****

**REPUBLIC OF KENYA**

**COMPETENCY BASED CURRICULUM**

**FOR**

**FISHERIES TECHNOLOGY**

**LEVEL 6**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

First published 2019

Copyright ©TVET CDACC

All rights reserved. No part of this curriculum may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods without the prior written permission of the TVET CDACC, except in the case of brief quotations embodied in critical reviews and certain other non-commercial uses permitted by copyright law. For permission requests, write to the Council Secretary/CEO, at the address below:

**Council Secretary/CEO**

**TVET Curriculum Development, Assessment and Certification Council**

**P.O. Box 15745–00100**

**Nairobi, Kenya**

**Email:** [**info@tvetcdacc.go.ke**](mailto:info@tvetcdacc.go.ke)

# 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 to 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 has been developed following the CBET framework policy; the CBETA standards and guidelines provided by the TVET Authority and the Kenya National Qualification Framework designed by the Kenya National Qualification Authority.

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**

Table of Content

[FOREWORD iii](#_Toc69333356)

[PREFACE iv](#_Toc69333357)

[ACKNOWLEDGMENT v](#_Toc69333358)

[ABBREVIATIONS AND ACRONYMS viii](#_Toc69333359)

[KEY TO UNIT CODE ix](#_Toc69333360)

[COURSE OVERVIEW 1](#_Toc69333361)

[COMMUNICATION SKILLS 5](#_Toc69333362)

[NUMERACY SKILLS 8](#_Toc69333363)

[DIGITAL LITERACY 13](#_Toc69333364)

[ENTREPRENEURIAL SKILLS 16](#_Toc69333365)

[EMPLOYABILITY SKILLS 20](#_Toc69333366)

[ENVIRONMENTAL LITERACY 26](#_Toc69333367)

[OCCUPATIONAL SAFETY AND HEALTH PRACTICES 30](#_Toc69333368)

[COMMON UNITS OF LEARNING 31](#_Toc69333369)

[FISH BIOLOGY AND BEHAVIOUR 32](#_Toc69333370)

[BREATHE HOLD DIVING OPERATIONS 34](#_Toc69333371)

[FOOD SAFETY AND SANITATION 36](#_Toc69333372)

[STANDARD MEASURING DEVICES AND INSTRUMENTS 38](#_Toc69333373)

[GOOD MANUFACTURING PRACTICE AND PROCEDURES 40](#_Toc69333374)

[FIRE PREVENTION AND FIGHTING 42](#_Toc69333375)

[AQUATIC ENVIRONMENT PROTECTION 44](#_Toc69333376)

[CORE UNITS OF LEARNING 46](#_Toc69333377)

[FIRST AID TREATMENT ON BOARD 47](#_Toc69333378)

[TRANSMISSION AND RECEPTION OF INFORMATION ON RADIO, TELEPHONE AND VMS 50](#_Toc69333379)

[SMALL FISHING VESSELS MANAGEMENT 52](#_Toc69333380)

[OUTBOARD MOTORS MANAGEMENT 55](#_Toc69333381)

[HARVESTED FISH HANDLING 57](#_Toc69333382)

[FISHING GEAR TECHNOLOGY 61](#_Toc69333383)

[FISHING OPERATIONS 64](#_Toc69333384)

[FISH AGGREGATING DEVICES (FAD) 67](#_Toc69333385)

[FISH HEALTH MANAGEMENT 69](#_Toc69333386)

# ABBREVIATIONS AND ACRONYMS

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

V M S : Vessel monitoring system

# KEY TO UNIT CODE

AG**R/CU/FIS/BC/01/6/A**

Industry or sector

Curriculum

Occupational area

Type of competency

Competency number

Competency level

Version control

# COURSE OVERVIEW

**Description of the Course**

The **Fisheries technology level six qualification** consists of competencies that a person must achieve to demonstrate knowledge of fish biology and behavior, perform breath hold diving operations, apply food safety and sanitation, use standard measuring devices and instruments, implement good manufacturing practice and procedures, prevent and fight fire, protect aquatic environment, perform first aid treatment on board, transmit and receive information by marine radio or telephone, manage sea vessels, manage fishing gear, manage fish aggregating devices, handle harvested fish and manage fish health within the institution’s/organizations acceptable Standard Operating Procedures (SOPs).

**Units of Learning**

This course consists of basic, common and core units of learning as indicated below:

**Basic Units of Learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Code** | **Unit Title** | **Duration in Hours** | **Credit Factor** |
| **AGR/CU/FIS/BC/01/6/A** | Communication skills | 40 | 4.0 |
| **AGR/CU/FIS/BC/02/6/A** | Occupational safety and health practices | 50 | 5.0 |
| **AGR/CU/FIS/BC/03/6/A** | Numeracy skills | 70 | 7.0 |
| **AGR/CU/FIS/BC/04/6/A** | Digital literacy | 80 | 8.0 |
| **AGR/CU/FIS/BC/05/6/A** | Entrepreneurial skills | 80 | 8.0 |
| **AGR/CU/FIS/BC/06/6/A** | Employability skills | 60 | 6.0 |
| **AGR/CU/FIS/BC/07/6/A** | Environmental literacy | 40 | 4.0 |
| **Total** |  | 420 | 42.0 |

**Common units of learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Code** | **Unit Title** | **Duration in Hours** | **Credit Factor** |
| **AGR/OS/FIS/CC/01/6/A** | Fish Biology and Behaviour | 150 | 15 |
| **AGR/OS/FIS/CC/02/6/A** | Breathe Hold Diving Operations | 170 | 17 |
| **AGR/OS/FIS/CC/03/6/A** | Food Safety and Sanitation | 200 | 20 |
| **AGR/OS/FIS/CC/04/6/A** | Standard Measuring Devices And Instruments | 220 | 22 |
| **AGR/OS/FIS/CC/05/6/A** | Good Manufacturing Practice And Procedures | 180 | 18 |
| **AGR/OS/FIS/CC/06/6/A** | Fire Prevention And Fighting | 140 | 14 |
| **AGR/OS/FIS/CC/07/6/A** | Aquatic Environment Protection | 130 | 13 |
| **Total** | | **1190** | **119** |

**Core units of learning**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Code** | **Unit Title** | **Duration in Hours** | **Credit Factor** |
| **AGR/OS/FIS/CR/01/6/A** | First aid treatment on board | 150 | 15 |
| **AGR/OS/FIS/CR/02/6/A** | Transmission and reception of information by marine radio or telephone | 140 | 14 |
| **AGR/OS/FIS/CR/03/6/A** | Small fishing vessels management | 120 | 12 |
| **AGR/OS/FIS/CR/04/6/A** | Outboard motors management | 160 | 16 |
| **AGR/OS/FIS/CR/05/6/A** | Harvested fish handling | 150 | 15 |
| **AGR/OS/FIS/CR/06/6/A** | Fishing gear technology | 170 | 17 |
| **AGR/OS/FIS/CR/07/6/A** | Fishing operations | 180 | 18 |
| **AGR/OS/FIS/CR/08/6/A** | Fish aggregating devices | 210 | 21 |
| **AGR/OS/FIS/CR/09/6/A** | Fish health management | 220 | 22 |
|  | Industrial attachment | 480 | 48.0 |
| **Total** | | **1980** | **198** |
| **Grand total** | | **3590** | **359** |

The total duration of the course is. 3590 Hours

**Entry Requirements**

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

1. Fisheries Technology craft certificate Level 5

**Or**

1. Kenya Certificate of Secondary Education (KCSE) C- (C Minus)

**Or**

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

**Trainer qualification**

A trainer for this course should have a higher qualification than the level of this course

**Assessment**

The course will be assessed at two levels: internally and externally. Internal assessment is continuous and is conducted by the trainer who is monitored by an accredited internal verifier while external assessment is conducted by accredited external assessors appointed by TVET CDACC.

**Certification**

A candidate will be issued with a National Certificate of competency on demonstration of competence in a unit of competency. To attain the National Fisheries Technology Diploma Level 6, the candidate must demonstrate competence in all the units of competency as given in qualification pack. These certificates will be issued by TVET CDACC in conjunction with training provider

**BASIC UNITS**

# COMMUNICATION SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/01/6/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Communication Skills

**Duration of Unit:** 40 hours

**Unit Description**

This unit covers the competencies required to demonstrate communication skills .It involves, meeting communication needs of clients and colleagues; developing communication strategies, establishing and maintaining communication pathways, conducting interviews, facilitating group discussion and representing the organization.

**Summary of Learning Outcomes**

1. Meet communication needs of clients and colleagues
2. Develop communication strategies
3. Establish and maintain communication pathways
4. Promote use of communication strategies
5. Conduct interview
6. Facilitate group discussion
7. Represent the organization

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 * Types of communication strategies * Elements of communication strategy | * Interview * Written texts |
| 1. Develop communication strategies | * Dynamics of groups * Styles of group leadership * Openness and flexibility in communication * Communication skills relevant to client groups | * Interview * Written texts |
| 1. Establish and maintain communication pathways | * Types of communication pathways | * Interview * Written texts |
| 1. Promote use of communication strategies | * Application of elements of communication strategies * Effective communication techniques | * Interview * Written texts |
| 1. Conduct interview | * Types of interview * Establishing rapport * Facilitating resolution of issues * Developing action plans | * Interview * Written texts |
| 1. Facilitate group discussion | * Identification of communication needs * Dynamics of groups * Styles of group leadership * Presentation of information * Encouraging group members participation * Evaluating group communication strategies | * Interview * Written texts |
| 1. Represent the organization | * Presentation techniques * Development of a presentation * Multi-media utilization in presentation * Communication skills relevant to client groups | * Interview * Written texts |

**Suggested Methods of Instruction**

* Discussion
* Role playing
* Simulation
* Direct instruction

**Recommended Resources**

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

# NUMERACY SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/02/6/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Numeracy Skills.

**Duration of Unit:** 60 hours

**Unit Description**

This unit describes the competencies required to demonstrate numeracy skills. It involves applying a wide range of mathematical calculations for work; applying ratios, rates and proportions to solve problems; estimating, measuring and calculating measurement for work; using detailed maps to plan travel routes for work; using geometry to draw and construct 2D and 3D shapes for work; collecting, organizing and interpreting statistical data; using routine formula and algebraic expressions for work and using common functions of a scientific calculator.

**Summary of Learning Outcomes**

1. Apply a wide range of mathematical calculations for work
2. Apply ratios, rates and proportions to solve problems
3. Estimate, measure and calculate measurement for work
4. Use detailed maps to plan travel routes for work
5. Use geometry to draw and construct 2D and 3D shapes for work
6. Collect, organize and interpret statistical data
7. Use routine formula and algebraic expressions for work
8. Use common functions of a scientific calculator

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Apply a wide range of mathematical calculations for work | * Fundamentals of mathematics * Addition, subtraction, multiplication and division of positive and negative numbers * Algebraic expressions manipulation * Forms of fractions, decimals and percentages * Expression of numbers as powers and roots | * Written tests * Assignments * Supervised exercises |
| 1. Apply ratios, rates and proportions to solve problems | * Rates, ratios and proportions * Meaning * Conversions into percentages * Direct and inverse proportions determination * Performing calculations * Construction of graphs, charts and tables * Recording of information | * Written tests * Assignments * Supervised exercises |
| 1. Estimate, measure and calculate measurement for work | * Units of measurements and their symbols * Identification and selection of measuring equipment * Conversion of units of measurement * Perimeters of regular figures * Areas of regular figures * Volumes of regular figures * Carrying out measurements * Recording of information | * Assignments * Supervised exercises * Written tests |
| 1. Use detailed maps to plan travel routes 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 * Planning of routes * Calculation of distance, speed and time | * Written * Practical test |
| 1. Use geometry to 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 * Evaluation of unknown angles * Use formal and informal mathematical language to describe and compare common angles * Symmetry and similarity * Use common geometric instruments to draw two dimensional shapes * Construct routine three dimensional objects from given nets |  |
| 1. Collect, organize and interpret statistical data | * + Classification of data * Grouped data * Ungrouped data   + Data collection * Observation * Recording   + Distinguishing between sampling and census   + Importance of sampling   + Errors in sampling   + Types of sampling and their limitations e.g. * Stratified random * Cluster * Judgmental   + Tabulation of data * Class intervals * Class boundaries * Frequency tables * Cumulative frequency   + Diagrammatic and graphical presentation of data e.g. * Histograms * Frequency polygons * Bar charts * Pie charts * Cumulative frequency curves * Interpretation of data | * Assignments * Supervised exercises * Written tests |
| 1. Use routine formula and algebraic expressions for work | * + Solving linear equations   + Linear graphs * Plotting * Interpretation * Applications of linear graphs * Curves of first and second degree * Plotting * Interpretation | * Assignments * Supervised exercises * Written tests |
| 8. Use common functions of a scientific calculator | * Identify and use keys for common 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 | * Written * Practical test |

**Suggested Methods of Instruction**

* Group discussions
* Demonstration by trainer
* Practical work by trainee
* Exercises

**Recommended Resources**

* Calculators
* Rulers, pencils, erasers
* Charts with presentations of data
* Graph books
* Dice

# DIGITAL LITERACY

**UNIT CODE:** AGR/CU/FIS/BC/03/6/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Digital Literacy

**Duration of Unit:** 60 hours

**Unit Description**

This unit describes competencies required to demonstrate digital literacy. It involves in identifying computer software and hardware, applying security measures to data, hardware, software in automated environment, computer software in solving task, internet and email in communication at workplace, desktop publishing in official assignments 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 |
| 1. Apply security measures to data, hardware, software in automated environment | * 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 * 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 * Project |
| 1. Apply internet and email in communication at workplace | * Computer networks * Network configurations * Uses of internet * Electronic mail (e-mail) concept | * Oral questioning * 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 * 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 * Written report * Project |

**Suggested Methods of Instruction**

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

**Recommended Resources**

* Computers
* Printers
* Storage devices
* Internet access

# ENTREPRENEURIAL SKILLS

**UNIT CODE:** AGR/CU/FIS/BC/04/6/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Entrepreneurial Skills

**Duration of unit:** 100 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 who an entrepreneur
  2. Demonstrate knowledge of entrepreneurship and self-employment
  3. Identify entrepreneurship opportunities
  4. Create entrepreneurial awareness
  5. Apply entrepreneurial motivation
  6. Develop business innovative strategies
  7. Develop Business plan

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 |
| 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 |
| 6. 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 Instruction**

* 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/05/6/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Employability Skills

**Duration of Unit:** 80 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 ethical performance.

**Summary of Learning Outcomes**

1. Conduct self-management
2. Demonstrate interpersonal communication
3. Demonstrate critical safe work habits
4. Lead a workplace team
5. Plan and organize work
6. Maintain professional growth and development
7. Demonstrate workplace learning
8. Demonstrate problem solving skills
9. Manage ethical performance

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Conduct self-management | * Self-awareness * Formulating personal vision, mission and goals * Strategies for overcoming life challenges * Managing emotions * Emotional intelligence * Assertiveness versus aggressiveness * Expressing personal thoughts, feelings and beliefs * Developing and maintaining high self-esteem * Developing and maintaining positive self-image * Setting performance targets * Monitoring and evaluating performance * Articulating ideas and aspirations * Accountability and responsibility * Good work habits * Self-awareness * Values and beliefs * Self-development * Financial literacy * Healthy lifestyle practices * Adopting safety 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 * Public speaking * Writing skills * Negotiation skills * Reading skills * Meaning of empathy * Understanding customers’ needs * Establishing communication networks * Assertiveness * Sharing information | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate critical safe work habits | * Stress and stress management * Time concept * Punctuality and time consciousness * Leisure * Integratingpersonal objectives into organizational objectives * Resources mobilization * Resources utilization * Setting work priorities * Developing healthy relationships * HIV and AIDS * Drug and substance abuse * Managing emerging issues | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Lead a workplace team | * Leadership qualities * Power and authority * Team building * Determination of team roles and objectives * Team parameters and relationships * Individual responsibilities in a team * Forms of communication * Complementing team activities * Gender and gender mainstreaming * Human rights * Developing healthy relationships * Maintaining relationships * Conflicts and conflict resolution * Coaching and mentoring skills | * 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 concept * Task allocation * Developing work plans * Developing work goals/objectives and deliverables * Monitoring work activities * Evaluating work activities * Resource mobilization * Resource allocation * Resource utilization * Proactive planning * Risk evaluation * Problem solving * Collecting, analysing and organising information * Negotiation | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Maintain professional growth and development | * Avenues for professional growth * Training and career opportunities * Assessing training needs * Mobilizing training resources * Licenses and certifications for professional growth and development * Pursuing personal and organizational goals * Managing work priorities and commitments * Recognizing career advancement | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate workplace learning | * Managing own learning * Mentoring * Coaching * Contributing to the learning community at the workplace * Cultural aspects of work * Networking * Variety of learning context * Application of learning * Safe use of technology * Taking initiative/proactivity * Flexibility * Identifying opportunities * Generating new ideas * Workplace innovation * Performance improvement * Managing emerging issues * Future trends and concerns in learning | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Demonstrate problem solving skills | * Critical thinking process * Data analysis tools * Decision making * Creative thinking * Development of creative, innovative and practical solutions * Independence in identifying and solving problems * Solving problems in teams * Application of problem-solving strategies * Testing assumptions * Resolving customer concerns | * Written tests * Oral questioning * Interviewing * Portfolio of evidence * Third party report |
| 1. Manage ethical performance | * Meaning of ethics * Ethical perspectives * Principles of ethics * 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 Instruction**

* Demonstrations
* Simulation/Role play
* Group Discussion
* Presentations
* Assignments
* 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/06/6/A

**Relationship to Occupational Standards**:

This unit addresses the Unit of Competency : Demonstrate Environmental Literacy

**Duration of Unit:** 40 hours

**Unit Description**

This unit describes the competencies required demonstrate environmental literacy.it involves controlling environmental hazard, controlling 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, monitoring activities on environmental protection/programs, analysing resource use and developing resource conservation plans.

**Summary of Learning Outcomes**

1. Control environmental hazard
2. Control environmental Pollution
3. Demonstrate sustainable resource use
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
8. Analyze resource use
9. Develop resource conservation plans

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Control environmental hazard | * Purposes and content of Environmental Management and Coordination Act 1999 * 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 questions * Oral questions |
| 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 questions * Oral questions * Role play |
| 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 questions * Oral questions * Role play |
| 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 questions * Oral questions * Role play |
| 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 |
| 1. Implement specific environmental programs | * Community needs and expectations * Resource availability * 5s of good housekeeping * Identification of programs/Activities * Setting of individual roles /responsibilities * Resolving problems /constraints encountered * Consultation with stakeholders | * Written questions * Oral questions * Role play |
| 1. Monitor activities on Environmental protection/Programs | * Periodic monitoring and Evaluation of activities * Gathering feedback from stakeholders * Analyzing 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 |
| 1. Analyze resource use | * Identification of resource consuming processes * Determination of quantity and nature of resource consumed * Analysis of resource flow through different parts of the process. * Classification of wastes for possible source of resources. | * Written tests * Oral questions * Practical test |
| 1. Develop resource Conservation plans | * Determination of efficiency of use/conversion of resources * Causes of low efficiency of use of resources * Plans for increasing the efficiency of resource use | * Written tests * Oral questions * Practical test |

**Suggested Methods of Instruction**

* Instructor led facilitation of theory
* Practical demonstration of tasks by trainer
* Practice by trainees
* Observations and comments and corrections by trainers

**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
* Company environmental management systems (EMS)
* Montreal Protocol
* Kyoto Protocol

# OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:** AGR/CU/FIS/BC/07/6/A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Demonstrate Occupational Safety and Health Practices

**Duration of Unit:** 40 hours

**Unit Description**

This unit specifies the competencies required to demonstrate occupational health and safety practices. It involves identifying workplace hazards and risk, identifying and implementing appropriate control measures to hazards and risks and implementing 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 * Gathering of OSH issues and/or concerns | * Oral questions * Written tests * Portfolio of evidence * Third party report |
| 1. Control OSH hazards | * Prevention and control measures e.g. use of PPE * Risk assessment * Contingency measures | * Oral questions * Written tests * Portfolio of evidence * Third party report |
| 1. Implement OSH   programs | * Company OSH program, evaluation and review * Implementation of OSH programs * 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 Instruction**

* 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

# FISH BIOLOGY AND BEHAVIOUR

**UNIT CODE:** **AGR/CU/FIS/CC/01/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: demonstrate the knowledge of fish biology and behaviour

**Duration of Unit: 150** hours

**Unit Description**

This unit specifies the competencies required to demonstrate the knowledge of fish biology and behaviour. It involves identifying fish species, demonstrating understanding of the physiological systems of fish and fish behaviour.

**Summary of Learning Outcomes**

1. Identify fish species
2. Demonstrate understanding of the physiological systems of fish
3. Demonstrate the understanding of fish behaviour

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Identify fish species | * Fisheries Technology Economic systems, guidelines, standards and procedures. * Materials and equipment for identification of fish species * Personal protective equipment * Fish morphology * Fish Fisheries Technologyonomy | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Demonstrate understanding of the physiological systems of fish | * Fish habitats * Nervous systems of typical fish * Circulatory system of typical fish * Muscle and locomotion of typical fishes * Osmoregulation in typical fish * Photoperiodism in fish * Feeding in fish * Venomous fishes | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Demonstrate the understanding of fish behaviour | * Migration behavior of fish * Schooling behavior of fish * Mating/breeding/spawning systems of fish * Sexing fish * Defense mechanism in fishes | * 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**

* Sample fishes
* Micro scopes
* Hand lens
* Dissecting kits
* Taxonomic charts
* Gloves
* 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

# BREATHE HOLD DIVING OPERATIONS

**UNIT CODE:** **AGR/CU/FIS/CC/02/6/A**

**Relationship to Occupational Standards**

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

**Duration of Unit: 170** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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

# FOOD SAFETY AND SANITATION

**UNIT CODE:** **AGR/CU/FIS/CC/03/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: Apply food safety and sanitation

**Duration of Unit: 200** hours

**Unit Description**

This unit specifies the competencies required to apply food safety and sanitation. It involves wearing Personal Protective Equipment, observing personal hygiene and good grooming, implementing food sanitation practices, rendering safety measures and first aid procedures, implementing housekeeping activities, identify hazards and risks to seafood and aquatic product, follow enterprise hygiene standards, procedures and practices, handle and store seafood and aquatic product and follow the enterprise food safety program

**Summary of Learning Outcomes**

1. Wear Personal Protective Equipment
2. Implement Food Sanitation Practices
3. Render Safety Measures
4. Implement housekeeping activities

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Wear Personal Protective Equipment | * Food safety principles and practices * Types and use of Personal Protective Equipment * Handling PPE * Importance of wearing PPE | * 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. Render Safety Measures | * Application of safety measures * Mouth to mouth resuscitation * CPR * Application of tourniquet * Applying pressure to bleeding wounds or cuts * First aid treatment for burned victims | * 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 |

**Suggested Methods of Instruction**

* Projects
* Demonstration by trainer
* Practice by the trainee
* Discussions
* Direct instruction

**Recommended Resources**

* Equipped facility
* Apron/laboratory gown
* Mouth masks
* Gloves
* Rubber boots/safety shoes
* Head gears such as caps, hair nets, earl plug
* Work area/station
* First Aid kit
* Fire extinguisher
* Stretcher

# STANDARD MEASURING DEVICES AND INSTRUMENTS

**UNIT CODE:**  **AGR/CU/FIS/CC/04/6/A**

**Relationship to Occupational Standards**

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

Instruments

**Duration of Unit: 220** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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

# GOOD MANUFACTURING PRACTICE AND PROCEDURES

**UNIT CODE:** **AGR/CU/FIS/CC/05/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: implement good manufacturing practice and procedures

**Duration of Unit: 180** hours

**Unit Description**

This unit specifies the competencies required to implement good manufacturing practice and procedures. It involves identifying requirements of GMP related to own work, observing personal hygiene and conduct to meet GMP requirements, implementing GMP requirements when carrying out work activities, participating in improving GMP, participating in validation processes and complete workplace documentation to support GMP.

**Summary of Learning Outcomes**

* 1. Identify requirements of GMP related to own work
  2. Observe personal hygiene and conduct to meet GMP requirements
  3. Implement GMP requirements when carrying out work activities
  4. Participate in improving GMP
  5. Participate in validation processes
  6. Complete workplace documentation to support GMP

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Identify requirements of GMP related to own work | * Meaning of GMP * The role of GMP in preventing contamination * Common micro biological, physical and chemical contaminants * Sources of information on GMP requirements * GMP requirements and responsibilities | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Observe personal hygiene and conduct to meet GMP requirements | * Personal hygiene that meets GMP requirements * Preparation, use, storage and disposal of PPE * Entry and exit procedures for personal movement around the workplace | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Implement GMP requirements when carrying out work activities | * routinely monitoring of work area, materials, equipment and product * Compliance with GMP requirements * Handling raw materials, packaging components and products * Control of resource allocation and processes * Common forms of contamination and their appropriate control measures * Compliance with GMP housekeeping standards | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Participate in improving GMP | * Identification and reporting of processes, practices or conditions which could result in non-compliance with GMP * Implementing corrective action * GMP issues in an organization | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Participate in validation processes | * Validation procedures in GMP compliance * Issues arising from validation * Documentation of validation procedures | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Complete workplace documentation to support GMP | * Documentation and record keeping requirements and procedures * Workplace reporting procedures | * Written tests * Third party reports * 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

# FIRE PREVENTION AND FIGHTING

**UNIT CODE:**  **AGR/CU/FIS/CC/06/6/A**

**Relationship to Occupational Standards**

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

**Duration of Unit: 140** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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/07/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: protect aquatic environment

**Duration of Unit: 130** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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/01/6/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency:

**Duration of Unit: 150** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 tomedical personnel * Monitoring Casualty’s condition * Evaluating response of the casualty to the medical 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 ON RADIO, TELEPHONE AND VMS

**UNIT CODE:** AGR/CU/FIS/CR/02/6/A

**Relationship to Occupational Standards**

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

**Duration of Unit:** 140 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 fault find radio equipment
      3. Access search and rescue facilities
      4. Deploy and operate an EPIRB and a SART

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 fault find radio and VMS 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
* VMS components
* Radiotelephony trans receiving equipment
* Medium frequency / high frequency equipment (MF/HF)
* Very high frequency equipment (VHF)
* Digital selective calling (DSC) equipment
* Emergency Position Indicating Radio Beacon (EPIRB)
* Search and Rescue Transmitter (SART)
* Batteries
* Aerials
* Electrical and radio cable connections
* Electrical fuses

# SMALL FISHING VESSELS MANAGEMENT

**UNIT CODE:** AGR/CU/FIS/CR/03/6/A

**Relationship to Occupational Standards**

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

**Duration of Unit: 120** 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 vessels, troubleshooting and maintaining low powered 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 vessels
4. Troubleshoot and maintain low powered engines
5. Apply weather information when navigating a Vessel

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 * Vessel handling skills * Monitoring conditions of navigation | * 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 working conditions in the vessel | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Perform routine maintenance tasks on a small 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 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
* Hand tools including chipping hammers and scrapers
* Electric power tools such as grinders, sanders and drills
* Pneumatic power tools such as grinders, sanders and drills
* Marine preservative finish application equipment such as brushes, spay guns, rollers
* Rinsing and storing equipment
* Personal protection clothing and equipment such as:
* Eye and ear protection
* Safety boots/clothing
* Dust and fume masks including various cartridges

# OUTBOARD MOTORS MANAGEMENT

**UNIT CODE:** AGR/CU/FIS/CR/04/6/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: manage outboard motors

**Duration of Unit: 160** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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/05/6/A

**Relationship to Occupational Standards**

This unit addresses the unit of competency: handle harvested fish

**Duration of Unit: 150** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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. 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/chilling * Canning * Fermentation | * 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 * Value addition methods * Frying * Smoking * Salting * Marinating * Filleting * Fish by-product processing * Oils * Frames * Skins * Offals * Isinglass * 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 * Eco labeling and certification | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Market fish, fish products and by-products | * Fish market dynamics * Price determination * 4 Ps of marketing * 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
* Value addition equipments
* Post harvest technology demos

# FISHING GEAR TECHNOLOGY

**UNIT CODE:** **AGR/CU/FIS/CR/06/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: manage fishing gear

**Duration of Unit:** 170 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Design fish gear | * Introduction to fishing 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 * Fishing gear materials * 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\
* Floaters
* Sinkers
* Thimble
* Buoys
* Swivel
* Anchor
* Hooks
* Baits
* Netting materials
* Needle

# FISHING OPERATIONS

**UNIT CODE:** **AGR/CU/FIS/CR/07/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: conduct fishing operations

**Duration of Unit: 180** hours

**Unit Description**

This unit specifies the competencies required to set up a fishing gear, collecting fish from harvesting gear, transporting fish to the fish landing beaches under stringent hygienic conditions.

**Summary of Learning Outcomes**

1. Set up fishing gear
2. Collect fish from harvesting gear
3. Transport fish to landing beaches
4. Unload and load fish and fish products from the vessel to the market

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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 a aquatic 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. Collect fish from harvesting 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 |
| 1. Unload and load fish and fish products from the vessel to the market | * Load characteristics * Handling of dangerous and hazardous good * Effective use of available packing spaces * Goods/cargo loading * Selection of lifting aid and appliances at workplace * Unloading activities * Identification of goods requiring special handling * Safe restacking of relocated material * Securing and protecting load as per SOPs * Documentation of unloading and loading fish 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

# FISH AGGREGATING DEVICES (FAD)

**UNIT CODE:** **AGR/CU/FIS/CR/08/6/A**

**Relationship to Occupational Standards**

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

**Duration of Unit: 210** 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 Methods of Assessment**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 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**

* 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 HEALTH MANAGEMENT

**UNIT CODE:** **AGR/CU/FIS/CR/09/6/A**

**Relationship to Occupational Standards**

This unit addresses the unit of competency: fish health management

**Duration of Unit: 220** hours

**Unit Description**

This unit specifies the competencies required to manage fish health. It involves determining water quality, diagnosing fish parasites and diseases and managing fish parasites and diseases.

**Summary of Learning Outcomes**

* + - 1. Determine water quality
      2. Diagnose fish parasites and diseases
      3. Manage fish parasites and diseases

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Methods of Assessment** |
| 1. Determine water quality | * Physical-chemical parameters of water * Ecological requirements for fish. * Analysis and documentation of Physical-chemical parameters * Monitoring physical-chemical parameters | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Diagnose fish parasites and diseases | * Types of fish parasites * Types of fish diseases * Signs and symptoms of fish parasites and diseases * Diagnostic techniques * Spread of fish parasites and diseases | * Written tests * Third party reports * Oral questioning * Interview * Observation |
| 1. Manage fish parasites and diseases | * Effects of fish parasites and diseases * Magnitude of infestation * Fish parasites and diseases management measures * Prevention, control and treatment of fish parasites and diseases | * 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