

BANGLADESH TECHNICAL EDUCATION BOARD



NATIONAL COMPETENCY STANDARDS
For
Refrigeration and Air Conditioning
NTVQF 1

Agro Food Processing Industry Skills Council
Bangladesh

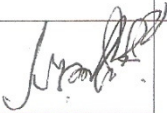
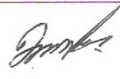

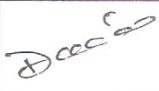
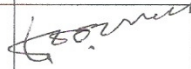
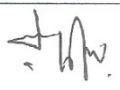

BANGLADESH TECHNICAL EDUCATION BOARD

September 2013

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Bangladesh Technical Education Board
Standard Curriculum Development Committee
NATIONAL COMPETENCY STANDARDS
for
Refrigeration and Air Conditioning NTVQF Level 1
Meeting held on 27.08.2013

Sl. No	Name of members Contact number	Address,	Designation	Signature	Remarks
1.	Ahsan Ibne-Noor Managing Director 01711404826	R Industries Ltd Factory-Nanduyan, Kaultion, Gazipur.	Chair Person		CS Documents Approved
2.	Ahsanul Kabir Mallik Engineer 01911018102	SITAK Prakausali	Member		
3.	Md. Siddique Proprietor 01711175952	Siddique Electric & Refrigeration Co. Mirpur, Djaka	Member		
4.	M A Hannan Proprietor 01711182524	Ansar Refrigeration Co. Mirpur, Dhaka.	Member		
5.	Md. Solaiman 01716034111	Road # 6, House # 9, Swection 12, Pallabi,Dhaka	Member		
6.	Md. Redwanur Rahman, Instructor (Power) 01819144515	Dhaka Polytechnic Institute, Dhaka	Member		
7.	Md. Ziaul Hoque Sikder Sr. Instructor 01552446435	Bangla German TTC, Mirpur, Dhaka.	Member		
8.	Md. Sahahdat Hossain, Curriculum Specialist 01558439769	Bangladesh Technical Education Board,Dhaka.	Member		

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NATIONAL COMPETENCY STANDARDS
For
Refrigeration and Air Conditioning: NTVQF 1
Structure of Competency

Sl. No.	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic – Compulsory (2 UoCs required)				70
1.	GNMAT1001A1	Use basic mathematical concepts	NTVQF 1	40
2.	GNOSH1002A1	Apply OSH practices in the workplace	NTVQF 1	30
Sector Specific – Compulsory (1 UoC required)				45
3.	RACSS1003A1	Use hand tools, equipment and materials for servicing of refrigerator and freezer in the workplace.	NTVQF 1	45
Occupation Specific – Compulsory (6 UoCs required)				245
4.	RACOS1004A1	Demonstrate the operation of mechanical refrigeration cycle.	NTVQF 1	30
5.	RACOS1005A1	Demonstrate domestic refrigerator and deep freezer.	NTVQF 1	40
6.	RACOS1006A1	Perform copper tubing work.	NTVQF 1	40
7.	RACOS1007A1	Service domestic refrigerator.	NTVQF 1	55
8.	RACOS1008A1	Service deep freezer.	NTVQF 1	40
9.	RACOS1009A1	Check the function of the components of domestic refrigerator.	NTVQF 1	40
Grand total				360 Hrs

- Hours is adjustable

GENERIC UNITS

NTVQF 1

**National Technical and Vocational Qualification Framework(NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	GNMAT1001A1: Use basic mathematical concepts.
Nominal Hours	40 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to apply the basic mathematical methods such as addition, subtraction, multiplication and division in the RAC service workplace.
Elements of Competency	Performance Criteria <i>Italianized</i> items are elaborated in the range of variable
1. Identify calculation requirements in the workplace.	1.1 Calculation requirements are identified from workplace information .
2. Select appropriate mathematical methods for the calculation.	2.1 Appropriate method is selected to carry out the calculation.
3. Use basic mathematical concepts to calculate workplace calculation.	3.1 Calculations are completed using appropriate methods such as addition, subtraction, multiplication and division.
Range of Variables	
Variable	Range
1. Calculation requirements.	Calculation requirements may include but not limited to: 1.1. Total length calculation. 1.2. Area calculation. 1.3. Volume calculation.
2. Appropriate methods.	Methods may include but not limited to: 2.1. Addition. 2.2. Subtraction. 2.3. Division. 2.4. Multiplication. 2.5. Percentage and ratio.
4. Workplace information.	Information may include but not limited to. 4.1. House area. 4.2. House height. 4.3. Specification of different items. 4.4. Sunlight exposure time.
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.	1.2. Use of appropriate mathematical methods namely addition, subtraction, multiplication and division
2.Required underpinning Knowledge.	2.1. Numerical concept. 2.2. Basic mathematical methods such as addition, subtraction, multiplication and division and percentage. 2.3. Mathematical language, symbols and terminology. 2.4 . Measuring units.
3.Required underpinning skills.	3.1. Ability to add numbers. 3.2. Ability to subtract numbers from another numbers. 3.3. Ability to multiply numbers. 3.4. Ability to divide numbers. 3.5. Ability to use of mathematical language, symbols, terminology and technology. 3.6. Ability to measure of different physical parameter. 3.7. Ability to calculate area and volume.
4.Required underpinning attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect for rights of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5.Resource implication.	The following resources must be provided. 5.1. Stationeries 5.2. Consumables. 5.3. Calculators. 5.4. Computers. 5.5. Measuring tape.
6. Method of assessment.	Competencies may be assessed by 6.1. Written test. 6.2. Oral questions. 6.3. Practical exercises of calculation. 6.4. Continuous assessment.
7. Context of assessment.	Competencies may be assessed in the work place or in 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(NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	GNOSH1002A1: Apply Occupational Safety & Health (OSH) practices in the workplace
Nominal Hours	30 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to apply OSH practice in the workplace.
Elements of Competency	Performance Criteria. <i>Italicized items are elaborated in the range of variable</i>
1. Follow OSH (Occupation Safety and Health) practice at workplace.	1.1. Personal Protective Equipment (PPE) is used. 1.2. Hazards at workplace explained. 1.3. Unsafe tools at workplace are listed. 1.4. Flammable materials are recognized. 1.5. Access and storable materials are preserved in designated place. 1.6. OSH equipment is used safety according to specifications, legislation and standard operating procedures.
2. Perform work in safe condition.	2.1. Safe OSH practices are followed. 2.2. Appropriate personal protective equipment (PPE) is used. 2.3. Safety signs, symbols and banners are displayed. 2.4. Location of the fire fighters is identified. 2.5. Clear and free emergency exit passage is maintained. 2.6. Use of fire extinguisher performed.
3. Use first aid box.	3.1. Contents in the first aid box are selected. 3.2. First aid box in emergency is used.
4. Maintain healthy and hygiene workplace.	4.1. Aspect of good house keeping is explained. 4.2. Useable cleaning agents at workplace is selected. 4.3. Hands and parts of body are washed as per workplace regulation. 4.5. Safe drinking water is made available.
Range of Variables	
Variable	Range
1. Unsafe tools.	Unsafe tools may include but not limited to: 1.1. Broken tools. 1.2. Rusted tools. 1.3. Defective tools.
2. Hazard.	Hazard may include but not limited to: 2.1. Accumulation of waste materials. 2.2. Random storage of tools, equipment and furniture.

	<p>2.3. Storage of rejected wires, cables and structural materials.</p> <p>2.4. Storage of flammable materials.</p> <p>2.5. Congested emergency exit.</p> <p>2.6. Oil spilt floor at workplace.</p>
3.Flammable.	<p>Flammable materials may include but not limited to:</p> <p>3.1. Fabrics.</p> <p>3.2. PVC based materials.</p> <p>3.3. Petroleum based materials.</p> <p>3.4. Dry wood, bamboo.</p> <p>3.5. Hydrocarbon refrigerants.</p>
4. Personal protective equipment.	<p>Personal protective equipment may include but not limited to:</p> <p>4.1. Hand gloves.</p> <p>4.2. Mask.</p> <p>4.3. Apron.</p> <p>4.4. Cap.</p> <p>4.5. Goggle.</p> <p>4.6. Safety shoes.</p> <p>4.7. Cautionary signs, symbols and banners.</p> <p>4.8. Evacuation program.</p> <p>4.9. Fire extinguisher.</p> <p>4.10. Emergency lights.</p> <p>4.11. Instructions.</p> <p>4.12. Stretcher.</p>
5. First aid box,	<p>First aid box may include but not limited to:</p> <p>5.1. Sterilized cotton.</p> <p>5.2. Bandage.</p> <p>5.3. Scissors.</p> <p>5.4. Washing agent for injury.</p> <p>5.5. Medicine for burn.</p> <p>5.6. Medicine for sudden head-ache.</p>
<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.	<p>1.1. Identification of hazards.</p> <p>1.2. Knowledge on hazard prevention.</p> <p>1.3. Use of personal Protective Equipment (PPE).</p>
2.Required underpinning knowledge.	<p>2.1. Maintenance of good OSH condition in workplace.</p> <p>2.2. Use of symbols and banners.</p> <p>2.3. Evacuation instructions with pictures and words</p> <p>2.4. Planning of floor layout of workplace.</p> <p>2.5. Elimination of hazardous condition.</p> <p>2.6. Use of PPE.</p>

3.Required underpinning skills.	3.1. Use of appropriate PPE. 3.2. Preparation of signs and banners. 3.4. Displaying of signs and banners. 3.5. Quick response in emergency.
4.Required underpinning attitude	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect for rights of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5. Resource implication.	The following resources must be provided. 5.1. Drawing paper. 5.2. Drawing templates. 5.3. First aid box with required contents. 5.4. PPE 5.5. Pens, pencils, markers, eraser. 5.6. Banners showing OSH practices. 5.7. Fire extinguisher
6. Method of assessment.	Competencies must be assessed by- 6.1. Oral questions 6.2. Practical demonstration 6.3. Observation 6.4. Interview 6.5. Practical display.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place

Accreditation Requirements

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SECTOR SPECIFIC UNITS

NTVQF

**National Technical Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACSS1003A1 Use hand tools, equipment and materials for servicing of refrigerator and freezer in the workplace.
Nominal Hours	45 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to use a range of hand tools, equipment and materials for servicing of refrigerator and freezer in the servicing workplace.
Elements of Competency	Performance Criteria <i>Italicized terms are elaborated in the range of variables</i>
1. Use hand tools.	1.1 Safe work practices followed and Personal Protective Equipment (<i>PPE</i>) are used. 1.2. <i>Hazards</i> at workplace is eliminated. 1.1. Importance of using <i>hand tools</i> is recognized. 1.2. List of hand tools is prepared. 1.3. Hand tools are collected for the <i>task</i> . 1.4. Unsafe or defective hand tools are separated.
2. Use power tools.	2.1. Use of <i>power tools</i> is recognized. 2.2. Power tools in workplace are collected. 2.3. Proper power tools are used to proper task. 2.4. Source of power supply for power tools is ensured. 2.5. <i>Safe work practices</i> are followed when using power tools. 2.6. Power tools are disconnected from power source.
3. Use equipment,	3.1. List of equipment with specification is prepared. 3.2. <i>Equipment</i> for servicing RAC unit are collected and used.
4. Collect materials	4.1. List of material with specification is prepared. 4.2. <i>Materials</i> for servicing RAC unit are collected and used.
5. Perform maintenance of the tools.	5.1. Routine maintenance of hand and power tools is undertaken according to standard operating procedure. 5.2. <i>Cleaning and lubricating agent</i> for tools are used. 5.3. Defective tools are identified and collected. 5.4. Tools are cleaned. 5.5. Defective tools are repaired / replaced as required. 5.6. Lubricating agents is applied as required. 5.7. Tools are stored in designated location in accordance with workplace practice. 5.8. Workplace is cleaned.

Range of Variables	
Variable	Range (May include but not limited to:)
1. Hand Tools	1.1. Hammer. 1.2. Mallet. 1.3. Combination pliers. 1.4. Adjustable wrenches. 1.5. Diagonal cutting pliers. 1.6. Scissors. 1.7. Crimping pliers. 1.8. Neon tester. 1.9. Screw driver(Flat and Philips head). 1.10. Socket wrench set. 1.11. Files. 1.12. Reamer. 1.13. Chisel. 1.14. Vices. 1.15. Tube bender. 1.16. Flaring and swaging tools. 1.17. Tube cutter. 1.18. Hacksaw frame.
2. Power tools	2.1. Electric hand drill machine 2.2. De-soldering pump. 2.3. Soldering iron. 2.4. Bench grinders. 2.5. Bench drill machine. 2.6. Vacuum cleaner. 2.7. Air blower. 2.8. Pedestal grinders. 2.9. High vacuum pump. 2.10. Electric hand grinder.
3. Equipment.	Equipment may include but not limited to: 3.1. Pressure gauge. 3.2. Multi meter. 3.3. Clamp-on-AVO meter. 3.4. Oxy-acetylene gas welding set. 3.5. Single cylinder / Gas welding set. 3.6. Dry nitrogen cylinder with two stage regulator.
4. Materials	Materials may include but not limited to: 4.1. Refrigerant-12/22/600a/134a/HC blend/410A/407C. 4.2. Refrigeration fittings. 4.3. Charging hoses. 4.4. Capillary tube (pipe). 4.5. Welding and soldering materials. 4.6. Gaskets. 4.7. Emery cloth. 4.8. Emery paper/water proof paper 4.9. Hacksaw blade.
5. PPE	PPE may include but not limited to:

	<ul style="list-style-type: none"> 5.1. Mask; 5.2. Aprons. 5.3. Safety goggles. 5.4. Gloves. 5.5. Safety shoes. 5.6. Helmet. 5.7. Safety belt set.
6. Safe work practices.	<p>Safe work practices may include but not limited to:</p> <ul style="list-style-type: none"> 6.1. Working using personal protective equipment. 6.2. Ensure proper ventilation in the workplace. 6.3. Elimination of hazards at workplace.
7. Cleaning and lubricating agent	<p>Cleaning and lubricating agent may include but not limited to:</p> <ul style="list-style-type: none"> 6.1. Hand polishing. 6.2. Emery cloth. 6.3. Emery paper. 6.4. Mobil. 6.5. Grease. 6.6. Kerosene. 6.7. Cleaning jute.
8. Hazardous workplace.	<p>Hazard includes but not limited to.</p> <ul style="list-style-type: none"> 1.1. Accumulation of waste materials. 1.2. Random storage of tools, equipment and furniture. 1.3. Storage of rejected wires, cables and structural materials. 1.4. Storage of flammable materials. 1.5. Congested emergency exit. 1.6. Oil spilt floor, passage at workplace.
9. First aids box.	<p>First aids box includes but not limited to.</p> <ul style="list-style-type: none"> 3.1. Sterilized cotton. 3.2. Bandage. 3.3. Clinical scissors. 3.4. Washing agent for injury. 3.5. Medicine for burn. 3.6. Medicine for sudden head-ache.
10. Unsafe tools	<p>Unsafe tools may include but not limited to:</p> <ul style="list-style-type: none"> 10.1. Defective tools. 10.2. Rusted tools. 10.3. Broken tools. 10.4. Worn out tools.
<p>Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meets 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. Use of hand and power tools for RAC servicing. 1.2. Servicing of RAC unit.
2.Required underpinning	<ul style="list-style-type: none"> 2.1. Identification of proper hand tools.

knowledge.	2.2. Use of materials. 2.3. Interpretation of refrigeration principle. 2.4. Working principle of RAC unit.
3.Required underpinning skills.	3.1. Using hand tools. 3.2. Using materials. 3.3. Using equipment. 3.4. Repairing, servicing and replacing of RAC units.
4.Required underpinning attitude	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect for rights of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5.Resource implication.	The following resources must be provided. 5.1. Drawing paper. 5.2. Drawing templates. 5.3. First aid box with required contents. 5.4. PPE 5.5. Pens, pencils, markers, eraser. 5.6. Banners showing OSH practices. 5.7. Fire extinguisher
6. Method of assessment.	Competencies must be assessed by- 6.1. Oral questions 6.2. Practical demonstration 6.3. Observation 6.4. Interview 6.5. Practical display.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place

Accreditation Requirements

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OCCUPATIONAL SPECIFIC UNITS

**National Technical Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACOS1004A1: Demonstrate the operation of mechanical refrigeration cycle.
Nominal Hours	30 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to demonstrate the operation of mechanical refrigeration cycle in the workplace.
Element of Competency	Performance Criteria <i>Italicized terms are elaborated in the range of variables</i>
1. Prepare the mechanical refrigeration demonstrating unit.	1.1. Safe work practices followed and Personal Protective Equipment (<i>PPE</i>) are used. 1.2. <i>Hazards</i> at workplace is eliminated. 1.3. A mechanical refrigeration unit is collected. 1.3. Power supply of the mechanical refrigeration unit is turned off. 1.4. The refrigeration unit is cleaned.
2. Identify the components of the refrigeration cycle.	2.1. The components of refrigeration cycle is identified on drawing. 2.2. The components of refrigeration cycle is identified on the unit.

3. Start the refrigeration unit.	<p>3.1. Clamp-on-ammeter is set on the line.</p> <p>3.2. The switch of the power supply is turned on.</p> <p>3.3. The discharge and suction line temperature is observed.</p> <p>3.4. The suction and discharged pressure of the demonstration unit is recorded.</p> <p>3.5. The temperature of the evaporator and condenser are observed.</p> <p>3.6. Operation of the cycle is explained.</p>
4. Exercise the terminologies related to refrigeration cycle.	<p>4.1. Heat, temperature and pressure effect are explained.</p> <p>4.2. Creating low pressure in the evaporator and high pressure in the condenser are discussed.</p> <p>4.3. Units of pressure and temperature are noted.</p>
5. Store the tools and equipment and clean the workplace.	<p>5.1. Tools and equipment are cleaned and stored.</p> <p>5.2. The workplace is cleaned as per workplace standard.</p>

Range of Variables

Variable	Range (May include but not limited to ☺)
1. Hand tools.	<p>1.1. Adjustable wrench.</p> <p>1.2. Service valve wrench.</p> <p>1.3. Neon tester.</p>
2. Equipment.	<p>2.1. Pressure gauge.</p> <p>2.2. Clamp-on-ampere meter.</p> <p>2.3. Dust blower.</p>
3. Materials.	<p>3.1. Charging hose.</p> <p>3.2. Waste cotton.</p>
4. PPE	<p>1.1. Apron.</p> <p>1.2. Hand gloves.</p> <p>1.3. Cleaning agents.</p> <p>1.4. Musk.</p> <p>1.5. Safety goggles.</p> <p>1.5. Safety shoes.</p> <p>1.6. First aid box.</p>
2. Hazard.	<p>Hazard may include but not limited to:</p> <p>2.1. Accumulation of waste materials.</p> <p>2.2. Random storage of tools, equipment and furniture.</p> <p>2.3. Storage of rejected wires, cables and structural materials.</p> <p>2.4. Storage of flammable materials.</p> <p>2.5. Congested emergency exit.</p> <p>2.6. Oil split floor at workplace.</p>

Evidence Guide

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

1.Critical aspects of competency.	1.1. Use of hand tools and power tools. 1.2. Cleaning and operation of RAC unit.
2.Required underpinning knowledge.	2.1. Heat, temperature and pressure. 2.2. Refrigerant. 2.3. Function of each components of refrigeration cycle. 2.4. Construction of compressor.
3.Required underpinning skills.	3.1. Starting system of refrigeration unit. 3.2. Measuring ampere with clamp-on-ampere meter. 3.3. Identification of each components.
4.Required underpinning Attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5.Resource implication.	The following resources must be provided. 5.1. Hand tools and electrical meters. 5.2. Wall poster of refrigeration cycle. 5.3. Model/ demonstrating unit. 5.4. PPE. 5.5. First aid bo with required contents.
6. Method of assessment.	6.1. Oral questions. 6.2. Demonstration. 6.3. Written test.
7. Context of assessment.	Competencies may be assessed in the work place or in a simulated work place

Accreditation Requirements

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**National Technical Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACOS1005A1: Demonstrate domestic refrigerator and deep freezer.
Nominal Hours	40 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to demonstrate the domestic refrigerator and deep freezer in the workplace.
Element of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables
1. Select components.	1.1. Safe work practices followed and Personal Protective

	<p>Equipment (PPE) are used.</p> <p>1.2. Hazards at workplace is eliminated.</p> <p>1.3. Hand tools, power tools and materials are collected according to job requirement.</p> <p>1.4. Names of components are documented.</p> <p>1.5. Components of domestic refrigerator are introduced.</p> <p>1.6. Components of deep freezer are introduced.</p> <p>1.7. The refrigerator and the deep freezer checked visually.</p> <p>1.8. Components of the refrigerator cabinet are identified.</p>
2. Recognize the function of the components of refrigerator cabinet and refrigeration cycle.	<p>2.1. The function and use of domestic refrigerator and deep freezer are recognized.</p> <p>2.2. The function of the components of refrigerator are explained.</p> <p>2.3. The function of the components of deep freezer are explained.</p> <p>2.4. The components of refrigerator cabinet are demonstrated.</p>
3. Clean and store the equipment.	<p>3.1. Equipment is cleaned and stored.</p> <p>3.2. Workplace is cleaned as per workplace standards.</p>
Range of Variables	
Variable	Range (May include but not limited to:)
1. PPE	<p>1.1. Apron.</p> <p>1.2. Hand gloves.</p> <p>1.3. Cleaning agents.</p> <p>1.4. Musk.</p> <p>1.5. Safety shoes.</p> <p>1.6. First aid box.</p>
2. Hand tools	<p>2.1. Combination pliers.</p> <p>2.2. Nose pliers.</p> <p>2.3. Crimping pliers.</p> <p>2.4. Cutting pliers.</p> <p>2.5. Knife.</p> <p>2.6. Screw driver (Flat and Philips head).</p> <p>2.7. Slide wrench.</p> <p>2.8. Socket wrench set.</p> <p>2.9. Neon tester.</p> <p>2.10. Hammer.</p> <p>2.11. Mallet.</p> <p>2.12. Tube bender.</p> <p>2.13. Tube cutter.</p> <p>2.14. Flaring and swaging tools</p> <p>2.15. Reamer.</p> <p>2.16. Combination pressure gauge.</p>
3. Domestic refrigerator.	<p>3.1. One door type refrigerator.</p> <p>3.2. Two door type refrigerator.</p> <p>3.3. One chamber type refrigerator.</p> <p>3.4. Two chambers type refrigerator.</p>

	<p>3.5. Frost type refrigerator.</p> <p>3.6. Defrost type of refrigerator.</p> <p>3.7. No frost type refrigerator.</p>
4. Components.	<p>4.1. Compressor.</p> <p>4.2. Motor starting relay.</p> <p>4.3. Overload protector.</p> <p>4.4. Thermostat switch.</p> <p>4.5. Timer.</p> <p>4.6. Defrost heater.</p> <p>4.7. Capacitor.</p> <p>4.8. Door lamp.</p> <p>4.9. Door switch.</p> <p>4.10. Electrical fuses / thermal fuses.</p> <p>4.11. Lamp holder.</p> <p>4.12. Cabinet lamp.</p> <p>4.13. Cooling fan.</p> <p>4.14. Fan switch.</p> <p>4.16. Switch.</p> <p>4.17. Socket.</p> <p>4.18. Plug.</p> <p>4.19. Cable.</p>
5. Function	<p>5.1. Function of compressor.</p> <p>5.2. Function of condenser.</p> <p>5.3. Function of evaporator.</p> <p>5.4. Function of dryer.</p> <p>5.5. Function of thermostat.</p> <p>5.6. Function of defrost heater.</p> <p>5.7. Function of timer.</p> <p>5.8. Function of starting relay.</p> <p>5.9. Function of capacitor.</p> <p>5.10. Function of door switch.</p> <p>5.11. Function electrical fuse.</p> <p>5.12. Function of thermal fuse.</p> <p>5.13. Function of capillary tube</p> <p>5.14. Function of cooling fan.</p> <p>5.15. Function of lamp holder.</p> <p>5.16. Function of gasket.</p> <p>5.17. Function of magnetic strip.</p> <p>5.18. Function of overload protector.</p> <p>5.19. Function of capillary tubes.</p>
6. Hazard	<p>6.1. Accumulation of waste materials.</p> <p>6.2. Random storage of tools, equipment and furniture.</p> <p>6.3. Storage of rejected wires, cables and structural materials.</p> <p>6.4. Storage of flammable materials.</p> <p>6.5. Congested emergency exit.</p> <p>6.6. Oil split floor at workplace.</p>

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent , recent and meet the requirements of the current version of the Unit of Competency.	
1.Critical aspects of competency.	1.1. Function of components of domestic refrigerator. 1.2. Function of components of deep freezer.
2.Required underpinning knowledge.	2.1. Function of components of domestic refrigerators. 2.2. Function of components of deep freezer. 2.3.Operation of electrical function of domestic refrigerators 2.4.Operation of electrical function of deep freezer.
3.Required underpinning skills.	3.1. Wiring of domestic refrigerator. 3.2. Wiring of deep freezer. 3.3. Testing electrical components of domestic refrigerator. 3.4. Testing electrical components of deep freezer. 3.5. Trouble shooting in domestic refrigerator. 3.6. Trouble shooting in deep freezer.
4.Required underpinning Attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5.Resource implication.	The following resources must be provided. 5.1. Hand tools. 5.2. Domestic refrigerator 5.3. Deep freezer. 5.4. First aid box. 5.5. PPE.
6. Method of assessment.	Competencies must be assessed by: 6.1. Oral questions 6.2. Demonstration 6.3. Written test.
7. Context of assessment.	Competencies may be assessed in the work place or in 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 Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACOS1006A1:
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	Perform copper tubing works.
Nominal Hours	40 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to perform copper tubing works in the workplace .
Element of Competency	Performance Criteria <i>Italicized</i> terms are elaborated in the range of variables
1. Prepare drawing , tools and workplace.	1.1. Safe work practices followed. 1.2. Personal Protective Equipment (<i>PPE</i>) are used. 1.3. <i>Hazards</i> at workplace is eliminated. 1.4. Workplace is prepared as per job requirement. 1.5. <i>Hand tools, measuring tools</i> and materials are collected according to job requirement. 1.7. Drawing of the job is prepared.
2. Prepare the job.	2.1. Copper tube is straightened. 2.2. Copper tube is cut as per measurement. 2.3. Bending of the tube is performed. 2.4. Swaging of the tube is performed. 2.5. Flaring of the tube is performed. 2.6. Brazing is done.
3. Check the job.	3.1. Bending work is checked visually. 3.2. Swaging work is checked visually. 3.3. Flaring work is checked visually. 3.4. Brazing work is checked visually.
4. Clean and store the equipment.	4.1. Equipment is cleaned and stored. 4.2. Workplace is cleaned as per workplace standards.
Range of Variables	
Variable	Range (May include but not limited to:)
1. PPE	1.1. Apron. 1.2. Hand gloves. 1.3. Cleaning agents. 1.4. Musk. 1.5. Safety shoes. 1.6. First aid box.
2. Hand tools	2.1. Combination pliers. 2.2. Nose pliers. 2.3. Cutting pliers. 2.4. Measuring tape 2.5. Knife. 2.6. Screw driver (Flat blade and Philips head). 2.7. Slide wrench. 2.8. Socket wrench set. 2.9. Neon tester. 2.10. Ball peen hammer. 2.11. Mallet. 2.12. Tube bender.

	<ul style="list-style-type: none"> 2.13. Tube cutter. 2.14. Flaring tools 2.15. Swaging tools 2.16. Reamer. 2.17. Gas welding equipment. 2.18. Silver brazing rod. 2.19. Spark lighter. 2.20. Soldering flux.
3. Measuring tools	<ul style="list-style-type: none"> 3.1. Measuring tape. 3.2. Steel rule. 3.3. Spirit level.
4.Hazard	<ul style="list-style-type: none"> 4.1. Accumulation of waste materials. 4.2. Random storage of tools, equipment and furniture. 4.3. Storage of rejected wires, cables and structural materials. 4.4. Storage of flammable materials. 4.5. Congested emergency exit. 4.6. Oil split floor at workplace.
<p>Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, 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. Preparation and use of tools, equipment and materials. 1.2. Following OSH practice. 1.3. Maintaining quality of the works.
2.Required underpinning knowledge.	<ul style="list-style-type: none"> 2.1. Unit of linear measurement. 2.2. Materials used for tubing. 2.3. Hard drawn and annealed copper tubing. 2.4. Melting temperature of brazing materials. 2.5. Copper and brass fittings used in refrigeration works.
3.Required underpinning skills.	<ul style="list-style-type: none"> 3.1. Using method of measurement. 3.2. Taking measurement. 3.3. Cutting, bending, swaging and flaring of tubes. 3.4. Welding and brazing of tubes.
4.Required underpinning Attitude.	<ul style="list-style-type: none"> 4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5.Resource implication.	<p>The following resources must be provided.</p> <ul style="list-style-type: none"> 5.1. Hand tools. 5.2. Tools used for refrigeration works.

	<ul style="list-style-type: none"> 5.3. Domestic refrigerator 5.4. Deep freezer. 5.5. First aid box. 5.6. Copper tubings. 5.7. PPE.
6. Method of assessment.	<p>Competencies must be assessed by:</p> <ul style="list-style-type: none"> 6.1. Oral questions 6.2. Demonstration 6.3. Written test.
7. Context of assessment.	Competencies may be assessed in the work place or in 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.</p>	

**National Technical Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACOS1007A1: Service domestic refrigerator
Nominal Hours	55 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to service the domestic refrigerator in the workplace.
Element of Competency	Performance Criteria <i>Italicized terms are elaborated in the range of variables</i>
1. Prepare workplace, tools and equipment.	1.1. Safe work practices followed and Personal Protective Equipment (<i>PPE</i>) are used. 1.2. <i>Hazards</i> at workplace is eliminated. 1.3. Workplace is prepared for servicing the refrigerator. 1.3. <i>Hand tools</i> and materials are collected according to job requirement. 1.3. A <i>domestic refrigerator</i> is collected. 1.4. The domestic refrigerator is checked visually.
2. Service compressor compartment.	2.1. Compressor compartment is checked visually. 2.2. Compressor compartment is cleaned. 2.3. The switch of compressor motor is turned on. 2.4. The operation of compressor motor is observed. 2.5. The switch of compressor motor is turned off. 2.7. Power supply is removed.
3. Service refrigerator cabinet.	3.1. Freezer compartment of refrigerator is checked visually. 3.2. Refrigerator cabinet is cleaned.
4. Check domestic refrigerator	4.1. <i>Function</i> of all <i>components</i> of the cabinet and mountings are checked visually. 4.2. All components of the refrigeration cycle are checked visually. 4.3. All electrical components are checked visually. 4.5. The refrigerator is started and observed its operation. 4.6. The switch of the refrigerator is turned off. 4.7. Power supply is removed.
7. Clean and store the equipment.	3.1. Equipment is cleaned and stored. 3.2. Workplace is cleaned as per workplace standards.
Range of Variables	

Variable	Range (May include but not limited to:)
1. PPE	<ul style="list-style-type: none"> 1.1. Apron. 1.2. Hand gloves. 1.3. Cleaning agents. 1.4. Musk. 1.5. Safety shoes. 1.6. Safety goggles 1.6. First aid box.
2. Hand tools	<ul style="list-style-type: none"> 2.1. Combination pliers. 2.2. Nose pliers. 2.3. Crimping pliers. 2.4. Cutting pliers. 2.5. Knife. 2.6. Screw driver (Flat and Philips head). 2.7. Slide wrench. 2.8. Socket wrench set. 2.9. Neon tester. 2.10. Hammer. 2.11. Mallet. 2.12. Tube bender. 2.13. Tube cutter. 2.14. Flaring and swaging tools 2.15. Reamer. 2.16. Combination pressure gauge.
3. Domestic refrigerator.	<ul style="list-style-type: none"> 3.1. One door type refrigerator. 3.2, Two door type refrigerator. 3.3. One chamber type refrigerator. 3.4. Two chambers type refrigerator. 3.5. Frost type refrigerator. 3.6. Defrost type of refrigerator. 3.7. No frost type refrigerator.
4. Components.	<ul style="list-style-type: none"> 4.1. Door exterior liner. 4.2. Door interior liner 4.3. Door seal. 4.4. Door insulation. 4.5. Door hinge. 4.6. Door bottle guard. 4.7. Door egg guard. 4.8. Compressor compartment 4.9. Compressor mounting. 4.10. Compressor. 4.11. Motor starting relay. 4.12. Overload protector. 4.13. Thermostat switch. 4.14. Timer. 4.15. Defrost heater. 4.16. Capacitor. 4.17. Door lamp.

	<p>4.18. Door switch.</p> <p>4.19. Electrical fuses / thermal fuses.</p> <p>4.20. Lamp holder.</p> <p>4.21. Cabinet lamp.</p> <p>4.22. Cooling fan and fan mounting.</p> <p>4.23. Fan switch.</p> <p>4.24. Switch.</p> <p>4.25. Socket.</p> <p>4.26. Plug.</p> <p>4.27. Cable.</p>
5. Function	<p>5.1. Function of compressor.</p> <p>5.2. Function of condenser.</p> <p>5.3. Function of evaporator.</p> <p>5.4. Function of dryer.</p> <p>5.5. Function of thermostat.</p> <p>5.6. Function of defrost heater.</p> <p>5.7. Function of timer.</p> <p>5.8. Function of starting relay.</p> <p>5.9. Function of capacitor.</p> <p>5.10. Function of door switch.</p> <p>5.11. Function electrical fuse.</p> <p>5.12. Function of thermal fuse.</p> <p>5.13. Function of capillary tube</p> <p>5.14. Function of cooling fan.</p> <p>5.15. Function of lamp holder.</p> <p>5.16. Function of gasket.</p> <p>5.17. Function of magnetic strip.</p> <p>5.18. Function of overload protector.</p> <p>5.19. Function of capillary tubes.</p>
2. Hazard.	<p>Hazard may include but not limited to:</p> <p>2.1. Accumulation of waste materials.</p> <p>2.2. Random storage of tools, equipment and furniture.</p> <p>2.3. Storage of rejected wires, cables and structural materials.</p> <p>2.4. Storage of flammable materials.</p> <p>2.5. Congested emergency exit.</p> <p>2.6. Oil split floor at workplace.</p>
<p>Evidence Guide</p> <p>The evidence must be authentic, valid, sufficient, reliable, consistent , recent and meet the requirements of the current version of the Unit of Competency.</p>	
1.Critical aspects of competency.	<p>1.1. Function of components of domestic refrigerator.</p> <p>1.2. Supplied power is in compliance with nameplate ratings.</p> <p>1.3. Perform tasks in accordance with standard operating procedure.</p> <p>1.4. Using techniques and practice as per workplace</p>

	procedures.
2.Required underpinning knowledge.	2.1. Function of components of domestic refrigerators. 2.2. Types of tools and equipment used in servicing. 2.3.Operation of electrical function of domestic refrigerators 2.4.Chemical used for cleaning refrigerator cabinet. 2.5. Different types of refrigerators. 2.6. Procedure of starting equipment.
3.Required underpinning skills.	3.1. Wiring of domestic refrigerator. 3.2. Method of using tools and materials. 3.3. Testing electrical components of domestic refrigerator. 3.4. Cleaning interior components of refrigerator. 3.5. Trouble shooting in domestic refrigerator. 3.6. Starting of refrigerator. 3.7. Use of PPE.
4.Required underpinning Attitude.	4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors in workplace. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Environmental concern. 4.7. Sincere and honest to duties.
5.Resource implication.	The following resources must be provided. 5.1. Hand tools. 5.2. Domestic refrigerator. 5.3. Air blower. 5.4. First aid box. 5.5. PPE. 5.6. Manufacturers cleaning and servicing instruction.
6. Method of assessment.	Competencies must be assessed by: 6.1. Oral questions 6.2. Demonstration 6.3. Written test.
7. Context of assessment.	Competencies may be assessed in the work place or in 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 Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACOS1008A1: Service deep freezer.
Nominal Hours	40 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to perform servicing of deep freezer at the workplace as per required workplace standards.
Element of Competency	Performance Criteria <i>Italicized terms are elaborated in the range of variables</i>
1. Prepare workplace, tools and equipment.	1.1. Safe work practices followed and Personal Protective Equipment (PPE) are used. 1.2. Hazards at workplace is eliminated. 1.3. Workplace is prepared for servicing the deep freezer. 1.3. Hand tools, equipment and materials are collected according to job requirement. 1.3. A deep freezer is collected. 1.4. The deep freezer is checked visually.
2. Service compressor compartment.	2.1. Compressor compartment is checked visually. 2.2. Compressor compartment is cleaned. 2.3. The switch of compressor motor is turned on. 2.4. The operation of compressor motor is observed. 2.5. The switch of compressor motor is turned off. 2.7. Power supply is removed.

3. Service freezer cabinet.	3.1. Compartment of deep freezer is checked visually. 3.2. Frosted type deep freezer cabinet is cleaned. 3.3. Non-frosted type deep freezer cabinet is cleaned.
4. Check deep freezer.	4.1. All components of the cabinet and mountings are checked visually. 4.2. All components of the refrigeration cycle are checked visually. 4.3. All electrical components are checked visually. 4.5. The refrigerator is started and observed its operation.
5. Clean and store the tools and equipment.	5.1. Tools and equipment are cleaned and stored. 5.2. Workplace is cleaned as per workplace standards.
Range of Variables	
Variable	Range (May include but not limited to:)
1. PPE.	1.1. Apron, 1.2. Goggles, 1.3. Hand gloves, 1.4. Cleaning agents, 1.5. Protective shoes, 1.6. Floor brush, 1.7. Frst aid box.
2. Hazard.	Hazard may include but not limited to: 2.1. Accumulation of waste materials. 2.2. Random storage of tools, equipment and furniture. 2.3. Storage of rejected wires, cables and structural materials. 2.4. Storage of flammable materials. 2.5. Congested emergency exit. 2.6. Oil split floor at workplace.
2. Hand tools.	2.1. Combination pliers. 2.2. Cutting pliers. 2.3. Nose pliers. 2.4. Screw driver (Flat blade and Philips head). 2.5. Allen key. 2.6. Crimping pliers. 2.7. Neon tester. 2.8. Socket wrench set (Metric system). 2.9. Reamer. 2.10. Tube bender. 2.11. Flaring and swaging tools. 2.12. Tube cutter. 2.13. Mallet.
3. Equipment.	3.1. Pressure gauge. 3.2. Thermometer. 3.3. Clamp-on-Avo meter. 3.4. Compressor 3.5. Pump

	3.6. Electric hand drill machine
4. Components.	4.1. Evaporator 4.2. Condenser 4.3. Dryer 4.4. Starting relay 4.5. Thermostat 4.6. Door lamp 4.7. Door switch 4.8. Temperature control knob
5. Materials.	5.1. Cleaning materials, 5.2. Duster cloth, 5.3. Detergent, 5.4. Red oxide, 5.5. Screw, 5.6. Refrigerant gas
<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.</p>	
1. Critical aspect of competency	1.1. Function of components of deep freezer. 1.2. Supplied power is in compliance with nameplate ratings. 1.3. Perform tasks in accordance with standard operating procedure. 1.4. Using techniques and practice as per workplace procedures. 1.5. Cleaning of refrigerator body and drain pipe.
2. Underpinning knowledge.	2.1. Function of components of deep freezer. 2.2. Types of tools and equipment used in servicing. 2.3. Different types of deep freezer. 2.4. Knowledge about pressure gauge.
3. Underpinning skill.	3.1. Use of the tools and equipment. 3.2. Cleaning interior components of deep freezer. 3.3. Starting the deep freezer. 3.4. Use of PPE
4. Required attitude.	4.1. Communication with peers, sub-ordinates and seniors in workplace. 4.2. Commitment to occupational safety and health. 4.3. Promptness in carrying out activities. 4.4. Tidiness and timeliness. 4.5. Respect of peers, sub-ordinates and seniors in workplace. 4.6. Sincere and honest to the duties. 4.7. Eagerness to learn.
5. Resource implication.	The following resources must be provided. 5.1. Hand tools. 5.2. Unit of deep freezer.

	5.3. Combination pressure gauge. 5.4. Gas welding set with accessories and materials. 5.5. Clamp-on-AVO meter. 5.6. Refrigerant and compressor oil. 5.7. Cleaning chemicals and materials. 5.8. Air blower.
6. Methods of assessment.	Methods of assessment includes but not limited to. 6.1. Demonstration. 6.2. Oral questions. 6.3. Written test.
7. Context of assessment.	Competency may be assessed in the workplace or in a simulated workplace.
<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 Vocational Qualification Framework (NTVQF) for Bangladesh
Refrigeration and Air Conditioning: NTVQF 1
Unit of Competency**

Unit Code and Title	RACOS1009A1: Check the function of the component of domestic refrigerator.
Nominal Hours	40 hours
Unit Descriptor	This unit of competency requires the knowledge, skills and attitude to check the function of components of domestic refrigerator in the workplace.
Element of Competency	Performance Criteria <i>Italicized terms are elaborated in the range of variables</i>
1. Prepare tools and work place.	1.1. Safe work practices followed and Personal Protective Equipment (PPE) are used.

	<p>1.2. Hazards at workplace is eliminated.</p> <p>1.3. Hand tools, power tool, equipment, and materials are collected according to job requirement.</p> <p>1.4. Workplace is prepared for servicing domestic refrigerator</p> <p>1.5. A domestic refrigerator is collected.</p> <p>1.6. The domestic refrigerator is checked visually.</p> <p>1.7. The refrigerator is cleaned by air blower.</p> <p>1.8. Servicing procedure is explained.</p>
2. Check the function of domestic refrigerator.	<p>2.1. Components of the refrigerator are checked.</p> <p>2.2. A clamp-on-ampere meter is set on the power line</p> <p>2.3. The switch of the refrigerator is turned on.</p> <p>2.4. Meter deflection is observed.</p> <p>2.5. Operation of the refrigerator is observed.</p> <p>2.6. The functions of the components of the refrigerator are checked and explained.</p> <p>2.7. Installation method of refrigerator is demonstrated.</p>
3. Clean and store the equipment.	<p>3.1. Equipment is cleaned and stored.</p> <p>3.2. Workplace is cleaned as per workplace standards.</p>
Range of Variables	
Variable	Range (May include but not limited to:)
1. PPE	<p>1.1. Apron.</p> <p>1.2. Hand gloves.</p> <p>1.3. Cleaning agents.</p> <p>1.4. Musk.</p> <p>1.5. Safety shoes.</p> <p>1.6. First aid box.</p>
2. Hand tools	<p>2.1. Combination pliers.</p> <p>2.2. Nose pliers.</p> <p>2.3. Crimping pliers.</p> <p>2.4. Cutting pliers.</p> <p>2.5. Knife.</p> <p>2.6. Screw driver (Flat and Philips head).</p> <p>2.7. Slide wrench.</p> <p>2.8. Socket wrench set.</p> <p>2.9. Neon tester.</p> <p>2.10. Hammer.</p> <p>2.11. Mallet.</p>
3. Domestic refrigerator.	<p>3.1. One door type refrigerator.</p> <p>3.2. Two door type refrigerator.</p> <p>3.3. One chamber type refrigerator.</p> <p>3.4. Two chambers type refrigerator.</p> <p>3.5. Frost type refrigerator.</p> <p>3.6. Defrost type of refrigerator.</p> <p>3.7. No frost type refrigerator.</p>
4. Components.	<p>4.1. Compressor.</p> <p>4.2. Capacitor.</p>

	<ul style="list-style-type: none"> 4.3. Overload protector. 4.4. Thermostat switch. 4.5. Timer. 4.6. Switch. 4.7. Blower fan. 4.8. Plug. 4.9. Electrical fuses / thermal fuses. 4.10. Cabinet lamp holder. 4.11. Cabinet lamp. 4.12. Door switch. 4.13. Defrost heater. 4.14. Drain heater. 4.15. Capillary tube. 4.16. Cable.
5. Function.	<ul style="list-style-type: none"> 5.1. Function of compressor. 5.2. Function of condenser. 5.3. Function of evaporator. 5.4. Function of dryer. 5.5. Function of thermostat. 5.6. Function of capacitor. 5.7. Function electrical fuse. 5.8. Function of capillary tube 5.9. Function of blower fan. 5.10. Function of overload protector
6. Equipment.	<ul style="list-style-type: none"> 6.1. Clam-on-Avo meter (Analog and digital) 6.2. Air blower. 6.3. Extension cord.
<p>Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent , 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. Checking procedure of components of domestic refrigerator. 1.2. Use of hand and power tools and equipment. 1.3. Function of components of domestic refrigerator.
2.Required underpinning knowledge.	<ul style="list-style-type: none"> 2.1. Function of components of domestic refrigerator. 2.2. Function and operation of electrical components of domestic refrigerator. 2.3. Checking procedure of domestic refrigerator.
3.Required underpinning skills.	<ul style="list-style-type: none"> 3.1. Wiring of domestic refrigerator. 3.2. Testing electrical components of domestic refrigerator. 3.3. Checking procedure of components of domestic refrigerator 3.3. Trouble shooting in domestic refrigerator.
4.Required underpinning Attitude.	<ul style="list-style-type: none"> 4.1. Commitment to occupational safety and health. 4.2. Communication with peers, sub-ordinates and seniors

	<p>in workplace.</p> <p>4.3. Promptness in carrying out activities.</p> <p>4.4. Tidiness and timeliness.</p> <p>4.5. Respect of peers, sub-ordinates and seniors in workplace.</p> <p>4.6. Environmental concern.</p> <p>4.7. Sincere and honest to duties.</p>
5.Resource implication.	<p>The following resources must be provided.</p> <p>5.1. Hand tools, power tools and equipment.</p> <p>5.2. Domestic refrigerator.</p> <p>5.4. First aid box with required materials.</p> <p>5.5. PPE.</p>
6. Method of assessment.	<p>Competencies must be assessed by:</p> <p>6.1. Oral questions</p> <p>6.2. Demonstration</p> <p>6.3. Written test.</p>
7. Context of assessment.	<p>Competencies may be assessed in the work place or in 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>	