TRAINING REGULATIONS

SHIPS' CATERING NC III (SHIPS' COOKS)

MARITIME SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

TABLE OF CONTENTS

SHIPS' CATERING NC III
(SHIPS' COOKS)

TRAINING REGULATIONS FOR
SHIPS' CATERING NC III (SHIPS' COOKS)

SECTION 1   SHIPS' CATERING (SHIPS' COOKS) NC III QUALIFICATION

The **SHIPS' CATERING NC III (SHIPS' COOKS)** Qualification consists of competencies that a person must achieve in managing all galley operations, including both the procurement of supplies and practical food production in compliance with the national and international requirements for the duration and nature of the voyage. It also includes competencies in serving proper quantities of quality nutritious food that fulfills cultural, religious and hygiene requirements including storing and handling food hygienically.

This Qualification is packaged in compliance with **Maritime Labour Convention (MLC) 2006 Standard A3.2 and Approved ILO Guidelines on The Training of Ships' Cooks.**

The Units of Competency comprising this Qualification include the following:

Code No.	BASIC COMPETENCIES
500311109	Lead workplace communication
500311110	Lead small teams
500311111	Develop and practice negotiation skills
500311112	Solve problems related to work activities
500311113	Use mathematical concepts and techniques
500311114	Use relevant technologies
Code No.	**COMMON COMPETENCIES**
MTM834208	Survive at sea in the event of ship abandonment
MTM834209	Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire
MTM834210	Fight and extinguish fires
MTM834211	Take immediate action upon encountering an accident or other medical emergency
MTM834212	Comply with emergency procedures
MTM834213	Take precautions to prevent pollution of the marine environment
MTM834214	Observe safe working practices
MTM834215	Demonstrate security awareness practices
Code No.	**CORE COMPETENCIES**
MTM512329	Prepare Nutritionally - and Health-Balanced Calendar Menu
MTM512330	Demonstrate Practical Cookery
MTM512331	Practice Food Safety, Sanitation and Hygiene
MTM512332	Observe Workplace Health and Safety Practices
MTM512333	Implement Waste Management and Disposal System
MTM512334	Supervise/Administer Galley Area

A person who has achieved this Qualification is competent to be:

- ❑ Ships' Cook

SECTION 2   COMPETENCY STANDARDS

This section gives the details of the contents of the units of competency required in **SHIPS' CATERING NC III (SHIPS' COOKS).**

BASIC COMPETENCIES

UNIT OF COMPETENCY : **LEAD WORKPLACE COMMUNICATION**

UNIT CODE   : **500311109**

UNIT DESCRIPTOR   : This unit covers the knowledge, skills and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Communicate information about workplace processes	1.1 Appropriate ***communication method*** is selected 1.2 Multiple operations involving several topics areas are communicated accordingly 1.3 Questions are used to gain extra information 1.4 Correct sources of information are identified 1.5 Information is selected and organized correctly 1.6 Verbal and written reporting is undertaken when required 1.7 Communication skills are maintained in all situations	1.1 Organization requirements for written and electronic communication methods 1.2 Effective verbal communication methods 1.3 Methods of Communication 1.4 Types of Question 1.5 Communication Tools 1.6 Questioning Techniques	1.1 Organizing information 1.2 Understanding and conveying intended meaning 1.3 Participating in variety of workplace discussions 1.4 Complying with organization requirements for the use of written and electronic communication methods 1.5 Reporting occupational hazards during safety meeting
2. Lead workplace discussions	2.1 Response to workplace issues are sought 2.2 Response to workplace issues are provided immediately	2.1 Leading as a management function 2.2 Barriers of communication 2.3 Effective verbal communication methods	2.1 Communicating effectively 2.2 Consulting the crew on the prepared menu for the month

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety 2.4 Goals/objectives and action plan undertaken in the workplace are communicated	2.4 Method/techniques of discussion 2.5 How to lead discussion 2.6 How to solicit response 2.7 Goal setting and action planning	
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication 3.3 Dialogue is initiated with appropriate personnel 3.4 Communication problems and issues are raised as they arise	3.1 Types of issues and problems in the workplace 3.2 Written and electronic communication methods 3.3 Communication barriers affecting workplace discussions	3.1 Identifying cause of problems 3.2 Communicating with the Master of the Ship on the possible shortage of the food supply due to change of ship's port 3.3 Identifying problems and issues 3.4 Organizing information on problems and issues 3.5 Relating problems and issues of call/ voyage

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	1.1. Non-verbal gestures 1.2. Verbal 1.3. Face to face 1.4. Two-way radio 1.5. Speaking to groups 1.6. Using telephone 1.7. Written 1.8. Internet

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Dealt with a range of communication/information at one time 1.2 Made constructive contributions in workplace issues 1.3 Sought workplace issues effectively 1.4 Responded to workplace issues promptly 1.5 Presented information clearly and effectively written form 1.6 Used appropriate sources of information 1.7 Asked appropriate questions 1.8 Provided accurate information
2. Resource Implications	**The following resources should be provided:** 2.1 Variety of Information 2.2 Communication tools 2.3 Simulated workplace
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context for Assessment	4.1 Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : LEAD SMALL TEAMS

UNIT CODE   **:   500311110**

UNIT DESCRIPTOR   **:**   This unit covers the knowledge, skills and attitudes to lead small teams including setting and maintaining team and individual performance standards.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Provide team leadership	1.1 **Work requirements** are identified and presented to team members 1.2 Reasons for instructions and requirements are communicated to team members 1.3 **Team members' queries and concerns** are recognized, discussed and dealt with	1.1 Company policies and procedures 1.2 How performance expectations are set 1.3 Methods of Monitoring Performance 1.4 Client expectations 1.5 Team member's duties and responsibilities 1.6 Definition of Team 1.7 Skills and techniques in promoting team building 1.8 Up-to-date dissemination of instructions and requirements to members 1.9 Art of listening and treating individual team members concern	1.1 Communication skills required for leading teams 1.2 Team building skills 1.3 Negotiating skills 1.4 Evaluation skills
2. Assign responsibilities	2.1 Duties, and responsibilities are allocated having regard to the skills, knowledge and aptitude required to properly undertake the assigned task	2.1 Concept of delegation 2.2 How to delegate 2.3 Understanding individual differences 2.4 Methods of monitoring performance	2.1 Delegating skills 2.2 Identifying individual skills, knowledge and attitude as basis for allocating responsibilities

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	and according to company policy 2.2 Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible	2.5 Duties and responsibilities of each team member 2.6 Knowledge in identifying each team member duties and responsibilities	2.3 Identifying each team member duties and responsibilities
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs and according to assignment requirements 3.2 Performance expectations are based on individual team members duties and area of responsibility 3.3 Performance expectations are discussed and disseminated to individual team members	3.1 Definition of performance indicators/ criteria 3.2 Definition of team goals and expectations 3.3 Methods of monitoring performance 3.4 Client expectations 3.5 Team members duties and responsibilities 3.6 Defining performance expectations criteria	3.1 Identifying performance indicators 3.2 Evaluating performance 3.3 Setting individual performance target/ expectation indicators
4. Supervise team performance	4.1 ***Monitoring of performance*** takes place against defined performance criteria and/or assignment instructions and corrective action taken if required 4.2 Team members are provided with ***feedback***, positive support and advice on strategies to overcome any	4.1 Understanding Monitoring of work 4.2 How to undertake corrective action 4.3 Understanding feedback and procedure 4.4 Feedback reporting procedure 4.5 Methods of monitoring performance	4.1 Monitoring skills 4.2 Setting priorities 4.3 Evaluating performance 4.4 Informal/ formal counseling skill

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	deficiencies 4.3 **Performance issues** which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy 4.4 Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction 4.5 Team operations are monitored to ensure that employer/client needs and requirements are met 4.6 Follow-up communication is provided on all issues affecting the team 4.7 All relevant documentation is completed in accordance with company procedures	4.6 Team member's duties and responsibilities 4.7 Monitoring team operation to ensure client needs and satisfaction	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	1.1. Client Profile 1.2. Assignment instructions
2. Team member's concerns	2.1. Roster/shift details
3. Monitor performance	3.1. Formal process 3.2. Informal process
4. Feedback	4.1. Formal process 4.2. Informal process
5. Performance issues	5.1. Work output 5.2. Work quality 5.3. Team participation 5.4. Compliance with workplace protocols 5.5. Safety 5.6. Customer service

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Maintained or improved individuals and/or team performance given a variety of possible scenario 1.2. Assessed and monitored team and individual performance against set criteria 1.3. Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4. Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed 1.5. Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members	
2. Resource Implications	**The following resources should be provided:** 2.1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2. Materials relevant to the proposed activity or task	
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Written Examination 3.2. Oral Questioning 3.3. Portfolio	
4. Context for Assessment	4.1. Competency assessment may occur in workplace or any appropriately simulated environment 4.2. Assessment shall be observed while task are being undertaken whether individually or in-group	

UNIT OF COMPETENCY : DEVELOP AND PRACTICE NEGOTIATION SKILLS

UNIT CODE : 500311111

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to collect information in order to negotiate to a desired outcome and participate in the negotiation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan negotiations	1.1 Information on **preparing for negotiation** is identified and included in the plan 1.2 Information on creating **non-verbal environments** for positive negotiating is identified and included in the plan 1.3 Information on **active listening** is identified and included in the plan 1.4 Information on different **questioning techniques** is identified and included in the plan 1.5 Information is checked to ensure it is correct and up-to- date	1.1 Knowledge on Codes of practice and guidelines for the organization 1.2 Knowledge of organizations policy and procedures for negotiations 1.3 Decision making and conflict resolution strategies procedures 1.4 Concept of negotiation	1.1 Communication skills (verbal and listening) 1.2 Active listening 1.3 Setting conflict 1.4 Preparing conflict resolution 1.5 Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation 1.6 Interpersonal skills to develop rapport with other parties
2 Participate in negotiations	2.1 Criteria for successful outcome are agreed upon by all parties 2.2 Desired outcome of all parties are considered 2.3 Appropriate language is used throughout the negotiation	2.1 Outcome of negotiation 2.2 Knowledge on Language 2.3 Different Questioning techniques 2.4 Problem solving strategies on how to deal with unexpected questions and	2.1 Negotiating skill 2.2 Communication skills (verbal and listening) 2.3 Observation skills 2.4 Interpersonal skills to develop rapport with other parties 2.5 Applying effective questioning techniques 2.6 Setting conflict

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.4 A variety of questioning techniques are used 2.5 The issues and processes are documented and agreed upon by all parties 2.6 Possible solutions are discussed and their viability assessed 2.7 Areas for agreement are confirmed and recorded 2.8 Follow-up action is agreed upon by all parties	attitudes during negotiation 2.5 Flexibility 2.6 Empathy 2.7 Decision making and conflict resolution strategies procedures 2.8 Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation	

RANGE OF VARIABLES

VARIABLE	RANGE

1. Preparing for negotiation	1.1 Background information on other parties to the negotiation
	1.2 Good understanding of topic to be negotiated
	1.3 Clear understanding of desired outcome/s
	1.4 Personal attributes
	    1.4.1 self awareness
	    1.4.2 self esteem
	    1.4.3 objectivity
	    1.4.4 empathy
	    1.4.5 respect for others
	1.5 Interpersonal skills
	    1.5.1 listening/reflecting
	    1.5.2 non verbal communication
	    1.5.3 assertiveness
	    1.5.4 behavior labeling
	    1.5.5 testing understanding
	    1.5.6 seeking information
	    1.5.7 self disclosing
	1.6 Analytic skills
	    1.6.1 observing differences between content and process
	    1.6.2 identifying bargaining information
	    1.6.3 applying strategies to manage process
	    1.6.4 applying steps in negotiating process
	    1.6.5 strategies to manage conflict
	    1.6.6 steps in negotiating process
	    1.6.7 options within organization and externally for resolving conflict

2. Non verbal environments	2.1 Friendly reception 2.2 Warm and welcoming room 2.3 Refreshments offered 2.4 Lead in conversation before negotiation begins
3. Active listening	3.1 Attentive 3.2 Don't interrupt 3.3 Good posture 3.4 Maintain eye contact 3.5 Reflective listening
4. Questioning techniques	4.1 Direct 4.2 Indirect 4.3 Open-ended

EVIDENCE GUIDE

1.	Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated sufficient knowledge of the factors influencing negotiation to achieve agreed outcome 1.2 Participated in negotiation with at least one person to achieve an agreed outcome
2.	Resource Implications	**The following resources should be provided:** 2.1 Room with facilities necessary for the negotiation process 2.2 Human resources (negotiators)
3.	Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4.	Context for Assessment	4.1 Competency to be assessed in real work environment or in a simulated workplace setting.

UNIT OF COMPETENCY **:** **SOLVE PROBLEMS RELATED TO WORK ACTIVITIES**

UNIT CODE **:** **500311112**

UNIT DESCRIPTOR **:** This unit of covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Explain the analytical techniques	1.1 All the analytical techniques are identified 1.2 Use of each technique is applied in real life situations	1.1 Problem identification techniques 1.2 Observation, investigation and analytical techniques 1.3 Cause and effect diagrams 1.4 PARETO analysis 1.5 SWOT analysis 1.6 GANT chart 1.7 PERT CPM and graph 1.8 SCATTERGRAMS	1.1 Conducting investigation and root cause analysis 1.2 Implementing corrective actions
2. Identify the problem	2.1 Variances are identified from normal operating parameters; and product quality 2.2 Extent, cause and nature of the problem are defined through observation, investigation and *analytical techniques* 2.3 *Problems* are clearly stated and specified	2.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations 2.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations ➢ Relevant equipment and operational processes	2.4 Using range of formal problem solving techniques 2.5 Identifying and clarifying the nature of the problem 2.6 Evaluating the effectiveness of a present process in the galley 2.7 Applying analytical techniques

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		➤ Enterprise goals, targets and measures ➤ Enterprise quality, OHS and environmental requirement ➤ Enterprise information systems and data collation ➤ Industry codes and 2.3 Normal operating parameters and product quality 2.4 Identifying and clarifying the nature of problem	
3. Determine fundamental causes of the problem	3.1 Possible causes are identified based on experience and the use of problem solving tools / analytical techniques. 3.2 Possible cause statements are developed based on findings 3.3 Fundamental causes are identified per results of investigation conducted	3.1 Relevant equipment and operational processes 3.2 Enterprise goals, targets and measures 3.3 Enterprise quality, OHS and environmental requirements 3.4 Enterprise information systems and data collation 3.5 Industry codes and standards	3.1 Analysis of root causes
4. Determine corrective action	4.1 All possible options are considered for resolution of the problem 4.2 Strengths and weaknesses of possible options are	4.1 Understanding the procedure in undertaking corrective action 4.2 Principles of decision making strategies and techniques	4.1 Identifying and clarifying the nature of the problem 4.2 Devising the best solution 4.3 Evaluating the solution

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	considered 4.3 Corrective actions are determined to resolve the problem and possible future causes 4.4 ***Action plans*** are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures	4.3 Enterprise information systems and data collation 4.4 Action planning	4.4 Implementing developed plan to rectify the problem 4.5 Implementing corrective and preventive actions based on root cause analysis
5. Provide recommendation/s to manager	5.1 Report on recommendations are prepared 5.2 Recommendations are presented to appropriate personnel. 5.3 Recommendations are followed-up, if required	5.1 How to make a report and recommendation	5.1 Writing report and recommendations

RANGE OF VARIABLES

VARIABLE	RANGE
1. Analytical techniques	1.1. Brainstorming 1.2. Intuitions/Logic 1.3. Cause and effect diagrams 1.4. Pareto analysis 1.5. SWOT analysis 1.6. Gant chart, Pert CPM and graphs 1.7. Scattergrams
2. Problem	2.1. Non – routine process and quality problems 2.2. Equipment selection, availability and failure 2.3. Teamwork and work allocation problem 2.4. Safety and emergency situations and incidents
3. Action plans	3.1. Priority requirements 3.2. Measurable objectives 3.3. Resource requirements 3.4. Timelines 3.5. Co-ordination and feedback requirements 3.6. Safety requirements 3.7. Risk assessment 3.8. Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Identified the problem 1.2. Determined the fundamental causes of the problem 1.3. Determined the correct / preventive action 1.4. Provided recommendation to manager These aspects may be best assessed using a range of scenarios / case studies / what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource Implications	2.1. Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Written Examination 3.2. Oral Questioning 3.3. Portfolio
4. Context for Assessment	4.1 In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY :   USE MATHEMATICAL CONCEPTS AND TECHIQUES

UNIT CODE   :   500311113

UNIT DESCRIPTOR   :   This unit covers the knowledge, skills and attitudes required in the application of mathematical concepts and techniques.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify mathematical tools and techniques to solve problem	1.1 Problem areas are identified based on given condition 1.2 **Mathematical techniques** are selected based on the given problem	1.1 Fundamental operation (addition, subtraction, division, multiplication) 1.2 Units of measurement and its conversion 1.3 Fundamental of units 1.4 Standard formulas 1.5 Basic measuring tools/devices 1.6 Measurement system 1.7 Basic measuring tools/devices 1.8 Steps in solving problem	1.1 Identifying and selecting different measuring tools 1.2 Applying different formulas in solving problems 1.3 Describing the units of measurement and fundamental units 1.4 Stating arithmetic calculations involving the following; addition, subtraction, division, multiplication 1.5 Stating arithmetic calculations involving the following: addition, subtraction, division, multiplication 1.6 Applying theory into actual application on shipboard catering processes
2. Apply mathematical procedure/ solution	2.1 Mathematical techniques are applied based on the problem	2.1 Problem-based questions 2.2 Estimation	2.1 Solving mathematical computations

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	identified 2.2 Mathematical computations are performed to the level of accuracy required for the problem 2.3 Results of mathematical computation is determined and verified based on job requirements	2.3 Use of mathematical tools and standard formulas 2.4 Mathematical techniques	2.2 Converting Metric to English 2.3 Selecting and using appropriate and efficient techniques and strategies to solve problems
3. Analyze results	3.1 Result of application is reviewed based on expected and required specifications and outcome 3.2 *Appropriate action* is applied in case of error	3.1 Techniques in analyzing the results 3.2 Process in reviewing the results 3.3 Precision and accuracy 3.4 Four fundamental operations 3.5 Steps in solving problem 3.6 Standard formulas 3.7 Conversion measurement	3.1 Analyzing the result based on the specified requirements 3.2 Interpreting and communicating the results of the analysis

RANGE OF VARIABLES

VARIABLE	RANGE
1. Mathematical techniques	May include: 1.1 Four fundamental operations 1.2 Measurements 1.3 Use/Conversion of units of measurements 1.4 Use of standard formulas
2. Appropriate action	May include: 2.1 Review in the use of mathematical techniques (e.g. recalculation, re-modeling) 2.2 Report error to immediate superior for proper action

EVIDENCE GUIDE

1.	Critical Aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified, applied and reviewed the use of mathematical concepts and techniques to workplace problems
2.	Resource Implications	**The following resources should be provided:** 2.1 Calculator 2.2 Basic measuring tools 2.3 Case Problems
3.	Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4.	Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY :   USE RELEVANT TECHNOLOGIES

UNIT CODE   :   500311114

UNIT DESCRIPTOR   :   This unit of competency covers the knowledge, skills, and attitude required in selecting, sourcing and applying appropriate and affordable technologies in the workplace

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Study/select appropriate technology	1.1 Usage of different ***technologies*** is determined based on job requirements 1.2 Appropriate technology is selected as per work specification	1.1 Awareness on technology and its function 1.2 Communication techniques 1.3 Health and safety procedure 1.4 Company policy in relation to relevant technology 1.5 Machineries/ equipment and their application 1.6 Software programs	1.1 Identifying relevant technology on job
2 Apply relevant technology	2.1 Relevant technology is effectively used in carrying out function 2.2 Applicable software and hardware are used as per task requirement 2.3 ***Management concepts*** are observed and practiced as per established industry practices	2.1 Knowledge on operating instructions 2.2 Understanding software and hardware system 2.3 Communication techniques 2.4 Health and safety procedure 2.5 Company policy in relation to relevant technology 2.6 Different management concepts 2.7 Technology adaptability 2.8 Office technology	2.1 Applying relevant technology 2.2 Communicating skills 2.3 Using software applications skills 2.4 Conducting risk assessment

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.9 Industrial technology 2.10 System technology 2.11 Training technology 2.12 Different software/ hardware 2.13 5S (Proper housekeeping)	
3 Maintain/ enhance relevant technology	3.1 Maintenance of technology is applied in accordance with the *industry standard operating procedure*, *manufacturer's operating guidelines* and *occupational health and safety procedure* to ensure its operative ability 3.2 Updating of technology is maintained through continuing education or training in accordance with job requirement 3.3 Technology failure/ defect is immediately reported to the concern/responsible person or section for *appropriate action*	3.1 Awareness on technology and its function 3.2 Repair and maintenance procedure 3.3 Health and safety procedure 3.4 Company policy in relation to relevant technology 3.5 Upgrading of technology 3.6 Organizational set-up/work flow	3.1 Performing basic troubleshooting skills 3.2 Identifying failures or defects 3.3 Communication skills 3.4 Applying corrective and preventive maintenance

RANGE OF VARIABLES

VARIABLE	RANGE
1. Technology	May include: 1.1 Office technology 1.2 Industrial technology 1.3 System technology 1.4 Information technology 1.5 Training technology
2. Management concepts	May include: 2.1 Real Time Management 2.2 KAIZEN or continuous improvement 2.3 5s 2.4 Total Quality Management 2.5 Other management/productivity tools
3. Industry standard operating procedure	3.1 Written guidelines relative to the usage of office technology/equipment 3.2 Verbal advise/instruction from the co-worker
4. Manufacturer's operating guidelines/ instructions	4.1 Written instruction/manuals of specific technology/ equipment 4.2 General instruction manual 4.3 Verbal advise from manufacturer relative to the operation of equipment
5. Occupational health and safety procedure	5.1 Relevant statutes on OHS 5.2 Company guidelines in using technology/equipment
6. Appropriate action	6.1 Implementing preventive maintenance schedule 6.2 Coordinating with manufacturer's technician

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Studied and selected appropriate technology consistent with work requirements 1.2 Applied relevant technology 1.3 Maintained and enhanced operative ability of relevant technology
2. Resource Implications	**The following resources should be provided:** 2.1 Relevant technology 2.2 Interview and demonstration questionnaires 2.3 Assessment packages
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or simulated environment

COMMON COMPETENCIES

UNIT OF COMPETENCY **:** **SURVIVE AT SEA IN THE EVENT OF SHIP ABANDONMENT**

UNIT CODE **:** **MTM834208**

UNIT DESCRIPTOR **:** This unit covers the knowledge, skills and attitudes in surviving at sea in the event of ship abandonment.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Respond to the indicated emergency	1.1 Muster signal is identified and appropriate action to respond to the *identified emergency* is taken based on established procedures. 1.2 Timing and sequence of individual actions are practiced based on prevailing circumstances and conditions and potential *dangers and threats to survival* are minimized. 1.3 *Life-saving appliances* are used in accordance with standards operating procedures. 1.4 Recommended swimming techniques are practiced with or without wearing a lifejacket.	1.1 Types of emergency situations and actions to be taken when- ➢ Called to survival craft stations ➢ Required to abandon ship in the water ➢ Aboard a survival craft ➢ A person falls overboard (man overboard) 1.2 Types, uses and location of life-saving appliances 1.3 Value of training and drills 1.4 Types and uses of personal protective clothing and equipment	1.1 Donning lifejacket 1.2 Donning and using an immersion suit 1.3 Jumping from a height into the water 1.4 Righting an inverted life raft while wearing a lifejacket 1.5 Keeping afloat without a lifejacket

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Board a survival craft	2.1 **Survival craft** is boarded and dangers to other survivors are avoided based on recommended method. 2.2 Initial actions after leaving the ship are taken to minimize threats to survival. 2.3 Survival craft equipment and location devices, including radio equipment, are operated based on established procedures and manufacturer's instruction.	2.1 Survival craft equipment and how to operate them	2.1 Taking initial action on boarding survival craft 2.2 Streaming a drogue or sea-anchor 2.3 Operating survival craft equipment 2.4 Operating location devices including radio equipment

RANGE OF VARIABLES

VARIABLE	RANGE
1. Identified emergency	May include: 1.1 Collision 1.2 Fire 1.3 Foundering 1.4 Person falling overboard (man overboard)
2. Dangers and threats to survival	May include: 2.1 Cold water shock 2.2 Hypothermia 2.3 Psychological response to disaster 2.4 Loss of will to live 2.5 Sea sickness 2.6 Dehydration 2.7 Injuries 2.8 Starvation
3. Life-saving appliances	May include: 3.1 Life jackets 3.2 Life buoys 3.3 Hard hats 3.4 Immersion suits and other thermal protective aid 3.5 Rocket line throwing appliances 3.6 Pyrotechnic distress signals 3.7 GMDSS survival craft VHF radios 3.8 Satellite emergency position indicating radio beacons EPIRBs 3.9 SARTs 3.10 Whistles
4. Survival Craft	May include: 4.1 Free fall life boats 4.2 Davit launched life boats 4.3 Life rafts

EVIDENCE GUIDE

1	Critical Aspects of Competency	**Assessment requires evidence that the candidate :** 1.1 Responded to indicated emergency 1.2 Boarded survival craft
2	Resource Implications	**The following resources should be provided:** 2.1 Work place with recommended facilities 2.2 Tools and equipment appropriate to the activity 2.3 Materials relevant to the proposed activity and tasks
3	Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written examination 3.2 Oral Questioning 3.3 Portfolio
4	Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting

UNIT OF COMPETENCY : MINIMIZE THE RISK OF FIRE AND MAINTAIN A STATE OF READINESS TO RESPOND TO EMERGENCY SITUATIONS INVOLVING FIRE

UNIT CODE : MTM 834209

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in performing fire-prevention and firefighting activities

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the *Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Carry out fire minimization procedures	1.1 Fire hazards on board vessel are identified and action is taken to eliminate or minimize them. 1.2 Responsibilities for checking fire prevention equipment and systems are fulfilled and appropriate action is taken to ensure that they are operational. 1.3 An awareness and understanding of **fire hazards and their minimization** is maintained through participation in fire drills and related instructional programs. 1.4 A state of readiness to respond to **fire emergencies** is maintained at all times.	1.1 Relevant maritime regulations concerning minimization of the risk of fire on board vessel 1.2 The chemistry of fire and its relationship to materials typically carried on vessels 1.3 Flammable materials and fire hazards 1.4 Factors that influence the spread of fire 1.5 The importance of constant vigilance in fire prevention and minimization 1.6 A basic understanding of the types of fire-detection, fire-fighting equipment and systems used on board vessels, their features, principles of operation and the procedures for their use and maintenance	1.1 Implementing fire prevention and minimization measures and procedures 1.2 Assessing the operational capability of fire-detection equipment and systems and taking any required maintenance or replenishment action

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.7 Relevant regulations and policies related to the maintenance of fire equipment and systems 1.8 Maritime communication techniques applicable to fire prevention and fire-minimization activities on board vessel 1.9 Sources of information on shipboard fire prevention and minimization	
2. Respond to emergencies involving fire	2.1 Emergency situations involving fire are correctly identified in accordance with established nautical practice. 2.2 *Type of fire* is identified in accordance with the established classification system for fires. 2.3 Initial action on becoming aware of fire emergency is in conformity with established practices and procedures. 2.4 Action taken is timely and appropriate for seriousness of the fire emergency.	2.1 Principles underlying the spread of fire and its extinguishment, including the elements of fire and explosion (the fire triangle) 2.2 Types and sources of ignition 2.3 The different classes of fire, their characteristics and strategies and equipment needed for their extinguishment 2.4 Precautions and procedures that must be followed when responding to electrical fires	2.2 Identifying and evaluating fire hazards and taking appropriate courses of action 2.3 Responding to simulated and real emergency situations involving fire

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the *Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 Action taken on identifying muster signals for a fire emergency is appropriate and complies with established procedures. 2.6 Appropriate precautions and procedures are implemented when responding to electrical fires. 2.7 Appropriate precautions and procedures are implemented when responding to uptake and hydrogen fires. 2.8 Communications are clear and concise at all times and orders are acknowledged in a timely and seamanlike manner.	2.5 Precautions and procedures that must be followed when responding to uptake and hydrogen fires 2.6 Problems that can occur with shipboard fire-detection and fire hazards on board a vessel and appropriate action that should be taken	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Fire hazards and their minimization	Fire hazard minimization procedures may include: 1.1. Housekeeping in work areas 1.2. Following of fire safety procedures 1.3. Checking and maintaining shipboard fire prevention systems 1.4. Identification and elimination or minimization of fire hazards 1.5. Precautions when using and storing flammable materials 1.6. Precautions that need to be taken when responding to an electrical fire 1.7. Precautions that need to be taken when responding to uptake and hydrogen fires 1.8. Precautions when using naked flames or welding equipment
2. Fire emergencies	Fire emergencies on board vessel may occur: 2.1. By day or night in both normal and emergency situations 2.2. Under any possible conditions of weather and loading 2.3. While underway 2.4. During berthing and un-berthing operations 2.5. While anchoring or mooring 2.6. While in port 2.7. While moored or at anchor
3. Type of fire	Standard types of fires may include: 3.1 Class A 3.2 Class B 3.3 Class C 3.4 Class F

EVIDENCE GUIDE

1. Critical Aspects of Competency	**Assessment requires evidence that the candidate :** 1.1. Implemented fire prevention and minimization measures and procedures on board vessel 1.2. Recognized fire hazards onboard vessel and take appropriate action to eliminate or minimize them 1.3. Assessed the operational capability of fire-detection and fire- fighting equipment and systems and initiate any required maintenance or replenishment action 1.4. Responded to emergency situations involving fire 1.5. Implemented OHS principles and policies when carrying out fire prevention and fire–fighting duties 1.6. Communicate effectively with others as required during fire prevention activities and fire emergencies
2. Resource Implications	**The following resources should be provided:** 2.1. Work place with recommended facilities 2.2. Tools and equipment appropriate to the activity 2.3. Materials relevant to the proposed activity and tasks
3. Methods of Assessment	**Competency in this unit must be assessed through:** 3.1. Written examination 3.2. Oral Questioning 3.3. Portfolio
4. Context of Assessment	4.1. Competency may be assessed in workplace or in simulated workplace setting

UNIT OF COMPETENCY **:** **FIGHT AND EXTINGUISH FIRES**

UNIT CODE **:** **MTM834210**

UNIT DESCRIPTOR **:** This unit covers the knowledge, skills and attitudes in fighting and extinguishing fires

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Operate portable fire-fighting equipment	1.1 **Type of fires** is correctly identified in accordance with accepted fire-fighting practice. 1.2 Correct portable **fire-fighting equipment** is selected and used to fight specific classes of fires. 1.3 Class F fires are correctly extinguished with a fire blanket in accordance with accepted fire-fighting practice. 1.4 Correct techniques are applied for the use of hose lines to extinguish **fires on board a vessel**. 1.5 Where applicable, correct techniques are applied for the setting up of foam making equipment to extinguish B Class fires on board a vessel.	1.1 Knowledge of relevant maritime regulations 1.2 The chemistry of fire and its relationship to materials typically carried on vessels 1.3 Principles underlying the spread of fire and how it is extinguished 1.4 The different types of fire, their characteristics and strategies and equipment needed to extinguish them 1.5 Principles and procedures for the use of self-contained breathing apparatus (SCBA) when fighting fires 1.6 Fire-fighting clothing, outfits and personal safety equipment used when fighting a fire onboard a vessel 1.7 Types fire-fighting appliances, equipment and systems used on board vessels, their features, principles of operation and the procedures for their use and maintenance	1.1 Applying fire prevention measures and procedures 1.2 Determining the operational capability of fire-fighting appliances, equipment and systems

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the *Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Carry out fire-fighting operations	2.1 Fire is extinguished using appropriate procedures, techniques, equipment and fire-fighting agents. 2.2 Correct portable fire-extinguisher(s) are selected and used for the class of fire involved in a fire emergency. 2.3 Appropriate *safety clothing, appliances and equipment* is used and safety precautions and procedures are applied when fighting fires in accordance with regulatory requirements, vessel's procedures and established fire-fighting practice. 2.4 The timing and sequence of individual actions when fighting fires onboard a vessel are appropriate to the prevailing circumstances and conditions. 2.5 Search and rescue operations in a smoke filled environment are correctly conducted as a member of a fire-fighting team in accordance with accepted fire-	2.1 Fixed fire prevention and extinguishing installations used on vessels and their principles of operation 2.2 Fire-fighting techniques, agents and precautions applicable to different types of fire on board a vessel 2.3 Maritime communication techniques applicable to fire-fighting activities onboard a vessel 2.4 Typical problems that can occur with shipboard fire-fighting equipment and operations and appropriate remedial action and solutions 2.5 Sources of information on shipboard fire prevention and extinguishment	2.1 Demonstrating fire fighting techniques 2.2 Demonstrating maritime communication techniques 2.3 Identifying fire fighting problems and determining appropriate courses of action 2.4 Participating in interior search and rescue and fire-fighting team on board a vessel

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the *Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	fighting practice. 2.6 Interior fires are extinguished using appropriate fire-fighting equipment and procedures as a member of a fire-fighting team in accordance with accepted fire-fighting practice. 2.7 Lifeline signals are correctly used during interior fire-fighting operations		

RANGE OF VARIABLES

VARIABLE	*RANGE*
1. Type of fire	Standard types of fires may include: 1.1 Class A 1.2 Class B 1.3 Class C 1.4 Class F
2. Fire-fighting equipment	Fire-fighting equipment, appliances and systems may include: 2.1 Portable fire extinguishers including foam, water, CO_2, dry chemical and wet foam 2.2 Fire blankets 2.3 CO_2 fixed systems 2.4 Foam installations including semi-portable and fixed systems 2.5 Sprinkler systems 2.6 Fire pumps (main and emergency fire pump) 2.7 Fire hoses, hydrants, branches and international shore connection
3. Fire on board a vessel	Fire emergencies on board vessel may occur: 3.1 By day or night in both normal and emergency situations 3.2 Under any possible conditions of weather and loading 3.3 While underway 3.4 During berthing and un-berthing operations 3.5 While anchoring or mooring 3.6 While in port 3.7 While moored or at anchor
4. Safety clothing, appliances and equipment	Safety clothing and equipment may include: 4.1 Fire-resistant clothing 4.2 Self-contained breathing apparatus (SCBA) 4.3 Masks 4.4 Eye and ear protection 4.5 Gloves 4.6 Boots

EVIDENCE GUIDE

1. Critical Aspects of Competency	**Assessment requires evidence that the candidate :** 1.1 Participated in simulated on-boar d fire-fighting activities 1.2 Participated in search and rescue and fire-fighting teams 1.3 Applied OHS principles and policies when carrying out fire-fighting duties 1.4 Communicated effectively with others as required during fire emergencies
2. Resource Implications	**The following resources should be provided:** 2.1 work place with recommended facilities 2.2 tools and equipment appropriate to the activity 2.3 materials relevant to the proposed activity and tasks
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting

UNIT OF COMPETENCY   :   **TAKE IMMEDIATE ACTION UPON ENCOUNTERING AN ACCIDENT OR OTHER MEDICAL EMERGENCY**

UNIT CODE   :   **MTM 834211**

UNIT DESCRIPTOR   :   This unit covers the knowledge, skills and attitudes in taking immediate action upon encountering an accident or other medical emergency.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Determine the need of casualty	1.1 **Patient** condition is determined in accordance with established first aid procedures and the nature of injury or illness is established. 1.2 Probable cause, nature and extent of **injuries** are identified and appropriate action is taken to prevent further harm to the victim and to self. 1.3 The position of the patient is adjusted to optimize personal comfort for the medical condition or injury concerned. 1.4 Where there are doubts over the seriousness of the injury or illness and how to treat the patient, assistance is sought from senior officers or shore-based medical advisers.	1.1 Relevant sections of maritime regulations 1.2 Emergencies, injuries and medical problems that may occur on board a vessel and appropriate action, treatments and solutions 1.3 Relevant OH&S and health legislation and policies 1.4 Duties and responsibilities of the designated first aid officer on board a vessel 1.5 Ways in which disease can spread on board a vessel and ways of preventing the spread 1.6 Knowledge of body structures and functions relevant to possible injury, illnesses and disease that may be encountered on board a vessel 1.7 Maritime communication techniques related to health care and receiving radio medical advice from shore-based advisers	1.1 Providing first-aid on board a vessel 1.2 Identifying problems and emergencies and taking appropriate courses of action

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Administer first-aid to the victim	2.1 Appropriate first aid procedures are used to treat the identified injury or illness in accordance with the first-aider's limits of responsibility. 2.2 Aseptic techniques are applied during any wound dressing. 2.3 Hygiene measures are used that are appropriate for the degree of illness or injury. 2.4 Cardio-pulmonary resuscitation techniques are correctly applied where required. 2.5 Condition of the patient is regularly monitored both visually and through appropriate measures of bodily signs. 2.6 Health precautions and disease prevention measures are implemented in accordance with regulatory requirements and company procedures. 2.7 Appropriate action is taken if there are signs of a deterioration in the condition of the patient. 2.8 Where necessary, assistance is provided in the preparation and transporting of the victim.	2.1 First aid procedures 2.2 Shipboard procedures for: ➢ Conducting an initial patient first aid assessment ➢ Managing injuries ➢ Managing medical emergencies ➢ Carrying out resuscitation techniques 2.3 Techniques for care of wounds 2.4 Ways in which disease can spread on board a vessel and ways of preventing the spread 2.5 Legal issues related to the administration of drugs and medicines on board a vessel 2.6 Marine publications containing information on first aid and medical treatment on board a vessel	2.1 Administering first – aid to victims 2.2 Applying aseptic and other precautionary techniques when carrying out first-aid procedures on board a vessel 2.3 Demonstrating technique for care of wounds

RANGE OF VARIABLES

VARIABLE	RANGE
1. Patient	May include patient having: 1.1 Heart attack 1.2 Stroke 1.3 Asthma attack 1.4 Diabetes 1.5 Epilepsy seizures
2. Injuries	Injuries on board a vessel may include: 2.1 External bleeding 2.2 An amputation 2.3 A foreign body in the eye 2.4 A penetrating chest wound 2.5 A nose bleed 2.6 Internal bleeding 2.7 Fractures, sprains, strains and dislocations 2.8 Electric shock 2.9 Asphyxia

EVIDENCE GUIDE

1.	Critical Aspects of Competency	**Assessment requires evidence that the candidate :** 1.1. Identified and prioritized the need for medical first aid in life-threatening medical emergencies 1.2. Administered first aid on board a vessel 1.3. Communicated effectively with others during medical emergencies and health care
2.	Resource Implications	**The following resources should be provided:** 2.1 Work place with recommended facilities 2.2 Tools and equipment appropriate to the activity 2.3 Materials relevant to the proposed activity and tasks
3.	Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written examination 3.2 Oral Questioning 3.3 Portfolio
4.	Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting

UNIT OF COMPETENCY : COMPLY WITH EMERGENCY PROCEDURES

UNIT CODE : MTM834212

UNIT DESCRIPTOR : This unit deals with the knowledge and skills required to take appropriate initial action on becoming aware of an emergency on board a commercial vessel in conformance with the established emergency response procedures.

ELEMENT	PERFORMANCE CRITERIA _Italicized terms are elaborated in the Range of Variables_	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Take action on becoming aware of an emergency	1.1 **Emergency situations** are recognized and identified. 1.2 Responses to an emergency situation followed the established vessel's emergency response procedures. 1.3 Correct actions are taken on discovery of an actual or **potential emergencies/ emergency situation** in accordance with established vessel's emergency response procedures. 1.4 Information given on raising alarm is prompt, accurate, complete and clear.	1.1 Types of emergencies 1.2 Shipboard contingency plans 1.3 Knowledge of relevant maritime regulations 1.4 Relevant OH&S legislation and policies 1.5 Navigational emergencies for vessels and appropriate action and solutions 1.6 Indications of various types of emergency situations and the action to be followed when various types of actual or potential emergency situations are identified	1.1 Applying navigational emergencies for vessels and appropriate action and solutions 1.2 Applying appropriate action in various types of actual or potential emergency situations 1.3 Using emergency alarm signals and systems 1.4 Using various shipboard items to be used for damage control purposes such as mattresses, canvas and clothing 1.5 Using personal safety equipment
2. Follow established emergency procedures	2.1 Vessel's contingency plans for emergency response are known and are implemented in real and simulated emergency situations.	2.1 Emergency alarm signals and systems in use on vessels and procedures to be followed when an emergency alarm is raised	2.1 Explaining vessels contingency plans in an emergency situation

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Escape routes and internal and external communications and alarm systems are used in real and simulated emergency situations in accordance with **regulatory requirements** and established procedures. 2.3 Emergency communications and alarm signals and systems are understood and required action implemented in accordance with emergency procedures and regulatory requirements. 2.4 Planned damage control procedures for dealing with damage to the vessel and its hull are implemented in accordance with company procedures and regulatory requirements.	2.2 Escape routes and internal and external communications systems and alarms on board a vessel 2.3 General principles of damage control and the manner in which watertight integrity of hull is maintained on a vessel, including the importance of preparation, control and repair 2.4 Ways of controlling damage during a flooding emergency, including the use of various shipboard items that can be used for damage control purposes such as mattresses, canvas and clothing 2.5 Maritime communication techniques used during navigational emergencies of actual or potential emergency situations are identified 2.6 Emergency alarm signals and systems in use on vessels and procedures to be followed when an emergency alarm is raised	2.2 Communicating alarm procedures

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Follow procedures for the use of various life-saving equipment	*3.1* Participation in life saving drills confirms readiness to correctly carry out life-saving procedures and use *life-saving equipment*. 3.2 Procedures for the use of various shipboard life-saving appliances are followed in accordance with regulatory requirements, manufacturer's instructions and company procedures	3.1 Life-saving equipment and their uses 3.2 Life-saving procedures	3.1 Demonstrating life saving procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Emergency situations	May include: 1.1 Collision with another vessel 1.2 Explosion on board vessel 1.3 Fire on board vessel 1.4 Impairment of integrity of hull and ingress of water 1.5 Loss of steering control 1.6 Lost of motive power 1.7 Foundering 1.8 Grounding 1.9 Beaching a Vessel 1.10 Person overboard 1.11 Rescue and evacuation of injured personnel
2. Potential emergencies	May occur: 2.1 By day or night 2.2. Under any possible conditions of weather and loading 2.3 While underway 2.4 During berthing and unberthing operations 2.5 While anchoring or mooring 2.6 When bunkering 2.7 During cargo handling operations
3. Regulatory requirements	May include: 3.1 SOLAS convention 3.2 IMO STCW Codes and Convention 3.3 Relevant domestic and international OH&S legislation
4. Life-saving equipment	May include: 4.1 Life jackets 4.2 Exposure and immersion suits 4.3 Survival craft

EVIDENCE GUIDE

1. Critical Aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Undertook appropriate action in the event of emergency situations 1.2 Followed established procedures and regulatory requirements during emergency responses' procedures 1.3 Followed procedures for the use of various life-saving equipment 1.4 Participated in drills in preparation for the implementation of emergency responses 1.5 Communicated effectively with others during emergency responses' procedures
2. Resource Implications	**The following resources should be provided:** 2.1 Simulated workplace environment 2.2 Workplace standards, procedures, policies, guidelines 2.3 Tools and equipment relevant to work activities
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting

UNIT OF COMPETENCY : **TAKE PRECAUTIONS TO PREVENT POLLUTION OF THE MARINE ENVIRONMENT**

UNIT CODE : **MTM834213**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in taking precautions towards protection of the marine environment.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Practice compliance with legislative requirements for protection of the marine environment	1.1. Relevant regulations and procedures for the ***protection of the marine environment*** are identified. 1.2. Appropriate action is taken in day-to-day work to ensure compliance with relevant regulations and procedures for the protection of the marine environment as required. 1.3. Appropriate action is taken where incidences of non-compliance or potential non-compliance are identified in accordance with regulations and procedures. 1.4. Any breach of regulations and procedures concerning protection of the marine environment is rectified and/or reported as required within the limits of the crew's/ officer's responsibility.	1.1 Relevant legislation, codes of practice, policies and procedures to protect the marine environment 1.2 Impact of shipping on the marine environment and the effects of operational or accidental pollution on it 1.3 Basic environmental protection procedures	1.1 Completing activities aimed at compliance with relevant regulatory requirements for protection of the marine environment 1.2 Identifying and evaluating problems related to compliance with relevant regulations for environmental protection and determining an appropriate courses of action

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2 Practice anti-pollution procedures	2.1. **Anti-pollution procedures** applicable to vessel operations are followed in the course of day-to-day work. 2.2. Appropriate **preventive measures** are undertaken to prevent pollution of the marine environment in accordance with regulations and procedures. 2.3. Inputs are provided in the preparation of reports and other documentation related to the protection of marine environment in accordance with **regulations** and procedures.	2.1 Pollution control problems and related measures to protect the marine environment 2.2 Complexity and diversity of the marine environment 2.3 Requirements under local and/or international legislation and conventions for reporting incidents related to breaches of the statutory codes and measures for the protection of the marine environment	2.1 Following anti-pollution procedures

RANGE OF VARIABLES

VARIABLE	*RANGE*
1. Protection of the marine environment	Protection of the marine environment may be observed: 1.1. By day or night in both normal and emergency situations 1.2. Under any possible conditions of sea and weather 1.3. While underway 1.4. During berthing and unberthing operations 1.5. While anchoring or mooring 1.6. While moored or at anchor 1.7. During loading and unloading operations 1.8. During maintenance operations
2. Anti-pollution procedures	Anti-pollution procedures include checking of items and equipment such as: 2.1. Pumps 2.2. Valves 2.3. Emission control equipment 2.4. Water management equipment including: cooling water, ballast water and bilge systems 2.5. Waste storage and recycling equipment 2.6. Ballast management equipment
3. Preventive measures	Preventative measures to protect the marine environment may include: 3.1. Prevention of spillages of cargo 3.2. Prevention of spillages of fuel and oil 3.3. Control of polluting emissions of gas and smoke 3.4. Effective management of waste, pollution and recycling processes 3.5. Effective management of ballast operations 3.6. Shipboard housekeeping 3.7. Pollution control instructions
4. Regulations	Applicable regulations includes: 4.1. MARPOL Convention 4.2. IMO STCW Code and Convention related to the protection of marine environment 4.3. Relevant international and/or local legislation related to the protection of the marine environment

EVIDENCE GUIDE

1. Critical Aspects of Competency	**Assessment requires evidence that the candidate :** 1.1. Practiced compliance with legislative requirements for protection of the marine environment 1.2. Practiced preventative and remedial anti-pollution procedures as per relevant regulations and procedures 1.3. Identified typical pollution control problems and take appropriate action 1.4. Communicated effectively with others concerning measures to protect the marine environment
2. Resource Implications	**The following resources should be provided:** 2.1 Work place with recommended facilities 2.2 Tools and equipment appropriate to the activity 2.3 Materials relevant to the proposed activity and tasks
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting

UNIT OF COMPETENCY **:** **OBSERVE SAFE WORKING PRACTICES**

UNIT CODE **:** **MTM834214**

UNIT DESCRIPTOR **:** This unit deals with the knowledge and skills required to observe established maritime safe working practices.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify and follow workplace procedures for hazard identification and risk control	1.1 Safety regulations and established vessel's safety and hazard control practices and procedures are obtained, interpreted and applied to day-to-day work activities. 1.2 Workplace procedures for Occupational Health and Safety and related work instructions for controlling risks onboard a vessel are followed. 1.3 Workplace procedures for dealing with shipboard accidents, fire and **emergencies** are known and followed. 1.4 **Hazards in the workplace** are identified and appropriate action is taken to report them and to minimize or eliminate risk to personnel, vessel and the environment. 1.5 Where relevant, procedures and precautions necessary for entry into a pump room, fuel tanks or other confined spaces on a vessel are followed. 1.6 Personal protection clothing and equipment is used in accordance with	1.1 Knowledge of relevant maritime and OHS regulations 1.2 ISM Code Safety Management System procedures (where applicable) 1.3 The provisions of OHS Acts, regulations and codes of practice relevant to the workplace, including the rights and responsibilities of the workplace parties under OHS Acts, regulations and codes of practice; 1.4 The ways in which OHS is managed in the workplace, and activities required under OHS legislation, for example: ➤ Policies ➤ Procedures ➤ Plant and equipment maintenance ➤ Hazard identification ➤ Risk assessment and control ➤ OHS instruction ➤ Training and provision of OHS	1.1 Applying OHS in the workplace, and activities required under OHS legislation, 1.2 Communicating skills

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	established shipboard safety practices and procedures. 1.7 Appropriate assistance is provided in the event of a shipboard emergency to secure the vessel and its machinery and equipment and to maintain the safety of the vessel and persons involved. 1.8 Established emergency and contingency plans are followed in the event of a shipboard emergency.	information 1.5 Hazards that exist in the workplace 1.6 The preferred order of ways to control risks (known as the hierarchy of control); 1.7 Designated personnel responsible for OHS onboard a vessel	
2. Contribute to arrangements for the management of occupational health and safety	2.1 Occupational Health and Safety issues and identified safety hazards are raised with designated personnel in accordance with workplace procedures and relevant occupational health and safety legislation. 2.2 Contributions to occupational health and safety management in the workplace are made within workplace procedures and provisions of relevant legislation. Occupational health and safety issues are raised with designated personnel in accordance with workplace procedures and relevant occupational health and safety legislation.	2.1 Workplace OHS procedures relevant to the work being undertaken, including procedures for: ➢ Recognizing and reporting on hazards, for example, work area inspections ➢ Work operations to control risks, for example, permit to work systems and isolation procedures ➢ Responding to accidents, fires and emergencies ➢ Issues ➢ Employee participation in OHS management, for example, consultative or OHS committees and	2.1 Applying order of ways to control risks (known as the hierarchy of control) 2.2 Designating personnel responsible for OHS onboard a vessel

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables		REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.3	Contribute to *participative arrangements* for occupational health and safety management in the workplace within vessel's procedures and scope of responsibilities and competencies.	➢ Joint employer/ employee inspections 2.2 The meaning of OHS symbols found on signs and labels in the workplace	
3 Take necessary actions to control fatigue	3.1 3.2 3.3 3.4	Fatigue symptoms are recognized and identified. Corrective actions are taken on discovery of fatigue in accordance with established company procedures. Fatigue management practices are observed at all times. Reports related to incidence of fatigue are communicated to appropriate authority in accordance with established company procedures.	3.1 Effects of sleep, schedules, and the circadian rhythm on fatigue 3.2 Effects of physical stressors on seafarers 3.3 Effects of environmental stressors in and outside the ship and their impact 3.4 Effects of schedule changes on seafarer fatigue	
4 Complete occupational health and safety records	4.1 4.2	Occupational health and safety records for self are completed in accordance with workplace requirements. Legal requirements for the maintenance of records of occupational injury and diseases are followed.	4.1 Records keeping and writing procedures 4.2 Legal policy on health records	4.1 Communication skills 4.2 Writing health reports 4.3 Maintaining legality of health records

RANGE OF VARIABLES

VARIABLE	RANGE
1. Emergencies	May include: 1.1 Loss of propulsion 1.2 Loss of electrical power 1.3 Loss of steerage 1.4 Flooding of vessel 1.5 Fire or explosion 1.6 Loss of refrigeration 1.7 Loss of water making ability 1.8 Fuel oil, lubrication oil, steam and gas leaks 1.9 Overheating and over speed of machinery, governors, emergency trips
2. Hazards in the workplace	May include: 2.1 Moving heavy loads in an unsafe work environment 2.2 Unsecure machinery, components or repair equipment 2.3 Slippery deck 2.4 Welding equipment 2.5 Sharp tools and implements 2.6 Power tools 2.7 Moving and rotating machinery 2.8 Flammable liquids, vapors and fuel 2.9 Using equipment beyond safe working limits 2.10 Poor housekeeping procedures 2.11 Electrical wiring and systems 2.12 Hot pipes and valves (steam, fuel oil, lubricating oil) 2.13 Cold pipes and valves (refrigeration and liquefied gas cargoes) 2.14 Working at heights 2.15 Exposed electrical circuits 2.16 Toxic gases and substances 2.17 Chemicals and other harmful substances 2.18 Damaged cargo and containers
3. Participative arrangements	May include: 3.1 Formal and informal meetings which include occupational health and safety 3.2 Occupational health and safety committees 3.3 Other committees, for example, consultative, planning and purchasing 3.4 Health and safety representatives 3.5 Suggestions, requests, reports and concerns put forward by vessel's crew to senior officers

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidences that the candidate: 1.1 Identified and followed workplace procedures for hazard identification and risk control 1.2 Contributed to arrangements for the management of OHS onboard a vessel 1.3 Understood and performed necessary actions to control fatigue 1.4 Completed OHS records as required 1.5 Communicated effectively with others on workplace safety matters
2. Resource Implications	**The following resources should be provided:** 2.1 Simulated workplace environment 2.2 Workplace standards, procedures, policies, guidelines 2.3 Tools and equipment relevant to work activities
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Assessment may be conducted in the workplace or in simulated work environment

UNIT OF COMPETENCY : **DEMONSTRATE SECURITY AWARENESS PRACTICES**

UNIT CODE : **MTM 834215**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in demonstrating security awareness practices.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Contribute to the enhancement of maritime security through heightened awareness	1.1 Requirements relating to enhanced maritime security are identified. 1.2 All critical factors relevant to the security and safety of a maritime workplace are monitored continuously during work operations. 1.3 Relevant information concerning the security and safety of a *maritime workplace* is recognized and interpreted and timely action is taken in accordance with workplace procedures. 1.4 Changes to work environment and related risks are monitored and managed to ensure a safe outcome to workplace operations. 1.5 A security-related contingency plan of action is studied and interpreted and where necessary appropriate action is taken. 1.6 Reports on matters related to vessel security are prepared and submitted to designated	1.1 IMO ISPS Code applicable to vessels and ports 1.2 Procedures for maintaining security awareness 1.3 Relevant security and safety regulations, rules, policies and procedures	1.1 Reading and interpreting instructions, procedures and other information relevant to the maintenance of vessel and port security 1.2 Working as a team with others on matters relevant to the maintenance of vessel and port security 1.3 Selecting and using appropriate communications equipment 1.4 Taking appropriate initiatives related to vessel and port security within limits of role and responsibility 1.5 Interpreting and applying security and safety practices and regulations 1.6 Communicating with others on matters related to vessel and port security 1.7 Modifying activities dependent on differing workplace contingencies,

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	personnel in accordance with the ship security plan and company and maritime regulatory requirements.		risk situations and environments
2. Recognize security threats	2.1. Factors that may adversely affect the security and safety of a maritime workplace are identified. 2.2. Risks to vessel or port security and safety are recognized and reported to *relevant security personnel* and appropriate action is taken to control the risk in accordance with workplace procedures and security requirements. 2.3. *Persons posing potential security risks* are recognized and reported to relevant security personnel and appropriate action is taken to control the risk in accordance with workplace procedures and security requirements. 2.4. All relevant indications of a *security situation* are recognized and appropriate action is taken to alert relevant personnel and/or take appropriate action in accordance with workplace procedures and	2.1 Relevant security personnel on a vessel or at a port facility 2.2 Communication procedures and protocols on matters related to vessel and port security 2.3 Security and safety problems that may be identified when maintaining and managing situation awareness and action that can be taken to overcome them 2.4 Security and safety hazards and risks that may be identified in the maritime workplace and ways of controlling those hazards and associated risks	2.1 Identifying and solving problems associated with the maintenance of vessel and port security 2.2 Reporting security issues and take appropriate action based on available information 2.3 Monitoring and anticipating security problems and risks and taking appropriate action

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	regulatory requirements.		
3. Maintain security awareness and vigilance	3.1. Security instruction programs are participated in as per company and regulatory requirements. 3.2. Requirements and processes for security awareness and vigilance are identified. 3.3. ***Security and emergency drills*** are participated in accordance with the ship security plan and company and maritime regulatory requirements. 3.4. Inputs to improve/enhance security training programs and drills are provided, where necessary.	3.1 Security and emergency drills procedures	3.1 Practicing security and emergency drills

RANGE OF VARIABLES

VARIABLE	*RANGE*
1. Maritime workplace	Workplace may include: 1.1 Vessels 1.2 Port facilities
2. Relevant security personnel	May include: 2.1 Ship security officer 2.2 Port security officer 2.3 Company security officer 2.4 Master or skipper of the vessel 2.5 Other personnel on vessel (in terms of their security awareness, preparedness and vigilance)
3. Persons posing potential security risks	May include: 3.1 Unknown persons photographing vessels or facilities 3.2 Unknown persons attempting to gain access to vessels or facilities 3.3 Unknown persons loitering in the vicinity of vessels or port facilities 3.4 Unknown persons telephoning to ascertain security, personnel or standard operating procedures on a vessel or at a port facility 3.5 Vehicles or small vessels with personnel in them loitering and perhaps taking photographs or drawing diagrams of vessels or facilities 3.6 General aviation aircraft operating in proximity of vessels or facilities 3.7 Unauthorized vendors attempting to sell merchandise 3.8 Persons carrying suspicious parcels which could be bombs 3.9 Unknown persons acting suspiciously 3.10 Unknown persons seeking information from vessel personnel or their families about vessels or port facilities via either face-to-face discussion or email 3.11 Unauthorized workers attempting to gain access to a vessel or port facilities to repair, replace, service or install equipment
4. Security situation	May include: 4.1 Piracy/hijacking 4.2 Armed robbery 4.3 Bomb threat 4.4 Unidentified objects/explosives on vessel 4.5 Damage to or destruction of port facility 4.6 Damage to or destruction of vessel 4.7 Piracy and other depredations 4.8 Stowaways
5. Security and emergency drills	Security and emergency drills may relate to incidents such as: 5.1 Damage to or destruction of the vessel or port facility (e.g. by explosive devices, arson, sabotage or vandalism) 5.2 Hijacking or seizure of a vessel or of persons on board 5.3 Tampering with cargo or essential vessel equipment or systems or vessel's stores 5.4 Unauthorized access to or use of the vessel (including presence of stowaways) 5.5 Smuggling of weapons or equipment (including weapons of mass destruction) 5.6 Use of the vessel to carry persons intending to cause a security incident (or their equipment)

	5.7 Use of the vessel itself as a weapon or as a means to cause damage or destruction 5.8 Attacks from seaward while at berth or at anchor 5.9 Attacks while at sea

EVIDENCE GUIDE

1. Critical Aspects of Competency	**Assessment requires evidence that the candidate :** 1.1. Contributed to the enhancement of maritime security through heightened awareness 1.2. Recognized security threats 1.3. Demonstrated understanding of the need for and methods of maintaining security awareness and vigilance
2. Resource Implications	**The following resources should be provided:** 2.1 Work place with recommended facilities 2.2 Tools and equipment appropriate to the activity 2.3 Materials relevant to the proposed activity and tasks
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in simulated workplace setting

CORE COMPETENCIES

UNIT OF COMPETENCY	:	PREPARE NUTRITIONALLY- AND HEALTH-BALANCED CALENDAR MENU
UNIT CODE	:	MTM512329
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and attitudes in preparing nutritionally- and health-balanced calendar menu.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Incorporate desirable components for health balanced menu	1.1 Balanced menu is prepared based on r**eligious and cultural aspects** of crew 1.2 **Components of nutritionally balanced diet** foods are applied in accordance with budgetary and ship's crew requirements 1.3 **Food allergens and intolerances** are observed in accordance with declaration reports 1.4 Diet and nutrition to combat lifestyle disease is considered in accordance HACCP(Hazard Analysis Critical Control Point) 1.5 **Calendar / Cycle Menu** is prepared and designed based on available resources and dietary requirements	1.1 Trade Theory ➤ Nutritionally balanced diet ➤ Food allergens and intolerances ➤ Religious and cultural beliefs ➤ Nutritional physiology ➤ Physiological factors ➤ Body metabolism ➤ Diet and exercise ➤ Lifestyle diseases and diet 1.2 Rules and Regulation ➤ World Health Organization (WHO) ➤ Food and Agriculture Organization ➤ Flag State requirements ➤ Maritime Labour Convention (MLC) 2006 ➤ ILO Guidelines on the Training of Ship's Cooks ➤ International Safety Management System (SMS)	1.1 Incorporating the following trade theory in the formulation of nutritional balanced menu: ➤ Nutritional physiology ➤ Physiological factors ➤ Body metabolism ➤ Role of nutrients ➤ Nutritional recommendations such as carbohydrates, dietary fiber, fats, proteins, etc. ➤ Importance of diet and exercise ➤ Connection between lifestyle disease and diet

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Estimate calorie intake, portions and ingredients	2.1 **Calculation** of amount of food, supplies and ingredients are checked according to recipes/menus 2.2 System and units of measurement to be followed are ascertained 2.3 Estimated food supplies/ ingredients are reported to concern person 2.4 Food supplies/ ingredients are identified according to portioning per head meal, per head per day per month	2.5 Trade Theory ➢ Quantity of food production and cost control ➢ Recipe/Menu costing ➢ Food wastage ➢ Costing constraints 2.6 Mathematics ➢ Basic calculations and conversions 2.7 Rules and Regulations ➢ World Health Organization (WHO) ➢ Food and Agriculture Organization ➢ Flag State requirements ➢ Maritime Labour Convention (MLC) 2006	2.1 Minimizing food wastage 2.2 Estimating or optimizing edible portion 2.3 Applying Costing and Portioning Control 2.4 Minimizing food wastes 2.5 Performing calculations and conversions 2.6 Converting units of measurements in recipes 2.7 Calculating wastages
3. Prepare diet plan	3.1 Beginning inventory is checked in accordance with company policies and procedures 3.2 Forecast requisition is prepared in accordance with availability of supplies 3.3 Diet plan are provided in consideration with nutritional requirements in accordance with religious and cultural beliefs	3.1 Trade Theory ➢ Energy content in various types of food and diet plants ➢ Role of nutrients ➢ Nutritional recommendation concerning carbohydrates, dietary fibre, fats, proteins, alcohol, water, salts, minerals & vitamins ➢ Special awareness of religious & cultural food-related issues ➢ Composition of diet plan	3.1 Minimizing food wastage 3.2 Estimating or optimizing edible portion 3.3 Portioning 3.4 Conducting inventory 3.5 Preparing menu plan 3.6 Following instructions in a recipe

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.4 Diet plan is prepared in compliance with ***international and national requirements*** 3.5 Rules and regulations are complied according to international standards	➢ Calendar Menu Plan 3.2 Mathematics ➢ Basic calculations and conversions 3.3 Systems and Procedures ➢ Inventory Company policies and procedures	
4. Request ingredients and supplies	4.1 Number of crew and days of voyage are determined in accordance with the budget allocated by the company 4.2 Availability of stocks/ supplies are checked in accordance with the requirements *4.3* Request order is prepared in accordance with company ***systems, policies and procedures***	4.1 Trade Theory ➢ Victualing / Budget Management 4.2 Materials, Tools and Equipment: Usage ➢ Forms ➢ Computer 4.3 Systems and Procedures ➢ Catering Software ➢ Forms (e.g. Purchase Orders) 4.4 Understanding company systems, policies and procedures	4.1 Applying trade theory in control and inventory programs 4.2 Conducting Inventory 4.3 Applying the rules and regulations in purchasing

RANGE OF VARIABLES

VARIABLE	RANGE
1. Religious and cultural beliefs	May include: 1.1 Crew profile (Nationality and religion) 1.2 Recipe bank (list of recipes) for various cuisines 1.3 Availability of stock on board
2. Components of nutritionally balanced diet	May include: 2.1 Quantity of food intake 2.2 Principle of food plate 2.3 Importance and effect of protein, carbohydrates and minerals to human body
3. Food allergens and intolerances	May include: 3.1 Common food allergens 3.2 Common symptoms 3.3 Anaphylaxis 3.4 Immune response 3.5 Analysis for treatment
4. Calendar Menu	May include: 4.1 Types of meal (breakfast, lunch dinner) 4.2 Adequate variety of nutritious meals 4.3 Cultural and religious considerations in food 4.4 Types of table service (buffet, plated)
5. Calculations	May include: 5.1 Quantity of ingredients per menu 5.2 Cost of ingredients per menu 5.3 Amount of food cost consumption per month 5.4 Conversion of units of measurements 5.5 Conversion of currency equivalent
6. International requirements	May include: 6.1 World Health Organization (WHO) 6.2 Food and Agriculture Organization 6.3 Flag State requirements 6.4 Maritime Labour Convention (MLC) 2006 6.5 Latest amendments of ILO Guidelines on the Training of Ship's Cooks 6.6 International Safety Management System (SMS)
7. Systems, policies and procedures	May include: 7.1 Catering Software 7.2 Company policies and procedures 7.3 Forms (e.g. Purchase Orders)

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate :** 1.1 Prepared menu and diet plan taking into consideration the religious and cultural practices and dietary requirements of ship's crew 1.2 Requisitioned ingredients and supplies for the ship's menu 1.3 Demonstrated knowledge of basic nutrition and its role in combating lifestyle diseases, menu planning, food allergy and food intolerances
2. Resource Implications	**The following resources should be provided:** 2.1 Ventilated and illuminated work place with kitchen and cold-storage facilities appropriate to the activity 2.2 Equipment, tools and materials/supplies
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting.

UNIT OF COMPETENCY : DEMONSTRATE PRACTICAL COOKERY

UNIT CODE : MTM512330

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in demonstrating practical cookery.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare stocks, soups, sauces, dips and dressings	1.1 Ingredients and flavoring agents are used according to standard recipes 1.2 Clarifying agents , **thickening agents**, **convenience products** and methods are used according to procedures 1.3 Various stocks, soups, sauces, dips and dressings are used according to calendar menu 1.4 Variety of **stocks, soups , sauces, dips and dressings**, are produced according to standard recipe 1.5 Stocks, soups, sauces, dips and dressing are stored in accordance with standard operating procedures	1.1 Procedures on stocks, soups , sauces, dips and dressings preparation 1.2 Use of various stocks and bases for a variety of soups and sauces 1.3 Use of various Ingredients and flavoring agents for a variety of dips and dressings 1.4 Logical and time efficient work flow 1.5 Rapid cooling 1.6 Temperature 1.7 Standard of shelf life of foods 1.8 HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System	1.1 Applying techniques of producing stocks soups , sauces, dips and dressings 1.2 Observing work safety practices 1.3 Demonstrating waste minimization techniques and environment-friendly practices on handling, preparation and disposal of stocks soups , sauces, dips and dressings 1.4 Applying rapid cooling 1.5 Record keeping of time and temperature 1.6 Observing HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System procedures
2. Prepare and present meals and side dishes (Hot or Cold)	2.1 Tools and equipment are identified, checked for defects, damages and conditions in accordance with manufacturer's	2.1 Operational procedures on tools and equipment 2.2 Various Ingredients and flavoring agents according to	2.1 Using of various tools and equipment (e.g. Using knives) 2.2 Following/ interpreting Recipes

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	manual based on the required tasks 2.2 Ingredients and flavoring agents are used according to standard recipes of **meals** and **side dishes** (Hot or Cold) 2.3 Hot meals and side dishes are prepared following approved **cooking methods** 2.4 Frozen ingredients are thawed according to approved thawing standards 2.5 Preparation techniques, cutting and portioning are applied based on standard recipes 2.6 Temperature, quality and texture of cooked meals are checked according to standard recipes 2.7 Meals are kept in their respective holding equipments prior to serving 2.8 Meals are presented using sauces, garnishes and side dishes according to standard recipes 2.9 **Religious and cultural beliefs, food allergens and intolerances** are considered in the preparation of meals in accordance with declaration reports	standard recipes of meals and side dishes(Hot or Cold) 2.3 Various types of menus and their differences 2.4 Variety of international cuisine 2.5 Various cooking/preparation methods for meals and side dishes 2.6 Menu planning 2.7 Fundamentals of cooking 2.8 2.6.1 Basic food chemistry 2.9 2.6.2 Storage and preparation of raw ingredients 2.10 2.6.3 Quality and nutritional value of ingredients 2.11 Approved thawing standards 2.12 Preparation techniques, cutting and portioning 2.13 Temperature, Quality and Texture 2.14 Holding equipments 2.15 Fundamentals and principles of presentation and serving 2.16 Religious and cultural beliefs, food allergens and intolerances	2.3 Adapting menu plan during the voyage 2.4 Applying cutting, portioning and presentation techniques for meals and side dishes 2.5 Applying cooking methods 2.6 Applying waste minimization techniques for meals and side dishes 2.7 Record keeping of time and temperature 2.8 Observing HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System procedures

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.17 Logical and time efficient work flow 2.18 International Rules and Regulations HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System 2.19 Personal Protective Equipment (PPE)	
3. Prepare appetizers, salads and sandwiches (hot, cold and open)	3.1 Tools and equipment are identified, checked for defects, damages, and/or condition in accordance with manufacturer's manual based on the required tasks 3.2 Ingredients and flavoring agents are used according to standard recipes of meals of appetizers, salads and sandwiches (hot, cold and open) 3.3 Appetizers, salads and sandwiches (hot, cold and open) are prepared following approved cooking methods 3.4 Frozen ingredients are thawed according to approved thawing standards 3.5 Preparation techniques/cutting, portioning are applied based on	3.1 Operational procedures on tools and equipment 3.2 Various ingredients and flavoring agents according to standard recipes of appetizers, salads and sandwiches (hot, cold and open) 3.3 Various cooking/preparation methods for appetizers, salads and sandwiches 3.4 Approved thawing standards 3.5 Preparation techniques, cutting and portioning 3.6 Temperature, quality and texture 3.7 Holding equipments 3.8 Fundamentals and principles of	3.1 Using various tools and equipment (e.g. Using knives) 3.2 Following/ interpreting recipes 3.3 Applying cutting, portioning and presentation techniques for appetizers, salads and sandwiches (hot, cold and open) 3.4 Applying cooking methods 3.5 Applying waste minimization techniques for appetizers, salad and sandwiches (hot, cold and open) 3.6 Observing HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System procedures

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	standard recipe 3.6 Temperature, quality and texture of cooked meals are checked according to standard recipe 3.7 Appetizers, salads and sandwiches (hot, cold and open) kept in their respective holding equipment prior serving 3.8 Appetizers, salads and sandwiches (hot, cold and open) are presented using sauces, garnishes and side dishes according to calendar menu 3.9 Religious and cultural beliefs, food allergens and intolerances are considered in the preparation of appetizers, salads and sandwiches accordance with declaration reports	presentation and serving 3.9 Religious and cultural beliefs, Food allergens and intolerances 3.10 Cleaning and sanitizing 3.11 Logical and time efficient work flow 3.12 International Rules and Regulations HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System 3.13 Personal Protective Equipment (PPE)	3.7 Record keeping of time and temperature
4. Prepare bread products and hot/cold desserts	4.1 **Tools, equipment and utensils** are identified, checked for defects, damages, and conditions in accordance with manufacturer's manual based on the required tasks 4.2 Ingredients and flavoring agents are used according to standard recipes of meals of bread products and	4.2 Operational procedures on tools and equipment 4.3 Various Ingredients and flavoring agents according to standard recipes of bread products and hot/cold desserts 4.4 Various cooking/preparation methods for bread products	4.1 Using various tools and equipment (e.g. Using knives) 4.2 Following/ interpreting recipes 4.3 Applying cutting, portioning and presentation techniques for bread products and hot/cold desserts

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	hot/cold desserts 4.3 Bread products and hot/cold desserts are baked/prepared according to cooking methods 4.4 Frozen ingredients are thawed according to approved thawing standards 4.5 Preparation techniques, cutting and portioning are applied based on standard recipes 4.6 Temperature, quality and texture of cooked meals are checked according to standard recipes 4.7 Bread products and hot/cold *desserts* are kept in their respective holding equipment prior to serving 4.1 Bread products and hot/cold desserts are presented using sauces, garnishes and side dishes according to calendar menu 4.8 Religious and cultural beliefs, food allergens and intolerances are considered in accordance with declaration reports	and hot/cold desserts 4.4 Approved thawing standards 4.5 Preparation techniques cutting and portioning 4.6 Temperature, Quality and Texture 4.7 Holding equipments 4.8 Fundamentals and principles of presentation and serving 4.9 Religious and cultural beliefs, Food allergens and intolerances 4.10 Logical and time efficient work flow 4.11 International Rules and Regulations HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System 4.12 Personal Protective Equipment (PPE)	4.4 Applying waste minimization techniques for bread products and hot/cold desserts 4.5 Observing HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System Procedures 4.6 Record keeping of time and temperature
5 Control/ monitor stocks and supplies	5.1 **Inventory Program** is used in accordance with ship's requirements and arrangement negotiated with	5.1 Segregation of non-food items with food items 5.2 Inventory and stock security systems and	5.1 Applying basic computer skills 5.2 Applying literacy skills to source inventory

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	ship chandlers 5.2 Physical inventory of catering department provisions, bonded items and housekeeping supplies are performed as per ship's requirement 5.3 Stocks Remaining On Board (R.O.B.) are verified against the stock control workbook in accordance with ship's standard procedures 5.4 Requisition order is prepared based on company requisition and purchasing policy 5.5 Delivered provisions and **supplies** are received and inspected based on HACCP standard and in accordance with ship's standard 5.6 Provisions and supplies are stored according to approved method storage of foods wet and dry 5.7 **Stocks Control System** is identified and applied in accordance with industry practice 5.8 Task is performed using prescribed **Personal Protective Equipment (PPE)**	procedures 5.3 Shelf life and proper storage 5.4 Logical and time efficient work flow 5.5 Different temperatures of storage facilities 5.6 Kinds of provisions 5.7 Units of measurements for weight and temperature	5.3 Applying numerical skills to monitor inventory and compute allocated budget 5.4 Conducting inventory 5.5 Storing wet and dry stocks 5.6 Recording and documenting stock inventory

RANGE OF VARIABLES

VARIABLE	RANGE
1. Stocks	May include: 1.1 Beef stock 1.2 Chicken stock 1.3 Fish stock 1.4 Vegetable stock 1.5 Brown stock

2. Soups	May include:
	2.1 Thin
	    2.3.1 Clear or broth
	    2.3.2 Consomme
	2.2 Naturally thick
	2.3 Artificially thickened
	2.4 Specialty soups
	    2.4.1 Bouillabaisse
	    2.4.2 Chowders
	    2.4.3 Miso soup, etc.
	2.5 Cold soup
	    2.1.1 Vichyssoise
	    2.1.2 Gazpacho

3. Sauces, Dip and Dressings	May include :
	3.1. Sauces
	    3.1.1 Brown Sauce or Espanole
	    3.1.2 Velo'ute
	    3.1.3 Bechamel
	    3.1.4 Tomato Sauce
	    3.1.5 Hollandaise Sauce
	3.2 Dip and Dressings

4. Meals	May include : 4.1 Breakfast 4.2 Lunch 4.3 Dinner 4.4 Hot meals 4.5 Cold meals
5. Thickening agents	May include: 5.1 Roux 5.2 Beurre manie 5.3 Slurry 5.4 Liaison

6. Convenience products	May include:
	6.1 Bases
	    6.1.1 Cubes
	    6.1.2 Aromata
	    6.1.3 Powder
	6.2 Flavor enhancers
	    6.2.1 Garlic powder
	    6.2.2 Onion powder
	6.3 Instant Sauces
	    6.3.1 Demiglace
	    6.3.2 Hollandaise
	6.4 Flavoring packs
	    6.4.1 Sinigang
	    6.4.2 Menudo

VARIABLE	RANGE
7. Side dishes	May include: 7.1 Pasta 7.2 Rice and Cereals
8. Cooking methods	May include: Range of methods in egg dish preparation and cooking : 8.1 Boiling 8.2 Poaching 8.3 Frying
9. Religious and cultural beliefs	May include: 9.1 Crew profile (Nationality and religion) 9.2 Recipe bank (list of recipes) for various cuisines 9.3 Availability of stock on board
10. Food allergen and intolerances	May include: 10.1 Common food allergens 10.2 Common symptoms 10.3 Anaphylaxis 10.4 Immune response 10.5 Analysis for treatment
11. Salads	May include: 11.1 Leafy 11.2 Non-leafy 11.3 Combination 11.4 Compound 11.5 Fruit 11.6 Cooked

12. Tools and equipment	May include:
	12.1 Tools & Equipment
	        12.1.1 Stick Blenders
	        12.1.2 Mixers
	        12.1.3 Convection Oven
	        12.1.4 Door Industrial Chiller and freezers
	        12.1.5 Weighing scales
	        12.1.6 Hot plate or Burner
	12.2 Utensils
	        12.2.1 Spatula
	        12.2.2 Beater
	        12.2.3 Mixing bowls
	        12.2.4 Food-grade plastic and color coded cutting board

13.Desserts	May include: 13.1 Pudding, pies, tarts, flans, fritters 13.2 Custard, creams 13.3 Prepared fruit 13.4 Meringues, crepes 13.5 Ice cream 13.6 Cakes 13.7 Flambé 13.8 Refrigerated cake

VARIABLE	RANGE
14. Inventory program	May include: 14.1 Microsoft Windows Programs 14.2 AMOS – D 14.3 E-business fulfillment 14.4 Drop-shipping 14.5 Vendor managed inventory 14.6 Traditional inventory model 14.7 Just-in-time inventory 14.8 Smart shopper
15. Supplies	May include: 15.1 Bonded items 15.2 Beverages 15.3 Cleaning materials 15.4 Linen
16. Personal Protective Equipment (PPE)	May include: 15.5 Mask 15.6 Gloves 15.7 Goggles 15.8 Apron 15.9 Safety Shoes 15.10 Hard hat 15.11 Overall 15.12 Mitts

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate : 1.1 Prepared a variety of stocks, soups, sauces, dips and dressings from different recipes 1.2 Prepared and presented meals and variety of side dishes 1.3 Prepared a variety of appetizers, salads and sandwiches (hot, cold and open) 1.4 Prepared different types of bread products and hot/cold desserts according to recipe 1.5 Performed stock control
2. Resource Implications	The following resources should be provided: 2.1 Ventilated and illuminated work place with facilities appropriate to the activity 2.2 Tools, equipment, utensils and materials/ingredients
3. Methods of Assessment	Competency in this unit may be assessed through : 3.1 Demonstration and oral questioning of related underpinning knowledge 3.2 Written Examination 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting. 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group.

UNIT OF COMPETENCY : **PRACTICE FOOD SAFETY, SANITATION AND HYGIENE**

UNIT CODE : **MTM512331**

UNIT DESCRIPTOR : This unit deals with the knowledge, skills and attitudes in practicing food safety, sanitation and hygiene procedures.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Observe prevention measures for food-borne diseases	1.1 Causes and prevention of *food borne disease* and food hazards are identified 1.2 HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System is applied 1.3 Specific temperature of foods are checked according to *cooking methods* 1.4 Principles of receiving food provisions are applied 1.5 Principles and approved method of storing foods are applied to refrigerated and dry food items 1.6 Approved method of thawing are applied	1.1 Causes and prevention of food borne disease and food hazards 1.2 Specific temperature of foods 1.3 Principles of receiving food provisions 1.4 Principles in re-heating and serving of leftover food 1.5 Principles and approved method of storing foods (refrigerated and dry) 1.6 Approved method of thawing 1.7 Favorable conditions that support bacteria growth 1.8 Galley tools and equipments cleaning and sanitizing methods and procedures 1.9 Good personal hygiene 1.10 HACCP (Hazard Analysis Critical Control Point) /Food Safety Management	1.1 Applying HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System 1.2 Applying safety in handling cleaning and sanitizing equipment 1.3 applying cleaning and sanitizing methods and procedures 1.4 Demonstrating personal hygiene 1.5 Records keeping

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables		REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.7	***Favorable conditions that support bacteria growth*** are checked and controlled/ eliminated	System 1.11 Records keeping	
	1.8	***Galley*** tools and equipment are cleaned and sanitized following established procedures		
	1.9	***Cleaning and sanitizing tools and agents are maintained*** in accordance with ship's procedure		
	1.10	Appropriate cleaning and sanitizing tools and agents are identified and handled based on cleaning requirements and manufacturer's instructions		
	1.11	Tasks are recorded in accordance with ship's procedures		
2. Prevent cross contamination	2.1	Sources of cross contamination are identified	2.1 Causes and prevention of food borne disease and food hazards	2.1 Applying HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System
	2.2	HACCP (Hazard Analysis Critical Control Point) / Food Safety	2.2 HACCP (Hazard Analysis Critical	

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	Management System is observed 2.3 Specific temperature of foods are checked according to approved cooking methods 2.4 Principles of receiving food provisions are applied 2.5 Principles and approved method of storing foods are applied to refrigerated and dry food items 2.6 Approved method of thawing are applied 2.7 Favorable conditions that support bacteria growth is checked and controlled/ eliminated 2.8 Good personal hygiene practice is applied 2.9 Galley tools and equipments cleaning and sanitizing methods and procedures are applied in accordance with the international	Control Point) / Safety Management System 2.3 Specific temperature of foods 2.4 Principles of receiving food provisions 2.5 Principles and approved method of storing foods to refrigerated and dry food items 2.6 Approved method of thawing 2.7 Favorable conditions that support bacteria growth 2.8 Galley tools and equipments cleaning and sanitizing methods and procedures 2.9 Good personal hygiene 2.10 International Rules and regulations 2.11 Records keeping	2.2 Applying cleaning and sanitizing methods and procedures 2.3 Demonstrating personal hygiene 2.4 Records keeping

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables		REQUIRED KNOWLEDGE	REQUIRED SKILLS
	standard 2.10 Task are recorded as per meal basis 2.11 International Rules and regulations is applied 2.12 Cleaning and sanitizing methods and are applied in accordance with ship's procedure			
3. Observe food hygiene procedures	3.1 HACCP (Hazard Analysis Critical Control Point) /Food Safety Management System is observed 3.2 Specific temperature of foods are checked according to cooking methods 3.3 Principles of receiving food provisions are applied 3.4 Principles and approved method of storing foods are applied to refrigerated and dry food items 3.5 Approved method of thawing are applied		3.1 Causes and prevention of food borne disease and food hazards 3.2 HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System 3.3 Specific temperature of foods 3.4 Principles of receiving food provisions 3.5 Principles and approved method of storing foods wet and dry 3.6 Approved method of thawing 3.7 Favorable conditions that support bacteria growth	3.1 Applying safety in handling cleaning and sanitizing equipment 3.2 Applying HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System 3.3 Applying cleaning and sanitizing methods and procedures 3.4 Demonstrating personal hygiene 3.5 Records keeping

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.6 Favorable conditions that support bacteria growth is checked and controlled/ eliminated 3.7 Good personal hygiene practice is applied 3.8 Galley tools and equipments cleaning and sanitizing methods and procedures are applied in accordance with the international standard 3.9 Task are recorded as per meal basis 3.10 International Rules and regulations is applied 3.11 Cleaning and sanitizing methods and are applied in accordance with ship's procedure	3.8 Galley tools and equipments cleaning and sanitizing methods and procedures 3.9 Good personal hygiene 3.10 Records keeping 3.11 International rules and regulations	
4. Practice Personal hygiene and grooming	4.1 ***Personal hygiene*** is practiced in line with the requirements of the ship's food safety program. 4.2 Proper procedure of hand washing	4.1 Approved procedure of hand washing 4.2 Prescribe PPEs 4.3 HACCP (Hazard Analysis Critical Control Point) /Food Safety Management	4.1 Practicing good personal hygiene 4.2 Applying prescribed PPEs 4.3 Demonstrating HACCP (Hazard Analysis Critical Control

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	is applied 4.3 Appropriate PPE are used 4.4 HACCP (Hazard Analysis Critical Control Point) / procedures are observed		Point) / Food Safety Management Safety Management

RANGE OF VARIABLES

VARIABLE	RANGE
1. Food-borne disease	May include: 1.1 Listeriosis 1.2 Botulism 1.3 E. coli 1.4 Staphylococcus

2. Cooking methods	May include:
	2.1 Dry method
	    2.1.1 Roasting
	    2.1.2 Grilling
	    2.1.3 Broiling
	    2.1.4 Pan frying
	    2.1.5 Stir frying
	    2.1.6 Deep Frying
	    2.1.7 Braising
	    2.1.8 Baking
	2.2 Moist method
	    2.2.1 Boiling
	    2.2.2 Simmering
	    2.2.3 Steaming
	    2.2.4 Poaching
	    2.2.5 Stewing

3. Favorable conditions that support bacteria growth	May include: 3.1 Food 3.2 Air 3.3 Time 3.4 Temperature 3.5 Oxygen 3.6 Moist
4. Galley	May include: 4.1 Floor 4.2 Drainage 4.3 Bulkhead (wall) 4.4 Ceiling and lights 4.5 Port holes 4.6 Exhaust/hood 4.7 Preparation table 4.8 Sinks
5. Cleaning and sanitizing tools and agent is maintained	May include: 5.1 Follow procedure in cleaning and sanitizing 5.2 Follow manufacturer's instructions in using cleaning and sanitizing chemicals 5.3 Cover foods while cleaning is in progress 5.4 Practice using the three bucket system/three sink compartment
6. Personal hygiene	May include: 6.1 Taking a bath daily 6.2 Brushing teeth daily 6.3 Trimming of hair and fingernails

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate :** 1.1 Observed prevention measures for food-borne disease 1.2 Prevented cross contamination 1.3 Observed food hygiene procedures 1.4 Practiced personal hygiene and grooming
2. Resource Implications	**The following resources should be provided :** 2.1 Access to relevant workplace where assessment can take place 2.2 Tools, equipment and materials/supplies relevant to the activity or task
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in relevant workplace setting (accredited assessment centers) 4.2 Assessment shall be observed while tasks are being undertaken individually

UNIT OF COMPETENCY : **OBSERVE WORKPLACE HEALTH AND SAFETYPRACTICES**

UNIT CODE : **MTM512332**

UNIT DESCRIPTOR : This unit deals with the knowledge, skills and attitudes required to observe workplace health and safety practices.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Handle catering equipment	1.1 ***Catering equipment*** are cleaned/ sanitized washed and dried in accordance with ship's standards 1.2 Catering equipment is tested for functionality and breakage, malfunction or defects are reported in accordance with ship's standards and/or manufacturer's instruction 1.3 Catering equipment are stowed in accordance with ship's standards and/or manufacturer's instruction 1.4 Tools, utensils and equipment are secured in accordance with the ship's heavy weather bill	1.1 Catering tools and equipment 1.2 Procedure/s in cleaning and stowage of catering tools and equipment 1.3 Operational procedures of catering tools and equipment 1.4 Common causes of accidents in the galley 1.5 Ship's Heavy Weather Bill	1.1 Cleaning and sanitizing catering equipment 1.2 Handling galley tools and equipment 1.3 Operating catering tools and equipment 1.4 Securing tools, utensils and equipment based on Ship's Heavy Weather Bill 1.5 Records keeping

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Deal with occupational health and safety hazards and risks	2.1 Sick policies are identified and applied discussed and undertaken 2.2 Causes of accident in the galley are identified and preventive measures discussed and undertaken 2.3 Prevention of accidents are identified and applied, discussed and undertaken 2.4 Operational procedures of catering tools and equipment are observed in accordance with manufacturer's instruction	2.1 Procedure/s in cleaning and stowage of catering tools and equipment 2.2 Operational procedures of catering tools and equipment 2.3 Common causes of accidents in the galley	2.1 Operating catering tools and equipment 2.2 Using knives 2.3 Record keeping
3. Apply first-aid and firefighting procedures in the galley	3.1 Hazards that could result in work-related injury or illness are identified and assessed 3.2 First-aid kit and facilities is checked 3.3 First aide need is assessed 3.4 Trained as Basic first-aider is assigned or arranged 3.5 Causes and types of fire are identified 3.6 Prevention of fire are identified 3.7 Appropriate **type of fire extinguisher** is selected and used	3.1 Work place hazard and risks 3.2 First-aid kit , facilities and treatments 3.3 Types and causes of fire 3.4 Fire prevention 3.5 Different types of fire extinguishers and their uses	3.1 Keeping records 3.2 Using fire extinguisher 3.3 Applying first aid 3.4 Identifying potential hazards and its prevention 3.5 Providing medical care on board ship and ashore as per Regulation 4.1 and Standard A4.1 of the MLC,2006

RANGE OF VARIABLES

VARIABLE	RANGE
1. Catering equipment	May include: 1.1 Oven/ Microwave 1.2 Hot Plate 1.3 Griller 1.4 Griddle 1.5 Deep fryer 1.6 Rice Cooker 1.7 Pots and Pans 1.8 Utensils 1.9 Knives 1.10 Mixer
2. Type of fire extinguisher	May include: 2.1 Water fire extinguisher 2.2 Foam fire extinguisher 2.3 Dry powder fire extinguisher 2.4 CO2 fire extinguisher

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated safe and healthy handling of catering equipment 1.2 Identified policies of occupational health and safety hazards and risks 1.3 Applied first aid and firefighting procedures in the galley
2. Resource Implications	**The following resources should be provided:** 2.1 Ventilated and illuminated work place with facilities appropriate to the activity. 2.2 Tools and equipment appropriate to scheduled galleys tasks and to monitor and maintain working condition. 2.3 Material relevant to the proposed activity and tasks.
3. Methods of Assessment	**Competency in this unit may be assessed through :** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting. 4.2 Assessment shall be observed while task are being undertaken whether individually or in-group.

UNIT OF COMPETENCY **:** **IMPLEMENT WASTE MANAGEMENT AND DISPOSAL SYSTEM**

UNIT CODE **:** **MTM512333**

UNIT DESCRIPTOR **:** This unit deals with the knowledge, skills and attitude required to implement waste management and disposal system.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms are elaborated in the Range of Variables*	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Collect and segregate waste	1.1 ***Characteristics of the wastes*** are determined prior to segregation 1.2 ***Waste*** is collected using sanitized bins and containers based on relevant regulations 1.3 Waste is segregated and placed in designated bins and containers in accordance with relevant MARPOL regulations and procedures 1.4 Task is performed using the approved ***Personal Protective Equipment (PPE)***	1.1 Systems of waste collection 1.2 Types and categories of garbage/wastes 1.3 Types of labeled waste bins 1.4 Waste management for each type of waste 1.5 Relevant regulations (MARPOL, etc…) 1.6 Waste segregation procedures 1.7 Personal protective equipment (PPE)	1.1 Handling waste 1.2 Sorting waste 1.3 Sanitizing containers and bins 1.4 Using appropriate systems of waste collection 1.5 Applying appropriate waste management for each type of waste
2. Store waste	2.1 Waste minimization and pollution/spread of food-borne disease preventions are considered 2.2 Waste is sealed and packaged in accordance with MARPOL Annex V 2.3 Waste is labeled and placed in a location designated for the purpose	2.1 Different waste characteristics 2.2 Relevant regulations (MARPOL, etc.) 3.7 Personal protective equipment (PPE) 3.8 Ways of minimizing food wastage using leftovers	2.1 Determining waste characteristics 2.2 Applying waste minimization and pollution/ spread of food-borne disease prevention strategies

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.4 Sorted waste is stored in designated bins/containers in accordance with MARPOL Regulations and procedures		
3. Dispose of waste	3.1 Waste is disposed of in accordance with MARPOL Regulations and procedures. 3.2 Where necessary, waste is ground or compacted in accordance with the established procedures 3.3 Task is performed using the approved Personal protective equipment (PPE). 3.4 Waste recording and documentation requirements are complied with	3.1 Garbage Management Plans 3.2 Garbage Record Books 3.3 Types and categories of garbage 3.4 Types of labeled waste bins 3.5 Waste Management Program for Disposal of all types of waste 3.6 Relevant regulations (MARPOL, etc…) 3.7 Personal protective equipment (PPE)	3.1 Handling and disposing of wastes 3.2 Recording and documenting skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Waste	May include: 1.1. Biodegradable waste 1.2. Non-biodegradable waste and 1.3. Hazardous waste

2. Characteristics of the wastes	May include:
	2.1 Hazardous
	    2.1.1 Hazardous Radioactive Waste
	    2.1.2 Hazardous Biological Waste
	    2.1.3 Hazardous Chemical Waste
	2.2 Non-hazardous (e.g. regular solid waste, paper, soda cans)

3. Personal protective equipment (PPE)	May include: 3.1 Non-skid safety shoes 3.2 Face mask 3.3 Disposable gloves

EVIDENCE GUIDE

1.	Critical aspects of competency	**Assessment requires evidence that the candidate :** 1.1 Performed waste collection and segregation procedures 1.2 Minimized food wastage 1.3 Stored and disposed of wastes 1.4 Complied with relevant regulations
2.	Resource Implications	The following resources should be provided: 2.1 Ventilated and illuminated work place with facilities appropriate to the activity. 2.2 Tools and equipment appropriate to waste management. 2.3 Material relevant to the proposed activity and tasks
3.	Methods of Assessment	**Competency in this unit may be assessed through :** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4.	Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : **SUPERVISE/ADMINISTER GALLEY AREA**

UNIT CODE : **MTM512334**

UNIT DESCRIPTOR : This unit deals with knowledge, skills and attitudes in the supervision/ administration of the maintenance of the galley area.

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Maintain galley stores and supplies	1.1 **Cleaning materials** for food **processing equipment** is supervised/ managed in accordance with port state/ship's standards 1.2 Storage of cleaning and sanitizing agents are supervised/ managed in accordance with port state/ship's standard 1.3 Number of crew and days of voyage are determined in accordance with the budget allocated by the company 1.4 Quantities of food supplies/ ingredients required to complete recipes/ menus are estimated	1.1 Cleaning methods and procedures 1.2 Cleaning and sanitizing agent 1.3 Trade Theory ➢ Victualing/Budget Management System ➢ Principles of Receiving provisions ➢ Storage of food items (frozen, refrigerated, dry, slop chest) ➢ Calendar Menu Plan ➢ HACCP (Hazard Analysis Critical Control Point) 1.4 Mathematics ➢ Basic calculations and conversions 1.5 Systems and Procedures ➢ Inventory ➢ Company policies and procedures ➢ Forms (e.g. Purchase Orders) 1.6 Personal hygiene	1.1 Practicing Interpersonal relationship skills 1.2 Demonstrating cleaning and sanitizing procedures 1.3 Demonstrating personal hygiene 1.4 Converting standard recipe 1.5 Demonstrating HCCP(Hazard Analysis Critical Control Point) 1.6 Applying principles of receiving and storing provisions (First-In First-Out)

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.5 **Inventory** is supervised/ managed in accordance with company policies and procedures 1.6 **Calculations** to be made are supervised managed according to recipes/menus		

2 Maintain galley equipment and facilities	2.1 Cleaning and sanitation of **processing and cooking equipment** is supervised in accordance with port state/ ship's standards
	
	2.2 Cleaning and sanitation of the **galley** is supervised/ managed in accordance with port state/ship's standards
	
	2.3 **Waste disposal system** is supervised/ managed according to MARPOL regulations
		2.1 Cleaning methods and procedures
		2.2 Cleaning and sanitizing agent
		2.3 Waste disposal system
		2.4 Systems and Procedures
		  ➢ Waste management and disposal systems
		  ➢ Company policies and procedures
		2.5 HACCP (Hazard Analysis Critical Control Point)
		2.6 Personal hygiene
		2.7 Rules and Regulation
		  ➢ World Health Organization (WHO)
		  ➢ Food and Agriculture Organization
		  ➢ Flag State requirements
		  ➢ Maritime Labour Convention (MLC) 2006
			2.1 Practicing Interpersonal relationship skills
			2.2 Demonstrating cleaning and sanitizing procedures
			2.3 Applying waste, segregation, collection, storage and disposal
			2.4 Demonstrating personal hygiene
			2.5 Demonstrating HCCP(Hazard Analysis Critical Control Point)

ELEMENT	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		➢ 2014 Approved ILO Guidelines on the Training of Ship's Cooks ➢ International Safety Management System	
3 Deal with administrative concerns in the galley	3.1 Forecast requisition is prepared in accordance with availability of supplies 3.2 Purchase order and forecast requisition is supervised/ managed in accordance with availability of supplies 3.3 Calculation needed to complete work tasks are supervised/ managed using the ***basic mathematical principles***	3.1 Trade Theory ➢ Victualing/Budget Management System 3.2 Mathematics ➢ Basic calculations and conversions 3.3 Systems and Procedures ➢ Inventory ➢ Company policies and procedures ➢ Forms (e.g. Purchase Orders)	3.1 Practice budgeting skills 3.2 Applying HACCP (Hazard Analysis Critical Control Point), cleaning and sanitizing methods and procedures 3.3 Demonstrating Personal Hygiene 3.4 Costing and portioning control 3.5 Minimizing food wastes 3.6 Calculating skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Cleaning materials	May include: 1.1 Detergent 1.2 Sanitizing agent 1.3 Degreaser 1.4 Floor squeegee 1.5 Cleaning rags 1.6 Spray bottle 1.7 Buckets 1.8 Sponge and scrubbing pad 1.9 Floor Brush
2. Processing equipment	May include: <u>Food Processing equipment</u> 2.1 Slicer 2.2 Mixer 2.3 Grinder 2.4 Blender <u>Cooking equipment</u> 2.5 Oven/ Microwave 2.6 Hot Plate / Burner Stove 2.7 Griller 2.8 Griddle 2.9 Fryers 2.10 Rice Cooker 2.11 Pots and Pans 2.12 Utensils 2.13 Knives
3. Inventory	May include: 3.1 Microsoft Windows Programs 3.2 AMOS – D 3.3 E-business fulfillment 3.4 Drop-shipping 3.5 Vendor managed inventory 3.6 Traditional inventory model 3.7 Just-in-time inventory 3.8 Smart shopper
4. Calculations	May include: 4.1 Quantity of ingredients per menu 4.2 Cost of ingredients per menu 4.3 Amount of food cost consumption per month 4.4 Conversion of units of measurements 4.5 Conversion of currency equivalent
5. Food processing and cooking equipment	May include: <u>Food Processing equipment</u> 5.1 Slicer 5.2 Mixer 5.3 Grinder 5.4 Blender

VARIABLE	RANGE
	<u>Cooking equipment</u> 5.5 Oven/ Microwave 5.6 Hot Plate / Burner Stove 5.7 Griller 5.8 Griddle 5.9 Fryers 5.10 Rice Cooker 5.11 Pots and Pans 5.12 Utensils 5.13 Knives
6. Galley	May include: 6.1 Floor 6.2 Drainage 6.3 Bulkhead (wall) 6.4 Ceiling and lights 6.5 Port holes 6.6 Exhaust/hood 6.7 Preparation table 6.8 Sinks
7. Waste Disposal System	May include: 7.1 Identify and segregate wastes 7.2 Evaluate wastes 7.3 Manage wastes to minimize wastes and pollution prevention 7.4 Removal of wastes for proper disposal
8. Basic mathematical principles	May include: 8.1 Addition 8.2 Subtraction 8.3 Multiplication 8.4 Division 8.5 Ratio and proportion

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate :** 1.1 Maintained galley stores and supplies 1.2 Maintained galley equipment and facilities 1.3 Dealt with administrative concerns in the galley 1.4 Demonstrated application of occupational health and safety practices 1.5 Demonstrated compliance with national and international requirements
2. Resource Implications	**The following resources should be provided :** 2.1 Access to relevant workplace where assessment can take place 2.2 Tools, equipment and materials/supplies relevant to the activity or task
3. Methods of Assessment	**Competency in this unit maybe assessed through:** 3.1 Written Examination 3.2 Oral Questioning 3.3 Portfolio
4. Context of Assessment	4.1 Competency may be assessed in relevant workplace setting (accredited assessment centers) 4.2 Assessment shall be observed while tasks are being undertaken individually

SECTION 3 TRAINING ARRANGEMENTS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for **SHIPS' CATERING NC III (SHIPS' COOKS)**.

They include information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and   trainer's qualification.

3.1   CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to include MLC-2006, green technology, issues on health and drugs and catering to persons with disabilities (PWD's).

Course Title: <u>SHIPS' CATERING (SHIPS' COOKS)</u>   NC Level: <u>NC III</u>

Nominal Training Duration: 20 Hours (Basic Competencies)
                                60 Hours (Common Competencies)*
                                 <u>80</u> Hours (Core Competencies)
                                160 Hours

Course Description:

This course is designed to enhance the knowledge, skills and attitude of SHIPS' CATERING NC III (SHIPS' COOKS) in accordance with industry standards **.** This covers competencies that a person must achieve in managing all galley operations, including both the procurement of supplies and practical food production in compliance with the national and international requirements for the duration and nature of the voyage. It also includes competencies in serving proper quantities of quality nutritious food that fulfills cultural, religious and hygiene requirements including storing and handling food hygienically.

This course is also designed to enhance the knowledge, skills and attitudes of an individual in the field of cooking.

To obtain this, all units prescribed for this qualification must be achieved.

BASIC COMPETENCIES

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
1. Lead workplace communication	1.1 Communicate information about workplace processes. .	• Method of communication • Communication skills • Communication tools • Questioning techniques	• Expressing One self • Practice on Public speaking • Written activities on workplace process	• Group discussion • Role Play • Brainstorming • Demonstration	• Written Test • Interview • Observation	2 hours
	1.2 Lead workplace discussions	• Method/technique of discussion • How to lead discussion • How to solicit response	• Written and Electronic communication activities • Debate Exercises	• Self-paced handout/ module • Discussion • Role Play	• Written Test • Demonstration	2 hours
	1.3 Identify and communicate issues arising in the workplace	• Identify problems and issues • Organizing information on problem and issues • Relating problems and issues • Communication barriers affecting workplace discussions	• Communicate with the Master of the ship on the possible shortage of the food supply due to change of ship's port of call/voyage • Resolving conflict in the workplace • Making a report about problem and issues • Practice communication model	• Brainstorming • Self-paced handout/ module • Role Play • Self-paced handout/ module	• Interviews • Written exam • Demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
2. Lead small teams	2.1 Provide team leadership	• Communication skills required for leading small team • Skills and techniques in promoting team building • Negotiating skills • Up to date dissemination of instruction and requirements to members • Art of listening and treating individual team members concern	• Evaluate the success factors in the contribution of the galley personnel in the implementation of the safety, quality and environmental objectives of the ship • Practice leadership activities • Teambuilding activities • Write simple negotiation strategy on workplace issues • Role play on communication model and the art of listening	• Self-paced handout/ module • Role Play • Case Study	• Written • Oral Questioning • Demonstration	2 hours
	2.2 Assign responsibilities among members	• Duties and responsibilities of each team member • Skills in identifying individual skills, knowledge and attitude as basis for allocating responsibilities • Knowledge in identifying each team member duties and responsibilities	• Planning session regarding duties and responsibilities of each team member • Writeshop of interpersonal abilities, attitude and knowledge • Identification of team members responsibilities thru simulation	• Role Play • Workshop • Demonstration	• Case studies • Interview • Demonstration	

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
	2.3 Set performance expectation for team members	• Knowledge and skills in setting individual performance target/expectation • Team members duties and responsibilities • Employee policies and procedures • Defining performance expectations criteria	• Develop /implement an appraisal document for the messman • Workshop on setting individual performance target • Writeshop on team members duties and responsibilities • Video presentation regarding employees performance role and expectation towards work	• Group discussion • Writeshop • Multimedia presentation	• Written exam • Demonstration • Written Exam	1 hour
	2.4 Supervise team performance	• Knowledge and skills in monitoring team member performance • Monitoring team operation to ensure client needs and satisfaction • Methods of monitoring performance • Informal/formal counseling skills	• Practice monitoring skills • Design monitoring scheme for team operation as well as client satisfaction and needs • Evaluate performance of messman	• Role Play • Writeshop • Discussions • Self-paced handout/ module • Group Dynamics	• Written Test • Demonstration • Written Test • Demonstration	1 hour

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
3. Develop and practice negotiation skills	3.1 Identify relevant information in planning negotiations	• Background information on other parties to the negotiation • Observing differences between content and process • Identifying bargaining information • Applying strategies to manage process	• Preparing a three (3) month victualing requirement • Perform Data gathering regarding relevant information related to negotiation • Designing a negotiation process • Practice negotiation strategies and manage the process	• Direct observation • Self-paced handout/ module • Discussion • Workshop	• Interviews • Written exam • Demonstration	2 hours
	3.2 Participate in negotiations	• Applying steps in negotiating process • Strategies to manage conflict • Steps in negotiating process	• Writeshop on identifying negotiation process • Perform background information gathering	• Simulation/ role playing • Writeshop • Discussion	• Written exam • Practical/ performance test	
	3.3 Document areas for agreement	• Procedure in documenting negotiations • Managing information • Filing documents	• Practice documentation techniques/minutes of meeting • Practice recording of agreement • Keeping of records	• Case studies • Role play	• Written exam • Practical/ performance test	
4. Solve problems related to work activities	4.1 Explain the analytical techniques	• Observation, investigation & analytical techniques • Brainstorming • Cause and effect diagrams	• Conduct investigation and root cause analyses and implement corrective actions • Perform analytical skills in solving problem related to work	• Direct observation • Simulation	• Written test • Demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
	4.2 Identify the problem	• Normal operating parameters & product quality • Identifying & clarifying the nature of problem • Application of analytical techniques	• Evaluate the present status of the galley performance against the established Safety, quality and environmental policies of the ship Discussion in identifying and clarifying the nature of problem	• Simulation/ role playing • Discussion • Simulation	• Written exam • Practical/ performance test • Demonstration	
	4.3 Determine the possible cause/s of the problem	• Non-routine process and quality problems • Teamwork and work allocation problem • Safety and emergency situations and incidents	• Implement corrective or preventive actions based on root cause analyses • View video presentation on possible cause of problem in the workplace • Writeshop on the determining problems in the workplace	• Case studies • Multimedia presentation • Writeshop	• Written exam • Interviews • Written Test	
5. Use mathematical concepts and techniques	5.1 Identify mathematical tools and techniques to solve problem	• Measurement system • Basic measuring tools/devices	• Prepare ship's Monthly Budget based on the minimum safe manning requirement • Practice mathematical concepts to solve problem in the workplace	• Direct observation • Demonstration	• Written exam • Practical/ performance test	1 hour

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
	5.2 Apply mathematical procedures/ solution	• Fundamental operation (addition, subtraction, division, multiplication)	• Compute for the shortage in the ship's food budget due to the change to a longer ship's voyage • Practice linear measurements and conversion • Practice mathematical calculation on workplace situation	• Simulation/ role playing • Demonstration	• Written exam • Practical/ performance test	1.5 hours
	5.3 Analyze results	• Precision and accuracy	• Compare the prepared budget against the new requirements and identify gaps • Analysis of result	• Case studies • Demonstration	• Written exam • Interviews	1.5 hours
6. Use relevant technologies	6.1 Identify appropriate technology	• Awareness on technology and its function • Communication techniques	• Prepare the ship's victualling budget using the ship's software • Film Viewing regarding technology and its benefits • Identify different technology applicable to workplace	• Direct observation • Multimedia presentation	• Written exam • Demonstration	0.5 hour

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Approach	Nominal Duration
	6.2 Apply relevant technology	• Study different relevant technology in the workplace • Relate 5s to technology	• Conduct risk assessment for a routine or non-routine task in the galley using the ship's established systems • Application of relevant technology to the workplace	• Direct observation • Simulation/ role playing	• Written exam • Demonstration	0.5 hour
	6.3 Maintain/ enhance relevant technology	• Corrective and preventive maintenance • Upgrading of technology • Communication Skills • Organizational set–up / work flow	• Identify monthly maintenance tasks based on the Planned Maintenance System • Application of corrective and preventive maintenance to workplace	• Case studies • Simulation/ role playing	• Interviews • Demonstration	1 hour

Note: Basic competencies may be embedded in the core competencies.

COMMON COMPETENCIES*

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
1. Survive at sea in the event of ship abandonment	1.1 Respond to the indicated emergency	• Types of emergency situations and actions to be taken when: - called to survival craft stations - required to abandon ship - in the water - aboard a survival craft - a person falls overboard (man overboard • Types, uses and location of life-saving appliances • \Value of training and drills • Types and uses of personal protective clothing and equipment	• Donning lifejacket • Donning and using an immersion suit • Jumping from a height into the water • Righting an inverted life raft while wearing a lifejacket • Keeping afloat without a lifejacket	• Discussion • Self-paced handout/ module • Demonstration	• Written examination • Portfolio • Demonstration with questioning	2 hours
	1.2 Board a survival craft	• Survival craft equipment and how to operate them	• Taking initial action on boarding survival craft • Streaming a drogue or sea-anchor • Operating survival craft equipment • Operating location devices including radio equipment	• Discussion • Self-paced handout/ module • Demonstration	• Written examination • Portfolio • Demonstration with questioning	2 hours
2. Minimize the risk of fire and maintain a state of readiness to	2.1 Carry out fire minimization procedures	• Relevant maritime regulations concerning minimization of the risk of fire on board vessel • The chemistry of fire and its relationship to materials	• Implementing of fire prevention and minimization measures and procedures	• Discussion • Self-paced handout/ module • Demonstration	• Written examination • Portfolio • Demonstration with	4 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
respond to emergency situations involving fire		typically carried on vessels • Principles underlying the spread of fire and its extinguishment, including the elements of fire and explosion (the fire triangle) • Types and sources of ignition • Flammable materials and fire hazards • Factors that influence the spread of fire	• Identifying and evaluating fire hazards and taking appropriate courses of action		questioning	

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
	2.2 Respond to emergencies involving fire	• The importance of constant vigilance in fire prevention and minimization • The different classes of fire, their characteristics and strategies and equipment needed for their extinguishment • A basic understanding of the types of fire detection, fire-fighting equipment and systems used on board vessels, their features, principles of operation and the procedures for their use and maintenance • Relevant regulations and policies related to the maintenance of fire equipment and systems • Precautions and procedures that must be followed when responding to electrical fires • Precautions and procedures that must be followed when responding to uptake and hydrogen fires • Maritime communication techniques applicable to fire prevention and fire-minimization activities on board vessel • Problems that can occur with	• Responding to simulated and real emergency situations involving fire • Assessing the operational capability of fire-detection equipment and systems and taking any required maintenance or replenishment action	• Discussion • Self-paced handout/ module • Demonstration	• Written examination • Portfolio • Demonstration and questioning	4 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
		shipboard fire-detection and fire hazards on board a vessel and appropriate action that should be taken • Sources of information on shipboard fire prevention and minimization				
3. Fight and extinguish fire	3.1 Operate portable fire-fighting equipment	• Knowledge of relevant maritime regulations • The chemistry of fire and its relationship to materials typically carried on vessels • Principles underlying the spread of fire and how it is extinguished • The different types of fire, their characteristics and strategies and equipment needed to extinguish them	• Applying fire prevention measures and procedures • Identifying fire-fighting problems and determining appropriate courses of action	• Self-paced handout/ module • Discussion • Demonstration	• Written examination • Practical performance • Portfolio • Demonstration with questioning	4 hours
	3.2 Carry out fire-fighting operations	• Principles and procedures for the use of self-contained breathing apparatus (SCBA) when fighting fires • Fire-fighting clothing, outfits and personal safety equipment used when fighting a fire onboard a vessel • Types of fire-fighting appliances, equipment and systems used on board	• Participating as a member of an interior search and rescue and fire-fighting team on board a vessel • Determining the operational capability of fire-fighting appliances, equipment and systems	• Discussion • Self-paced handout/ module • Demonstration	• Written examination • Practical performance • Portfolio • Demonstration with questioning	4 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
		vessels, their features, principles of operation and the procedures for their use and maintenance				
		• Fixed fire prevention and extinguishing installations used on vessels and their principles of operation				
		• Fire-fighting techniques, agents and precautions applicable to different types of fire on board a vessel				
		• Maritime communication techniques applicable to fire-fighting activities onboard a vessel				
		• Typical problems that can occur with shipboard fire-fighting equipment and operations and appropriate remedial action and solutions				
		• Sources of information on shipboard fire prevention and extinguishment				

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
4. Take immediate action upon encountering an accident or other medical emergency	4.1 Determine the need of casualty	• Relevant sections of maritime regulations • Emergencies, injuries and medical problems that may occur on board a vessel and appropriate action, treatments and solutions • Relevant OH&S and health legislation and policies • Duties and responsibilities of the designated first aid officer on board a vessel • First aid procedures • Shipboard procedures for: • Conducting an initial patient first aid assessment • Managing injuries • Managing medical emergencies • Carrying out resuscitation techniques	• Providing first aid on board a vessel • Identifying problems and emergencies and taking appropriate action	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Practical performance • Demonstration with questioning	24 hours
	4.2 Administer first-aid to the victim	• Techniques for care of wounds • Ways in which disease can spread on board a vessel and ways of preventing the spread • Legal issues related to the administration of drugs and medicines on board a vessel • Knowledge of body structures and functions relevant to	• Applying asceptic and other precautionary techniques when carrying out first aid procedures on board a vessel	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
		possible injury, illnesses and disease that may be encountered on board a vessel • Maritime communication techniques related to health care and receiving radio medical advice from shore-based advisers • Marine publications containing information on first aid and medical treatment on board a vessel				
5. Comply with emergency procedures	5.1 Take action on becoming aware of an emergency	• Types of emergencies • Shipboard contingency plans • Knowledge of relevant maritime regulations • Relevant OH&S legislation and policies • Navigational emergencies for vessels and appropriate action and solutions • Indications of various types of emergency situations and the action to be followed when various types of actual or potential emergency situations are identified	• Applying navigational emergencies for vessels appropriate actions and solutions	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	1 hour
	5.2 Follow established emergency procedures	• Emergency alarm signals and systems in use on vessels and procedures to be followed when an emergency alarm is	• Applying appropriate action in various types of actual or potential emergency situations	• Discussion • Self-paced handout/ module	• Written examination • Demonstration with	1.5 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
		raised • Escape routes and internal and external communications systems and alarms on board a vessel • Maritime communication techniques used during navigational emergencies of actual or potential emergency situations are identified		• Demonstration • Simulation	questioning • Practical performance	
	5.3 Follow procedures for the use of various life-saving equipment	• General principles of damage control and the manner in which watertight integrity of hull is maintained on a vessel including the importance of preparation, control and repair • Ways of controlling damage during a flooding emergency, including the use of various shipboard items that can be used for damage control purposes such as mattresses, canvas and clothing	• Using emergency alarm signals and systems • Using various shipboard items to be used for damage control purposes such as mattresses, canvas and clothing • Using personal safety equipment	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	1.5 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
6. Take precautions to prevent pollution of the marine environment	6.1 Practice compliance with legislative requirements for protection of the marine environment	• Relevant legislation, codes of practice, policies and procedures to protect the marine environment • Impact of shipping on the marine environment and the effects of operational or accidental pollution on it • Basic environmental protection procedures	• Completing activities aimed at compliance with relevant regulatory requirements for the protection of the marine environment • Identifying and evaluating problems related to compliance with relevant regulations for environmental protection and determining an appropriate course of action	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	2 hours
	6.2 Practice anti-pollution procedures	• Pollution control problems and related measures to protect the marine environment • Complexity and diversity of the marine environment • Requirements under local and/ or international legislation and conventions for reporting incidents related to breaches of the statutory codes and measures for the protection of the marine environment	• Following anti-pollution procedures	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	2 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
7. Observe safe working practices	7.1 Identify and follow workplace procedures for hazard identification and risk control	• Knowledge of relevant maritime and OHS regulations • ISM Code Safety Management System procedures (where applicable) • The provisions of OHS Acts, regulations and codes of practice relevant to the workplace, including the rights and responsibilities of the workplace parties under OHS Acts, regulations and codes of practice	• Applying OHS in the workplace, and activities required under OHS legislation	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	1 hour

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration

	7.2 Contribute to arrangements for the management of occupational health and safety	• The ways in which OHS is managed in the workplace, and activities required under OHS legislation, for example
		  - Policies
		  - Procedures
		  - Plant and equipment maintenance
		  - Hazard identification
		  - Risk assessment and control
		  - OHS instruction
		• Training and provision of OHS information
		• Hazards that exist in the workplace
		• The preferred order of ways to control risks (known as the hierarchy of control)
			• Applying order of ways to control risks (known as the hierarchy of control)
			• Designating personnel responsible for OHS onboard a vessel
			• Communication skills
				• Discussion
				• Self-paced handout/ module
				• Demonstration
				• Simulation
					• Written examination
					• Demonstration with questioning
					• Practical performance
						1 hour

	7.3 Take necessary actions to control fatigue	• Workplace OHS procedures relevant to the work, being undertaken, including procedures for: • Recognizing and reporting on hazards, for example, work area inspections • Work operations to control risks, for example, permit to work systems and isolation procedures	• Applying order of ways to control risks (known as the hierarchy of control)	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	1 hour

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
		• Responding to accidents, fires and emergencies • Raising OHS issues				
	7.4 Complete occupational health and safety records	• Employee participation in OHS management, for example, consultative or OHS committees and • Joint employer/ employee inspections • The meaning of OHS symbols found on signs and labels in the workplace • Designated personnel responsible for OHS onboard a vessel • Effects of sleep schedules, and the circadian rhythm on fatigue • Effects of physical stressors on seafarers • Effects of environmental stressors in and outside the ship and their impact • Effects of schedule changes on seafarer fatigue	• Applying order of ways to control risks (known as the hierarchy of control)	• Self-paced handout/ module • Simulation • Symposium • Film viewing • Group dynamics	• Interview • Written examination • Portfolio assessment • Demonstration	1 hour
8. Demonstrate security awareness practices	8.1 Contribute to the enhancement of maritime security through heightened	• IMO ISPS Code applicable to vessels and ports • Procedures for maintaining security awareness	• Applying the above knowledge to the management of situation awareness during workplace operations • Reading and	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical	4 hours

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
	awareness		interpreting instructions, procedures and other information relevant to the maintenance of vessel and port security • appropriate action		performance	
	8.2 Recognize security threats	• Relevant security and safety regulations, rules, policies and procedures • Relevant security personnel on a vessel or at a port facility • Communication procedures and protocols on matters related to vessel and port security	• Working as a team with others on matters relevant to the maintenance of vessel and port security • Selecting and using appropriate communications equipment • Taking appropriate initiatives related to vessel and port security within limits of role and responsibility • Interpreting and applying security and safety practices and regulations • Communicating with others on matters related to vessel and port security	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Written examination • Demonstration with questioning • Practical performance	

Unit of Competency	Learning Outcomes	Learning Content (Required Knowledge)	Practical Activities (Required Skills)	Methodology	Assessment Method	Nominal Duration
	8.3 Maintain security awareness and vigilance	• Security and safety problems that may be identified when maintaining and managing situation awareness and action that can be taken to overcome them • Security and safety hazards and risks that may be identified in the maritime workplace and ways of controlling those hazards and associated risks	• Modifying activities dependent on differing workplace contingencies, risk situation and environments • Identifying and solving problems associated with the maintenance of vessel and port security issues and take appropriate action based on available information • Monitoring and anticipating security problems and risks and taking	• Discussion • Self-paced handout/ module • Demonstration • Simulation	• Demonstration with questioning • Written examination • Practical performance	

NOTE: *Applicant-trainee who already possesses relevant certificate of training and/or certificate of competency in Basic Training (BT) and Ship Security Awareness and Seafarers with Designated Security Duties (SSA/SDSD) Training shall not be required to undergo training/ certification on Common Competencies.

CORE COMPETENCIES

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
1. Prepare nutritionally - and health-balanced calendar menu	1.1 Incorporate desirable components for health-balanced menu	• Trade Theory – Nutritionally balanced diet – Food allergens and intolerances – Religious and cultural beliefs – Nutritional physiology – Physiological factors – Body metabolism – Diet and exercise – Lifestyle diseases and diet • Rules and Regulation – World Health Organization (WHO) – Food and Agriculture Organization – Flag State requirements – Maritime Labour Convention (MLC) 2006 – ILO Guidelines on the Training of Ship's Cooks – International Safety Management System (SMS)	• **Preparing calendar menu: breakfast, lunch, dinner**	• Self-paced handouts or module • Discussion of queries • Group Reporting • Actual exercise of preparing menu	• Written • Oral Questioning • Demo Presentation	3 hours
	1.2 Estimate calorie intake, portions and ingredients	• Trade Theory – Quantity of food production and cost control – Recipe/Menu costing – Food wastage – Costing constraint	• **Preparing Checklist of Food Calories** • **Analyzing/computing calories of food from prepared menu**	• Self-paced handouts or module • Discussion of queries • Group	• Written • Oral Questioning • Demonstration with oral questioning	3 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration

		• Mathematics
		  − Basic calculations and conversions
		• Rules and Regulations
		  − World Health Organization (WHO)
		  − Food and Agriculture Organization
		  − Flag State requirements
		  − Maritime Labour Convention (MLC) 2006
				Reporting
				• Group work/ interaction		

	1.3 Prepare diet plan	• Trade Theory
		  − Energy content in various types of food and diet plants
		  − Role of nutrients
		  − Nutritional recommendation concerning carbohydrates, dietary fibre, fats, proteins, alcohol, water, salts, minerals & vitamins
		  − Special awareness of religious & cultural food-related issues
		  − Composition of diet plan
		  − Calendar Menu Plan
			• **Preparing menu for person with diet restriction**	• Self-paced handouts or module
				• Discussion of queries
				• Group Reporting
				• Demo Presentation
					• Written exam
					• Demonstration
					• Oral Questioning
						3 hours

	1.4 Request ingredients and supplies	• Trade Theory
		  − Victualing / Budget Management
		• Materials, Tools and Equipment: Usage
		  − Forms
			• **Preparing supplies/materials/ingredients requisition**
			• **Selecting, inspecting/accepting delivered**
				• Brainstorming
				• Group discussion
				• Role play
				• Case study
					• Written exam
					• Demonstration
					• Oral Questioning
						3 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration

		− Computer
		• Systems and Procedures
		  − Catering Software
		  − Forms (e.g. Purchase Orders)
		• Understanding company systems, policies and procedures
			supplies/materials/ingredients			

2. Demonstrate practical cookery	2.1 Prepare stocks, soups, sauces, dips and dressings	• Procedures on stocks, soups, sauces, dips and dressings preparation • Use of various stocks and bases for a variety of soups and sauces • Use of various Ingredients and flavoring agents for a variety of dips and dressings • Logical and time efficient work flow • Rapid cooling • Temperature • Standard of shelf life of foods • HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System	• **Preparing stocks, soups, sauces, dips and dressings**	• Self-paced Hand-outs/ Module • Video showing • Lecturette • Practical exercises	• Written examination • Demonstration • Oral Questioning	10 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration

	2.2 Prepare and present meals and side dishes (Hot or Cold)	• Operational procedures on tools and equipment
		• Various Ingredients and flavoring agents according to standard recipes of meals and side dishes(Hot or Cold)
		• Various types of menus and their differences
		• Variety of international cuisine
		• Various cooking/preparation methods for meals and side dishes
		• Menu planning
		• Fundamentals of cooking
		  – Basic food chemistry
		  – Storage and preparation of raw ingredients
		  – Quality and nutritional value of ingredients
		• Approved thawing standards
		• Preparation techniques, cutting and portioning
		• Temperature, Quality and Texture
		• Holding equipments
		• Fundamentals and principles of presentation and serving
		• Religious and cultural beliefs, food allergens and intolerances
			• **Preparing and presenting hot and cold foods: appetizer, soup, salad, main courses and dessert, bread and pastries**	• Self-paced Hand-outs/ Module
				• Video showing
				• Discussion on Queries
				• Practical exercises
					• Written examination
					• Demonstration
					• Oral Questioning
						10 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
		• Logical and time efficient work flow • International Rules and Regulations HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System • Personal Protective Equipment (PPE)				

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
	2.3 Prepare appetizers, salads and sandwiches (Hot, Cold and Open)	• Operational procedures on tools and equipment • Various ingredients and flavoring agents according to standard recipes of appetizers, salads and sandwiches (hot, cold and open) • Various cooking/preparation methods for appetizers, salads and sandwiches • Approved thawing standards • Preparation techniques, cutting and portioning • Temperature, quality and texture • Holding equipment • Fundamentals and principles of presentation and serving • Religious and cultural beliefs, Food allergens and intolerances • Cleaning and sanitizing • Logical and time efficient work flow • International Rules and Regulations HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System • Personal Protective Equipment (PPE)	• **Prepare appetizers, salads and sandwiches (hot, cold and open)**	• Self-paced Hand-outs/ Module • Video showing • Discussion on Queries • Practical exercises	• Oral Questioning • Demonstration	8 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
	2.4 Prepare bread products and hot/ cold desserts	• Operational procedures on tools and equipment • Various Ingredients and flavoring agents according to standard recipes of bread products and hot/cold desserts • Various cooking/preparation methods for bread products and hot/cold desserts • Approved thawing standards • Preparation techniques cutting and portioning • Temperature, Quality and Texture • Holding equipment • Fundamentals and principles of presentation and serving • Religious and cultural beliefs, Food allergens and intolerances • Logical and time efficient work flow • International Rules and Regulations HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System • Personal Protective Equipment (PPE)	• **Baking bread products and hot/ refrigerated desserts**	• Self-paced Hand-outs/ Module • Video showing • Discussion on Queries • Practical exercises	• Oral Questioning • Demonstration	8 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
	2.5 Control/ monitor stocks and supplies	• Segregation of non-food items with food items • Inventory and stock security systems and procedures • Shelf life and proper storage • Logical and time efficient work flow • Different temperatures of storage facilities • Kinds of provisions • Units of measurements for weight and temperature	• **Preparing stock inventory form in accordance with the company standards** • **Organizing storage in accordance with the approved method of storage of wet and dry food products.**	• Self-paced Hand-outs/ Module • Video showing • Discussion on Queries • Practical exercise • Gamification	• Oral Questioning • Demonstration	6 hours
3. Practice food safety, sanitation and hygiene	3.1 Observe prevention measures for food-borne diseases	• Causes and prevention of food borne disease and food hazards • Specific temperature of foods • Principles of receiving food provisions • Principles in re-heating and serving of leftover food • Principles and approved method of storing foods (refrigerated and dry) • Approved method of thawing • Favorable conditions that support bacteria growth • Galley tools and equipment cleaning and sanitizing methods and procedures • Good personal hygiene • HACCP (Hazard Analysis	• **Performing standard practices for food temperature control, hygiene, storage during food production**	• Self-paced Hand-outs/ Module • Video showing • Lecturette • Discussion on Queries • Simulation • Practical exercises	• Written exam • Oral Questioning • Demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
		Critical Control Point) /Food Safety Management System • Records keeping				
	3.2 Prevent cross contamination	• Causes and prevention of food borne disease and food hazards • Causes of food contamination • HACCP (Hazard Analysis Critical Control Point) / Safety Management System • Specific temperature of foods • Principles of receiving food provisions • Types of food packaging • Principles and approved method of storing foods to refrigerated and dry food items • Approved method of thawing • Favorable conditions that support bacteria growth • Galley tools and equipment, cleaning and sanitizing methods and procedures • Good personal hygiene • International Rules and regulations • Records keeping	**• Practicing standard procedures of food handling and packaging during food production and storing**	• Self-paced Hand-outs/ Module • Video showing • Focus group discussion • Simulation • Practical exercises	• Written exam • Oral Questioning • Demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
	3.3 Observe food hygiene procedures	• Causes and prevention of food borne disease and food hazards • HACCP (Hazard Analysis Critical Control Point) / Food Safety Management System • Specific temperature of foods • Principles of receiving /handling food provisions • Principles and approved method of storing foods wet and dry • Approved method of thawing • Favorable conditions that support bacteria growth • Galley tools and equipment cleaning and sanitizing methods and procedures • Good personal hygiene • Records keeping • International rules and regulations	• **Practicing standard procedure of temperature control, food hygiene, principles on flow of food during food production**	• Self-paced Hand-outs/ Module • Video showing • Focus group discussion • Simulation • Practical exercises	• Written Exam • Oral Questioning • Demonstration	2 hours
4. Observe workplace health and safety practices	4.1 Handle catering equipment	• Catering tools and equipment • Procedure/s in cleaning and stowage of catering tools and equipment • Operational procedures of catering tools and equipment • Ship's Heavy Weather Bill	• **Handling of catering tools and equipment** • **Performing cleaning and stowage of catering tools and equipment** • **Performing catering procedures**	• Self-paced Hand-outs/ Module • Video showing • Focus group discussion • Practical exercises	• Written exam • Oral Questioning • Demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
	4.2 Deal with occupational health and safety hazards and risks	• Common causes of accidents in the galley	• **Practice exercises on preventing common accidents** • **Observing sick policies** • **Observing precautionary measures by way of wearing PPE in accordance with MLC standard**	• Self-paced Hand-outs/ Module • Video showing • Brainstorming • Practical exercises • Role Play	• Oral Questioning • Demonstration	2 hours
	4.3 Apply first-aid and firefighting procedures in the galley	• Work place hazard and risks • First-aid kit , facilities and treatments • Types and causes of fire • Fire prevention • Different types of fire extinguishers and their uses	• **Performing first-aid** • **Performing firefighting techniques**	• Self-paced Hand-outs/ Module • Video showing • Group discussion • Practical exercises • Simulation	• Oral Questioning • Demonstration	2 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
5. Implement waste management and disposal system	5.1 Collect and segregate waste	• Systems of waste collection • Types and categories of garbage/wastes • Types of labeled waste bins • Waste management for each type of waste • Relevant regulations (MARPOL, etc…) • Waste segregation procedures • Personal protective equipment (PPE)	• **Performing waste collection and segregation: biodegradable, non-biodegradable and hazardous waste during food production**	• Self-paced Hand-outs/ Module • Video showing • Group discussion • Role play	• Written Exam • Oral Questioning • Demonstration	2 hours
	5.2 Store waste	• Different waste characteristics • Relevant regulations (MARPOL, etc….) • Personal protective equipment (PPE) • Ways of minimizing food wastage using leftovers	• **Performing waste storage: biodegradable, non-biodegradable and hazardous waste during food production**	• Self-paced Hand-outs/ Module • Video showing • Group discussion • Role play	• Written Exam • Oral Questioning • Demonstration	1 hour

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
	5.3 Dispose of waste	• Garbage Management Plans • Garbage Record Books • Types and categories of garbage • Types of labeled waste bins • Waste Management Program for Disposal of all types of waste • Relevant regulations (MARPOL, etc…) • Personal protective equipment (PPE)	• **Perform waste disposal: biodegradable, non-biodegradable and hazardous waste during food production** • **Prepare garbage record book**	• Self-paced Hand-outs/ Module • Video showing • Group discussion • Role Play	• Written Exam • Oral Questioning • Demonstration	1 hour

6. Supervise/ Administer galley area	6.1 Maintain galley stores and supplies	• Cleaning methods and procedures
		• Cleaning and sanitizing agent
		• Trade Theory
		  – Victualing/ Budget Management System
		  – Principles of Receiving provisions
		  – Storage of food items (frozen, refrigerated, dry, slop chest)
		  – Calendar Menu Plan
		  – HACCP (Hazard Analysis Critical Control Point)
		• Mathematics
		  – Basic calculations and conversions
		• Systems and Procedures
		  – Inventory
			• **Performing physical inventory, requisitions in accordance with company standards**	• Self-paced Hand-outs/ Module
				• Video showing
				• Group discussion
				• Practical exercises
					• Written Exam
					• Oral Questioning
					• Demonstration
						5 hours

Unit of Competency	Learning Outcomes	Learning Content	Practical Activities	Methodology	Assessment Approach	Nominal Duration
		– Company policies and procedures – Forms (e.g. Purchase Orders) • Personal hygiene				
	6.2 Maintain galley equipment and facilities	• Cleaning methods and procedures • Cleaning and sanitizing agent • Waste disposal system – Waste management and disposal systems – Company policies and procedures • HACCP (Hazard Analysis Critical Control Point) • Personal hygiene • Rules and regulations – World Health Organization (WHO) – Food and Agriculture Organization – Flag state requirements – Maritime Labour Convention (MLC) 2006 – Latest amendments of ILO Guidelines on the Training of Ships' Cooks – International Safety Management	**• Performing actual galley cleaning in accordance with state authority standard**	• Self-paced Hand-outs/ Module • Video showing • Group discussion • Practical exercises	• Oral Questioning • Demonstration	5 hours

3.2   TRAINING DELIVERY

1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.

   a. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards)

   b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;

   c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.

   d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;

   e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.

   f. Training program allows for recognition of prior learning (RPL) or current competencies;

   g. Training completion is based on satisfactory performance of all specified competencies.

2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

   2.1.   Institution- Based:

   - The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students wishing to gain entry into this course should possess the following requirements:

- Must be High School graduate
- Must have completed Basic Training (BT), Ship Security Awareness and Seafarers with Designated Security Duties (SSA/SDSD) Training
- Must have at least 3 months relevant sea service **or/**
  Graduate of Bachelor of Science in Hotel and Restaurant Management (BSHRM) *or*

  o Completed prescribed culinary related course such as Commercial Cooking NC II, Cookery NC II, Commercial Cooking NC III, Ship's Catering Services NC II and Bread and Pastry Production NC II *or*
  o Work as cook/assistant cook in hotel or restaurant for at least one year as evidenced with Employment Certificate *or*
  o Holder of TESDA National Certificate for Commercial Cooking NC II *or* Cookery NC II or Commercial Cooking NC III or Ship's Catering Services NC II or Bread and Pastry Production NC II

- Can communicate in English language both oral and written

- Must be physically and mentally fit to undergo Ships' Catering NC III (Ships' Cooks) training program

3.4 TOOLS AND EQUIPMENT

LIST OF TOOL, EQUIPMENT AND MATERIALS

SHIPS' CATERING NC III (SHIPS' COOKS)

List of tools, equipment and materials for the training of a maximum of 24 trainees for **SHIPS' CATERING NC III (SHIPS' COOKS)** are as follows:

TOOLS		EQUIPMENT		COOKING UTENSILS	
QTY	Description	QTY	Description	QTY	Description
Basic cutting knives		1 unit	Industrial freezer, 4-door	12 pcs.	Sauce pan w/ handle
12 pcs	Paring knife	1 unit	Industrial chiller, 4-door	12 pcs.	Sauteing pan
12 pcs.	Chef's knife	4 units	6-burner industrial stove / hot plate or electric stove **Or**	4 pcs.	Stock pots
		6 units	4-burner industrial stove / hot plate or electric stove		
6 pcs.	Dough cutter	1 unit	Proofer	12 pcs.	Frying pan
6 pcs.	Wire whisk	1 unit	Hot holding cabinet	4 pc.	Colander
6 pc.	Can opener, table mounted heavy duty	1 unit	Convection Oven (2 layers of 4 baking trays)	12 pcs.	Food-grade Plastic and Color Coded Cutting board
6 pcs.	Soup Ladle	1 unit	Microwave oven	12 pcs.	Baking tray - small

6 pcs.	Kitchen spoon	1 unit	Heavy-duty dough mixer, floor mounted (10 quarts)	12 pcs.	Utility tray - stainless
6 pcs.	Stick/Probe Food Thermometer		Exhaust hood that cover burners/electric plates		
6 pcs.	Rolling pin	1 unit	Stick Blender		
6 pcs.	Peelers	1 unit	Computer		
		1 pc.	Mandoline		
6 pcs.	Skimmers spider	**Kitchen Furniture/ Accessories**		**TRAINING MATERIALS/ RESOURCES**	
6 pcs.	Strainer	3 units	Working table (stainless)	Learning or Training Manuals	
6 pcs.	Tongs	1 unit	Condiment cabinet	Video (CD)	
6 pcs.	Turner	1 unit	3-compartment sink	Cleaning Procedures Manual	
6 pcs.	Spatula	1 unit	Hand washing Sink	Galley Management System documents	
12 pcs.	Wooden spoon	2 units	Stainless steel rack	MLC 2006 Guidelines	
6 pcs.	Piping bag	3 units.	Weighing scale	ILO Ships' Cooks Guidelines	
6 set2	Pastry tubes	**TRAINING EQUIPMENT**		**SAFETY**	
6 sets	Measuring spoon	1 unit	Audio-video equipment	1 set	First Aid Kit
6 set	Measuring cup (Liquid and dry)	1 unit	White board	1 pc.	Fire Extinguisher
6 pcs.	Bucket (wash, rinse and sanitize)	**CLEANING MATERIALS**		1 set	Personal Protective Equipment (PPE)
6 pcs.	Floor Squeegee	1 liter	Detergent (liquid)		
6 pcs.	Food Thermometer	1 liter	Bleach solution (sanitizer)		
6 pcs.	Oven Thermometer	1 pc.	Broom		
12 pcs.	Soup Cup	1 pc.	Dust pan		
25 pcs.	Flatware (12", 10", 8"/ rectangular)	5 pcs.	Garbage bin		
		1 pc.	Liquid soap dispenser		
		1 pc.	Paper towel dispenser		
		1 liter	All purpose cleaner		
		1pc.	Push brush		

3.5 TRAINING FACILITIES

Based on a class intake of 24 students/trainees

Space Requirement	Size in Meters	Area in Sq. Meters	Total Area in Sq. Meters
Lecture/Demo Room	8 x 5 m.	40 sq. m.	40 sq. m.
Kitchen with Exhaust System (Hood-type/ Window-type)	10 x 6 m.	60 sq. m.	60 sq. m.
Learning Resource Center	3 x 5 m.	15 sq. m.	15 sq. m.
Wash room/Comfort Room (Male and Female	3 x 4 m.	12 sq. m.	12 sq. m.
Facilities/Circulation Area			38 sq. m.
Total workshop area:			**165 sq. m.**

3.6 TRAINER'S QUALIFICATIONS FOR SHIPS' CATERING NC III (SHIPS' COOKS)

- Must be a holder of Ships' Catering NC III (Ships' Cooks)
- Must be a holder of National TVET Trainer's Certificate (NTTC) - Level I in Ships' Catering NC III **or** Holder of IMO Model Course 6.09 and 3.12 shall follow the requirements per TESDA Circular No. 10 s. 2013 issued on July 23, 2013
- 12 months shipboard experience as Cook

3.7 INSTITUTIONAL ASSESSMENT

Institutional Assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

SECTION 4   ASSESSSMENT AND CERTIFICATION ARRANGEMENT

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

4.1   NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1.1   A National Certificate (NC) is issued when a candidate has demonstrated competence in all the units of competency that comprise the Training Regulations for Ships' Catering NC III (Ships' Cooks) as follows:

BASIC COMPETENCIES
Lead workplace communication
Lead small teams
Develop and practice negotiation skills
Solve problems related to work activities
Use mathematical concepts and techniques
Use relevant technologies
COMMON COMPETENCIES
Survive at sea in the event of ship abandonment
Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire
Fight and extinguish fires
Take immediate action upon encountering an accident or other medical emergency
Comply with emergency procedures
Take precautions to prevent pollution of the marine environment
Observe safe working practices
Demonstrate security awareness practices
CORE COMPETENCIES
Prepare Nutritionally - and Health-Balanced Calendar Menu
Demonstrate Practical Cookery
Practice Food Safety, Sanitation and Hygiene
Observe Workplace Health and Safety Practices
Implement Waste Management and Disposal System
Supervise/Administer Galley Area

4.1.2 Candidates wanting to be certified will have to be assessed in accordance with the requirements of MLC 2006 Paragraphs 3 and 4 of Standard A.3.2.

4.1.3 Candidates applying for competency assessment and certification for Ships' Catering NC III (Ships' Cooks) must undergo either 1) **Written Examination *or* 2) Written Examination plus Demonstration of Practical Cookery skills *or* 3) Portfolio Assessment, as follows:**

4.1.3.1 **For Written Examination only, are:**

4.1.3.1.1 Those who have completed the promulgated SHIPS' CATERING NC III (SHIPS' COOKS) training program as aligned to MLC 2006 Paragraphs 3 and 4 of Standard A.3.2. *Or*

4.1.3.1.2 Those who have trained and been certified under Ship's Catering Services NC II or Commercial Cooking NC II or Cookery NC II or Commercial Cooking NC III with **valid** National Certificate (NC).

4.1.3.2 **For Written Examination plus Demonstration of Practical Cookery skills are:**

4.1.3.2.1 Those who have completed the training programs on Ship's Catering Services NC II or Commercial Cooking NC II or Cookery NC II or Commercial Cooking NC III but are **not** National Certificate holders of the said qualifications.

4.1.3.3 **For Portfolio Assessment are:**

4.1.3.3.1 Those who have at least three (3) months relevant shipboard experience as Cook or Assistant Cook or Catering Personnel. However, must show sufficient evidences in their portfolio on the following documents: Seaman's Book, Passport, Attestation Letter (Optional)/Certificate of Employment, Sea Service Certification, Certificates of Trainings, valid National Certificate on Ship's Catering Services NC II or Commercial Cooking NC II or Cookery NC II or Commercial Cooking NC III.

4.1.4 Conduct of assessment and issuance of certificates shall follow the procedures manual and implementing guidelines developed for the purpose.

4.2 COMPETENCY ASSESSMENT REQUISITE

4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment.

This document can:

a. Identify the candidate's skills and knowledge
b. Highlight gaps in candidate's skills and knowledge
c. Provide critical guidance to the assessor and candidate on the evidence that need to be presented
d. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior `

4.2.2 Accredited Assessment Center. Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification.

4.2.3 Accredited Competency Assessor. Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

CORE COMPETENCIES

Assist in performing deck maintenance	Perform supervisory functions	Perform engine room housekeeping	Perform mess hall service	Prepare Nutritionally-and Health-Balanced Calendar Menu	Demonstrate Practical Cookery
Assist in performing navigational watchkeeping	Perform mooring/ unmooring operations	Provide assistance in bunkering operations	Perform housekeeping services	Practice Food Safety, sanitation and Hygiene	Observe Workplace Health and Safety Practices
Assist in performing simple splicing and canvas work	Perform marlinspike and canvas work	Use and care for hand and power tools	Provide assistance in receiving and storing provisions	Implement Waste Management and Disposal System	Supervise/ Administer Galley Area
Perform housekeeping duties	Provide support in cargo operations	Perform engine watchkeeping duties	Supervise preparation of meals		
Perform navigational watchkeeping duties	Perform deck maintenance	Maintain/ clean engine room, machinery and spaces	Perform victualing services		
Conduct inventory of tools, equipment and facilities	Install/ reinstall/ replace piping system	Fabricate shipboard components	Assist engineer in the maintenance of main engine	Establish and maintain catering standards	

COMMON COMPETENCIES

Survive at sea in the event of ship abandonment	Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire	Fight and extinguish fires	Take immediate action upon encountering an accident or other medical emergency	Comply with emergency procedures
Take precautions to prevent pollution of the marine environment	Observe safe working practices	Demonstrate security awareness practices		

BASIC COMPETENCIES

Receive and respond to workplace communication	Work with others	Participate in workplace communication	Work in team environment	Lead in workplace communication	Lead small teams
Demonstrate work values	Practice basic housekeeping procedures	Practice career professionalism	Practice occupational health and safety procedures	Develop and practice negotiation skills	Solve problems related to work activities
Utilized specialized communication skills	Develop teams and individuals	Apply problem solving techniques in the workplace	Collect, analyze and organize information	Use mathematical concepts and techniques	Use relevant technologies
Plan and organize work	Promote environmental protection				

**Ships' Catering NC III
(Ships' Cooks)**

1.	**Beverage**	any liquid for drinking.
2.	**Braised**	to cook (meat and vegetables) by browning in fat, then simmering in a small quantity of liquid in a covered container.
3.	**Cabin**	a room on board a ship for use of one or more officers or passengers; a space in which the accommodation for officers and / or passengers is located.
4.	**Calendar Menu**	is a series of menus planned in advance for particular period of time that varies for each day of the cycle that ought to consider the number of people their likes and dislikes.
5.	**Cold cuts**	variety of sliced cold meats and cheeses.
6.	**Cross-contamination**	the transfer of harmful micro-organism from one item of food to another.
7.	**Environmental hazard**	working conditions unsafe to crew.
8.	**Galley**	a cook's room, kitchen or deckhouse used for cooking drippings.
9.	**Griddle**	a flat metal surface used for cooking by dry heat.
10.	**Hollandaise**	a permanent emulsion sauce, used for steaks, vegetables and fish.
11.	**MARPOL**	abbreviation, for Marine Pollution.
12.	**Meal Service**	serving food or beverages.
13.	**Menu**	a list of food available or choices given to guest before the start of a meal.
14.	**Mess hall**	a dining room or space on board in which all or part of ship's crew eat their meals.
15.	**Mirepoix**	a mixture of vegetables and herbs to enhance the flavor of stock, sauces and soups.
16.	**Mise-en-place**	is the prepared raw materials, utensils , ingredients needed for cooking.
17.	**Mixer**	a machine / equipment for mixing or beating foods.
18.	**Oven**	an enclosed chamber for heating, roasting / baking.
19.	**Pantry**	a small room or closet, usually of a kitchen where food, chine silver linens and similar items are stored.
20.	**Personal Hygiene**	conditions and practices that serve to promote or preserve one's health.
21.	**Provisions**	a store of needed materials for a voyage; especially a stock of food for use of crew and passengers (usually 3 months provision / 200 % allowance.
22.	**Recipe**	procedure and directions in preparing dish or drink.
23.	**Sanitation**	formulation and application of measures designed to protect public health.
24.	**Stock**	broth in which meat, fish or poultry bones are simmered for a period of time.
25.	**Store**	to fill or furnish with supply.
26.	**Thaw**	to change from a frozen solid to a liquid by gradual warming.

| 27. | **Victualing /** **Victual** | food fit for consumption; laying in food supplies or provisions; providing, storing or supplying provisions. |
| 28. | **Waste** | is a food material that is discarded or unable to be used |

ACKNOWLEDGEMENTS

The Technical Education and Skills Development Authority (TESDA) wishes to extend thanks and appreciation to the many representatives of business, industry, academe and government agencies who donated their time and expertise to the development and validation of these Training Regulations.

THE TECHNICAL AND INDUSTRY EXPERT AND REVIEW PANEL

The PARTICIPANTS in the Validation of this Training Regulation