

National Technical and Vocational Qualification Framework

NTVQF

**Competency Standards
For
Food Processing and Quality Control
NTVQ, Level 1- 3**



Bangladesh Technical Education Board

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Table of Contents

INTRODUCTION	4
BANGLADESH NTVQF WITH JOB CLASSIFICATIONS	5
ANNEX 1: NTVQF LEVEL DESCRIPTORS	6
<u>NATIONAL CERTIFICATE IN FOOD PROCESSING AND QUALITY CONTROL</u>	
<u>(LEVEL 1, 2, 3)</u>	7
NATIONAL CERTIFICATE IN FOOD PROCESSING AND QUALITY CONTROL (LEVEL 1)	8
NATIONAL CERTIFICATE IN FOOD PROCESSING AND QUALITY CONTROL (LEVEL 2)	9
NATIONAL CERTIFICATE IN FOOD PROCESSING AND QUALITY CONTROL (LEVEL 3)	10
<u>LIST OF ABBREVIATIONS</u>	11
<u>GENERIC UNITS</u>	12
GN1001A1 - USE BASIC MATHEMATICAL CONCEPTS	13
<u>ACCREDITATION REQUIREMENTS</u>	15
GN1002A1: APPLY OSH PRACTICES IN THE WORKPLACE	16
<u>ACCREDITATION REQUIREMENTS</u>	19
GN2003A1: USE ENGLISH IN THE WORKPLACE	20
<u>ACCREDITATION REQUIREMENTS</u>	22
GN2004A1: OPERATE IN A SELF-DIRECTED TEAM	23
<u>ACCREDITATION REQUIREMENTS</u>	25
GN2005A1: PRESENT AND APPLY WORKPLACE INFORMATION	26
<u>ACCREDITATION REQUIREMENTS</u>	28
<u>SECTOR SPECIFIC UNITS</u>	29
FODSS1006A1: FOLLOW QUALITY AND FOOD SAFETY PROGRAMS	30
FODSS1007A1: FOLLOW OSH POLICIES AND PROCEDURES IN THE FOOD INDUSTRY	35
FODSS1008A1: WORK IN THE FOOD INDUSTRY	38
<u>OCCUPATION SPECIFIC UNITS</u>	40
FODTEC2009A1: APPLY RAW MATERIALS / INGREDIENTS AND PROCESS KNOWLEDGE ..	41
2.1 SHORT DOUGH BISCUIT, CAKE, MILK BREAD, BUN, FRUIT CAKE, DEPOSIT COOKIES, SALTED BISCUIT, DRY BREAD	42
EVIDENCE GUIDE	42
THE EVIDENCE MUST BE AUTHENTIC, VALID, SUFFICIENT, RELIABLE, CONSISTENT AND RECENT AND MEET THE REQUIREMENTS OF THE CURRENT VERSION OF THE UNIT OF COMPETENCY.	42
2.1 IDENTIFY NON CONFORMING INGREDIENTS	42
2.2 REMOVE NON CONFORMING INGREDIENTS	42
RAW MATERIALS/INGREDIENTS: SWEETENING AGENTS, SHORTENING, LEAVENING AGENTS, MILK AND MILK PRODUCTS, EGG AND EGG PRODUCTS, WATER, SALT WITH THEIR LIMIT RANGES.	42
2.1 CHARACTERISTICS OF RAW FOOD MATERIALS	42
2.2 TOOLS, EQUIPMENT AND MACHINERY (MIXERS, SIEVES, WEIGHING EQUIPMENT ETC.) 42	42
2.3 CLEANING AND SANITATION	42
2.4 WATER AND WASTE MANAGEMENT	42
2.5 WORKPLACE COMMUNICATION	42
2.6 JOB ROLES, RESPONSIBILITIES AND COMPLIANCES	42
3.1 USE THE APPROPRIATE PPE AND HYGIENIC PRACTICES	42
3.2 SELECT THE INGREDIENTS, SWEETENING AGENTS, SHORTENING, LEAVENING AGENTS, MILK AND MILK PRODUCTS, EGG AND EGG PRODUCTS, WATER, SALT WITH THEIR RANGES.	42

3.3	SELECT THE RIGHT SOURCE BASED ON THE VARIABILITY OF RAW FOOD MATERIALS AND THEIR IMPACT ON FOOD PROCESSING OPERATIONS.	42
3.4	OPERATE AND USE TOOLS, EQUIPMENT AND MACHINERY PROPERLY (COMPANY STANDARDS).....	42
3.5	IMPLEMENT THE BASIC PRINCIPLES AND PRACTICES OF CLEANING AND SANITATION IN FOOD PROCESSING OPERATIONS.	42
3.6	IMPLEMENT THE REQUIREMENTS FOR WATER UTILIZATION AND WASTE MANAGEMENT IN FOOD AND FOOD PROCESSING.	43
3.7	COMMUNICATE WITH PEERS AND SUPERVISORS.....	43
3.8	COMPLY WITH JOB ROLE REQUIREMENTS.	43
3.9	CONFORM TO WORKPLACE STANDARD OPERATING PROCEDURES.....	43
	FODTEC2010A1: OPERATE PROCESSES IN A PRODUCTION SYSTEM	44
	FODTEC3011A1: CONTROL FOOD CONTAMINATION AND SPOILAGE	47
	FODTEC3013A1: APPLY PRINCIPLES OF FOOD PACKAGING.....	51
	FODTEC3014A: IDENTIFY THE PHYSICAL AND CHEMICAL PROPERTIES OF MATERIALS, FOOD AND RELATED PRODUCTS.....	55
	FODTEC3015A1: IDENTIFY AND APPLY FOOD ADDITIVES	58
	FODTEC4012A1: APPLY BASIC ENGINEERING PRINCIPLES TO A FOOD PRODUCTION PROCESS.....	62
	FODTEC4019A1: PARTICIPATE IN A HAZARD ANALYSIS AND CRITICAL CONTROL POINTS (HACCP) TEAM.....	67

Introduction

These Competency Standards were developed by the Standards and Curriculum Development Committee (SCDC) for the occupation '**Food Processing and Quality Control**' that was established under the sub-sector Industry Skills Council (ISC) and with the assistance of the Technical and Vocational Education Reform project. This project is funded by the European Union, the International Labour Organization and the Government of Bangladesh.

The competency standards are the foundation on which new competency based curriculum will be developed that responds better to the needs of industry for skilled workers. The members of the SCDCs are primarily from industry but with representatives from the Bangladesh Technical Education Board (BTEB) and the Directorate of Technical Education (DTE), Bureau of Manpower Employment and Training (BMET), NGO, and Private Training providers. Persons who will successfully complete the new TVET programs based on these competency standards will receive a qualification in the new National Technical and Vocational Qualification Framework (NTVQF).

Endorsed by

Industry Skills Council

Date:

Bangladesh Technical Education Board

(BTEB) Date:

Bangladesh NTVQF with Job Classifications

NTVQF LEVELS	EDUCATION SECTORS			Job Classification
	Pre-Vocation Education	Vocational Education	Technical Education	
NTVQF 6			Diploma in engineering or equivalent	Supervisor / Middle Level Manager /Sub Assistant Engr. etc.
NTVQF 5		National Skill Certificate 5 (NSC 5)		Highly Skilled Worker / Supervisor
NTVQF 4		National Skill Certificate 4 (NSC 4)		Skilled Worker
NTVQF 3		National Skill Certificate 3 (NSC3)		Semi-Skilled Worker
NTVQF 2		National Skill Certificate 2 (NSC 2)		Basic-Skilled Worker
NTVQF 1		National Skill Certificate 1 (NSC 1)		Basic Worker
Pre-Voc 2	National Pre-Vocation Certificate NPVC 2			Pre-Vocation Trainee
Pre-Voc 1	National Pre-Vocation Certificate 1 NPVC 1			Pre-Vocation Trainee

Annex 1: NTVQF level Descriptors

NTVQF Level	Knowledge	Skill	Responsibility	Job Class.
6	<ul style="list-style-type: none"> Comprehensive actual and theoretical knowledge within a specific study area with an awareness of the limits of that knowledge. 	<ul style="list-style-type: none"> Specialised and restricted range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems 	<ul style="list-style-type: none"> Manage a team or teams in workplace activities where there is unpredictable change Identify and design learning programs to develop performance of team members 	Supervisor / Middle Level Manager /Sub Assistant Engr. etc.
5	<ul style="list-style-type: none"> Very broad knowledge of the underlying, concepts, principles, and processes in a specific study area 	<ul style="list-style-type: none"> Very broad range of cognitive and practical skills required to generate solutions to specific problems in one or more study areas. 	<ul style="list-style-type: none"> Take overall responsibility for completion of tasks in work or study Apply past experiences in solving similar problems 	Highly Skilled Worker / Supervisor
4	<ul style="list-style-type: none"> Broad knowledge of the underlying, concepts, principles, and processes in a specific study area 	<ul style="list-style-type: none"> Range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and information 	<ul style="list-style-type: none"> Take responsibility, within reason, for completion of tasks in work or study Apply past experiences in solving similar problems 	Skilled Worker
3	<ul style="list-style-type: none"> Moderately broad knowledge in a specific study area. 	<ul style="list-style-type: none"> Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools 	<ul style="list-style-type: none"> Work or study under supervision with some autonomy 	Semi-Skilled Worker
2	<ul style="list-style-type: none"> Basic underpinning knowledge in a specific study area. 	<ul style="list-style-type: none"> Basic skills required to carry out simple tasks 	<ul style="list-style-type: none"> Work or study under indirect supervision in a structured context 	Medium Skilled Worker
1	<ul style="list-style-type: none"> Elementary understanding of the underpinning knowledge in a specific study area. 	<ul style="list-style-type: none"> Limited range of skills required to carry out simple tasks 	<ul style="list-style-type: none"> Work or study under direct supervision in a structured context 	Basic Skilled Worker
Pre-Voc 2	<ul style="list-style-type: none"> Limited general knowledge 	<ul style="list-style-type: none"> Very limited range of skills and use of tools required to carry out simple tasks 	<ul style="list-style-type: none"> Work or study under direct supervision in a well-defined, structured context. 	Pre-Vocational Trainee
Pre-Voc 1	<ul style="list-style-type: none"> Extremely limited general knowledge 	<ul style="list-style-type: none"> Minimal range of skills required to carry out simple tasks 	<ul style="list-style-type: none"> Simple work or study exercises, under direct supervision in a clear, well defined structured context 	Pre-Vocational Trainee

**National Competency Standards
for
National Certificate in Food Processing and Quality Control
(Level 1, 2, 3)**

S. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic – Compulsory (5 UoCs required)				200
1.	GN1001A1	Use basic mathematical concepts	1	40
2.	GN1002A1	Apply OSH practices in the workplace	1	30
3.	GN2003A1	Use English in the workplace	2	70
4.	GN2004A1	Operate in a self- directed team	2	30
5.	GN2005A1	Present and apply workplace information	2	30
Sector SPECIFIC – Compulsory (3 UoCs required)				130
6.	FODSS1006A1	Follow quality and food safety programs	1	60
7.	FODSS1007A1	Follow OSH policies and procedures in the food industry	1	40
8.	FODSS1008A1	Working in the food industry	1	30
Occupation Specific – Compulsory (8 UoCs required)				570
9.	FODTEC2009A1	Apply raw materials/ingredient and process knowledge	2	70
10.	FODTEC2010A1	Operate processes in a production system	2	60
11.	FODTEC3011A1	Control food contamination and spoilage	3	90
12.	FODTEC3013A1	Apply principles of food packaging	3	80
13.	FODTEC3014A1	Identify the physical and chemical properties of materials, food, and related products	3	70
14.	FODTEC3015A1	Identify and apply food additives	3	60
15.	FODTEC4012A1	Apply engineering principles to a food production process	4	70
16.	FODTEC4019A1	Participate in a Hazard Analysis and Critical Control Points (HACCP) team	4	70
Total Nominal Learning Hours				900

Course Structure
for
National Certificate in Food Processing and Quality Control (Level 1)

S. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic (3 UoCs required)				100
1.	GN1001A1	Use basic mathematical concepts	1	40
2.	GN1002A1	Apply OSH practices in the workplace	1	30
3.	GN2004A1	Operate in a self- directed team	2	30
Sector Specific (3 UoCs required)				130
4.	FODSS1006A1	Follow quality and food safety programs	1	60
5.	FODSS1007A1	Follow OSH policies and procedures in the food industry	1	40
6.	FODSS1008A1	Working in the food industry	1	30
Occupation Specific – Compulsory (2 UoCs required)				
7.	FODTEC2009A1	Apply raw materials/ingredient and process knowledge	2	70
8.	FODTEC2010A1	Operate processes in a production system	2	60
Total Nominal Learning Hours				360

Course Structure
for
National Certificate in Food Processing and Quality Control (Level 2)

S. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic – Compulsory (2 UoCs required)				100
1.	GN2003A1	Use English in the workplace	2	70
2.	GN2005A1	Present and apply workplace information	2	30
Occupation Specific – Compulsory (2 UoCs required)				170
3.	FODTEC3011A1	Control food contamination and spoilage	3	90
4.	FODTEC3013A1	Apply principles of food packaging	3	80
Total Nominal Learning Hours				270

**Course Structure
for
National Certificate in Food Processing and Quality Control (Level 3)**

S. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Occupation Specific – Compulsory (4 UoCs required)				270
1.	FODTEC3014A1	Identify the physical and chemical properties of materials, food, and related products.	3	70
2.	FODTEC3015A1	Identify and apply food additives	3	60
3.	FODTEC4012A1	Apply engineering principles to a food production process	4	70
4.	FODTEC4019A1	Participate in a Hazard Analysis and Critical Control Points (HACCP) team	4	70
Total Nominal Learning Hours				270

List of Abbreviations

General

BMET – Bureau of Manpower Employment and Training
BSTI - Bangladesh Standard and Testing Institution
BTEB – Bangladesh Technical Education Board
DTE – Directorate of Technical Education
ILO – International Labour Organization
ISC – Industry Skills Council
NPVC – National Pre-Vocation Certificate
NTVQF – National Technical and Vocational Qualification Framework
SSDC – Standards and Curriculum Development Committee
TVET – Technical Vocational Education and Training
UoC – Unit of Competency

Occupation Specific Abbreviations

GAP – Good Agricultural Practices
GMP – Good Manufacturing Practices
HACCP – Hazard Analysis and Critical Control Points
HDPE – High Density Polyethylene
LDPE – Low Density Polyethylene
MSDS – Material Safety Data Sheet
OSH – Occupational Safety and Health
PPE – Personal Protective Equipment
SOP – Standard Operating Procedure
SSOP – Sanitation Standard Operating Procedure

GENERIC UNITS

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	GN1001A1 - Use Basic Mathematical Concepts
Nominal Hours	40 hours
Unit Descriptor	This requires the knowledge, skill and attitude to apply mathematical methods such as addition, subtraction, multiplication, and division, among others, in the routine tasks of an organization.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Identify calculation requirements in the workplace	1.1 Calculation requirements are identified from <i>workplace information</i>
2. Select appropriate mathematical methods for the calculation	2.1. Appropriate <i>Mathematical methods</i> are selected to carry out the calculation. 2.2. <i>System and units of measurement</i> to be followed are determined.
3. Use basic mathematical concepts to calculate workplace calculation.	3.1. Calculations are completed using appropriate methods such as addition, subtraction, multiplication and division. 3.2. Systems and units of measurement for the task are applied to workplace calculation.
Range of Variables	
Variable	Range (May include but not limited to)
1. Equipment and tools	1.1 Calculator 1.2 Computer with office software
2. Mathematical methods	2.1. Addition 2.2. Subtraction 2.3. Division 2.4. Multiplication 2.5. Ratio on any types of real values (such as whole numbers, fractional numbers, percentages, numbers with exponents)
3. System and units of measurement	3.1. Measurement 3.2. Volume 3.3. Weight 3.4. Mass 3.5. Density 3.6. Percentage

	<ul style="list-style-type: none"> 3.7. Length / Breadth / Thickness 3.8. Capacity 3.9. Time 3.10. Temperature 3.11. Budget, Pay/ Wages, Leave entitlements 3.12. Material usage 3.13. Speed 3.14. Costing
4. Workplace information	<ul style="list-style-type: none"> 4.1 Project documents 4.2 Graphs 4.3 Charts 4.4 Tables 4.5 Spread sheets 4.6 Item price quotations 4.7 Equipment manuals
5. Budget	<ul style="list-style-type: none"> 5.1 Budget of consumables 5.2 Calculation for software components 5.3 Hardware equipment 5.4 Maintenance budget of a set-up 5.5 Cost estimation
<p>Evidence Guide</p> <p>The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.</p>	
1. Critical aspects of competency	<ul style="list-style-type: none"> 1.1 Applied mathematical methods such as addition, subtraction, division and multiplication to workplace calculations.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1. Calculation requirements in the workplace 2.2. Select appropriate mathematical methods 2.3. Equipment and tools 2.4. Mathematical language, symbols and terminology 2.5. Application of units 2.6. Workplace information 2.7. Using arithmetic processes to find solutions to simple mathematical problems
3. Underpinning skill	<ul style="list-style-type: none"> 3.1. Ability to identify calculation requirements from workplace information 3.2. Ability to select appropriate mathematical methods 3.3. Ability to use appropriate technology 3.4. Ability to use mathematical language, symbols and terminology

	<p>3.5. Understanding of appropriate units of measurement (such as kg, meter) and application may include measurement, volume, weight, density, percentage etc.</p> <p>3.6. Ability to include workplace information (project documents, graphs, charts, tables, spread sheets, item price quotations, equipment manuals)</p> <p>3.7. Ability to use arithmetic processes to find solutions to simple mathematical problems</p> <p>3.8. Ability to apply in the workplace.</p>
4. Required attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources must be provided:</p> <p>5.1 Tools, equipment and physical facilities appropriate to perform activities.</p> <p>5.2 Materials, consumables to perform activities.</p>
6 Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7 Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	GN1002A1: Apply OSH practices in the workplace
Nominal Hours	30 hours
Unit Descriptor	This unit covers the knowledge, skills and attitude required to identify and apply OSH in the workplace. This also covers identifying, controlling and reporting OSH hazards, conducting of work in a safe manner, following emergency response procedure and maintaining and improving health and safety in the workplace.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Identify, control and report OSH hazards	<p>1.1 Immediate work area is routinely checked for OSH hazards prior to commencing and during work.</p> <p>1.2 Hazards and unacceptable performance are identified and corrective action is taken within the level of responsibility.</p> <p>1.3 OSH hazards and incidents are reported to appropriate personnel according to workplace procedures.</p> <p>1.4 Safety Signs and symbols are identified and followed</p>
2. Conduct work safely	<p>2.1. Apply OSH practices in the workplace.</p> <p>2.2. Appropriate personal protective equipment (PPE) is selected and worn.</p>
3. Follow emergency response procedures	<p>3.1. Emergency situations are identified and reported according to workplace reporting requirements.</p> <p>3.2. Emergency procedures are followed as appropriate to the nature of the emergency and according to workplace procedures.</p> <p>3.3. Workplace procedures for dealing with accidents, fires and emergencies are followed whenever necessary within scope of responsibilities.</p>
4. Maintain and improve health and safety in the work place	<p>4.1 Risks are identified and appropriate control measures are implemented in the work area.</p>

	<p>4.2 Recommendations arising from risk assessments are implemented within level of responsibility.</p> <p>4.3 Opportunities for improving OSH performance are identified and raised with relevant personnel.</p> <p>4.4 Safety records according to company policies are maintained.</p>
Range of Variables	
Variable	Range (May include but not limited to)
1. Company policies	1.1. Job-related Standard Operating Procedures (SOPs) and OSH-specific procedures. Examples of OSH procedures include consultation and participation, emergency response, response to specific hazards, incident investigation, risk assessment, reporting arrangements and issue resolution procedures
2. Workplace procedures	<p>2.1. OSH system and related documentation including policies and procedures</p> <p>2.2. Standard Operating Procedures (SOPs)</p> <p>2.3. information on hazards and the work process, hazard alerts, safety signs and symbols</p> <p>2.4. Labels</p> <p>2.5. Material Safety Data Sheets (MSDSs) and manufacturers' advice.</p>
3. Hazards	<p>3.1 OSH incidents include near misses, injuries, illnesses and property damage, noise, handling hazardous substances, other hazards</p> <p>3.2 Working with and near moving equipment/load shifting equipment</p> <p>4.3 Broken or damaged equipment or materials</p>
4. Personal Protective equipment (PPE)	<p>4.1 Goggles</p> <p>4.2 Ear muffs</p> <p>4.3 Ear plugs</p> <p>4.4 Gloves</p> <p>4.5 Clothing</p> <p>4.6 Apron</p> <p>4.7 Helmet</p> <p>4.8 Boots</p>

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Identified, controlled and reported OSH hazards 1.2 Followed work safety. 1.3 Followed emergency response procedures. 1.4 Maintained and improved health and safety in the workplace.
2. Underpinning knowledge	2.1. Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron, 2.2. Identification of tools and equipment 2.3. Hazardous events 2.4. Tools, equipment, machinery and relevant accessories. 2.5. Communication 2.6. Job roles, responsibilities and compliance 2.7. Workplace laws
3. Underpinning skill	3.1. Ability to use the appropriate PPE. 3.2. Ability to identify tools and equipment. 3.3. Ability to quick response and to take safety precautions for different hazardous situations. 3.4. Ability to operate and use tools, equipment, machinery and accessories properly as per SOP (Company standards). 3.5. Ability to communicate with peers and supervisors. 3.6. Ability to apply in the workplace.
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	The following resources must be provided: 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables to perform activities.

6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	GN2003A1: Use English in the workplace
Nominal Hours	70 hours
Unit Descriptor	This unit specifies knowledge, skills and attitude the competency required to able to read, write and understand basic English in the workplace.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Read and understand workplace documents in English	1.1 <i>Workplace documents</i> are read and understood. 1.2 <i>Visual information</i> is interpreted.
2. Write simple routine workplace documents in English	2.1 Simple routine workplace documents are prepared using key words, phrases, simple sentences and visual aids where appropriate. 2.2 Key information is written in the appropriate places in standard forms.
3. Listen to conversation in English	3.1 Active listening in English language is demonstrated to the required workplace standard.
4. Perform conversation in English	4.1 Conversation is performed in English with peers, customers and management to the required workplace standard.
Range of Variables	
Variable	Range (May include but not limited to)
1. Workplace documents	1.1 Schedules and itineraries 1.2 Agenda 1.3 Simple reports such as progress and incident reports 1.4 Job sheets 1.5 Operational manuals 1.6 Brochures and promotional material 1.7 Visual and graphic materials 1.8 Standards 1.9 OSH information

2. Visual information	2.1 Signs 2.2 Maps 2.3 Diagrams 2.4 Forms 2.5 Labels 2.6 Graphs 2.7 Charts
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency	
1. Critical aspects of competency	1.1 Used basic English in the workplace 1.2 Read and understood workplace documents in English 1.3 Constructed simple routine workplace documents in English 1.4 Listened to conversation in English 1.5 Communicated with peers, customers and management using English to the required workplace standard
2. Underpinning knowledge	2.1. Read workplace documents in English 2.2. Write simple routine workplace documents in English 2.3. Listen to conversation in English 2.4. Perform conversation in English 2.5. Interaction skills (i.e., teamwork, interpersonal skills, etc.) 2.6. Job roles, responsibilities and compliances
3. Underpinning skill	3.1. Ability to read and understand workplace documents in English, using appropriate vocabulary and grammar, and standard spelling and punctuation. 3.2. Ability to write simple routine workplace documents in English, such as: Schedules and agendas, job sheets, operational manuals and brochures, and promotional material. 3.3. Ability in active listening in English language is demonstrated to the required workplace standard. 3.4. Ability to perform conversation in English with peers, customers and management, to the required workplace standard. 3.5. Work effectively with others: <ul style="list-style-type: none"> ○ listening and questioning skills ○ ability to follow simple directions
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities

	<ul style="list-style-type: none"> 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables needed to perform activities.
6. Methods of assessment	<ul style="list-style-type: none"> 6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	<ul style="list-style-type: none"> 7.1 Competencies may be assessed in the work place or a simulated work place

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National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	GN2004A1: Operate in a self-directed team
Nominal Hours	30 hours
Unit Descriptor	This unit specifies the knowledge, skills and attitude to communicate and work within a team in an interactive work environment as per the workplace standard.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Identify team goals and processes	<p>1.1 Team goals and processes are identified.</p> <p>1.2 Roles and responsibilities of team members are identified</p> <p>1.3 Relationships within team and with other work areas are identified</p>
2. Communicate and cooperate with team members	<p>2.1. Effective interpersonal skills are used to interact with team members and to contribute to activities and objectives.</p> <p>2.2. Formal and informal forms of communication are used effectively to support team achievement.</p> <p>2.3. Diversity is respected and valued in team functioning.</p> <p>2.4. Views and opinions of other team members are understood and reflected accurately.</p> <p>2.5. Workplace staff regulation is used correctly to assist communication.</p>
3. Work as a team member	<p>3.1. Duties, responsibilities, authorities, objectives and task requirements are identified and clarified with team.</p> <p>3.2. Tasks are performed in accordance with organizational and team requirements, specifications and workplace procedures.</p> <p>3.3. Team members support other members as required to ensure team achieves goals and requirements.</p> <p>3.4. Agreed reporting lines are followed using standard operating procedures</p>
4. Solve problems as a team member	<p>4.1 Current and potential problems faced by team are identified.</p> <p>4.2 Procedures for avoiding and managing</p>

	<p>problems are identified.</p> <p>4.3 Problems are solved effectively and in a manner that supports the team.</p>
Range of Variables	
Variable	Range (May include but not limited to)
1. Team goals and processes	<p>1.1 Identifying the problem</p> <p>1.2 Consider solutions</p> <p>1.3 Action</p> <p>1.4 Follow-up.</p>
2. Workplace staff regulation	2.1. Organization/company's code of conduct, complaint handling/grievance policies and procedures
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	<p>1.1 Communicated and worked within a team in an interactive work environment as per workplace standard.</p> <p>1.2 Dealt with a range of communication/ information at one time.</p> <p>1.3 Made constructive contributions in workplace issues</p> <p>1.4 Presented information clearly and effectively in written form</p> <p>1.5 Asked appropriate questions</p> <p>1.6 Provided accurate information</p>
2. Underpinning knowledge	<p>2.1. Organization requirements for written and electronic communication methods</p> <p>2.2. Effective verbal communication methods</p>
3. Underpinning skill	<p>3.1. Organize information</p> <p>3.2. Understand and convey intended meaning</p> <p>3.3. Participate in a variety of workplace discussions</p> <p>3.4. Comply with Organization's requirements in the use of written and electronic communication methods</p>
4. Required attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p>

	4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	The following resources MUST be provided: 5.1 Variety of Information 5.2 Communication tools 5.3 Simulated workplace
6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place

Accreditation Requirements

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National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	GN2005A1: Present and apply workplace information
Nominal Hours	30 hours
Unit Descriptor	This unit covers the knowledge, skills and attitude to communicate and deliver up-to-date information in an interactive work environment as per workplace standard.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable Training Components
1. Identify information requirements	1.1 Sources of Information requirements in the workplace are identified
2. Process Data	2.1. Data is collected and correlated as per prescribed method . 2.2. Relevant data is used as references in accordance with the objectives of the program. 2.3. Information is applied according to workplace requirements.
3. Analyse, interpret and organize information	3.1. Collected information is analysed, interpret and organize as required for workplace.
4. Apply and present workplace information	4.1 Findings and recommendations are summarized and presented in a user-friendly manner. 4.2 Draft report/ forms are prepared based on standard format. 4.3 Graphs and other visual presentations are prepared to highlight analysis /interpretation of information. 4.4 Reports/forms are submitted and distributed to relevant departments/persons.
Range of Variables	
Variable	Range (May include but not limited to):
1. Sources of information	1.1 Daily job instructions 1.2 Specifications 1.3 Standard operating procedures 1.4 Charts

	<ul style="list-style-type: none"> 1.5 Lists 1.6 Documents 1.7 Computer data 1.8 Drawings 1.9 Sketches 1.10 Tables 1.11 Technical manuals and/or charts 1.12 Surveys 1.13 Interviews 1.14 Front-end analysis 1.15 Functional analysis
2. Forms	<ul style="list-style-type: none"> 2.1. Questionnaires 2.2. Profile 2.3. Accident/incident report form 2.4. Work order 2.5. Purchase order,
3. Methodologies	<ul style="list-style-type: none"> 3.1. Qualitative 3.2. Quantitative
4. Statistical analysis	<ul style="list-style-type: none"> 4.1 Average (mean, median, mode) 4.2 Percentage 4.3 Frequency distribution
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Communicated and delivered current information in an interactive work environment as per workplace standard.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1. Identify information 2.2. Identify data 2.3. Workplace standard
3. Underpinning skill	<ul style="list-style-type: none"> 3.1. Collecting information 3.2. Collecting data 3.3. Demonstrating, interpreting and/or following data sheet or instruction 3.4. Performing task as per data sheet or instruction 3.5. Keeping records and reports

4.Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	The following resources must be provided: 5.1 Tools, equipment and physical facilities appropriate to perform activities. 5.2 Materials, consumables needed to perform activities.
6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place

Accreditation Requirements

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SECTOR SPECIFIC UNITS

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODSS1006A1: Follow quality and food safety programs
Nominal Hours	60 hours
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to follow food quality and safety programs in the workplace.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practices	<p>1.1 Housekeeping standards are maintained in the workplace following OSH requirements.</p> <p>1.2 Personal hygiene is maintained and PPE worn as per OSH requirements.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Practice personal hygiene and good grooming standards	<p>2.1. Personal hygiene and good grooming is practiced in line with workplace health and safety requirements.</p> <p>2.2. Health conditions and/or illness are reported as required by the food safety program.</p> <p>2.3. Clothing and footwear is appropriate for the food handling task and meets the requirements of the food safety program.</p> <p>2.4. Movement around the workplace complies with the food safety program.</p>
3. Follow safe food handling and sanitation practices	<p>3.1. Food handling requirements are identified.</p> <p>3.2. Safe food handling practices are followed in line with workplace sanitation regulations and the food safety code.</p> <p>3.3. The workplace is maintained in a clean and tidy order to meet workplace standards.</p>
4. Monitor quality of work outcome	<p>4.1 Quality requirements are identified.</p> <p>4.2 Inputs are inspected to confirm capability to meet quality requirements.</p> <p>4.3 Work is conducted and monitored to produce required outcomes.</p>
5. Identify and act on quality deficits and/or food safety hazards	<p>5.1 Work area, materials, equipment and product are routinely checked to ensure compliance with quality and/or food safety requirements.</p>

	<p>5.2 Processes, practices or conditions that are not consistent with quality standards or food safety program are identified.</p> <p>5.3 Quality variations and/or food safety hazards are rectified or removed within the level of responsibility and in accordance with workplace procedures.</p> <p>5.4 Quality variations and/or food safety outside the scope of individual responsibility are reported to appropriate personnel according to workplace reporting requirements.</p>
Range of Variables	
Variable	Range (May include but not limited to)
1.PPE (Personal Protective Equipment)	<p>1.1 Protective clothing</p> <p>1.2 Gloves</p> <p>1.3 Hair net</p> <p>1.4 Other PPE as per OSH requirements</p>
2. Food handled and stored	<p>2.1. Raw materials</p> <p>2.2. Ingredients</p> <p>2.3. Consumables</p> <p>2.4. Part-processed product</p> <p>2.5. Finished product</p> <p>2.6. Cleaning materials</p>
3. Processes, practices or conditions	<p>3.1. Methods of receiving and storing food</p> <p>3.2. Food preparation</p> <p>3.3. Cooking</p> <p>3.4. Holding</p> <p>3.5. Cooling</p> <p>3.6. Chilling and reheating</p> <p>3.7. Packaging</p> <p>3.8. Disposal</p>
4. Clothing and footwear	<p>4.1 Purpose designed overalls or uniforms</p> <p>4.2 Hair-nets</p> <p>4.3 Beard snoods</p> <p>4.4 Gloves</p> <p>4.5 Overshoes</p>
5. Food safety	<p>5.1 Failure to check delivery temperatures of potentially hazardous chilled food;</p> <p>5.2 Failure to place temperature-sensitive food in temperature-controlled storage conditions promptly</p> <p>5.3 Failure to wash hands when required</p> <p>5.4 Use of cloths for unsuitable purposes</p>

Special Notes

Food Safety Program is a written document that specifies how a business will control all food safety hazards that may be reasonably expected to occur in all food handling operations of the food business. The food safety program and related procedures must comply with legal requirements of the Food Safety Standards and must be communicated to all food handlers. Where no food safety program is in place, food safety requirements may be specified in general operating procedures.

Food safety information may be provided in a food safety program and/or in Standard Operating Procedures (SOPs), specifications, log sheets and written or verbal instruction.

Appropriate clothing and footwear depends on work requirements. It should be designed to ensure that the body and clothing itself does not contaminate food or surfaces likely to come into contact with food.

A food safety hazard is a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect. Examples are bacteria, chemical additives, plastic and glass.

Responsibility for monitoring food safety, identifying breaches in food safety procedures and taking corrective action relates to own tasks and responsibilities and occurs in the context of the food safety program in the workplace.

Responsibility for monitoring quality relates to immediate work responsibilities and may require visual inspections and checks.

Monitoring typically involves visual inspection or checks at control points. Control points refer to those key points in a work process which must be monitored and controlled. This includes food safety (critical) control points.

Responding to out-of-specification or unacceptable outcomes at this level typically involves exercising judgment within clearly defined boundaries and reporting/referring to others.

Minimum personal hygiene requirements are specified by the workplace food safety program and at a minimum must at least meet legal requirements as set out in the Food Safety Standard.

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

1. Critical aspects of competency	1.1	Housekeeping standards are maintained in the workplace following OSH requirements.
	1.2	Personal hygiene is maintained and PPE worn as per OSH requirements.
	1.3	Equipment and work place is cleaned for production and hygiene requirements.
	1.4	Quality variations and/or food safety hazards are rectified or removed within the level of responsibility and in accordance with workplace procedures

<p>2. Underpinning knowledge</p>	<p>2.1. Personal protective equipment - hand gloves, safety shoes, safety goggles, masks, apron.</p> <p>2.2. Practice personal hygiene</p> <p>2.3. Rules and regulations to produce quality and safety in food</p> <p>2.4. Control measures for food safety</p> <p>2.5. Food safety hazards</p> <p>2.6. Cleaning, sanitation and waste storage and disposal practices</p> <p>2.7. Food safety procedures</p> <p>2.8. Monitor quality of work outcome</p> <p>2.9. Hazardous events</p> <p>2.10. Interaction skills (teamwork, networking, interpersonal skills, etc.)</p> <p>2.11. Job roles, responsibilities and compliance</p>
<p>3. Underpinning skill</p>	<p>3.1. Ability to use the appropriate PPE.</p> <p>3.2. Ability to practise personal hygiene and good grooming in line with workplace health and safety requirements.</p> <p>3.3. Ability to identify food rules and regulations, food grade preservatives and food additives to meet food production safety requirements according to BSTI.</p> <p>3.4. Ability to control the measures for minimizing food contamination for food safety (for example keeping out micro-organisms, maintenance of anaerobic conditions, use of low temperatures, drying, use of chemical preservatives etc.)</p> <p>3.5. Understand food safety hazards: biological, chemical or physical agents in, or conditions of, food that have the potential to cause an adverse health effect. Examples are bacteria, chemical additives, plastic, and glass.</p> <p>3.6. Ability to perform waste collection, recycling, handling and disposal. This may include handling/disposal requirements for different types of waste including hazardous waste where relevant.</p> <p>3.7. Ability to perform food safety procedures such as: checking delivery temperatures of potentially hazardous chilled food, placing temperature-sensitive food in temperature-controlled storage conditions promptly, washing hands when required, use of cloths for unsuitable purposes.</p>

	<p>3.8. Ability to perform food safety and quality responsibilities and requirements relating to the work area.</p> <p>3.9. Ability to respond quickly and to take safety precautions for different hazardous situations.</p> <p>3.10. Ability to apply in the workplace.</p>
4. Required attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity.</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODSS1007A1: Follow OSH policies and procedures in the food industry
Nominal Hours	40 hours
Unit Descriptor	This unit covers the knowledge, skills and attitude required to apply occupational safety and health (OSH) policies and procedures in a commercial food production work area.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practices	<p>1.1 Housekeeping standards are maintained in the workplace following OSH requirements.</p> <p>1.2 Personal hygiene is maintained and PPE worn as per OSH requirements.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Conduct work safely	<p>2.1. Workplace procedures for controlling risks are followed when carrying out work tasks.</p> <p>2.2. Workplace information are interpreted and followed</p>
3. Identify, control and report OSH hazards	<p>3.1. Immediate work area is routinely checked for safety hazards prior to starting and during work.</p> <p>3.2. Hazards and unacceptable performance are identified.</p> <p>3.3. Hazards and unacceptable performance are rectified or removed within the level of responsibility and in accordance with workplace procedures and OSH standards.</p> <p>3.4. OSH hazards and incidents in the work area are reported to appropriate personnel according to workplace procedures.</p>
4. Follow emergency procedures to respond to a hazardous event	<p>4.1 <i>Emergency situations</i> are promptly identified.</p> <p>4.2 Emergency situations are reported to appropriate personnel according to workplace reporting requirements.</p> <p>4.3 Workplace procedures for dealing with accidents, fires and emergencies are followed whenever</p> <p>4.4 Necessary within scope of responsibilities.</p>

Range of Variables	
Variable	Range (May Includes but not limited to)
1. workplace procedures	1.1 Job-related SOPs (standard operating procedures) and OSH-specific procedures. Examples of OSH procedures include consultation and participation, emergency response, response to specific hazards, incident investigation, risk assessment, reporting arrangements and issue resolution procedures.
2. Workplace information	2.1. OSH systems and related documentation including policies and procedures 2.2. Information on hazards and the work process 2.3. hazard alerts 2.4. Safety signs and symbols, labels 2.5. Material Safety Data Sheets (MSDSs) and manufacturers' advice.
3. OSH incidents include	3.1. Near misses, injuries, illnesses and property damage, noise, handling hazardous substances, working with steam and hot services/product, airborne particulates, slip, trip and fall hazards, manual handling, working with 240V power supply, poor ventilation, working in exposed weather conditions, working with combustible materials, working with and near moving equipment/load shifting equipment, broken or damaged equipment or materials.
4. PPE (Personal Protective Equipment)	Protective clothing 5.1 Gloves 5.2 Hair net and other PPE as per OSH requirements.
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Followed rule and regulation. 1.2 Checked workplaces hazards 1.3 Identified unacceptable performance and report appropriate personnel.
2. Underpinning knowledge	2.1 Selected appropriate PPE. 2.2 Cleaning agents and equipment. 2.3 Personal hygiene and sanitations. 2.4 Food safety and hazards.

3. Underpinning skill	3.1 Ability to use the appropriate PPE. 3.2 Ability to practise personal hygiene and good grooming in line with workplace health and safety requirements. 3.3 Ability to identify food rules and regulations, food grade preservatives and food additives to meet food production safety requirements according to BSTI. 3.4 Ability to identify responsible personnel. .
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	The following resources should be provided 5.1 Tools, equipment and facilities appropriate to the process or activity. 5.2 Materials relevant to the proposed activity.
6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place

Accreditation Requirements

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National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODSS1008A1: Work in the food Industry
Nominal Hours	30 hours
Unit Descriptor	This unit specifies the knowledge, skills and attitude required to identify roles and responsibilities and work in the food industry.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Identify job roles and responsibilities in the food industry	1.1 Job roles and responsibilities in the food industry are identified. 1.2 Relationships within the food industry employees are identified.
2. Identify and observe OSH in the food industry.	2.1. OSH in the food industry is identified and observed. 2.2. Safe work practices are followed when using equipment in the work environment.
3. Plan work activities	3.1. Common goals, objectives and tasks are identified and clarified with appropriate persons. 3.2. Individual tasks are determined and agreed on according to workplace environment.
4. Work with others	4.1 Effective interpersonal skills are applied to interact with others and to contribute to activities and objectives. 4.2 Assigned tasks are performed in accordance with job requirements, specifications and workplace environment. 4.3 Work requirements are confirmed with colleagues.
Range of Variables	
Variable	Range (May Includes but not limited to)
1. OSH	1.1 Personal protective equipment (PPE) 1.2 Apron 1.3 Hair net 1.4 Hand gloves
2. Effective interpersonal skills	2.1 Basic listening and speaking skills 2.2 Use of terminology and jargon 2.3 Communicating and receiving feedback 2.4 Interpretation of instructions, and basic principles of effective communication.

3. Requirements	3.1 Requirements as directed in verbal modes or written in specification or procedures.
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Followed work place rule and regulation. 1.2 Make a work plan 1.3 Group forming and work with others.
2. Underpinning knowledge	2.1 Positive attitudes for work others. 2.2 Identify own task 2.3 Food sector in Bangladesh 2.4 Job opportunity 2.5 Salary structure for food worker 2.6 Written and oral language communication 2.7 OSH
3. Underpinning skill	3.1 Able to identify task 3.2 Able to communicated with co workers 3.3 Able to communicate with supervisor 3.4 Able to writing report
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	The following resources should be provided 5.1 Tools, equipment and facilities appropriate to the process or activity. 5.2 Materials relevant to the proposed activity.
6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place
Accreditation Requirements	
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OCCUPATION SPECIFIC UNITS

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODTEC2009A1: Apply raw materials / ingredients and process knowledge
Nominal Hours	70
Unit Descriptor	This unit specifies the competency of knowledge, skills and attitude required to identify the quality of raw materials and finished food products and to produce a range of high-quality food products in commercial food production environments.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practices	<p>1.1 Housekeeping standards are maintained in the workplace, following OSH requirements.</p> <p>1.2 Personal hygiene is maintained – clothing, gloves, hair net etc.</p> <p>1.3 Equipment and instruments are cleaned for production and hygiene requirements.</p>
2. Identify and respond to non-conforming ingredients/ raw materials	<p>2.1. According to recipes for a range of food products, ingredients/raw materials are confirmed as per workplace requirements.</p> <p>2.2. Non-conforming ingredients/raw materials are identified.</p> <p>2.3. According to recipes, corrective action is to be implemented as per workplace procedures.</p>
3. Identify and respond to non-conforming products and processes	<p>3.1. According to recipe, processing parameters are monitored throughout processing stages.</p> <p>3.2. Non-conforming products and processes are Identified.</p> <p>3.3. According to recipe, corrective action is implemented as per workplace requirements.</p>
4. Clean and maintain equipment and production area.	<p>4.1 Equipment, instruments and production area are cleaned to meet hygiene requirements.</p> <p>4.2 Maintenance requirements are identified and reported according to workplace requirements.</p> <p>4.3 Waste is disposed of according to workplace procedures.</p>

Range of Variables	
Variable	Range (May include but not limited to)
1. Non conforming ingredients	1.1 Flour, Sweetening Agents, Shortening ,Leaving agents, Salts ,Milk and milk products , Starch, Emulsifiers ,Eggs and egg products ,Flavours, Minor ingredients,
2. Non conforming products	2.1 Short dough biscuit, Cake, Milk Bread, bun, Fruit cake, Deposit Cookies, Salted Biscuit, Dry Bread
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	2.1 Identify Non conforming ingredients 2.2 Remove non conforming ingredients 2.3 Identify non conforming product and corrective action
2. Underpinning knowledge	Raw materials/ingredients: Sweetening agents, Shortening, Leavening Agents, Milk and Milk products, Egg and Egg products, Water, Salt with their limit ranges. 2.1 Characteristics of raw food materials. 2.2 Tools, equipment and machinery (Mixers, sieves, weighing equipment etc.) 2.3 Cleaning and sanitation. 2.4 Water and waste management. 2.5 Workplace communication. 2.6 Job roles, responsibilities and compliances.
3. Underpinning skill	3.1 Use the appropriate PPE and hygienic practices. 3.2 Select the ingredients, Sweetening agents, Shortening, Leavening Agents, Milk and Milk products, Egg and Egg products, Water, Salt with their ranges. 3.3 Select the right source based on the variability of raw food materials and their impact on food processing operations. 3.4 Operate and use tools, equipment and machinery properly (Company standards). 3.5 Implement the basic principles and practices of cleaning and sanitation in food processing operations.

	<p>3.6 Implement the requirements for water utilization and waste management in food and food processing.</p> <p>3.7 Communicate with peers and supervisors.</p> <p>3.8 Comply with job role requirements.</p> <p>3.9 Conform to workplace standard operating procedures.</p>
4. Required attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity.</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODTEC2010A1: Operate processes in a production system
Nominal Hours	60
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to operate food processing tools, equipment and instruments in the workplace
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1 Observe OSH practices	<p>1.1 Housekeeping standards are maintained in the workplace, following OSH requirements.</p> <p>1.2 Personal hygiene is maintained, clothing, gloves hair net etc.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Perform Pre-Operation Activities	<p>2.1. The appropriate equipment, tools & utensils are assembled according to food processing methods.</p> <p>2.2. Food processing equipment is set up, adjusted and made ready according to job requirements.</p>
3. Operate Food Processing Equipment	<p>3.1. Food processing equipment is switched on according to manufacturer's specifications.</p> <p>3.2. Food processing equipment is operated.</p> <p>3.3. The performance of the food processing equipment is observed.</p>
4. Perform Post-Operation Activities	<p>4.1 According to manufacturer's specifications food processing equipment is switched off and unplugged after operation.</p> <p>4.2 Food processing tools, equipment and instruments are cleaned according to manufacturer's specifications and workplace policies and regulations.</p> <p>4.3 Condition of machine is monitored to ensure serviceability according to workplace rules and regulations.</p>
5. Clean and maintain equipment and production area.	<p>5.1 Equipment and production area are cleaned to meet hygiene requirements.</p> <p>5.2 Maintenance requirements are identified and reported according to workplace requirements.</p>

	5.3	Waste is disposed of according to workplace procedures.
Range of Variables		
Variable	Range (May include but not limited to)	
1. Food processing methods	1.1	Pickling/Chutney (Olive, Mango, Tamarind, Plum,),(Canning) Pineapple, Mango, Jackfruits. (Fermentation) Curd, Yogurt drink), Tomato sauce/pure,(bottling) Juice, Jam, Jelly.
2. Tools, equipment and utensils	2.1.	Fermentation, Pickling, Canning, Bottling, Sugar concentration processing related equipment.
Evidence Guide		
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.		
1. Critical aspects of competency	1.1 1.2 1.3 1.4 1.5 1.6 1.7	Selected appropriate tools for food processing Operate appropriate equipment, tools and utensils are assembling according to food processing. Calibrate equipments. Pasteurization, sterilization process Measured Sugar concentration. Head space Hot filling
2. Underpinning knowledge	2.1. 2.2. 2.3. 2.4. 2.5. 2.6. 2.7. 2.8.	Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron. Materials Tools, equipment and machinery Principles and procedures for assembling appropriate food processing equipment & utensils according to food processing methods. Hazardous events Quality assurance Sanitation standards Interaction skills (i.e., teamwork, mentoring, leadership, networking, interpersonal skills, etc.)
3. Underpinning skill	3.1. 3.2. 3.3. 3.4. 3.5.	Use the appropriate PPE and hygienic practices. Assemble the equipment & utensils using appropriate tools according to the food processing methods. Respond quickly and take safety precautions for different hazardous situations. Apply the principles of food science to control and assure the quality of food products Select proper materials, chemicals and accessories.

	<p>3.6. Operate and use tools, equipment and machinery properly (Company standards).</p> <p>3.7. Apply:</p> <ul style="list-style-type: none"> • Housekeeping • Raw materials handling and storage • Processed and finished product handling and storage • Waste handling procedures • Current Good Manufacturing Practices (CGMP) <p>3.8. Work effectively with others:</p> <ul style="list-style-type: none"> • Provide leadership in a variety of situations. • Deal with individual and/or group conflict <p>3.9 Conform to workplace standard operating procedures.</p>
4. Required attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity.</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

**National Technical and Vocational Qualification Framework for
Bangladesh**

Unit of Competency

Unit Code and Title	FODTEC3011A1: Control food contamination and spoilage
Nominal Hours	90
Unit Descriptor	This unit covers the knowledge, skills and attitude required to production of quality and safety of food and management of cleaning, sanitation and safety programs.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practices	<p>1.1 Housekeeping standards are maintained in the workplace, following OSH requirements.</p> <p>1.2 Maintain personal hygiene, clothing, gloves, hair net etc.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements</p>
2. Identify the rules and regulation to produce quality and safety in food	<p>2.1. Food rules and regulations are identified to produce quality and safety in food.</p> <p>2.2. Food grade preservatives are identified to meet safe food production standards.</p> <p>2.3. Appropriate food additives are identified to enhance the quality and safety of food products.</p>
3. Identify the sources of contamination	<p>3.1. Food contamination and sources</p> <p>3.2. Soil growing media are identified to meet food safety production standards.</p> <p>3.3. Fertilizers and soil additives are identified on the basis of food production nature.</p> <p>3.4. Sources of water are identified to meet food production safety requirements.</p> <p>3.5. Planting materials and animals (vermin) are identified to meet food production safety standards.</p> <p>3.6. Pesticides and other chemicals used are identified and noted during production of food.</p> <p>3.7. Equipment, containers, materials, transport facilities etc. are guaranteed to meet food production safety standards.</p> <p>3.8. 3.7 Workers are trained to identify sources of contamination and spoilage of food.</p>

4. Identify the causes of food spoilage	<p>4.1 Production places (location, building, floor, wall, ceiling, door, window, lighting facilities etc.) are identified to meet food production safety standards.</p> <p>4.2 Physiological changes (temperature, moisture content, texture, flavour, colour etc.) and chemical changes (micro-organisms e.g. fungus, bacteria, yeast, mould, Listeria, salmonella etc.) are identified to meet food production safety requirements.</p>
5. Control measures for minimizing food contamination and spoilage	<p>5.1 Masks, head caps, protective outer clothing and gloves are used to meet food production safety standards.</p> <p>5.2 Coughing and sneezing are controlled during food production.</p> <p>5.3 Sanitary facilities (cleaning, washing, sewage system, toilet and waste bins etc.) are controlled to meet food production safety requirements.</p> <p>5.4 Rusty and absorbing water are not used during production.</p> <p>5.5 Uses of chemical preservatives are controlled to meet the food production safety standards.</p> <p>5.6 Recycled packaging materials are not used during production and delivery of the products.</p>
Range of Variables	
Variable	Range (May include but not limited to)
1. Food grade preservative	<p>1.1 Natural preservatives (Concentrate sugar, salt , Acetic acid, Citric acid)</p> <p>1.2 Chemical preservative (Sodium benzoate , Benzoic acid ,Potassium sorbet, sorbic acid, Calcium propionate ,Propionic acid ,sulphur Dioxide,</p>
2. Food additives	<p>2.1 Emulsifier food additives (lecithin, Glyceride monostered, SSL ,EDTA ,DATEM)</p> <p>2.2 Stabilizes (Starch , Xanthene gum ,Guar gum, Agar-agar)</p> <p>2.3 Food color</p> <p>2.4 Artificial sweetener (aspartame, Surculose,)</p> <p>2.5 Flavour</p> <p>2.6 Anti oxidant</p>
3. Food contamination	<p>3.1 Food contamination</p> <p>3.2 Soil, Fertilizer ,Pesticides, harmful chemical, water, sources contamination</p> <p>3.3 Machine ,tools, equipments sources contamination</p>
4. Spoilage of food	<p>4.1 spoilage</p> <p>4.2 Types of food spoilage</p> <p>4.3 Physical change due to spoilage</p>
5. Micro organisms	<p>5.1 Bacteria</p> <p>5.2 Yeast</p>

	5.3 Mould 5.4 Viruses
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Food preservative is used as required 1.2 Spoilage identified 1.3 Food contaminations identified and remove 1.4 Physical change identified 1.5 Micro organisms selected
2. Underpinning knowledge	2.1. Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron, etc. 2.2. Rules and regulations to produce food quality and safety 2.3. Sources of food contamination and spoilage 2.4. Main types of pathogenic bacteria, viruses and chemicals 2.5. Control the measures for minimizing food contamination and spoilage 2.6. Types of cleaners, sanitizers and combined cleaning/sanitation agents used in the food industry 2.7. Hazardous events 2.8. Job roles, responsibilities and compliances
3. Underpinning skill	3.1. Use the appropriate PPE and hygienic practices 3.2. Apply food processing rules and regulations 3.3. Identify food grade preservatives and food additives to meet safety production of food according to BSTI 3.4. Identify the sources of food contamination such as from green plants and fruits, animals, sewage, soil, water and air 3.5. Identify the main types of pathogenic bacteria, viruses and chemicals such as Fungus, Yeasts, Mould, Bacillus species etc. 3.6. Control the measures for minimizing food contamination and spoilage such as keeping out micro-organisms, Maintenance of anaerobic conditions, Use of low temperatures, Drying, Use of chemical preservatives etc. 3.7. Use appropriate types of cleaners, sanitizers and combined cleaning/sanitation agents such as (alkaline and acid-based detergents steam/hot

	<p>water-based methods of sanitation, bleach-based sanitizers, and alcohol-based sanitizers)</p> <p>3.8. Respond quickly to implement safety precautions for different hazardous situations.</p> <p>3.9. Work effectively with others.</p> <p>3.10. Conform to workplace standard operating procedures.</p>
4. Required attitude	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity.</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODTEC3013A1: Apply principles of food packaging
Nominal Hours	80
Unit Descriptor	This unit covers the knowledge, skills and attitude required to apply principles of effective food packaging, types of containers, testing of package and safety of food packaging materials. It also assesses the nature and likely causes of packaging problems during packaging technologies.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practice	<p>1.1 Housekeeping standards are maintained in the workplace, following OSH requirements.</p> <p>1.2 Maintain personal hygiene, clothing, gloves hair net etc.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Select effective food packaging	<p>2.1. Packaging of good appearance is selected to achieve consumer satisfaction.</p> <p>2.2. Packaging is selected that protects the food against microbiological contamination.</p> <p>2.3. Moisture barrier packages are selected to increase the shelf life of products.</p> <p>2.4. Economical packaging materials are selected to</p> <p>2.5. Reduce the cost of products.</p>
3. Classify and check the packaging materials	<p>3.1. The packaging materials are classified based on the purpose of food delivery.</p> <p>3.2. Test the packaging materials with standard</p> <p>3.3. Packaging materials are checked to ensure conformity with specified output.</p>
4. Evaluate and/or monitor the safety of packaging materials	<p>4.1 Chemical and toxicological status of packaging materials are evaluated before packing.</p> <p>4.2 Migration studies are carried out to reduce the contamination of food.</p> <p>4.3 Assurances are made/written from the packaging manufacturers to meet product</p>

	safety standards.
5. Test the food packaging	<p>5.1 Protocols/standards are developed to test the packaging of food.</p> <p>5.2 Strength and capacity of the packaging materials are tested according to developed protocols.</p> <p>5.3 Toxicity of the packaging materials is identified and determined before delivery and storage.</p>
Range of Variables	
Variables	Range (May include but not limited to)
1.Packaging materials	<p>1.1 Glass bottle</p> <p>1.2 Paper board</p> <p>1.3 Tin container</p> <p>1.4 HDP/LLDP/PET bottle</p> <p>1.5 Laminated wrappers</p> <p>1.6 Paper</p>
2. Test	<p>2.1 Thickness</p> <p>2.2 Colour</p> <p>2.3 Odour</p> <p>2.4 weight</p> <p>2.5 length</p> <p>2.6 width</p>
3. Test the package	<p>3.1 Vertical sealing</p> <p>3.2 Horizontal sealing</p> <p>3.3 lock seal</p> <p>3.4 Side seal</p> <p>3.5 Top seal</p> <p>3.6 Vacuum test</p> <p>3.7 head space</p>
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	<p>1.1 Select packaging materials</p> <p>1.2 Check packaging materials</p> <p>1.3 Check finish product</p>
2. Underpinning knowledge	<p>2.1. Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron.</p> <p>2.2. Selection of effective food packaging</p> <p>2.3. Classification and checking of containers</p> <p>2.4. Packaging materials suitable for use with food products</p> <p>2.5. Quality control testing of food packaging</p> <p>2.6. Packaging methods and technologies</p> <p>2.7. Pathogens and spoilage</p> <p>2.8. Labels and labelling</p> <p>2.9. Hazardous events</p> <p>2.10. Job roles, responsibilities and compliances</p>

<p>3. Underpinning skill</p>	<p>3.1. Use the appropriate PPE and hygienic practices.</p> <p>3.2. Select effective food packaging suitable for protection of product from contamination (microbial, pest infestation, physical damage etc.), appropriate barriers (air, moisture, flavour and light etc.), easy-to-open access to the product, and market appeal.</p> <p>3.3. Classify containers and check to ensure conformity with specified product standards (sanitary cans for low acid foods such as vegetable, soups etc. and three-piece cans for corrosive foods, for example: apple juice, pickles etc.)</p> <p>3.4. Select packaging materials suitable for use with food products (plastics, laminates, paper-based materials, glass and metal-based materials)</p> <p>3.5. Quality control the food packaging</p> <ul style="list-style-type: none"> • Specific quality control test for papers-weigh, yield, surface formation, folding endurance • Quality control test for equipment-critical faults, major faults and minor faults <p>3.6. Design packaging methods and technologies to extend shelf life (such as active packaging materials, vacuum packing, gas flushing or sparging and Modified Atmosphere Packaging etc.)</p> <p>3.7. Identify pathogens and spoilage considering the features intrinsic and extrinsic to the food type such as pH, nutrient content, presence of microbiological compounds, respiration rate (fresh fruit and vegetables) and processing method, temperature, water loss/humidity, maturity, handling, cleaning etc.</p> <p>3.8. Label design, information on the label, production of printed label, application of label and quality control.</p> <p>3.9. Take safety precautions for different hazardous situations and respond quickly.</p> <p>3.10. Work effectively with others</p> <p>3.11. Conform to workplace standard operating procedures.</p>
<p>4. Required attitude</p>	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p>

	<p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity.</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODTEC3014A: Identify the physical and chemical properties of materials, food and related products
Nominal Hours	70
Unit Descriptor	This unit covers knowledge, skills and attitude required to understanding of physical and chemical phenomena that are relevant to food processing.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practices	<p>1.1 House keeping standards are maintained in the workplace, following OHS requirements.</p> <p>1.2 Maintain personal hygiene, clothing, gloves, hair net etc.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Identify physical phenomena in the food industry	<p>2.1. Common <i>physical phenomena</i> are identified during the processing of food.</p> <p>2.2. Changes of physical phenomena during processing is recorded and communicated to others.</p>
3. Apply physical phenomena in the food industry	<p>3.1. The behaviour of physical properties (colour, flavour, texture, odour etc.) and its relationship to the food process is described.</p> <p>3.2. The relationship between pressure and temperature during processing is applied to optimise production.</p>
4. Identify chemical phenomena in the food industry	<p>4.1 Common <i>chemical phenomena</i> are identified during the processing of food.</p> <p>4.2 Changes of chemical phenomena during processing is recorded and communicated to others.</p>
5. Apply chemical phenomena in the food industry	<p>5.1 The behaviour of chemical properties (acidity, pH etc.) and its relationship to the food process is described.</p> <p>5.2 The chemical parameters (vitamin-C, sugar, protein, carotene etc.) are known to increase food security.</p> <p>5.3 The properties of common emulsions, suspensions and solutions are described.</p>
6. Clean and maintain equipment and production area.	<p>6.1 Equipment and production area are cleaned to meet hygiene requirements.</p> <p>6.2 Maintenance requirements are identified and reported according to workplace requirements.</p> <p>6.3 Waste is disposed of according to workplace procedures.</p>

Range of Variables	
Variable	Range (May include but not limited to)
1. Physical phenomena	1.1 Temperature , pressure ,humidity, moisture, colour, flavour, texture, odour
2. Chemical phenomena	2.1. acidity, pH values, vitamin-C contents, sugar contents, protein contents, carotene contents
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Tested colour as per standard 1.2 Tested flavour as per standard 1.3 Tested texture as per standard 1.4 Tested acid, pH, vitamin C, sugar concentration. salinity, Formalin
2. Underpinning knowledge	2.1. Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron, 2.2. Identification of toxic chemicals with their limit ranges. 2.3. Hazardous events 2.4. Materials 2.5. Tools, equipment and machinery 2.6. Communication 2.7. Job roles, responsibilities and compliances
3. Underpinning skill	3.1. Use the appropriate PPE and hygienic practices. 3.2. Isolate toxic and hazardous chemicals with their ranges. 3.3. Respond quickly and take safety precautions for different hazardous situations. 3.4. Select proper materials, chemicals and accessories. 3.5. Operate and use tools, equipment and machinery properly (Company standards). 3.6. Conform to workplace standard operating procedures
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns

	<p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
5. Resource implication	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity.</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODTEC3015A1: Identify and apply food additives
Nominal Hours	60
Unit Descriptor	This unit covers the knowledge, skills and attitude required to recognize the characteristics and functions of food additives, preservatives, colours and flavours used in food products.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practices	<p>1.1 Housekeeping standards are maintained in the workplace, following OSH requirements.</p> <p>1.2 Maintain personal hygiene, clothing, gloves hair net etc.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Identify the functions of food additives	<p>2.1. Functions of food additives are identified to meet food production safety requirements.</p> <p>2.2. Food additives are classified on the basis of production nature.</p> <p>2.3. Adverse effects and risks of using food additives are identified.</p>
3. Identify food preservatives	<p>3.1. Chemical and natural preservatives are identified to meet food production safety standards.</p> <p>3.2. Use of preservatives is identified according to the nature of processing.</p> <p>3.3. Appropriate doses of preservatives are calculated before action.</p>
4. Identify food colours	<p>4.1 Characteristic colour of raw foods is identified before processing.</p> <p>4.2 Adding of artificial colour during preparation and processing of foods is noted and calculated.</p> <p>4.3 Restrictions of food colours used as food additives are listed before action.</p>

5. Identify food flavours	5.1 Flavour of raw foods is identified before processing. 5.2 Natural flavouring compounds are identified to meet food production safety standards. 5.3 Standard food flavours are identified for good manufacturing practices.
6. Apply food additives	6.1 Food additives are applied as per recipe requirements of product.
7. Check the purity of additives	7.1 According to manufacturer's specifications, food additives are inspected and checked. 7.2 Food additives adjusted as per recipe requirements of product.
8. Test the toxicity of the food additives of processed products	8.1 Quality of processed products is tested to enhance the quality. 8.2 Toxicity of food additives on human health is tested.
Range of Variables	
Variable	Range (May include but not limited to)
1. Using food additives	1.1 Use food additives in various product (such as tomato sauce , Chutney ,Juice , pure ,pulp ,milk beverage, other beverage)
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Use appropriate additives in food product. 1.2 side effect of over dosage additives 1.3 Common test of food additives
2. Underpinning knowledge	2.1. Personal protective equipment - Hand gloves, safety shoes, safety goggles, masks, apron, 2.2. Classification of food additives 2.3. Functions of food additives 2.4. Chemical and natural preservatives 2.5. Food colours 2.6. Food flavours 2.7. Storage, handling and processing conditions that affect the characteristics of colours and flavours. 2.8. Hazardous events 2.9. Interaction skills (i.e., teamwork, mentoring, leadership, networking, interpersonal skills, etc.) 2.10. Job roles, responsibilities and compliances

<p>3. Underpinning skill</p>	<p>3.1. Use the appropriate PPE and hygienic practices.</p> <p>3.2. Choose food additives on the basis of nature (preservatives, anti-oxidants, acidity regulators, emulsifiers, stabilisers, thickeners and gelling agents, Colours and flavours, anti-caking agents etc.)</p> <p>3.3. Choose food additives on the basis of their function (texture modifying agents, Organoleptic and nutritional modifying agents, Shelf-life enhancing agents etc.)</p> <p>3.4. Identify chemical and natural preservatives, which meet the safety standards.</p> <p>3.5. Determine the artificial colour for processing of foods after considering their toxicity limits and the colour change from raw food to the final product. Calculate, use and note the information as established by the Food Standards Code (BSTI Code).</p> <p>3.6. Identify standard food flavours for good manufacturing practices considering natural flavouring compounds for safe production.</p> <p>3.7. Identify storage, handling and processing conditions that affect the characteristics of colours and flavours (changes in pH, temperature change, exposure to light etc.)</p> <p>3.8. Respond quickly and take safety precautions for different hazardous situations.</p> <p>3.9. Work effectively with others.</p> <p>3.10. Conform to workplace standard operating procedures.</p>
<p>4. Required attitude</p>	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>
<p>5. Resource implication</p>	<p>The following resources should be provided</p> <p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity</p>

6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
<p>Accreditation Requirements</p> <p>Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

National Technical and Vocational Qualification Framework for Bangladesh

Unit of Competency

Unit Code and Title	FODTEC4012A1: Apply basic engineering principles to a food production process
Nominal Hours	70
Unit Descriptor	This unit covers knowledge skills and attitude required to the basic engineering principles (materials, energy, units, gases, vapours, thermal process, heat transfer, dehydration, physical separation, extraction etc.) to a food production process.
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe OSH practice	<p>1.1 House keeping standards are maintained in the workplace, following OSH requirements.</p> <p>1.2 Maintain personal hygiene, clothing, gloves, hair net etc.</p> <p>1.3 Equipment is cleaned for production and hygiene requirements.</p>
2. Apply units and dimensions to food production	<p>2.1. Measurement units and dimensions are described for food production process.</p> <p>2.2. The units are converted as required for work place schedule.</p>
3. Apply material and energy balances to food production	<p>3.1. Material and energy balance calculations are employed in tracing the inflow and outflow of materials in a process.</p> <p>3.2. The process is followed for calculating, evaluating of final composition after blending and mechanical separation.</p>
4. Apply gases, vapours and flow of other fluids to food production	<p>4.1 Gases and flow of other fluids are used as propellants in aerosol cans and as refrigerants.</p> <p>4.2 Gases are used in order to eliminate oxygen and prolong shelf life of products.</p> <p>4.3 Air is used for dehydration during processing.</p>

5. Apply kinetics of chemical reactions and thermal process in food production	5.1 Kinetic reaction is demonstrated and applied to chemical reaction rates and mechanism during production. 5.2 Thermal process is applied for stabilization of foods for shelf stable storage.
6. Apply evaporation, heat transfer and dehydration process in food production	6.1 Evaporation is used to remove water from solutions with or without insoluble suspended constituents . 6.2 Evaporation is used in the food industry primarily as a means of bulk and weight reduction of fluids. 6.3 Dehydration is used to increase shelf life and availability of products in off-season.
7. Apply physical separation and extraction processes in food production	7.1 Physical separation process is applied, with filtration and sieving of the products during production. 7.2 Extraction process is applied, including diffusion, solubility, equilibrium and solid-liquid extraction of the products.
8. Clean and maintain equipment and production area.	8.1 Equipment and production area are cleaned to meet hygiene requirements. 8.2 Maintenance requirements are identified and reported according to workplace requirements. 8.3 Waste is disposed of according to workplace procedures.
Range of Variables	
Variable	Range (May include but not limited to)
1. Measurement units	1.1 Pressure units apply in process 1.2 Temperature units apply in process 1.3 flow measuring unit apply in process 1.4 humidity unit apply in process
2. Units conversion	2.1 CGS, FPS and MKS to SI unit and vies-versa
3. Materials and energy balance	3.1 materials balance in applied tea drinks ,fruit juice and food products 3.2 Energy balance
4. Constituents	4.1 Dehydrate onion, garlic, milk and milk products and sugar solution.
5. Physical separation	5.1 water filtration, oil filtration, oil/fat separation from biscuit, chips
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 unit conversion, materials balance, energy balance , filtration , dehydration

<p>2. Underpinning knowledge</p>	<p>2.1. Measurement units and dimensions are described to food production process</p> <p>2.2. Calculate yields, efficiencies and material variances</p> <p>2.3. Material and energy balances to food production</p> <p>2.4. Properties of fluids that affect fluid flow</p> <p>2.5. Selection criteria of pumping equipment appropriate for different types of liquids.</p> <p>2.6. Features of the pumping system design</p> <p>2.7. Selection criteria of evaporation equipment appropriate for different types of liquids.</p> <p>2.8. Effects of evaporation on product</p> <p>2.9. Tests to determine material/product solids for evaporation system</p> <p>2.10. Selection of heat transfer equipment appropriate for different types of liquids.</p> <p>2.11. Properties of heat and steam</p> <p>2.12. Definition of the terms - latent heat, saturated and supersaturated steam.</p> <p>2.13. Selection of equipment components of a drying process.</p> <p>2.14. Safe operation of equipment</p> <p>2.15. Personal protective equipment - hand gloves, safety shoes, safety goggles, masks, apron.</p> <p>2.16. Hazardous events</p> <p>2.17. Job roles, responsibilities and compliances</p>
<p>3. Underpinning skill</p>	<p>3.1. Using the appropriate PPE and hygienic practices.</p> <p>3.2. Labelling the inputs and the outputs of a production process and convert units as per work place requirements</p> <p>3.3. Calculating yields, efficiencies and material variances</p> <p>3.4. Applying material and energy balances to food production</p> <p>3.5. Identify properties of fluids – e.g. viscosity, temperature and size and distribution of particulates</p> <p>3.6. Selecting pumping equipment appropriate for different types of liquids (centrifugal pumps, positive displacement pumps, reciprocating piston pumps, rotary pumps etc.)</p>

	<p>3.7. Identifying features in the pumping system design that affect pumping efficiencies, including length of pipe work, number and placement of valves and fittings, height of inlet and discharge points, internal surface and diameter of the pipe. [It also requires an understanding of the terms: Pressure drop, velocity and Head]</p> <p>3.8. Selecting evaporation equipment appropriate for different types of liquids (Open pan evaporator, Falling film evaporator, Plate evaporator, Climbing film evaporator, Horizontal short tube evaporator etc.)</p> <p>3.9. Responding the effects of evaporation on product (physical property changes, intensification of flavour and concentration of acids, changes in microbiological characteristics)</p> <p>3.10. Performing common test methods includes Baume, refractive index, brix for determination of a target total solids level.</p> <p>3.11. Selecting pumping equipment appropriate for different types of liquids (Plate heat exchanger, Tubular heat exchanger, Steam-infusion heat exchanger etc.)</p> <p>3.12. Selecting equipment components of a drying process (Tray or Cabinet Dryer, Tunnel Dryers, Puff drying, Spray drying, Freeze drying etc.)</p> <p>3.13. Identifying signs of faulty performance during inspections</p> <p>3.14. Responding quickly to take safety precautions for different hazardous situations</p> <p>3.15. Communicating with peers and supervisors</p> <p>3.16. Conform to workplace standard operating procedures</p>
<p>4. Required attitude</p>	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Promptness in carrying out activities</p> <p>4.3 Sincere and honest to duties</p> <p>4.4 Environmental concerns</p> <p>4.5 Eagerness to learn</p> <p>4.6 Tidiness and timeliness</p> <p>4.7 Respect for rights of peers and seniors in workplace</p> <p>4.8 Communication with peers, sub-ordinates and seniors in workplace</p>

5. Resource implication	<p>5.1 Tools, equipment and facilities appropriate to the process or activity.</p> <p>5.2 Materials relevant to the proposed activity</p>
6. Methods of assessment	<p>6.1 Demonstration with oral questioning</p> <p>6.2 Direct observation</p> <p>6.3 Written test</p> <p>6.4 Portfolio</p> <p>6.5 Log book</p>
7. Context of assessment	<p>7.1 Competencies may be assessed in the work place or a simulated work place</p>

Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

**National Technical and Vocational Qualification Framework for
Bangladesh**

Unit of Competency

Unit Code and Title	FODTEC4019A1: Participate in a Hazard Analysis and Critical Control Points (HACCP) team
Nominal Hours	70
Unit Descriptor	This unit deals knowledge, skills and attitude required to the prevention of physical, chemical or microbial contamination of food. It is an integrated food safety program and includes Good Agricultural Practices (GAP), Good Manufacturing Practices (GMP), and Sanitation Standard Operating Procedures (SSOP).
Elements of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the Range of Variable
1. Observe Occupational Safety and Health practices (OSH)	1.1 Safe work practices observed and PPE worn as required for the work performed
2. Form a HACCP team	2.1. Roles and regulations for food safety are developed for executing. 2.2. Responsibilities of team members in the HACCP team are identified. 2.3. Application of GAP for production and GMP for packing houses are verified by the HACCP team. 2.4. Team assures that appropriate practices are in place.
3. Identify and/or review food safety hazards	3.1. Potential sources of microbiological, chemical and physical hazards are identified 3.2. Control mechanisms for each hazard are identified.
4. Establish Critical Control Point	4.1 Critical Control Points are established.
5. Establish Critical Control Limits	5.1 Critical limits for taking corrective action are set to prevent potential hazards.
6. Establish a Monitoring System	6.1 Monitoring system is established according to standard operating procedures (SOP)
7. Establish corrective action procedure	7.1 Corrective action procedure is established according to standard procedures

8. Establish verification system	8.1 Verification system is established according to standard procedures.
9. Establish a record keeping system	9.1 Paper work related to the HACCP system is recorded 9.2 All critical control points are recorded
Range of Variables	
Variable	Range (May include but not limited to)
1. Work records	1.1 SOP Standard Operating Procedures 1.2 GAP Good Agricultural Practices 1.3 GMP Good Manufacturing Practices 1.4 SSOP Sanitation Standard Operating Procedures
Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 Prepared SOP 1.2 Identified process CCP (Juice, Chutney ,Milk,) 1.3 Made HACCP check list 1.4 Prepared GMP flow chart
2. Underpinning knowledge	2.1. Personal protective equipment - hand gloves, safety shoes, safety goggles, masks, apron 2.2. HACCP team and its formation 2.3. Food Safety Hazards and their Sources 2.4. Critical Control Points 2.5. Critical Control Limits 2.6. Monitoring System for each CCP 2.7. Corrective action procedure 2.8. Verification procedures 2.9. Documentation and Record Keeping 2.10. Hazardous events 2.11. Interaction skills (i.e., teamwork, mentoring, leadership, networking, interpersonal skills, etc.)
3. Underpinning skill	3.1. Commitment to occupational health and safety 3.2. Environmental concerns 3.3. Eagerness to learn 3.4. Tidiness and timeliness 3.5. Respect for rights of peers and seniors in workplace 3.6. Communication with peers and seniors in workplace

4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers, sub-ordinates and seniors in workplace
5. Resource implication	5.1 Tools, equipment and facilities appropriate to the process or activity. 5.2 Materials relevant to the proposed activity
6. Methods of assessment	6.1 Demonstration with oral questioning 6.2 Direct observation 6.3 Written test 6.4 Portfolio 6.5 Log book
7. Context of assessment	7.1 Competencies may be assessed in the work place or a simulated work place

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