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**REPUBLIC OF KENYA**

**COMPETENCY BASED CURRICULUM**

**FOR**

**FISHERIES TECHNOLOGY**

**LEVEL 5**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya’s development blueprint and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution and this resulted in the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No. 4 of 2016). A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this curriculum has been developed.

It is my conviction that this curriculum will play a great role towards development of competent human resource for the Fisheries Technology Sector’s growth and development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING**

**MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle-income country providing a high-quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 and Sessional Paper No. 4 of 2016 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labor force.

TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) in conjunction with Fisheries Technology Sector Skills Advisory Committee (SSAC) have developed this curriculum.

This curriculum is designed and organized with an outline of learning outcomes; Suggested Methods of Instruction, training/learning resources and methods of assessing the trainee’s achievement. The curriculum is competency-based and allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretariat, Fisheries Technology SSAC, expert workers and all those who participated in the development of this curriculum.

**CHAIRPERSON, TVET CDACC**

# ACKNOWLEDGMENT

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support was received from various organizations.

I recognize with appreciation the role of the Fisheries Technology Sector Skills Advisory Committee (SSAC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the Fisheries Technology sector for their valuable input and all those who participated in the process of developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that workers in Fisheries Technology Sector acquire competencies that will enable them to perform their work more efficiently.

**COUNCIL SECRETARY/CEO**

**TVET CDACC**

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# **ACRONYMS AND ABBREVIATIONS**

CC : Basic Competency

CC : Core Competency

CDACC : Curriculum Development Assessment and Certification Council

CO : Common Units

CU : Curriculum

KCSE : Kenya Certificate of Secondary Education

KNQA : Kenya National Qualifications Authority

OSHA : Occupation Safety and Health Act

PPE : Personal Protective Equipment

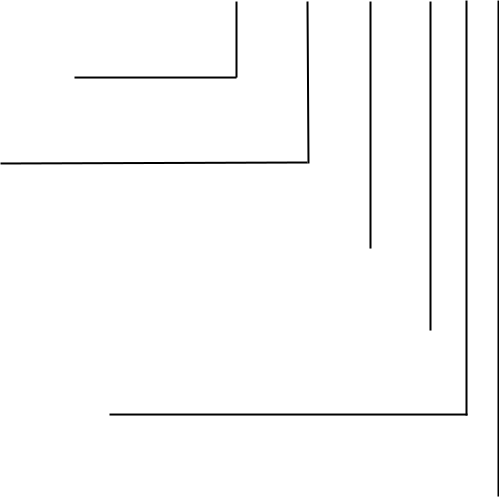
SOP : Standard operating procedures

SSAC : Sector Skills Advisory Committee

TVET : Technical and Vocational Education and Training

# KEY TO UNIT CODE

**AGR/CU/FIS/BC/01/5/A**

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Industry or sector

Curriculum

Curriculum

Type of competency

Competency number

Competency level

Control version

# COURSE OVERVIEW

Fisheries Technology Level 5 qualification consists of units of learning that a person must achieve to perform first aid treatment on board, transmit and receive information by marine radio or telephone, manage sea vessels, manage outboard motors, manage fishing gear and to conduct fishing operations. It also enables an individual to manage fish aggregating devices and handle harvested fish.

The units of learning leading to Fisheries Technology Level 5 qualification include the following:

**Basic Units of Learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit of Learning Code** | **Unit of Learning Title** | **Duration in Hours** | **Credit Factor** |
| AGR/CU/FIS/BC/01/5/A | Communication skills | 25 | 2.5 |
| AGR/CU/FIS/BC/02/5/A | Occupational safety and health practices | 40 | 4 |
| AGR/CU/FIS/BC/03/5/A | Numeracy skills | 45 | 4.5 |
| AGR/CU/FIS/BC/04/5/A | Digital literacy | 70 | 7 |
| AGR/CU/FIS/BC/05/5/A | Entrepreneurial skills | 50 | 5 |
| AGR/CU/FIS/BC/06/5/A | Employability skills | 25 | 2.5 |
| AGR/CU/FIS/BC/07/5/A | Environmental literacy | 25 | 2.5 |
| **Total** |  | **280** | **28** |

**Common units of learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit of Learning Code** | **Unit of Learning Title** | **Duration in Hours** | **Credit Factor** |
| AGR/OS/FIS/CC/02/5/A | Breathe Hold Diving Operations | 80 | 8 |
| AGR/OS/FIS/CC/04/5/A | Standard Measuring Devices and Instruments | 120 | 12 |
| AGR/OS/FIS/CC/06/5/A | Fire Prevention and Fighting | 70 | 7 |
| AGR/OS/FIS/CC/07/5/A | Aquatic Environment Protection | 80 | 8 |
| **Total** | | **350** | **35** |

**Core units of learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit of Learning Code** | **Unit of Learning Title** | **Duration in Hours** | **Credit Factor** |
| AGR/OS/FIS/CR/01/5/A | First aid treatment on board | 90 | 9 |
| AGR/OS/FIS/CR/02/5/A | Transmission and reception of information by marine radio or telephone | 110 | 11 |
| AGR/OS/FIS/CR/03/5/A | Small fishing vessels management | 100 | 10 |
| AGR/OS/FIS/CR/04/5/A | Outboard motors management | 80 | 8 |
| AGR/OS/FIS/CR/05/5/A | Harvested fish handling | 70 | 7 |
| AGR/OS/FIS/CR/06/5/A | Fishing gear technology | 100 | 10 |
| AGR/OS/FIS/CR/07/5/A | Fishing operations | 120 | 12 |
| AGR/OS/FIS/CR/08/5/A | Fish aggregating devices | 120 | 12 |
|  | Industrial attachment | 360 | 36 |
| **Total** | | **1150** | **115** |
| **Grand total** | | **1780** | **178** |

The total duration of the course is. 1780 Hours

**Entry Requirements**

An individual entering this course should have any of the following minimum requirements:

1. Fisheries Technology craft certificate Level 4

**Or**

1. Kenya Certificate of Secondary Education (KCSE) D plain

**Or**

1. Equivalent qualifications as determined by Kenya National Qualifications Authority (KNQA)

**Assessment**

The course will be assessed at two levels:

1. **Internal assessment**: conducted continuously by the trainer (internal assessor) who is monitored by an accredited internal verifier.
2. **External assessment:** conducted by an accredited external assessor who is monitored by an accredited external verifier.

The assessors and verifiers are accredited by TVET CDACC which also coordinates external assessment.

**Certification**

An individual will be awarded a Certificate of Competency on demonstration of competence in a unit of competency. To be awarded Certificate in Fisheries Technology Certificate Level 5, an individual must demonstrate competence in all the units of competency.

These certificates will be awarded by TVET CDACC in conjunction with the training provider.

# BASIC UNITS OF LEARNING

# COMMUNICATION SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/01/5/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Communication Skills

**Duration of Unit:** 25hours

**Unit Description**

This unit covers the competencies required to demonstrate communication skills. It involves meeting communication needs of clients and colleagues, contributing to the development of communication strategies, conducting workplace interviews, facilitating group discussions and representing the organisation.

**Summary of Learning Outcomes**

1. Meet communication needs of clients and colleagues
2. Contribute to the development of communication strategies
3. Conduct interviews
4. Facilitate group discussions
5. Represent the organization

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Meet communication needs of clients and colleagues | * Communication process * Modes of communication * Medium of communication * Effective communication * Barriers to communication * Flow of communication * Sources of information * Organizational policies * Organization requirements for written and electronic communication methods * Report writing * Effective questioning techniques (clarifying and probing) * Workplace etiquette * Ethical work practices in handling communication * Active listening * Feedback * Interpretation * Flexibility in communication | * Interview * Third party reports * Written texts |
| 1. Contribute to the development of communication strategies | * Dynamics of groups * Styles of group leadership * Openness and flexibility in communication * Communication skills relevant to client groups | * Written * Observation |
| 1. Conduct interviews | * Types of interview * Establishing rapport * Facilitating resolution of issues * Developing action plans | * Written * Observation |
| 1. Facilitate group discussions | * Identification of communication needs * Dynamics of groups * Styles of group leadership * Presentation of information * Encouraging group members participation * Evaluating group communication strategies | * Written * Observation |
| 1. Represent the organization | * Presentation techniques * Development of a presentation * Multi-media utilization in presentation * Communication skills relevant to client groups | * Observation * Written |

**Suggested Methods of Instructions**

* Role playing
* Viewing of related videos

**Recommended Resources**

* Desktop computers/laptops
* Internet connection
* Projectors
* Telephone

# NUMERACY SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/02/5/A

**Relationship to Occupational Standards:**

This unit addresses the Unit of Competency: Demonstrate Numeracy Skills

**Duration of Unit:** 40 hours

**Unit Description**

This unit covers the competencies required to demonstrate numeracy skills. It involves calculating with whole numbers and familiar fractions, decimals, and percentages for work estimating, measuring, and calculating with routine metric measurements for work, using routine maps and plans for work, interpreting, drawing and constructing 2D and 3D shapes for work, interpreting routine tables, graphs and charts for work, collecting data and constructing routine tables and graphs for work and using basic functions of calculator

**Summary of Learning Outcomes**

1. Calculate with whole numbers and familiar fractions, decimals and percentages for work
2. Estimate, measure and calculate with routine metric measurements for work
3. Use routine maps and plans for work
4. Interpret, draw and construct 2D and 3D shapes for work
5. Interpret routine tables, graphs and charts for work
6. Collect data and construct routine tables and graphs for work
7. Use basic functions of calculator

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Calculate with whole numbers and familiar fractions, decimals and percentages for work | * Interpretation of whole numbers, fractions, decimals, percentages and rates * Calculations involving several steps * Calculation with whole numbers and routine or familiar fractions, decimals and percentages * Conversion between equivalent forms of fractions, decimals and percentages * Application of order of operations to solve multi-step calculations * Application of problem solving strategies * Making estimations to check reasonableness of problem solving process, outcome and its appropriateness to the context and task * Use of formal and informal mathematical language and symbolism to communicate the result of a task | * Written * Practical test * Observation |
| 1. Estimate, measure and calculate with routine metric measurements for work | * Selection and interpretation of measurement information in workplace tasks and texts * Identification and selection of routine measuring equipment * Estimation and making measurements using correct units * Estimation and calculation using routine measurements * Performing conversions between routinely used metric units * Using problem solving processes to undertake tasks * Recording information using mathematical language and symbols | * Written * Practical test * Observation |
| 1. Use routine maps and plans for work | * Identification of features in routine maps and plans * Symbols and keys used in routine maps and plans * Identification and interpretation of orientation of map to North * Demonstrate understanding of direction and location * Apply simple scale to estimate length of objects, or distance to location or object * Give and receive directions using both formal and informal language | * Written * Practical test * Observation |
| 1. Interpret, draw and construct 2D and 3D shapes for work | * Identify two dimensional shapes and routine three dimensional shapes in everyday objects and in different orientations * Explain the use and application of shapes * Use formal and informal mathematical language and symbols to describe and compare the features of two dimensional shapes and routine three dimensional shapes * Identify common angles * Estimate common angles in everyday objects * Use formal and informal mathematical language to describe and compare common angles * Use common geometric instruments to draw two dimensional shapes * Construct routine three dimensional objects from given nets | • Written  • Practical test  • Observation |
| 1. Interpret routine tables, graphs and charts for work | * Identify routine tables, graphs and charts in predominately familiar texts and contexts * Identify common types of graphs and their different uses * Identify features of tables, graphs and charts * Locate specific information * Perform calculations to interpret information * Explain how statistics can inform and persuade * Identify misleading statistical information * Discuss information relevant to the workplace | * Oral * Written * Practical test * Observation |
| 1. Collect data and construct routine tables and graphs for work | * Identify features of common tables and graphs * Identify uses of different tables and graphs * Determine data and variables to be collected * Determine audience * Select a method to collect data * Collect data * Collate information in a table * Determine suitable scale and axes * Draft and draw graph to present information * Check that data meets the expected results and context * Report or discuss information using formal and informal mathematical language | * Written * Practical test * Observation |
| 1. Use basic functions of calculator | * Identify and use keys for basic functions on a calculator * Calculate using whole numbers, money and routine decimals and percentages * Calculate with routine fractions and percentages * Apply order of operations to solve multi-step calculations * Interpret display and record result * Make estimations to check reasonableness of problem solving process, outcome and its appropriateness to the context and task * Use formal and informal mathematical language and appropriate symbolism and conventions to communicate the result of the task | * Written * Practical test * Observation |

**Suggested Methods of Instructions**

* Demonstrations
* Role playing
* Viewing of related videos
* Discussion
* Assignments

**Recommended resources**

* Calculators
* Basic measuring instruments

# DIGITAL LITERACY

**UNIT CODE:** AGR/CU/FIS/BC/03/5/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Digital Literacy

**Duration of Unit:** 45 hours

**Unit Description**

This unit covers the competencies required to demonstrate digital literacy. It involves identifying appropriate computer software and hardware, applying security measures to data, hardware, software in automated environment, applying computer software in solving tasks, applying internet and email in communication at workplace, applying desktop publishing in official assignment and preparing presentation packages.

**Summary of Learning Outcomes**

1. Identify computer software and hardware
2. Apply security measures to data, hardware, software in automated environment
3. Apply computer software in solving tasks
4. Apply internet and email in communication at workplace
5. Apply desktop publishing in official assignments
6. Prepare presentation packages

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Identify computer hardware and software | * Concepts of ICT * Functions of ICT * History of computers * Components of a computer * Classification of computers | * Written tests * Oral presentation * Observation |
| 1. Apply security measures to data, hardware and software | * Data security and control * Security threats and control measures * Types of computer crimes * Detection and protection against computer crimes * Laws governing protection of ICT | * Written tests * Oral presentation * Observation * Project |
| 1. Apply computer software in solving tasks | * Operating system * Word processing * Spread sheets * Data base design and manipulation * Data manipulation, storage and retrieval | * Oral questioning * Observation * Project |
| 1. Apply internet and email in communication at workplace | * Computer networks * Network configurations * Uses of internet * Electronic mail (e-mail) concept | * Oral questioning * Observation * Oral presentation * Written report |
| 1. Apply desktop publishing in official assignments | * Concept of desktop publishing * Opening publication window * Identifying different tools and tool bars * Determining page layout * Opening, saving and closing files * Drawing various shapes using DTP * Using colour pellets to enhance a document * Inserting text frames * Importing and exporting text * Object linking and embedding * Designing of various publications * Printing of various publications | * Oral questioning * Observation * Oral presentation * Written report * Project |
| 1. Prepare presentation packages | * Types of presentation packages * Procedure of creating slides * Formatting slides * Presentation of slides * Procedure for editing objects | * Oral questioning * Observation * Oral presentation * Written report * Project |

**Suggested Methods of Instructions**

* Demonstration
* Viewing of related videos
* Discussions
* Assignments
* Direct instructions

**Recommended Resources**

* Computers
* Other digital devices
* Printers
* Storage devices
* Internet access
* Computer software

# ENTREPRENEURSHIP SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/04/5/A

Relationship to occupational standards

This unit addresses the Unit of Competency: Demonstrate Understanding of Entrepreneurship

**Duration of unit:** 70 hours

**Unit Description**

This unit covers the competencies required to demonstrate understanding of entrepreneurship. It involves demonstrating understanding of an entrepreneur, entrepreneurship and self-employment. It also involves identifying entrepreneurship opportunities, creating entrepreneurial awareness, applying entrepreneurial motivation and developing business innovative strategies.

**Summary of Learning Outcomes**

* 1. Demonstrate understanding of an entrepreneur
  2. Demonstrate knowledge of entrepreneurship and self-employment
  3. Identify entrepreneurship opportunities
  4. Create entrepreneurial awareness
  5. Apply entrepreneurial motivation
  6. Develop innovative business strategies
  7. Develop Business plan

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Demonstrate knowledge of entrepreneurship and self-employment | * Importance of self-employment * Requirements for entry into self-employment * Role of an Entrepreneur in business * Contributions of Entrepreneurs to National development * Entrepreneurship culture in Kenya * Born or made entrepreneurs | * Individual/group assignments * Projects * Written tests * Oral questions * Third party report * Interviews |
| 1. Identify entrepreneurship opportunities | * Business ideas and opportunities * Sources of business ideas * Business life cycle * Legal aspects of business * Assessment of product demand * Business environment * Factors to consider when evaluating business environment * Technology in business | * Individual/group assignments * Projects * Written tests * Oral questions * Third party report * Interviews |
| 1. Create entrepreneurial awareness | * Forms of businesses * Sources of business finance * Factors in selecting source of business finance * Governing policies on Small Scale Enterprises (SSEs) * Problems of starting and operating SSEs | * Individual/group assignments * Projects * Written tests * Oral questions * Third party report * Interviews |
| 1. Apply entrepreneurial motivation | * Internal and external motivation * Motivational theories * Self-assessment * Entrepreneurial orientation * Effective communications in entrepreneurship * Principles of communication * Entrepreneurial motivation | * Case studies * Individual/group assignments * Projects * Written tests * Oral questions * Third party report * Interviews |
| 1. Develop business innovative strategies | * Innovation in business * Small business Strategic Plan * Creativity in business development * Linkages with other entrepreneurs * ICT in business growth and development | * Case studies * Individual/group assignments * Projects * Written tests * Oral questions * Third party report * Interviews |
| 1. Develop Business Plan | * Business description * Marketing plan * Organizational/Management * plan * Production/operation plan * Financial plan * Executive summary * Presentation of Business Plan | * Case studies * Individual/group assignments * Projects * Written tests * Oral questions * Third party report * Interviews |

**Suggested Methods of instructions:**

* Direct instruction
* Project
* Case studies
* Field trips
* Discussions
* Demonstration
* Question and answer
* Problem solving
* Experiential
* Team training

**Recommended Resources**

* Case studies
* Business plan templates
* Computers
* Overhead projectors
* Internet
* Mobile phone
* Video clips
* Films
* Newspapers and Handouts
* Business Journals
* Writing materials

# EMPLOYABILITY SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/05/5/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Employability Skills

**Duration of Unit:** 50 hours

**Unit Description**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating interpersonal communication, critical safe work habits, leading a workplace team, planning and organizing work, maintaining professional growth and development, demonstrating workplace learning, problem solving skills and managing workplace ethics.

**Summary of Learning Outcomes**

1. Conduct self-management

2. Demonstrate interpersonal communication

3. Demonstrate critical safe work habits

4. Lead small teams

5. Plan and organize work

6. Maintain professional growth and development

7. Demonstrate workplace learning

8. Demonstrate problem solving skills

9. Demonstrate workplace ethics

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Conduct self-management | * Self-awareness * Formulating personal vision, mission and goals * Strategies for overcoming life challenges * Emotional intelligence * Assertiveness versus aggressiveness * Expressing personal thoughts, feelings and beliefs * Developing and maintaining high self-esteem * Developing and maintaining positive self-image * Articulating ideas and aspirations * Accountability and responsibility * Good work habits * Self-awareness * Self-development * Financial literacy * Healthy lifestyle practices | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate interpersonal communication | * Meaning of interpersonal communication * Listening skills * Types of audience * Writing skills * Reading skills * Meaning of empathy * Understanding customers’ needs * Establishing communication networks * Sharing information | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate critical safe work habits | * Stress and stress management * Punctuality and time consciousness * Leisure * Integratingpersonal objectives into organizational objectives * Resources utilization * Setting work priorities * HIV and AIDS * Drug and substance abuse * Handling emerging issues | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Lead a small team | * Leadership qualities * Team building * Determination of team roles and objectives * Team performance indicators * Responsibilities in a team * Forms of communication * Complementing team activities * Gender and gender mainstreaming * Human rights * Maintaining relationships * Conflicts and conflict resolution | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Plan and organize work | * Functions of management * Planning * Organizing * Time management * Decision making process * Task allocation * Evaluating work activities * Resource utilization * Problem solving * Collecting and organising information | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Maintain professional growth and development | * Opportunities for professional growth * Assessing training needs * Licenses and certifications for professional growth and development * Pursuing personal and organizational goals * Identifying work priorities * Recognizing career advancement | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate workplace learning | * Managing own learning * Contributing to the learning community at the workplace * Cultural aspects of work * Variety of learning context * Application of learning * Safe use of technology * Identifying opportunities * Generating new ideas * Workplace innovation * Performance improvement * Handling emerging issues * Future trends and concerns in learning | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate problem solving skills | * Problem identification * Problem solving * Application of problem-solving strategies * Resolving customer concerns | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate workplace ethics | * Meaning of ethics * Ethical perspectives * Principles of ethics * Values and beliefs * Ethical standards * Organization code of ethics * Common ethical dilemmas * Organization culture * Corruption, bribery and conflict of interest * Privacy and data protection * Diversity, harassment and mutual respect * Financial responsibility/accountability * Etiquette * Personal and professional integrity * Commitment to jurisdictional laws * Emerging issues in ethics | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |

**Suggested Methods of Instructions**

* Demonstrations
* Simulation/Role play
* Discussion
* Presentations
* Case studies
* Q&A

**Recommended Resources**

* Computers
* Stationery
* Charts
* Video clips
* Audio tapes
* Radio sets
* TV sets
* LCD projectors

# ENVIRONMENTAL LITERACY

**UNIT CODE:** AGR/CU/FIS/BC/06/5/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Environmental Literacy

**Duration of Unit:** 25 hours

**Unit Description**

This unit describes the competencies required to demonstrate understanding of environmental literacy. It involves controlling environmental hazard, controlling control environmental pollution, complying with workplace sustainable resource use, evaluating current practices in relation to resource usage, identifying environmental legislations/conventions for environmental concerns, implementing specific environmental programs and monitoring activities on environmental protection/programs.

**Summary of Learning Outcomes**

1. Control environmental hazards
2. Control environmental Pollution
3. Demonstrate sustainable use of resource
4. Evaluate current practices in relation to resource usage
5. Identify Environmental legislations/conventions for environmental concerns
6. Implement specific environmental programs
7. Monitor activities on Environmental protection/Programs

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Control environmental hazards | * Purposes and content of Environmental Management and Coordination Act 1999 * Purposes and content of Solid Waste Act * Storage methods for environmentally hazardous materials * Disposal methods of hazardous wastes * Types and uses of PPE in line with environmental regulations * Occupational Safety and Health Standards (OSHS) | * Written test * Oral questions * Observation |
| 1. Control environmental Pollution control | * Types of pollution * Environmental pollution control measures * Types of solid wastes * Procedures for solid waste management * Different types of noise pollution * Methods for minimizing noise pollution | * Written test * Oral questions * Observation |
| 1. Demonstrate sustainable resource use | * Types of resources * Techniques in measuring current usage of resources * Calculating current usage of resources * Methods for minimizing wastage * Waste management procedures * Principles of 3Rs (Reduce, Reuse, Recycle) * Methods for economizing or reducing resource consumption | * Written test * Oral questions * Observation |
| 1. Evaluate current practices in relation to resource usage | * Collection of information on environmental and resource efficiency systems and procedures, * Measurement and recording of current resource usage * Analysis and recording of current purchasing strategies. * Analysis of current work processes to access information and data * Identification of areas for improvement | * Written test * Oral questions * Observation |
| 1. Identify Environmental legislations/conventions for environmental concerns | * Environmental issues/concerns * Environmental legislations /conventions and local ordinances * Industrial standard /environmental practices * International Environmental Protocols (Montreal, Kyoto) * Features of an environmental strategy | * Written questions * Oral questions * Observation |
| 1. Implement specific environmental programs | * Community needs and expectations * Resource availability * 5 s of good housekeeping * Identification of programs/Activities * Setting of individual roles /responsibilities * Resolving problems /constraints encountered * Consultation with stakeholders | * Written questions * Oral questions * Observation |
| 1. Monitor activities on Environmental protection/Programs | * Periodic monitoring and Evaluation of activities * Gathering feedback from stakeholders * Analysing data gathered * Documentation of recommendations and submission * Setting of management support systems to sustain and enhance the program * Monitoring and reporting of environmental incidents to concerned /proper authorities | * Oral questions * Written tests * Practical test * Observation |

**Suggested Methods of Instructions**

* Instructor led facilitation of theory
* Demonstration by trainer
* Viewing of related videos
* Project
* Assignements
* Role play

**Recommended Resources**

* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Environmental Management and Coordination Act 1999
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE)
* ISO standards
* Ccompany environmental management systems (EMS)
* Montreal Protocol
* Kyoto Protocol

# OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:** AGR/CU/FIS/BC/07/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Demonstrate occupational safety and health practices

**Duration of Unit:** 25 hours

**Unit Description**

This unit specifies the competencies required to identify workplace hazards and risk, identify and implement appropriate control measures and implement OSH programs, procedures and policies/ guidelines

**Summary of Learning Outcomes**

1. Identify workplace hazards and risk
2. Control OSH hazards
3. Implement OSH programs

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Identify workplace hazards and risks | * Identification of hazards in the workplace and/or the indicators of their presence * Evaluation and/or work environment measurements of OSH hazards/risk existing in the workplace is conducted by * Authorized personnel or agency * Gathering of OHS issues and/or concerns raised | * Oral questions * Written tests * Portfolio of evidence * Third party report |
| 1. Control OSH hazards | * Prevention and control measures, including use of PPE (personal protective equipment) for specific hazards are identified and implemented * Appropriate risk controls based on result of OSH hazard evaluation is recommended * Contingency measures, including emergency procedures during workplace incidents and emergencies are recognized and established in accordance with organization procedures | * Oral questions * Written tests * Portfolio of evidence * Third party report |
| 1. Implement OSH programs | * Providing information to work team about company OHS program, procedures and policies/guidelines * Participating in implementation of OSH procedures and policies/ guidelines * Training of team members and advice on OSH standards and procedures * Implementation of procedures for maintaining OSH-related records | * Oral questions * Written tests * Portfolio of evidence * Third party report |

**Suggested Methods of Instructions**

* Assigments
* Discussion
* Q&A
* Role play
* Viewing of related videos

**Recommended Resources**

* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE) e.g.
* Mask
* Face mask/shield
* Safety boots
* Safety harness
* Arm/Hand guard, gloves
* Eye protection (goggles, shield)
* Hearing protection (ear muffs, ear plugs)
* Hair Net/cap/bonnet
* Hard hat
* Face protection (mask, shield)
* Apron/Gown/coverall/jump suit
* Anti-static suits
* High-visibility reflective vest

# COMMON UNITS OF LEARNING

# BREATHE HOLD DIVING OPERATIONS

**UNIT CODE:** AGR/CU/FIS/CC/01/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: perform breath hold diving operations

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to perform breath hold diving operations. It involves preparing for dive, performing work during a breath hold dive, employing techniques that reduce underwater hazards and completing post-dive activities.

**Summary of Learning Outcomes**

* + - 1. Prepare for dive
      2. Perform work during a breath hold dive
      3. Employ techniques that reduce underwater hazard
      4. Complete post-dive activities

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare for dive | * Meaning of diving and swimming * Dangers of barotrauma, and squeezes * Dangers of cold water * Breath holding limitations * Dangers of hyperventilation * Diving equipment * PPE in diving * Hazards and contingencies in diving * Procedures used during diving operations. * Preparation of pre-dive plan and work schedule | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Perform work during a breath hold dive | * Use of underwater equipment * Diving posture * Descending techniques * Ascending techniques * Time management in diving * Oxygen management in diving * Under water observation skills * Video/camera skills under water * Breathing techniques * Under water writing materials and skills * Underwater maneuver * Signs and symptoms of injury | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Employ techniques that reduce underwater hazard | * Prior knowledge of the diving area * Surrounding observation * Turbid waters and their hazards * Diving to the appropriate depth * Strict observation of the pre dive plan and work schedule * Instinct observation | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Complete post-dive activities | * Removing diving equipment * Post-dive checks of diving equipment * Safe landing of the diving catch * Documentation of diving results * Maintenance of diving equipment * Handling and storage of the diving equipment | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Wetsuit
* Weights/floats
* Face mask and snorkel
* Fins
* Catch bag
* Safety line
* Oxygen cylinder
* Under water cameras
* Swimming pool
* Underwater stationery

# STANDARD MEASURING DEVICES AND INSTRUMENTS

**UNIT CODE:** AGR/CU/FIS/CC/02/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: use standard measuring devices and

Instruments

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to use standard measuring devices and

Instruments. It involves identifying standard measuring devices and instruments, reviewing the procedures in using standard measuring devices and instruments and following procedures of using measuring devices and instruments

**Summary of Learning Outcomes**

* 1. Identify Standard Measuring Devices and Instruments
  2. Review the Procedures in Using Standard Measuring Devices and Instruments
  3. Follow Procedures of Using Measuring Devices and Instruments

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Identify Standard Measuring Devices and Instruments | * Meaning of metrology * Types of standard measuring devices and instruments * Safe handling of measuring devices and instruments * Specifications and functions of measuring devices and instruments * Defects and breakages of measuring devices and instruments * Procedures in cleaning, sanitizing and calibrating and storing equipment and instruments | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Review the Procedures in Using Standard Measuring Devices and Instruments | * Procedures in using the standard measuring devices and instruments * Adherence to approved procedures * Improvement of laid down procedures regularly | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Follow Procedures of Using Measuring Devices and Instruments | * Strict observation of methods/practices of using measuring devices and instruments * Maintenance of measuring devices and instruments | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Salinometer
* Thermometers of varying temperature range ( 0-300 C)
* Refractometer of varying range ( 0 – 90 B)
* Glassware like cylinders, beakers, flasks) of varying graduations
* Weighing scales and balances of various capacities and sensitivities
* Measuring cups of varying capacities for dry ingredients
* Measuring cups of varying capacities for liquid ingredients

# FIRE PREVENTION AND FIGHTING

**UNIT CODE:** AGR/CU/FIS/CC/03/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: prevent and fight fire

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to prevent and fight fire. It involves managing fire prevention procedures, operating portable firefighting equipment, conducting interior search and rescue and fire-fighting operations.

**Summary of Learning Outcomes**

* 1. Manage fire prevention procedures
  2. Operate portable firefighting equipment
  3. Conduct interior search and rescue and fire-fighting operations

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Manage fire prevention procedures | * Fire hazards on board a vessel * Fire detection and firefighting equipment and systems * Dangers of fire, how to prevent it and what to do if a fire is detected * Emergency procedures to be followed in the event of fire | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Operate portable firefighting equipment | * Classes of fires * Types of fire-fighting equipment * Methods of extinguishing fire on board a vessel * Recharging the various types of fire extinguishers * Maintenance of fire-fighting equipment | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Conduct interior search and rescue and fire-fighting operations | * Procedures for donning and starting up SCBA (Self-Contained Breathing Apparatus)/ CABA(Compressed Air Breathing Apparatus) * Procedures for the logging of SCBA / CABA operations on a BA Control Board * Search and rescue operations in a smoke filled environment * Firefighting equipment and procedures for extinguishing interior fires * Lifeline signals used during interior firefighting operations | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Portable fire extinguisher including foam, water, CO2, dry
* Chemical and wet foam
* Fire blankets
* C02 fixed system
* Foam installation including semi-portable and fixed system
* Sprinkler system
* Fire pumps (main and emergency fire pump
* Fire hoses, hydrants, branches and international shore connection

# AQUATIC ENVIRONMENT PROTECTION

**UNIT CODE:** AGR/CU/FIS/CC/04/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: protect aquatic environment

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to protect aquatic environment. It involves identifying waste disposal procedures, perform waste segregation and record waste segregation

**Summary of Learning Outcomes**

* 1. Identify waste disposal procedures
  2. Perform waste Segregation
  3. Record waste segregation

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Identify waste disposal procedures | * Types of waste * Waste disposal onboard * Measures to prevent operational pollution * State waste disposal procedures for the protection of the marine environment | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Perform waste Segregation | * Waste coding * MARPOL Regulations and procedures concerning protection of marine environment * Application of marine environment protection programs on board * Identification of breach of regulations and procedures concerning protection of the aquatic environment * Remedies for breach of regulations and procedures concerning protection of the aquatic environment * Waste management in repairs and maintenance of the vessel | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Record waste segregation | * Waste segregation and disposal policies * Social responsibilities in waste disposal * Documentation and reporting of waste segregation and disposal activities | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE) e.g.
* Mask
* Face mask/shield
* Safety boots
* Safety harness
* Arm/Hand guard, gloves
* Eye protection (goggles, shield)
* Hearing protection (ear muffs, ear plugs)
* Hair Net/cap/bonnet
* Hard hat

# CORE UNITS OF LEARNING

# FIRST AID TREATMENT ON BOARD

**UNIT CODE:** AGR/CU/FIS/CR/01/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: perform first aid treatment on boar.

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to perform first aid treatment on board. It involves performing immediate lifesaving first aid pending the arrival of medical assistance, recognizing the symptoms and acute illness and or injury and take appropriate action, managing wounds and bleeding, managing burns, managing bone, joint and muscle injuries and adapt first aid procedures for remote situations.

**Summary of Learning Outcomes**

1. Perform immediate lifesaving first aid pending the arrival of medical assistance
2. Recognize these symptoms and acute illness
3. Manage wounds and bleeding
4. Manage burns
5. Manage bone, joint and muscle injuries
6. Adapt first aid procedures for remote situations

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Perform immediate lifesaving first aid pending the arrival of medical assistance | * Principles of first aid * Scene size-up * Assessment of nature and extent of injury and /or illness * Sourcing for emergency services * Decision making-triaging * Requirements for first aid | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Recognize the   symptoms and acute illness | * Performing cardio- pulmonary resuscitation; * Management of:   + Choking   + Burns and scalds   + Trauma   + Nose bleeding   + Cuts   + Fractures   + Drowning   + Poisoning   + Snake bites * Assisting patients with medical conditions such as:   + Asthma   + Epilepsy   + Diabetes * Effective communication on casualty’s condition * Handing over casualty to medical personnel * Monitoring Casualty’s condition * Evaluating response of the casualty to the intervention * Documentation * Waste management * Report writing * Evaluating first aider’s response to the situation | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Manage wounds and bleeding | * Protocols for wound assessment. * Wound impact assessment * Planning care for a person with a wound. * Clinical nursing care in implementing wound care strategies * Contemporary wound management strategies to complex or challenging wounds. * Evaluating outcomes of nursing actions. | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Manage burns | * Definition of burns * Types of burns * Principles of burn management * Burn assessment * Method of treating burns | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Manage bone, joint and muscle injuries | * Symptoms and signs of fractures * Problems and treatment associated with dislocated joints * First aid treatment of pelvic and chest injuries and fractures of limbs * Immobilization techniques * symptoms and signs of sprains and strains | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Adapt first aid   procedures for remote situations | * Risk assessment in emergency situations * Mobilization of first aid resources * Operating procedures during emergencies | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Vessels/ medicine cabinet
* First aid boxes
* Emergency first aid carry bags
* Specific first aid resources
* Roller bandages
* Triangular bandages
* Face masks
* Cleaning swabs
* Cleaning brush
* Cleaning materials
* Medicines
* Vessel’s Medicine Cabinet
* First Aid Boxes
* Emergency first aid carry bags

# TRANSMISSION AND RECEPTION OF INFORMATION BY MARINE RADIO OR TELEPHONE

**UNIT CODE:** AGR/CU/FIS/CR/02/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: transmit and receive information by marine radio or telephone

**Duration of Unit:** hours

**Unit Description**

This unit describes the competencies required to transmit and receive information by marine radio or telephone.it involvesoperating VHF (very high frequency) and UHF (ultra-high frequency) radio equipment, maintaining and fault-finding radio equipment, accessing search and rescue facilities, deploying and operating an EPIRB and a SART

**Summary of Learning Outcomes**

* + - 1. Operate VHF(very high frequency) and UHF(Ultra High frequency) radio equipment
      2. Maintain and faultfind radio equipment
      3. Access search and rescue facilities
      4. Deploy and operate an EPIRB and a SART

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Operate VHF(very high frequency) and UHF(Ultra High frequency) radio equipment | * Electromagnetic spectrum * Principles of communication * Types of radio equipment * Regulations and procedures applicable to vessel stations equipped with radiotelephony and digital selective calling (DSC) * OHS procedures and hazard control strategies applied in operation of radio equipment | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Maintain and faultfind radio equipment | * Routine maintenance checks on radiotelephony equipment * Out-of-specification performance and faults in radio equipment * Repair of faults and defective radio equipment. | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Access search and rescue facilities | * Search and rescue systems * Distress and safety systems * Rules and guidelines in rescue operations | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Deploy and operate   an EPIRB and a SART | * Routine checks on Emergency Position Indicating Radio Beacons (EPIRBs) and Search and Rescue Transmitters (SARTs) * Rectification or replacement of EPIRBs or SARTs * Deployment of Emergency Position Indicating Radio Beacons (EPIRBs) and Search and Rescue Transmitters (SARTs) | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Radio call
* GPS
* Navigation compass
* Maps
* Projectors
* White board
* PPEs

# SMALL FISHING VESSELS MANAGEMENT

**UNIT CODE:** AGR/CU/FIS/CR/03/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: manage small fishing vessels

**Duration of Unit:** hours

**Unit Description**

This unit describes the competencies required to manage small fishing vessels.it involves

Operating fishing vessels, monitoring condition and seaworthiness of a vessel, performing routine maintenance tasks on small marine vessels, troubleshooting and maintain low powered marine engines and applying weather information when navigating a vessel.

**Summary of Learning Outcomes**

1. Operate fishing vessels
2. Monitor condition and seaworthiness of a vessel
3. Perform routine maintenance tasks on small marine vessels
4. Troubleshoot and maintain low powered marine engines
5. Apply weather information when navigating a Vessel

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Operate fishing vessels | * Definition of fishing vessel * Basics of fishing vessel * Types of fishing vessel * Navigation of fishing vessel * Rules of the navigation paths * Boat handling skills * Forces that act on the boat | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Monitor condition and seaworthiness of a vessel | * Qualities of seaworthiness * Inspection of hull conditions * Inspection of vessel appliances * Assessment of vessel crew on competency * Assessment of working conditions in the vessel | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Perform routine maintenance tasks on a small marine vessels | * Scrubbing of hull surface * Dry docking * Vessels drying * Repair and replacement of worn out part * Lubrication * Painting of the hull | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Troubleshoot and maintain low powered marine engines | * Vessel inspections * Test drives * Vessel servicing | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Apply weather information when navigating a Vessel | * weather and oceanographic information * Application of weather and oceanographic data during navigation * Maintenance of weather and oceanographic information and forecasts. | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE) e.g.
* Equipped mechanical toolbox

# OUTBOARD MOTORS MANAGEMENT

**UNIT CODE:** AGR/CU/FIS/CR/04/5/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: manage outboard motors

**Duration of Unit:** hours

**Unit Description**

This unit describes the competencies required to manage outboard motors.it involves operating outboard motors, maintaining outboard motors and repairing basic outboard motor faults.

**Summary of Learning Outcomes**

1. Operate outboard motors
2. Maintain outboard motors
3. Repair basic outboard motor faults

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Operate outboard   motors | * Pre-start checks on the motor * Starting and stopping of outboard motors * Outboard motor maneuver * Outboard motor cooling systems. * Trim and tilt mechanisms | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Maintain outboard   motors | * Outboard motor servicing * Mounting of outboard motors * Storage of outboard motors | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Repair   basic outboard  motor faults | * Types of faults * Repair/replacement | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Engine
* Equipped mechanical toolbox
* Spare parts
* PPEs
* Oil /Fuel
* Filters
* Plugs

# HARVESTED FISH HANDLING

**UNIT CODE:** **AGR/CU/FIS/CR/05/5/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: handle harvested fish

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to handle harvested fish.it involves preparing harvested fish, preserving harvested fish, processing harvested fish, packaging fish and fish products , marketing fish, fish products and by-products and managing waste from fish processing.

**Summary of Learning Outcomes**

* 1. Prepare harvested fish
  2. Preserve harvested fish
  3. Process harvested fish
  4. Package fish and fish products
  5. Market fish, fish products and by-products
  6. Manage waste from fish processing

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare harvested fish | * Use of PPEs in preserving harvested fish * Safety measures to be observed * Use of fish handling materials, tools and equipment * Fish handling procedures * Grading * Cleaning * Scaling * Gutting | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Implement Food Sanitation Practices | * Food quality system principles * Meaning of KeBS, ISO, HACCP, EMS, 5S * Good Food Manufacturing Practices * Components of Personal hygiene and good grooming * Sanitary food handling practices * Labeling of chemicals and other sanitizing agents * Installation of firefighting equipment in the work area * Installation of safety signages and symbols * Implementation of 5S in the work area * Removal of combustible material in the work area | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Implement housekeeping activities | * Constant sources of clean water * Cleaning work area and surroundings * Waste disposal * Identification and reporting hazards * Sanitation of PPE * Storage of food, PPE | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Preserve harvested fish | * Use of fish preservation materials, supplies, tools and equipment * Designs of fish preservation equipment * Fish preservation methods: * Icing * Smoking * Sun-drying * Salting * Freezing | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Process harvested fish | * Use of PPEs in processing harvested fish * Safety measures to be observed * Use of fish processing materials, supplies, tools and equipment * Designs of fish processing equipment * Types of processed fish products * Processing methods * Frying * Smoking * Salting * Marinating * Filleting * Fermentation * Fish by-product processing * Oils * Frames * Skins * Packaging and labelling * Packaging tools and equipment * Packaging materials * Labelling information * Products storage * Quality control during processing and storage | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Package fish and fish products | * Methods of packaging * Canning * Bottling * vacuum | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Market fish, fish products and by-products | * Fish market dynamics * Price determination * Distribution channels * Selling methods * Observation of hygiene | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Manage waste from fish processing | * Use of tools, materials and equipment in disposal of fish processing wastes * Environmental regulations for disposal of fish processing wastes * Types of fish processing wastes * Disposal methods of fish processing wastes | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE) e.g.
* Mask
* Face mask/shield
* Safety boots
* Safety harness
* Arm/Hand guard, gloves
* Eye protection (goggles, shield)
* Hearing protection (ear muffs, ear plugs)
* Hair Net/cap/bonnet
* Hard hat
* Face protection (mask, shield)
* Apron/Gown/coverall/jump suit
* Anti-static suits
* High-visibility reflective vest

# FISHING GEAR TECHNOLOGY

**UNIT CODE:** **AGR/CU/FIS/CR/06/5/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: manage fishing gear

**Duration of Unit:** hours

**Unit Description**

This unit describes the competencies required to manage fishing gear.it involves designing fish gear, constructing fish gear, operating fish gear, maintaining fish gear and maintaining records

**Summary of Learning Outcomes**

1. Design fish gear
2. Construct fish gear
3. Operate fish gear
4. Maintain fish gear

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Design fish gear | * Meaning of fishing gears * Types of fishing gears * Factors to consider when designing fishing gear * Methods of fishing | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Construct fish gear | * Characteristics of materials for constructing fishing gears * Tools and equipment for constructing fishing gears * Measurements and mesh sizes for fishing gears. * Procedures for constructing fishing gear. | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Operate fish gear | * Impacts of fishing on environment * Procedures for deploying fishing gears * Fishing habitat * Fishing techniques * Fishing operations documentation | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Maintain fish gear | * Cleaning and drying fishing gears * Assessment of fishing gear conditions * Materials and tools for repair of fishing gears. * Fishing gear repair procedures * Fishing gear storage * Fishing gear maintenance documentation | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Fishing gear accessories
* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE) e.g.
* Mask
* Face mask/shield
* Safety boots
* Safety harness
* Arm/Hand guard, gloves
* Eye protection (goggles, shield)
* Hearing protection (ear muffs, ear plugs)
* Hair Net/cap/bonnet
* Hard hat

# FISHING OPERATIONS

**UNIT CODE:** **AGR/CU/FIS/CR/07/5/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: conduct fishing operations

**Duration of Unit:** hours

**Unit Description**

This unit specifies the competencies required to set up a fishing gear, harvest fish from the fishing grounds using appropriate fishing gears, transporting fish to the fish landing beaches under stringent hygienic conditions.

**Summary of Learning Outcomes**

1. Set up fishing gear
2. Harvest fish from gear
3. Transport fish to landing beaches

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Set up fishing gear | * Types of fishing gear * Characteristics, physical properties of fishing gear material * Area of use for fishing gear and accessories * Effectiveness of fishing gear * Impact of fishing gear on marine ecosystem * PPEs in fishing operations * Tools, equipment and materials in fishing operations * Fishing ground identification * Fishing methods. * Fishing gear deployment procedures * Fishing gear calculation   + Volume   + Costs   + Size/length   + Length of towing warps   + Trawl winch capacity * Procedures for setting up fishing gear. | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Harvest fish from gear | * Hauling techniques * Harvesting procedures * Fish sorting and grading * Handling captured fish | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Transport fish to landing beaches | * Preservation techniques on board. * Cleanliness method and treatment of fish before storing on board | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

* Standard operating and/or other workplace procedures manuals
* Specific job procedures manuals
* Machine/equipment manufacturer’s specifications and instructions
* Personal Protective Equipment (PPE) e.g.
* Mask
* Face mask/shield
* Safety boots
* Safety harness
* Arm/Hand guard, gloves
* Eye protection (goggles, shield)
* Hearing protection (ear muffs, ear plugs)
* Hair Net/cap/bonnet
* Hard hat

# FISH AGGREGATING DEVICES

**UNIT CODE:** **AGR/CU/FIS/BC/08/5/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: manage fish aggregating devices

**Duration of Unit: 60** hours

**Unit Description**

This unit specifies the competencies required to manage fish aggregating devices. It involves designing Fish aggregating devices , setting up Fish aggregating devices and maintaining Fish aggregating devices.

**Summary of Learning Outcomes**

1. Design Fish aggregating devices
2. Set up Fish aggregating devices
3. Maintain Fish aggregating devices

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Design Fish aggregating devices | * Meaning of fish aggregating devices(FADs), target species * Types of FADs * Site selection * Models of the FADs * Materials, tools and equipment for construction of FADs * Construction procedures for FADs * Impacts of FADs | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Set up Fish aggregating devices | * Guidelines on setting up FADs * Transportation of FADs * Types of substrates * Factors to consider when setting up FADs * Procedures for fixing FADs | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Maintain Fish aggregating devices | * Monitoring FADs * FADs repair * FADs treatment * FAD resetting | * Written tests * Third party reports * Oral questioning * Interview * Observation |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Demonstration by trainer
* Practical work by trainee
* Viewing of related videos

**Recommended Resources**

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