SEPARATE CREAM FROM MILK OR WHEY BY MEANS OF A CREAM SEPARATOR.**

Specific outcome 4.1: Demonstrate knowledge of cream separation.

Specific outcome 4.2: Prepare to separate cream from milk or whey.

Specific outcome 4.3: Separate cream from milk or whey.

Specific outcome 4.4: Perform end of separation procedures.

**5. TITLE: PASTEURISE OR THERMISE A LIQUID FOOD PRODUCT BY MEANS OF A PLATE OR TUBULAR HEAT EXCHANGER.**

Specific outcome 5.1: Demonstrate knowledge of pasteurisation or thermisation of liquid food products.

Specific outcome 5.2: Prepare to pasteurise or thermise a liquid food product.

Specific outcome 5.3: Pasteurise or thermise a liquid food product in a plate or tubular heat exchanger.

Specific outcome 5.4: Perform end of pasteurisation or thermisation duties.

**6. TITLE: APPLY MICROBIOLOGICAL PRINCIPLES IN A FOOD ENVIRONMENT.**

Specific outcome 6.1: Demonstrate knowledge of the occurrence of micro-organisms in a food environment.

Specific outcome 6.2: Demonstrate knowledge of the preventative methods and procedures for microbial growth in a food environment.

Specific outcome 6.3: Maintain microbiological food safety procedures and practices in a food environment.

**7. TITLE: EVALUATE THE EFFICIENCY OF MILK OR CREAM PASTEURISATION, AS INDICATED BY THE PHOSPHATASE TEST.**

Specific outcome 7.1: Demonstrate knowledge of determining milk or cream pasteurisation efficiency by means of the phosphatase test.

Specific outcome 7.2: Prepare for the phosphatase test on milk or cream.

Specific outcome 7.3: Perform the phosphatase test on milk or cream.

Specific outcome 7.4: Report on the efficiency of milk or cream pasteurisation in terms of the results of the phosphatase test.

- 8. TITLE: EVALUATE THE QUALITY OF A FRUIT JUICE, FRUIT JUICE CONCENTRATE OR FRUIT-MILK MIXTURE, AS INDICATED BY ITS BRIX-ACID RATIO.**
- Specific outcome 8.1: Demonstrate knowledge of determining the Brix-acid ratio.
- Specific outcome 8.2: Prepare for the determination of the % total soluble solids (°Brix) and titratable acidity.
- Specific outcome 8.3: Determine the % total soluble solids (°Brix), titratable acidity and Brix-acid ratio.
- Specific outcome 8.4: Report on the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio.
- 9. Title: Clarify or bactofoe milk by centrifugal force.**
- Specific outcome 9.1: Demonstrate knowledge of clarification or bactofoeation of milk.
- Specific outcome 9.2: Prepare to clarify or bactofoe milk.
- Specific outcome 9.3: Clarify or bactofoe milk.
- Specific outcome 9.4: Perform end of clarification or bactofoeation procedures.
- 10. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**
- Specific outcome 10.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 10.2: Prepare for milk quality tests.
- Specific outcome 10.3: Determine the quality of raw milk.
- Specific outcome 10.4: Report on the quality of raw milk in terms of its acceptability for further processing.
- 11. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**
- Specific outcome 11.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.
- Specific outcome 11.2: Prepare for the determination of the homogenisation index.
- Specific outcome 11.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 11.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

**NATIONAL CERTIFICATE IN FOOD AND BEVERAGES MANUFACTURING  
TECHNOLOGY: DAIRY SPECIALISATION**

**Field:** Manufacturing, Engineering and Technology

**Sub-Field:** Manufacturing and Assembly

**NQF Level:** 4

**Credits:** 153

**Purpose:** A person acquiring this qualification will be able to manufacture a safe, quality assured and packaged dairy product by operating, controlling and maintaining a specialized dairy product manufacturing line, from raw materials until the final manufactured product is ready to be sold in the retail market.

A choice can be made from the following specialised dairy manufacturing domains:

- Butter and Dairy Based Spreads, or
- Ripened Cheese, or
- Cottage Cheese, or
- Dried Dairy Products, or
- Fermented Dairy Products, or
- Frozen Dairy Ice cream and Frozen Ice Cream Related Products, or
- Liquid Long Life Dairy Products, or
- Sweetened Condensed Milk, or
- Processed Cheese and Cheese Spreads.

## QUALIFICATION TITLE MATRIX

		Credits
<b>Fundamental</b>		
<b>Level 4</b>	• Language	20
	• Mathematics	16
		<b>Total 36</b>
<b>Core</b>		
<b>Level 3</b>	• Apply first line maintenance on food processing equipment (To be searched).	10
	• Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).	4
	• Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).	7
	• Produce word processing documents for business (Registered).	5
	• Produce presentation documents for business (Registered)	5
	• Produce and use spread sheets for business (Registered).	5
<b>Level 4</b>	• Demonstrate knowledge of financial principles related to processing and manufacturing processes	
	• Demonstrate knowledge of industrial relationship principles and legislation in a food processing environment	7
	• Implement and maintain food or beverage production plans (To be submitted by the Food SGB).	4
<b>Level 5</b>		4
		<b>Total 51</b>

**Butter and Dairy Based Spreads manufacturing**

		Credits
<b>Compulsory Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the wrapping of a brick shaped food product.</li> </ul>	10
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> </ul>	5
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the functional components of milk.</li> </ul>	7
	<ul style="list-style-type: none"> <li>Evaluate the compositional and sensory quality of butter.</li> </ul>	6
		<b>Total 36</b>
<b>Choice Electives (Choose at least one of the following unit standards)</b>		
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Manufacture butter by means of a batch churn.</li> </ul>	25
	<ul style="list-style-type: none"> <li>Manufacture butter with a continuous buttermaking machine.</li> </ul>	25
		<b>Total 25</b>
<b>GRAND TOTAL</b>		<b>148</b>

**Ripened Cheese manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> </ul>	5
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the functional components of milk.</li> </ul>	7
	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.</li> </ul>	3
	<ul style="list-style-type: none"> <li>Coagulate milk for cheese manufacturing.</li> </ul>	5
	<ul style="list-style-type: none"> <li>Evaluate the compositional and sensory quality of cheese.</li> </ul>	8
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Manufacture a green Cheddar type cheese from coagulated milk.</li> </ul>	30
	<ul style="list-style-type: none"> <li>Manufacture a green Gouda or Grana type cheese from coagulated milk + Paint and wax cheese.</li> </ul>	31
	<ul style="list-style-type: none"> <li>Manufacture a green Mozzarella type cheese from coagulated milk.</li> </ul>	30
		<b>Total 66</b>
<b>Choice Electives</b>		
<b>Level 1</b>	<ul style="list-style-type: none"> <li>Pack a food product under vacuum.</li> </ul>	1
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Clarify or bacto-fuge milk by centrifugal force.</li> </ul>	3
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.</li> </ul>	4
<b>GRAND TOTAL</b>		<b>153</b>

**Cottage Cheese manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the filling and closing of glass or rigid plastic containers for food products.</li> </ul>	10
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> </ul>	5
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> <li>Demonstrate knowledge of the functional components of milk.</li> <li>Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.</li> <li>Coagulate a dairy mixture for the manufacturing of a fermented dairy product.</li> <li>Evaluate the compositional and sensory quality of cottage cheese products.</li> </ul>	8 7 3 5 5
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Manufacture chunky cottage cheese from coagulated milk.</li> <li>Manufacture smooth cottage cheese (Quark) from coagulated milk.</li> </ul>	20 10
		<b>Total 53</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).</li> <li>Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4 4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Clarify or bacto-fuge milk by centrifugal force.</li> </ul>	5
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.</li> </ul>	8
<b>GRAND TOTAL</b>		<b>140</b>



**Dried Dairy Products and Dairy Related Products manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> <li>Control lactose crystallisation in sweetened condensed milk or concentrated whey.</li> </ul>	5 8
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> <li>Demonstrate knowledge of the functional components of milk.</li> <li>Evaporate a liquid food product using a falling or rising film evaporator.</li> <li>Evaluate the compositional and sensory quality of dried dairy products.</li> </ul>	8 7 20 5
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Manufacture a spray dried dairy powder from evaporated milk or an evaporated dairy mixture.</li> <li>Manufacture a dairy powder by means of a roller dryer.</li> <li>Manufacture instant milk powder by means of a spray dryer.</li> </ul>	30 30 30
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 1</b>	<ul style="list-style-type: none"> <li>Bulk pack dry food products in bags.</li> </ul>	2
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.</li> </ul>	10
		<b>Total 85</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4
<b>GRAND TOTAL</b>		<b>172</b>

**Fermented Dairy Products manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the filling and closing of glass or rigid plastic containers for food products.</li> </ul>	10
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> </ul>	5
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> </ul>	8
	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the functional components of milk.</li> </ul>	7
	<ul style="list-style-type: none"> <li>Coagulate a dairy mixture for the manufacturing of a fermented dairy product.</li> </ul>	5
	<ul style="list-style-type: none"> <li>Manufacture yoghurt and another fermented dairy product.</li> </ul>	15
	<ul style="list-style-type: none"> <li>Evaluate the compositional and sensory quality of fermented dairy products.</li> </ul>	6
		<b>Total 56</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).</li> </ul>	4
	<ul style="list-style-type: none"> <li>Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Prepare a bulk starter culture for the production of fermented dairy products.</li> </ul>	8
<b>GRAND TOTAL</b>		<b>143</b>

## Frozen Dairy Ice Cream and Frozen Ice Cream Related Products manufacturing

		Credits
<b>Compulsory Electives</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> <li>Freeze or chill a food product (To be submitted by the Food SGB).</li> </ul>	5 8
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> <li>Demonstrate knowledge of the functional components of milk.</li> <li>Manufacture a frozen dairy ice cream or ice cream related product.</li> <li>Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.</li> </ul>	8 7 15 5
<b>For frozen yoghurt manufacturing, the following unit standard are both compulsory:</b>		
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Coagulate a dairy mixture for the manufacturing of a fermented dairy product.</li> <li>Manufacture yoghurt and another fermented dairy product.</li> </ul>	5 15
<b>Choose at least one of the following compulsory unit standards:</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the wrapping and sealing of individual food product units.</li> <li>Operate and control the filling and closing of glass or rigid plastic containers for food products.</li> </ul>	3 10
		<b>Total 51</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).</li> <li>Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4 4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Enrobe confectionery products (To be submitted by the Food SGB).</li> <li>Mould a frozen dairy ice cream or ice cream related product.</li> <li>Age and freeze a dairy ice cream or ice cream related mixture using a continuous freezer.</li> </ul>	8 7 8
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Aerate a frozen dairy ice cream or ice cream related product.</li> <li>Manufacture wafer products (To be submitted by the Food SGB).</li> <li>Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.</li> </ul>	6 12 8
<b>GRAND TOTAL</b>		<b>138</b>

**Liquid Long Life Dairy products manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> </ul>	5
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> <li>Demonstrate knowledge of the functional components of milk.</li> <li>Evaluate the compositional and sensory quality of liquid long life dairy products.</li> </ul>	8 7 5
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Sterilise a food product using retorting equipment (To be submitted by the Food SGB).</li> </ul>	12
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Manufacture a UHT product.</li> <li>Sterilise a liquid dairy product in a steri-tower.</li> </ul>	12 12
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the filling and closing of glass or rigid plastic containers for food products.</li> </ul>	10
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Operate and control the aseptic forming, filling, and sealing of containers for food products.</li> </ul>	18
		<b>Total 47</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).</li> <li>Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4 4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.</li> </ul>	2
<b>GRAND TOTAL</b>		<b>134</b>

**Sweetened Condensed Milk manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Operate and control the filling and seaming of cans for food products.</li> </ul>	12
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the acceptability of raw milk in a silo for further processing.</li> <li>Control lactose crystallisation in sweetened condensed milk or concentrated whey.</li> </ul>	5 8
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> <li>Demonstrate knowledge of the functional components of milk.</li> <li>Evaporate a liquid food product using a falling or rising film evaporator.</li> <li>Evaluate the compositional and sensory quality of condensed milk products.</li> </ul>	8 7 20 5
		<b>Total 65</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).</li> <li>Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4 4
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Evaluate the efficiency of homogenisation of a liquid dairy product as indicated by the homogenisation index.</li> </ul>	2
<b>GRAND TOTAL</b>		<b>152</b>

**Process Cheese manufacturing**

		<b>Credits</b>
<b>Compulsory Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Prepare a process cheese mixture.</li> </ul>	3
<b>Level 4</b>	<ul style="list-style-type: none"> <li>• Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.</li> <li>• Demonstrate knowledge of the functional components of milk.</li> <li>• Manufacture process cheese from a formulated process cheese mixture.</li> <li>• Evaluate the compositional and sensory quality of process cheese.</li> </ul>	8 7 20 5
<b>Choose at least one of the following compulsory electives:</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Operate and control the filling and closing of glass or rigid plastic containers for food products.</li> <li>• Operate and control the individual wrapping of process cheese portions.</li> </ul>	10 12
		<b>Total 53</b>
<b>Choice Electives</b>		
<b>Level 2</b>	<ul style="list-style-type: none"> <li>• Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).</li> <li>• Collate and shrink-wrap packaged products using automated wrapping equipment.</li> </ul>	4 4
<b>GRAND TOTAL</b>		<b>140</b>

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**APPLICABLE TO ALL THE SPECIALISATION DOMAINS:****UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Monitor quality control practices in a food manufacturing environment (To be submitted by the Food SGB).
- Title 2: Demonstrate an understanding of food safety practices and procedures in a food manufacturing environment (To be submitted by the Food SGB).
- Title 3: Apply first line maintenance on food processing equipment
- Title 4: Produce word processing documents for business (Registered).
- Title 5: Produce presentation documents for business (Registered).
- Title 6: Produce and use spread sheets for business (Registered).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Demonstrate knowledge of the significance of micro-organisms in the manufacturing of dairy products.
- Title 2: Demonstrate knowledge of the functional components of milk.
- Title 3: Demonstrate knowledge of industrial relationship principles and legislation in a food processing environment.
- Title 4: Demonstrate knowledge of financial principles related to processing and manufacturing processes.
- Title 5: Language unit standards (Interim registered unit standards).
- Title 6: Mathematics unit standards (Interim registered unit standards).

**UNIT STANDARDS AT NQF LEVEL 5**

- Title 1: Implement and maintain food or beverage production plans (To be submitted by the Food SGB).



## **BUTTER AND DAIRY BASED SPREADS**

### **UNIT STANDARDS AT NQF LEVEL 2**

Title 1: Operate and control the wrapping of a brick shaped food product.

### **UNIT STANDARDS AT NQF LEVEL 3**

Title 1: Evaluate the acceptability of raw milk in a silo for further processing.

### **UNIT STANDARDS AT NQF LEVEL 4**

Title 1: Manufacture butter with a continuous butter making machine.

Title 2: Evaluate the compositional and sensory quality of butter.

Title 3: Manufacture butter by means of a batch churn.

## **RIPENED CHEESE**

### **UNIT STANDARDS AT NQF LEVEL 1**

Title 1: Paint and wax cheese.

Title 2: Pack a food product under vacuum.

### **UNIT STANDARDS AT NQF LEVEL 3**

Title 1: Clarify or bacto-fuge milk by centrifugal force.

Title 2: Evaluate the acceptability of raw milk in a silo for further processing.

### **UNIT STANDARDS AT NQF LEVEL 4**

Title 1: Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.

Title 2: Coagulate milk for cheese manufacturing.

Title 3: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.

Title 4: Manufacture a green Cheddar type cheese from coagulated milk.

Title 5: Manufacture a green Gouda or Grana type cheese from coagulated milk.

- Title 6: Manufacture a green Mozzarella type cheese from coagulated milk.
- Title 7: Evaluate the compositional and sensory quality of cheese.

## **COTTAGE CHEESE**

### **UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Operate and control the filling and closing of glass or rigid plastic containers for food products.
- Title 2: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 3: Mix or blend food raw materials for processing using automated equipment (To be submitted by the Food SGB).

### **UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Clarify or bacto-fuge milk by centrifugal force.
- Title 2: Evaluate the acceptability of raw milk in a silo for further processing.

### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Demonstrate knowledge of the connection between milk constituents, syneresis and moisture control in cheese curd.
- Title 2: Coagulate a dairy mixture for the manufacturing of a fermented dairy product.
- Title 3: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.
- Title 4: Manufacture chunky cottage cheese from coagulated milk.
- Title 5: Manufacture smooth cottage cheese (Quark) from coagulated milk.
- Title 6: Evaluate the compositional and sensory quality of cottage cheese products.

## **DRIED DAIRY PRODUCTS**

### **UNIT STANDARDS AT NQF LEVEL 1**

Title 1: Bulk pack dry food products in bags.

### **UNIT STANDARDS AT NQF LEVEL 2**

Title 1: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 2: Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products.

### **UNIT STANDARDS AT NQF LEVEL 3**

Title 1: Control lactose crystallisation in sweetened condensed milk or concentrated whey.

Title 2: Evaluate the acceptability of raw milk in a silo for further processing.

### **UNIT STANDARDS AT NQF LEVEL 4**

Title 1: Evaporate a liquid food product using a falling or rising film evaporator.

Title 2: Manufacture a spray dried dairy powder from evaporated milk or an evaporated dairy mixture.

Title 3: Manufacture a dairy powder by means of a roller dryer.

Title 4: Manufacture instant milk powder by means of a spray dryer.

Title 5: Evaluate the compositional and sensory quality of dried dairy products.

## **FERMENTED DAIRY PRODUCTS**

### **UNIT STANDARDS AT NQF LEVEL 2**

Title 1: Operate and control the filling and closing of glass or rigid plastic containers for food products.

Title 2: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 3: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

Title 1: Evaluate the acceptability of raw milk in a silo for further processing.

**UNIT STANDARDS AT NQF LEVEL 4**

Title 1: Coagulate a dairy mixture for the manufacturing of a fermented dairy product.

Title 2: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.

Title 3: Manufacture yoghurt and another fermented dairy product.

Title 4: Evaluate the compositional and sensory quality of fermented dairy products.

**FROZEN DAIRY ICE CREAM AND FROZEN ICE CREAM RELATED PRODUCTS****UNIT STANDARDS AT NQF LEVEL 2**

Title 1: Operate and control the wrapping and sealing of individual food product units.

Title 2: Operate and control the filling and closing of glass or rigid plastic containers for food products.

Title 3: Collate and shrink-wrap packaged products using automated wrapping equipment.

Title 4: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

Title 1: Mould a frozen dairy ice cream or ice cream related product.

Title 2: Age and freeze a dairy ice cream or ice cream related mixture using a continuous freezer.

Title 3: Evaluate the acceptability of raw milk in a silo for further processing.

Title 4: Enrobe confectionery products (To be submitted by the Food SGB).

Title 5: Freeze or chill a food product (To be submitted by the Food SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Coagulate a dairy mixture for the manufacturing of a fermented dairy product.
- Title 2: Prepare a bulk starter culture for the manufacturing of fermented dairy products or cheese.
- Title 3: Manufacture yoghurt and another fermented dairy product.
- Title 4: Evaluate the compositional and sensory quality of frozen dairy ice cream or ice cream related products.
- Title 5: Manufacture a frozen dairy ice cream or ice cream related products.
- Title 6: Aerate a frozen dairy ice cream or ice cream related product.
- Title 7: Manufacture wafer products (To be submitted by the Food SGB).

**LIQUID LONG LIFE DAIRY PRODUCTS****UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Operate and control the filling and closing of glass or rigid plastic containers for food products.
- Title 2: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 3: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Evaluate the acceptability of raw milk in a silo for further processing.
- Title 2: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.
- Title 3: Operate and control the aseptic forming, filling, and sealing of containers for food products.
- Title 4: Sterilise a food product using retorting equipment (To be submitted by the Food SGB).

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Evaluate the compositional and sensory quality of liquid long life dairy products.
- Title 2: Manufacture a UHT product.
- Title 3: Sterilise a liquid dairy product in a steri-tower.

**SWEETENED CONDENSED MILK****UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Operate and control the filling and seaming of cans for food products.
- Title 2: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 3: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

**UNIT STANDARDS AT NQF LEVEL 3**

- Title 1: Evaluate the acceptability of raw milk in a silo for further processing.
- Title 2: Control lactose crystallisation in sweetened condensed milk or concentrated whey.
- Title 3: Evaluate the efficiency of homogenisation of a liquid dairy product, as indicated by the homogenisation index.

**UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Evaporate a liquid food product using a falling or rising film evaporator.
- Title 2: Evaluate the compositional and sensory quality of condensed milk products.

**PROCESS CHEESE****UNIT STANDARDS AT NQF LEVEL 2**

- Title 1: Prepare a process cheese mixture.
- Title 2: Operate and control the filling and closing of glass or rigid plastic containers for food products.
- Title 3: Operate and control the individual wrapping of process cheese portions.

- Title 4: Collate and shrink-wrap packaged products using automated wrapping equipment.
- Title 5: Mix or blend food raw materials for processing using automated equipment. (To be submitted by the Food SGB).

#### **UNIT STANDARDS AT NQF LEVEL 4**

- Title 1: Manufacture process cheese from a formulated process cheese mixture.
- Title 2: Evaluate the compositional and sensory quality of process cheese.

#### **APPLICABLE TO ALL THE SPECIALISATION DOMAINS:**

#### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

- 1. TITLE: DEMONSTRATE KNOWLEDGE OF THE SIGNIFICANCE OF MICRO-ORGANISMS IN THE MANUFACTURING OF DIARY PRODUCTS.**

Specific outcome 1.1: Demonstrate knowledge of the classification and characteristics of micro-organisms found in the dairy environment.

Specific outcome 1.2: Demonstrate knowledge of biochemical and enzymatic systems due to micro-organisms in milk and dairy products, and its implication on dairy production.

Specific outcome 1.3: Demonstrate knowledge of micro-organisms as indicators of dairy quality standards and criteria.

Specific outcome 1.4: Demonstrate knowledge of the implication of pathogenic micro-organisms in the dairy manufacturing environment.
- 2. TITLE: DEMONSTRATE KNOWLEDGE OF THE FUNCTIONAL COMPONENTS OF MILK.**

Specific outcome 2.1: Demonstrate knowledge of the chemical composition of milk proteins, fat and lactose.

Specific outcome 2.2: Demonstrate knowledge of the nutritional and health aspects of milk proteins, fat and lactose.

Specific outcome 2.3: Demonstrate knowledge of the functional properties of milk proteins, fat and lactose.

Specific outcome 2.4: Demonstrate knowledge of the changes in milk proteins, fat and lactose that influence the quality of dairy products.



## **BUTTER AND DAIRY BASED SPREADS**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: OPERATE AND CONTROL THE WRAPPING OF A BRICK SHAPED FOOD PRODUCT.**

Specific outcome 1.1: Demonstrate knowledge of wrapping a brick shaped food product.

Specific outcome 1.2: Prepare for wrapping a brick shaped food product.

Specific outcome 1.3: Wrap a brick shaped food product.

Specific outcome 1.4: Perform end of wrapping procedures.

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**

Specific outcome 1.1: Demonstrate knowledge of milk quality tests.

Specific outcome 1.2: Prepare for milk quality tests.

Specific outcome 1.3: Determine the quality of raw milk.

Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: MANUFACTURE BUTTER WITH A CONTINUOUS BUTTER MAKING MACHINE.**

Specific outcome 1.1: Select raw materials for butter making.

Specific outcome 1.2: Prepare cream for butter making.

Specific outcome 1.3: Prepare to manufacture fresh butter with a continuous butter making machine.

Specific outcome 1.4: Manufacture fresh butter with a continuous butter making machine.

Specific outcome 1.5: Perform end of butter manufacturing procedures.

- 2. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF BUTTER.**
- Specific outcome 2.1: Demonstrate knowledge of the compositional quality of butter.
- Specific outcome 2.2: Demonstrate knowledge of the sensory quality of butter.
- Specific outcome 2.3: Determine the compositional and sensory quality of butter.
- Specific outcome 2.4: Report on the compositional and sensory quality of butter.
- 3. TITLE: MANUFACTURE BUTTER BY MEANS OF A BATCH CHURN.**
- Specific outcome 3.1: Select raw materials for butter making.
- Specific outcome 3.2: Prepare cream for butter making.
- Specific outcome 3.3: Prepare to manufacture fresh butter with a batch churn.
- Specific outcome 3.4: Manufacture fresh butter with a batch churn.
- Specific outcome 3.5: Perform end of butter manufacturing procedures.

## **RIPENED CHEESE**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1**

- 1. TITLE: PAINT AND WAX CHEESE.**
- Specific outcome 1.1: Demonstrate knowledge of painting and waxing of cheese.
- Specific outcome 1.2: Prepare to paint and wax cheese.
- Specific outcome 1.3: Paint and wax cheese.
- Specific outcome 1.4: Perform end of painting and waxing duties.
- 2. TITLE: PACK A FOOD PRODUCT UNDER VACUUM.**
- Specific outcome 2.1: Demonstrate knowledge of vacuum packaging of food products.
- Specific outcome 2.2: Prepare to pack a food product under vacuum.
- Specific outcome 2.3: Pack a food product under vacuum.
- Specific outcome 2.4: Perform end of packaging duties.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

- 1. TITLE:** **CLARIFY OR BACTOFUGE MILK BY CENTRIFUGAL FORCE.**
  - Specific outcome 1.1: Demonstrate knowledge of clarification or bactofugation of milk.
  - Specific outcome 1.2: Prepare to clarify or bactofuge milk.
  - Specific outcome 1.3: Clarify or bactofuge milk.
  - Specific outcome 1.4: Perform end of clarification or bactofugation procedures.
- 2. TITLE:** **EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**
  - Specific outcome 2.1: Demonstrate knowledge of milk quality tests.
  - Specific outcome 2.2: Prepare for milk quality tests.
  - Specific outcome 2.3: Determine the quality of raw milk.
  - Specific outcome 2.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

- 1. TITLE:** **DEMONSTRATE KNOWLEDGE OF THE CONNECTION BETWEEN MILK CONSTITUENTS, SYNERESIS AND MOISTURE CONTROL IN CHEESE CURD.**
  - Specific outcome 1.1: Demonstrate knowledge of the role of milk constituents during cheese manufacturing.
  - Specific outcome 1.2: Demonstrate knowledge of syneresis in cheese curd.
  - Specific outcome 1.3: Demonstrate knowledge of the mineral content of cheese curd.
  - Specific outcome 1.4: Demonstrate knowledge of moisture control in cheese curd.
- 2. TITLE:** **COAGULATE MILK FOR CHEESE MANUFACTURING.**
  - Specific outcome 2.1: Demonstrate knowledge of starter cultures for cheese manufacturing.
  - Specific outcome 2.2: Demonstrate knowledge of the mechanism of milk coagulation during cheese manufacturing.

Specific outcome 2.3: Demonstrate knowledge of the methods of milk coagulation for cheese manufacturing.

Specific outcome 2.4: Coagulate milk for the manufacturing of cheese.

**3. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.**

Specific outcome 3.1: Demonstrate knowledge of starter culture preparation.

Specific outcome 3.2: Prepare for starter culture preparation.

Specific outcome 3.3: Prepare a bulk starter culture from a stock culture.

Specific outcome 3.4: Perform end of starter preparation duties.

**4. TITLE: MANUFACTURE A GREEN CHEDDAR TYPE CHEESE FROM COAGULATED MILK.**

Specific outcome 4.1: Demonstrate knowledge of moisture control in Cheddar type cheese curd.

Specific outcome 4.2: Control the moisture content in Cheddar type cheese curd.

Specific outcome 4.3: Handle Cheddar type cheese curd before pressing.

Specific outcome 4.4: Press a green Cheddar type cheese.

Specific outcome 4.5: Monitor and control the manufacturing of a green Cheddar type cheese.

**5. TITLE: MANUFACTURE A GREEN GOUDA OR GRANA TYPE CHEESE FROM COAGULATED MILK.**

Specific outcome 5.1: Demonstrate knowledge of moisture control in Gouda or Grana type cheese curd.

Specific outcome 5.2: Control the moisture content in Gouda or Grana type cheese curd.

Specific outcome 5.3: Handle curd for the manufacturing of Gouda or Grana type cheese.

Specific outcome 5.4: Monitor and control the manufacturing of a green Gouda or Grana type cheese.

**6. TITLE: MANUFACTURE A GREEN MOZZARELLA TYPE CHEESE FROM COAGULATED MILK.**

- Specific outcome 6.1: Demonstrate knowledge of moisture control in Mozzarella type cheese curd.
- Specific outcome 6.2: Control the moisture content in Mozzarella type cheese curd.
- Specific outcome 6.3: Handle curd for the manufacturing of Mozzarella type cheese.
- Specific outcome 6.4: Monitor and control the manufacturing of green Mozzarella type cheese.

**7. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CHEESE.**

- Specific outcome 7.1: Demonstrate knowledge of the compositional quality of cheese.
- Specific outcome 7.2: Demonstrate knowledge of the sensory quality of cheese.
- Specific outcome 7.3: Determine the compositional and sensory quality of cheese.
- Specific outcome 7.4: Report on the compositional and sensory quality of cheese.

## **COTTAGE CHEESE**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**

- Specific outcome 1.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 1.2: Prepare to fill and close glass or rigid plastic containers.
- Specific outcome 1.3: Fill and close glass or rigid plastic containers.
- Specific outcome 1.4: Perform end of filling and closing procedures.

**2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

- Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 2.3: Collate and shrink-wrap packaged products.
- Specific outcome 2.4: Perform end of shrink-wrapping procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: CLARIFY OR BACTOFUGE MILK BY CENTRIFUGAL FORCE.**

- Specific outcome 1.1: Demonstrate knowledge of clarification or bactofugation of milk.
- Specific outcome 1.2: Prepare to clarify or bactofuge milk.
- Specific outcome 1.3: Clarify or bactofuge milk.
- Specific outcome 1.4: Perform end of clarification or bactofugation procedures.

**2. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**

- Specific outcome 2.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 2.2: Prepare for milk quality tests.
- Specific outcome 2.3: Determine the quality of raw milk.
- Specific outcome 2.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: DEMONSTRATE KNOWLEDGE OF THE CONNECTION BETWEEN MILK CONSTITUENTS, SYNERESIS AND MOISTURE CONTROL IN CHEESE CURD.**

- Specific outcome 1.1: Demonstrate knowledge of the role of milk constituents during cheese manufacturing.
- Specific outcome 1.2: Demonstrate knowledge of syneresis in cheese curd.

Specific outcome 1.3: Demonstrate knowledge of the mineral content of cheese curd.

Specific outcome 1.4: Demonstrate knowledge of moisture control in cheese curd.

**2. TITLE: COAGULATE A DAIRY MIXTURE FOR THE MANUFACTURING OF A FERMENTED DAIRY PRODUCT.**

Specific outcome 2.1: Demonstrate knowledge of starter cultures for fermented dairy products manufacturing.

Specific outcome 2.2: Demonstrate knowledge of the mechanism of coagulation during fermented dairy product manufacturing.

Specific outcome 2.3: Demonstrate knowledge of the methods of coagulation for fermented dairy product manufacturing.

Specific outcome 2.4: Coagulate a dairy mixture for fermented dairy product manufacturing.

**3. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.**

Specific outcome 3.1: Demonstrate knowledge of starter culture preparation.

Specific outcome 3.2: Prepare for starter culture preparation.

Specific outcome 3.3: Prepare a bulk starter culture from a stock culture.

Specific outcome 3.4: Perform end of starter preparation duties.

**4. TITLE: MANUFACTURE CHUNKY COTTAGE CHEESE FROM COAGULATED MILK.**

Specific outcome 4.1: Demonstrate knowledge of moisture control in chunky cottage cheese curd.

Specific outcome 4.2: Control moisture content in chunky cottage cheese curd.

Specific outcome 4.3: Handle chunky cottage cheese before packaging into containers.

Specific outcome 4.4: Monitor and control the manufacturing of chunky cottage cheese.



**5. TITLE: MANUFACTURE SMOOTH COTTAGE CHEESE (QUARK) FROM COAGULATED MILK.**

- Specific outcome 5.1: Demonstrate knowledge of moisture and total solids control in smooth cottage cheese (Quark) curd.
- Specific outcome 5.2: Control the moisture and total solids content in smooth cottage cheese (Quark) curd.
- Specific outcome 5.3: Handle smooth cottage cheese (Quark) before packaging into containers.
- Specific outcome 5.4: Monitor and control the manufacturing of smooth cottage cheese (Quark).

**6. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF COTTAGE CHEESE PRODUCTS.**

- Specific outcome 6.1: Demonstrate knowledge of the compositional quality of cottage cheese.
- Specific outcome 6.2: Demonstrate knowledge of the sensory quality of cottage cheese.
- Specific outcome 6.3: Determine the compositional and sensory quality of cottage cheese.
- Specific outcome 6.4: Report on the compositional and sensory quality of cottage cheese.

## **DRIED DAIRY PRODUCTS**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 1**

**1. TITLE: BULK PACK DRY FOOD PRODUCTS IN BAGS.**

- Specific outcome 1.1: Demonstrate knowledge of bulk packaging of dry food products in bags.
- Specific outcome 1.2: Prepare to bag dry food products.
- Specific outcome 1.3: Bag a dry food product.
- Specific outcome 1.4: Perform end of bagging procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2****1. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

- Specific outcome 1.1: Demonstrate knowledge of collating and shrink-wrapping.
- Specific outcome 1.2: Prepare to collate and shrink-wrap packaged products.
- Specific outcome 1.3: Collate and shrink-wrap packaged products.
- Specific outcome 1.4: Perform end of shrink-wrapping procedures.

**2. TITLE: OPERATE AND CONTROL THE FORMING, FILLING AND HERMETIC SEALING OF PLASTIC SACHETS OR BAGS FOR FOOD PRODUCTS.**

- Specific outcome 2.1: Demonstrate knowledge of packaging of food products in plastic sachets or bags.
- Specific outcome 2.2: Prepare to pack a food product in plastic sachets or bags.
- Specific outcome 2.3: Pack a food product hermetically in plastic sachets or bags.
- Specific outcome 2.4: Perform end of packaging procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3****1. TITLE: CONTROL LACTOSE CRYSTALLISATION IN SWEETENED CONDENSED MILK OR CONCENTRATED WHEY.**

- Specific outcome 1.1: Demonstrate knowledge of controlled lactose crystallisation in sweetened condensed milk or concentrated whey.
- Specific outcome 1.2: Prepare to crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 1.3: Crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 1.4: Perform end of crystallisation procedures.

**2. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**

- Specific outcome 2.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 2.2: Prepare for milk quality tests.
- Specific outcome 2.3: Determine the quality of raw milk.
- Specific outcome 2.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: EVAPORATE A LIQUID FOOD PRODUCT USING A FALLING OR RISING FILM EVAPORATOR.**

- Specific outcome 1.1: Demonstrate knowledge of evaporation.
- Specific outcome 1.2: Prepare to evaporate a liquid food product.
- Specific outcome 1.3: Evaporate a liquid food product in a falling or rising film evaporator.
- Specific outcome 1.4: Perform end of evaporation procedures.

**2. TITLE: MANUFACTURE A SPRAY DRIED DAIRY POWDER FROM EVAPORATED MILK OR AN EVAPORATED DAIRY MIXTURE.**

- Specific outcome 2.1: Demonstrate knowledge of the manufacturing of a spray dried dairy powder.
- Specific outcome 2.2: Prepare to manufacture a dairy powder by means of a spray dryer.
- Specific outcome 2.3: Dry evaporated milk or an evaporated dairy mixture by means of a spray dryer.
- Specific outcome 2.4: Perform end of drying procedures.

**3. TITLE: MANUFACTURE A DAIRY POWDER BY MEANS OF A ROLLER DRYER.**

- Specific outcome 3.1: Demonstrate knowledge of the manufacturing of a dairy powder by means of a roller dryer.
- Specific outcome 3.2: Prepare to manufacture a dairy powder by means of a roller dryer.

Specific outcome 3.3: Dry milk or a dairy mixture by means of a roller dryer.

Specific outcome 3.4: Perform end of drying procedures.

**4. TITLE: MANUFACTURE INSTANT MILK POWDER BY MEANS OF A SPRAY DRYER.**

Specific outcome 4.1: Demonstrate knowledge of the manufacturing of instant milk powder by means of a spray dryer.

Specific outcome 4.2: Prepare to manufacture instant milk powder by means of a spray dryer.

Specific outcome 4.3: Dry evaporated milk by means of a spray dryer.

Specific outcome 4.4: Perform end of drying procedures.

**5. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF DRIED DAIRY PRODUCTS.**

Specific outcome 5.1: Demonstrate knowledge of the compositional quality of dried dairy products.

Specific outcome 5.2: Demonstrate knowledge of the sensory quality of dried dairy products.

Specific outcome 5.3: Determine the compositional and sensory quality of a dried dairy product.

Specific outcome 5.4: Report on the compositional and sensory quality of the dried dairy product.

## **FERMENTED DAIRY PRODUCTS**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**

Specific outcome 1.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.

Specific outcome 1.2: Prepare to fill and close glass or rigid plastic containers.

Specific outcome 1.3: Fill and close glass or rigid plastic containers.

Specific outcome 1.4: Perform end of filling and closing procedures.

**2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.

Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.

Specific outcome 2.3: Collate and shrink-wrap packaged products.

Specific outcome 2.4: Perform end of shrink-wrapping procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**

Specific outcome 1.1: Demonstrate knowledge of milk quality tests.

Specific outcome 1.2: Prepare for milk quality tests.

Specific outcome 1.3: Determine the quality of raw milk.

Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: COAGULATE A DAIRY MIXTURE FOR THE MANUFACTURING OF A FERMENTED DAIRY PRODUCT.**

Specific outcome 1.1: Demonstrate knowledge of starter cultures for fermented dairy products manufacturing.

Specific outcome 1.2: Demonstrate knowledge of the mechanism of coagulation during fermented dairy product manufacturing.

Specific outcome 1.3: Demonstrate knowledge of the methods of coagulation for fermented dairy product manufacturing.

Specific outcome 1.4: Coagulate a dairy mixture for fermented dairy product manufacturing.

**2. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.**

Specific outcome 2.1: Demonstrate knowledge of starter culture preparation.

Specific outcome 2.2: Prepare for starter culture preparation.

Specific outcome 2.3: Prepare a bulk starter culture from a stock culture.

Specific outcome 2.4: Perform end of starter preparation duties.

**3. TITLE: MANUFACTURE YOGHURT AND ANOTHER FERMENTED DAIRY PRODUCT.**

Specific outcome 3.1: Demonstrate knowledge of fermentation and coagulation.

Specific outcome 3.2: Demonstrate knowledge of post-fermentation and -coagulation processes.

Specific outcome 3.3: Coagulate a mixture intended for the manufacturing of a fermented dairy product.

Specific outcome 3.4: Monitor and control the coagulation of a fermented dairy product.

**4. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FERMENTED DAIRY PRODUCTS.**

Specific outcome 4.1: Demonstrate knowledge of the compositional quality of fermented dairy products.

Specific outcome 4.2: Demonstrate knowledge of the sensory quality of fermented dairy products.

Specific outcome 4.3: Determine the compositional and sensory quality of a fermented dairy product.

Specific outcome 4.4: Report on the compositional and sensory quality of the fermented dairy product.

## **FROZEN DAIRY ICE CREAM AND FROZEN ICE CREAM RELATED PRODUCTS**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

- 1. TITLE: OPERATE AND CONTROL THE WRAPPING AND SEALING OF INDIVIDUAL FOOD PRODUCT UNITS.**
  - Specific outcome 1.1: Demonstrate knowledge of wrapping and sealing of a food product.
  - Specific outcome 1.2: Prepare for wrapping and sealing of a food product.
  - Specific outcome 1.3: Wrap and seal a food product.
  - Specific outcome 1.4: Perform end of wrapping and sealing procedures.
  
- 2. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**
  - Specific outcome 2.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
  - Specific outcome 2.2: Prepare to fill and close glass or rigid plastic containers.
  - Specific outcome 2.3: Fill and close glass or rigid plastic containers.
  - Specific outcome 2.4: Perform end of filling and closing procedures.
  
- 3. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**
  - Specific outcome 3.1: Demonstrate knowledge of collating and shrink-wrapping.
  - Specific outcome 3.2: Prepare to collate and shrink-wrap packaged products.
  - Specific outcome 3.3: Collate and shrink-wrap packaged products.
  - Specific outcome 3.4: Perform end of shrink-wrapping procedures.



**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

- 1. TITLE: MOULD A FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCT.**
- Specific outcome 1.1: Demonstrate knowledge of moulding frozen dairy ice cream or ice cream related.
- Specific outcome 1.2: Prepare for moulding a frozen dairy ice cream or ice cream related product.
- Specific outcome 1.3: Mould a frozen dairy ice cream or ice cream related product.
- Specific outcome 1.4: Perform end of moulding procedures.
- 2. TITLE: AGE AND FREEZE A DAIRY ICE CREAM OR ICE CREAM RELATED MIXTURE USING A CONTINUOUS FREEZER.**
- Specific outcome 2.1: Demonstrate knowledge of ageing and freezing dairy ice cream or ice cream related mixtures by means of a continuous freezer.
- Specific outcome 2.2: Prepare for ageing and freezing a dairy ice cream or ice cream related mixture.
- Specific outcome 2.3: Age and freeze a dairy ice cream or ice cream related mixture.
- Specific outcome 2.4: Perform end of ageing and freezing procedures.
- 3. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**
- Specific outcome 3.1: Demonstrate knowledge of milk quality tests.
- Specific outcome 3.2: Prepare for milk quality tests.
- Specific outcome 3.3: Determine the quality of raw milk.
- Specific outcome 3.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4****1. TITLE: COAGULATE A DAIRY MIXTURE FOR THE MANUFACTURING OF A FERMENTED DAIRY PRODUCT.**

- Specific outcome 1.1: Demonstrate knowledge of starter cultures for fermented dairy products manufacturing.
- Specific outcome 1.2: Demonstrate knowledge of the mechanism of coagulation during fermented dairy product manufacturing.
- Specific outcome 1.3: Demonstrate knowledge of the methods of coagulation for fermented dairy product manufacturing.
- Specific outcome 1.4: Coagulate a dairy mixture for fermented dairy product manufacturing.

**2. TITLE: PREPARE A BULK STARTER CULTURE FOR THE MANUFACTURING OF FERMENTED DAIRY PRODUCTS OR CHEESE.**

- Specific outcome 2.1: Demonstrate knowledge of starter culture preparation.
- Specific outcome 2.2: Prepare for starter culture preparation.
- Specific outcome 2.3: Prepare a bulk starter culture from a stock culture.
- Specific outcome 2.4: Perform end of starter preparation duties.

**3. TITLE: MANUFACTURE YOGHURT AND ANOTHER FERMENTED DAIRY PRODUCT.**

- Specific outcome 3.1: Demonstrate knowledge of fermentation and coagulation.
- Specific outcome 3.2: Demonstrate knowledge of post-fermentation and -coagulation processes.
- Specific outcome 3.3: Coagulate a mixture intended for the manufacturing of a fermented dairy product.
- Specific outcome 3.4: Monitor and control the coagulation of a fermented dairy product.

- 4. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCTS.**
- Specific outcome 4.1: Demonstrate knowledge of the compositional quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 4.2: Demonstrate knowledge of the sensory quality of frozen dairy ice cream or ice cream related products.
- Specific outcome 4.3: Determine the compositional and sensory quality of a frozen dairy ice cream or ice cream related product.
- Specific outcome 4.4: Report on the compositional and sensory quality of the frozen dairy ice cream or ice cream related product.
- 5. TITLE: MANUFACTURE A FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCT.**
- Specific outcome 5.1: Demonstrate knowledge of the manufacturing of frozen dairy ice cream or ice cream related products.
- Specific outcome 5.2: Prepare to manufacture a frozen dairy ice cream or ice cream related product.
- Specific outcome 5.3: Manufacture a frozen dairy ice cream or ice cream related product prior to packaging.
- Specific outcome 5.4: Perform end of manufacturing procedures.
- 6. TITLE: AERATE A FROZEN DAIRY ICE CREAM OR ICE CREAM RELATED PRODUCT.**
- Specific outcome 6.1: Demonstrate knowledge of aerating frozen dairy ice cream or ice cream related products.
- Specific outcome 6.2: Prepare to aerate a frozen dairy ice cream or ice cream related product.
- Specific outcome 6.3: Aerate a frozen dairy ice cream or ice cream related product.
- Specific outcome 6.4: Perform end-of-aerating procedures.

## **LIQUID LONG LIFE DAIRY PRODUCTS**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

**1. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**

Specific outcome 1.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.

Specific outcome 1.2: Prepare to fill and close glass or rigid plastic containers.

Specific outcome 1.3: Fill and close glass or rigid plastic containers.

Specific outcome 1.4: Perform end of filling and closing procedures.

**2. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

Specific outcome 2.1: Demonstrate knowledge of collating and shrink-wrapping.

Specific outcome 2.2: Prepare to collate and shrink-wrap packaged products.

Specific outcome 2.3: Collate and shrink-wrap packaged products.

Specific outcome 2.4: Perform end of shrink-wrapping procedures.

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3**

**1. TITLE: EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**

Specific outcome 1.1: Demonstrate knowledge of milk quality tests.

Specific outcome 1.2: Prepare for milk quality tests.

Specific outcome 1.3: Determine the quality of raw milk.

Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**2. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**

Specific outcome 2.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.

- Specific outcome 2.2: Prepare for the determination of the homogenisation index.
- Specific outcome 2.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 2.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

**3. TITLE: OPERATE AND CONTROL THE ASEPTIC FORMING, FILLING AND SEALING OF CONTAINERS FOR FOOD PRODUCTS.**

- Specific outcome 3.1: Demonstrate knowledge of aseptic packaging.
- Specific outcome 3.2: Prepare to pack a food product aseptically in containers.
- Specific outcome 3.3: Pack a food product aseptically in containers.
- Specific outcome 3.4: Perform end of packaging procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF LIQUID LONG LIFE DAIRY PRODUCTS.**

- Specific outcome 1.1: Demonstrate knowledge of the compositional quality of liquid long life dairy products.
- Specific outcome 1.2: Demonstrate knowledge of the sensory quality of liquid long life dairy products.
- Specific outcome 1.3: Determine the compositional and sensory quality of a liquid long life dairy product.
- Specific outcome 1.4: Report on the compositional and sensory quality of the liquid long life dairy product.

**2. TITLE: MANUFACTURE A UHT PRODUCT.**

- Specific outcome 2.1: Demonstrate knowledge of the manufacturing of UHT products.
- Specific outcome 2.2: Prepare to manufacture a UHT product.
- Specific outcome 2.3: Manufacture a UHT product prior to packaging.
- Specific outcome 2.4: Perform end of manufacturing procedures.

3. TITLE:

**STERILISE A LIQUID DAIRY PRODUCT IN A STERITOWER.**

**Specific outcome 3.1:** Demonstrate knowledge of sterilising liquid dairy products.

**Specific outcome 3.2:** Prepare to sterilise a liquid dairy product.

**Specific outcome 3.3:** Sterilise a packed liquid dairy product in a steri-tower.

Specific outcome 3.4: Perform end of sterilising procedures.

## SWEETENED CONDENSED MILK

## UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2

1. TITLE:

**OPERATE AND CONTROL THE FILLING AND SEAMING OF CANS FOR FOOD PRODUCTS.**

**Specific outcome 1.1:** Demonstrate knowledge of food canning.

Specific outcome 1.2: Prepare to can a food product.

Specific outcome 1.3: Can a food product.

Specific outcome 1.4: Perform end of canning procedures.

2. TITLE:

**COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS  
USING AUTOMATED WRAPPING EQUIPMENT.**

**Specific outcome 2.1:** Demonstrate knowledge of collating and shrink-wrapping.

**Specific outcome 2.2:** Prepare to collate and shrink-wrap packaged products.

**Specific outcome 2.3:** Collate and shrink-wrap packaged products.

**Specific outcome 2.4:** Perform end of shrink-wrapping procedures.

### UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 3

1. TITLE:

**EVALUATE THE ACCEPTABILITY OF RAW MILK IN A SILO FOR FURTHER PROCESSING.**

**Specific outcome 1.1:** Demonstrate knowledge of milk quality tests.

**Specific outcome 1.2:** Prepare for milk quality tests.

- Specific outcome 1.3: Determine the quality of raw milk.
- Specific outcome 1.4: Report on the quality of raw milk in terms of its acceptability for further processing.

**2. TITLE: CONTROL LACTOSE CRYSTALLISATION IN SWEETENED CONDENSED MILK OR CONCENTRATED WHEY.**

- Specific outcome 2.1: Demonstrate knowledge of controlled lactose crystallisation in sweetened condensed milk or concentrated whey.
- Specific outcome 2.2: Prepare to crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 2.3: Crystallise sweetened condensed milk or concentrated whey.
- Specific outcome 2.4: Perform end of crystallisation procedures.

**3. TITLE: EVALUATE THE EFFICIENCY OF HOMOGENISATION OF A LIQUID DAIRY PRODUCT, AS INDICATED BY THE HOMOGENISATION INDEX.**

- Specific outcome 3.1: Demonstrate knowledge of determining the homogenisation index of liquid dairy products.
- Specific outcome 3.2: Prepare for the determination of the homogenisation index.
- Specific outcome 3.3: Determine the homogenisation index of a liquid dairy product.
- Specific outcome 3.4: Report on the efficiency of homogenisation in terms of the homogenisation index.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: EVAPORATE A LIQUID FOOD PRODUCT USING A FALLING OR RISING FILM EVAPORATOR.**

- Specific outcome 1.1: Demonstrate knowledge of evaporation.
- Specific outcome 1.2: Prepare to evaporate a liquid food product.
- Specific outcome 1.3: Evaporate a liquid food product in a falling or rising film evaporator.
- Specific outcome 1.4: Perform end of evaporation procedures.



- 2. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF CONDENSED MILK PRODUCTS.**
- Specific outcome 2.1: Demonstrate knowledge of the compositional quality of condensed milk.
- Specific outcome 2.2: Demonstrate knowledge of the sensory quality of condensed milk.
- Specific outcome 2.3: Determine the compositional and sensory quality of condensed milk.
- Specific outcome 2.4: Report on the compositional and sensory quality of condensed milk.

## **PROCESS CHEESE**

### **UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 2**

- 1. TITLE: PREPARE A PROCESS CHEESE MIXTURE.**
- Specific outcome 1.1: Demonstrate knowledge of the preparation of a process cheese mixture.
- Specific outcome 1.2: Prepare for process cheese mixture preparation.
- Specific outcome 1.3: Prepare a process cheese mixture.
- Specific outcome 1.4: Perform end of preparation procedures.
- 2. TITLE: OPERATE AND CONTROL THE FILLING AND CLOSING OF GLASS OR RIGID PLASTIC CONTAINERS FOR FOOD PRODUCTS.**
- Specific outcome 2.1: Demonstrate knowledge of filling and closing of glass or rigid plastic containers.
- Specific outcome 2.2: Prepare to fill and close glass or rigid plastic containers.
- Specific outcome 2.3: Fill and close glass or rigid plastic containers.
- Specific outcome 2.4: Perform end of filling and closing procedures.
- 3. TITLE: OPERATE AND CONTROL THE INDIVIDUAL WRAPPING OF PROCESS CHEESE PORTIONS.**
- Specific outcome 3.1: Demonstrate knowledge of individual wrapping of process cheese portions.

Specific outcome 3.2: Prepare for wrapping of process cheese portions.

Specific outcome 3.3: Wrap process cheese portions individually.

Specific outcome 3.4: Perform end of wrapping procedures.

**4. TITLE: COLLATE AND SHRINK-WRAP PACKAGED PRODUCTS USING AUTOMATED WRAPPING EQUIPMENT.**

Specific outcome 4.1: Demonstrate knowledge of collating and shrink-wrapping.

Specific outcome 4.2: Prepare to collate and shrink-wrap packaged products.

Specific outcome 4.3: Collate and shrink-wrap packaged products.

Specific outcome 4.4: Perform end of shrink-wrapping procedures.

**UNIT STANDARDS AND SPECIFIC OUTCOMES NQF LEVEL 4**

**1. TITLE: MANUFACTURE PROCESS CHEESE FROM A FORMULATED PROCESS CHEESE MIXTURE.**

Specific outcome 1.1: Demonstrate knowledge of the manufacturing of process cheese.

Specific outcome 1.2: Prepare to manufacture process cheese.

Specific outcome 1.3: Manufacture process cheese prior to packaging.

Specific outcome 1.4: Monitor and control the manufacturing of process cheese.

**2. TITLE: EVALUATE THE COMPOSITIONAL AND SENSORY QUALITY OF PROCESS CHEESE.**

Specific outcome 2.1: Demonstrate knowledge of the compositional quality of process cheese.

Specific outcome 2.2: Demonstrate knowledge of the sensory quality of process cheese.

Specific outcome 2.3: Determine the compositional and sensory quality of process cheese.

Specific outcome 2.4: Report on the compositional and sensory quality of process cheese.

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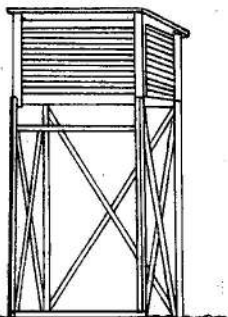
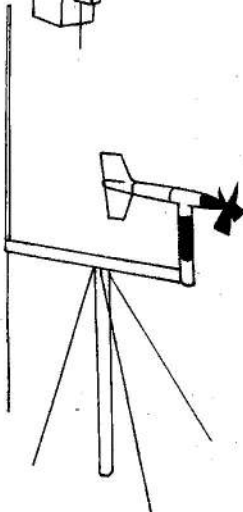
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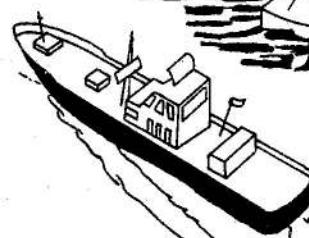
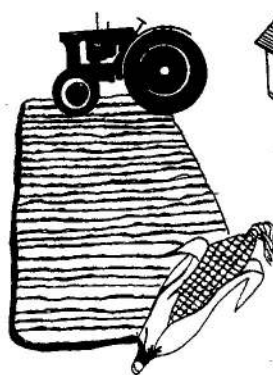
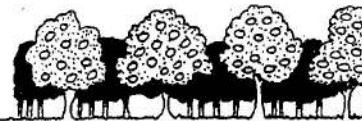
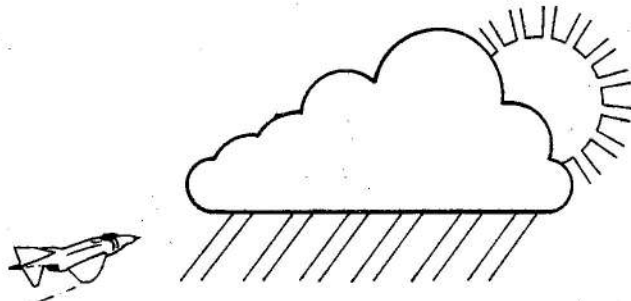
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