

BANDARI MARITIME ACADEMY

DIPLOMA IN NAUTICAL SCIENCE MODULE 1

Workshop Sills Training Record Book



Vision Statement

World Class Centre for Maritime Education and Training

Mission Statement

To Provide Competent Maritime Human Resource for Sustainable Blue Economy

Core Values

The Values guiding the culture and conduct of the Academy in the discharge of its mandate include: ~

- a. **Excellence:**
The Academy is committed to delivering quality and exceptional services. The Academy strives to achieve constant adaptation, innovation and vigilance to deliver on its mandate;
- b. **Public Participation:**
The Academy embraces the contribution of the public, partners and customers towards realization of its mandate. This is achieved through collaborations, partnerships and stakeholders' engagements.
- c. **Good Governance:**
The Academy has established structures to effectively and efficiently manage its affairs and resources. The structures facilitate effective decision making process to enable the Academy deliver on its mandate. In addition, the Academy embraces the culture of integrity, transparency, accountability, equity and fairness.
- d. **Sustainable development:**
The Academy shall continue to deliver on its mandate, having regard to efficiency and environmental integrity and being mindful of future generations.
- e. **National Ethos:**
The Academy is guided by the seventeen (17) national values and principles of governance in accordance with Articles 10 and 232 of the Constitution of Kenya.
- f. **Team work:**
The Academy inculcates the culture of working together and motivating each other so as to maximize every member's contribution to the team. The Academy takes full cognizance of everyone's ideas and expertise towards fulfilment of a common goal.

Introduction

This module unit is compulsory for all attachees undertaking technical training programs and is intended to equip the attachee with knowledge, skills and attitudes to enable him/her to perform duties in a real working environment. The rationale of the module unit is to:

- a) enhance the practical and communication skills/competences of attachees
- b) strengthen industrial/academy partnership
- c) provide a nation-wide mechanism to address key skill demand
- d) provide employers the opportunity to give back to society
- e) enhance training levels in acquired skills and competences
- f) provide a mechanism for the academy to respond to identified areas of national key skill needs
- g) develop the manual skills of attachees associated with scientific and technological operations
- h) develop the attachees' personality and understanding of individuals and groups in work situations
- i) provide the attachee with background information and experience in career choice

Competence

The attachee should have the ability to:

- a) work effectively under supervision
- b) apply knowledge and skills to solve real time problems
- c) develop team work and organizational competences

General Objectives

By the end of the Industrial attachment period, the attachee should be able to:

- a) comprehend the constraints of working life and functional relationships within and between organizations
- b) recognize the importance of human relationships and work attitudes
- c) develop procedural knowledge towards work processes
- d) apply theoretical concepts and school based skills to practice
- e) develop work attitudes like curiousness, self-confidence, maturity and self-reliance
- f) obtain knowledge of potential careers and develop new areas of interest

The Industrial attachment scheme will enable the academy to:

- a) establish link with industry for technical development, particularly in the area of product innovation, design and construction
- b) know skill gaps and improve quality of training
- c) obtain materials for teaching and case studies
- d) have a balance assessment of attachees

The industrial attachment scheme will enable employers to:

- a) understand future skills availability
- b) improve the training delivered at the academy for industrial relevance
- c) influence the training of future generation of employees

Suggested roles of the academy, industry and attachees

It is the responsibility of the academy to:

- a) identify attachees who are qualified to go on attachment
- b) conduct an industrial attachment orientation and induction to attachees
- c) identify opportunities from the industry and match them with the number of attachees qualified to go on attachment
- d) prepare a code of conduct to be observed by attaches
- e) provide log books to attaches

It is the responsibility of the industry to:

- a) appoint an industry supervisor/mentor for the attachee
- b) carry out formal introduction/induction to the workplace by the industry supervisor/mentor
- c) design a weekly program of work for the attachee to carry out whilst on attachment
- d) develop clear and well communicated expectations of the work program
- e) expose attachee to relevant activities and training opportunities
- f) supervise and assess progress of the attachee
- g) complete and release the log book of the attached attachee

It is the responsibility of the attached attachee to:

- a) read and observe the code of conduct applicable to the work place
- b) report to the academy any problems encountered
- c) fill the logbook daily to be completed and endorsed by both the industry and the academy supervisor
- d) prepare a report at the end of the attachment period and submit to the academy.

Instructions for the attachee on how to fill the logbook

- a) Each day, you should note in your logbook the work you have carried out. There are spaces for the dates and space where you should enter the numbers of the items in your industrial attachment training programme completed or partly completed during the period of your report.
- b) You may make sketches, any other exposure apart from the ones in the syllabus and additional comments to illustrate work carried out if you wish to, in the space provided at the back of each page.

- c) It is expected that your course instructor, supervisor or foreman will wish to see your logbook after you have recorded your weekly activities. You are advised to take the logbook to them to see and initial report in the space provided.
- d) Remember, this logbook is your property, and if you look after it, keep it clean, and complete it carefully and conscientiously it will form a valuable record of your training and may well assist you to obtaining employment in years to come.

(A) Attaché's Personal Details:

Last Name:Other Names: Gender:

Identity Card No: Date of Birth: Date: Month: Year:

Course: Level: Year/ Module:

Home Address: Telephone:

Next of Kin (Name):Relationship:

Postal Address: Postal Code: Tel. No:

(B) Academy:

Name of Head of Academy:

Department:

School:.....

Head of School:Signature:Date:

(C) Details of Attachment Place:

Name of Organization:

Postal Address:Postal Code:

Tel:Mobile: Email address:

Industrial Attachment Supervisor (Name):

Position/ Designation:Signature:Date:

PERIOD	COMPETENCES	TASK COMPLETE? (YES/NO)	ATTACHEES REMARKS -Was the activity carried out? -Was it completed on time? -How difficult was it? - What are the learning experiences? - Challenges encountered?	SUPERVISOR'S REMARKS - How did the attachee perform? - What was his/her attitude towards work? - Did attachee receive assistance to perform well?	SUPERVISOR'S SIGNATURE
1.0 1 ST WEEK	SEAMANSHIP AND METEOROLOGY				
	Occupational Health and Safety Procedures				
	- Safety Management System manuals				
	- PPE Equipment				
	- Emergency Response Plans				
	- OHS Records				

	Marine Environment Protection				
	- MARPOL Pollution Prevention Equipment				
	- MARPOL Pollution Response Plans				
	- Garbage Management Plans				
	Introduction to seamanship				
	- Types of ships				
	- Parts of Ship				
	- Load line Marks				
2.0 2ND WEEK	Anchors and Anchor Cables				
	- Types of Anchors				
	- Marking on Anchors				

	- Parts of Anchors				
	- Anchor Cables				
	- Maintenance of Anchors and Anchor Cables				
	- Anchoring Procedures				
	- Tests carried out on Anchors and Cables				
	- Different types of anchor certificates				
	- Fouled Anchor				
	- Anchor Watch				
	- Securing and storage of anchor				

	Rope work and Riggings				
	- Terms used in rope work				
	- Rope construction				
	- Characteristics of ropes				
	- Types of ropes				
	- Knots, bends, hitches, whippings and splices				
	- Types of riggings				
	- Care of ropes				
	- Tools used in rope work				
	- Riggings and deck gear				
	- Rigging systems				

	onboard ships				
	- Safety and inspection procedures				
	- Towing equipment used onboard a ship				
	- Preparation for towing forward and aft towing				
	- Precautions observed while towing				
	Mooring and Berthing Operations				
	- Mooring lines				
	- Characteristics of mooring lines				
	- Procedures				
	- Use of anchor				

	- Types of berths				
	- Berthing procedure				
	- Making fast on bits				
	- Precautions				
	- Types of winches				
	- Winch operations				
	- Signals				
	- Winch maintenance				
	- Precautions when using winches				
3.0 3 RD WEEK	Boat Work and Boat Handling				
	- Parts of a boat				

	- Boat building materials				
	- Advantages and disadvantages of different boat building materials				
	- Boat fittings				
	- Care and maintenance of boats				
	- Factors considered in boat handling				
	- Boat handling operations				
	- Shallow water effects				
	- Factors governing squat				
	Life Boats and Survival Craft				

	- General construction requirements				
	- Differentiate between life boat and life raft				
	- Parts of a life raft and life boat				
	- Standard lifeboat and life raft equipment's				
	- Types of life boats				
	- Launching mechanisms				
	- Life-saving and survival equipment				
	- Threats to survival after abandoning a vessel				
	- Survival at sea techniques				
Shipboard Maintenance					

	- Deterioration of vessel's deck				
	- Types of paints				
	- Types of lubricants				
	- Cleaning materials				
	- Maintenance and repair procedures				
	- Surface preparation				
	- Manufacturers safety guidelines				
	- Disposal of waste				
4.0 4 TH WEEK	Safe Navigational Watch and Steering				
	- Terms and definitions				
	- Factors to be considered when forming a navigational watch				

	- Taking over watch				
	- Handing over watch				
	- Factors to be considered when carrying out watch keeping duties				
	- Orders and communication with the officer of the watch				
	- Internal communication and alarms				
	- Perform steering				
	- Perform lookout by sight and hearing				
	- Main duties of a lookout				
	- instances when to call OOW				

	- Reporting Bearings				
	- Types of compasses				
	- Compass reading and reporting				
	- Conning orders				
	- Change over from manual to auto-steering				
	- Terms used in compass work				
	- Compass errors				
	Emergencies				
	- Emergencies inherent onboard ship				
	- Precautions to take in case of emergencies onboard ship				
	- Action to take in case				

	of emergency onboard ship				
	- Procedure of rescuing survivors				
	- Search and Radar Transponder (SART)				
	- Emergency Position Indicating Radio Beacon (EPIRB)				
	- Types of pyrotechnics				
	Safe Operation Deck Equipment and Machinery				
	- Deck lifting machinery				
	- Functions of parts				
	- Deck fittings				
	- Types of ropes for deck work				
	- Procedure for operation of deck work				
	- Pipeline system of				

	bilge and ballast				
	Metrology Instruments				
	- Meteorological instruments onboard a ship				
	- Aneroid barometer				
	- The function of a hygrometer				
	- Principle of wind sensors				
5.0 5 TH WEEK	TERRESTRIAL AND COASTAL NAVIGATION				
	Charts, Paper and Electronic				
	- Natural scale of a chart				
	- Chart projections				
	- Marine navigation charts				

	- Mercator chart				
	- Properties of the chart				
	- Chart correction				
	- Terms used in ECDIS				
	- ECDIS carriage requirements				
	- ECDIS and ECS display				
	- Difference between vector and raster electronic charts				
	- ECDIS and ECS data				
	- Scope and selection of chart data				

	display categories				
6.0 6 TH WEEK	Magnetic Compass, Compass Errors and Deviation				
	- Earth' magnetic field				
	- Magnetic Meridian				
	- True north				
	- Magnetic North				
	- Magnetic Variation				
	- Magnetic Deviation				
	- Compass North				
	- Swinging ship				
	- Compass error				

	Gyro Compass				
	- Gyro Compass				
	- Gyro compass input to navigational equipment				
	- Sources of gyro compass errors				
	- Maintenance of Gyro compass				
	- Gyro error				
7.0 7 TH WEEK	Position Lines and Positions				
	- Definition of terms				
	- Simultaneous cross bearings				
	Sailings				

	- Definition of terms				
	- Mean latitude				
	- Departure and difference of longitude				
	- Mercator sailing formula				
	- Transverse table				
	- Great circle sailing				
8.0 8 TH WEEK	Tides				
	- Theory of tides				
	- Definition of terms				
	- Use of tables to determine height of tides				

	Keeping of Logs				
	- Rules, regulations and common practice				
	- Procedure of keeping of logs				
9.0 9 TH WEEK	SHIP CONSTRUCTIONS				
	Ship Dimensions and Form				
	- Definition of terms used in ship dimensions and form				
	- Outlining ship dimensions and form				
	- Primary structural members of a ship				
	- Parts and components of a ship				

	Materials and their Properties				
	- Common types of materials				
	- Properties of materials				
	- Factors for material selection				
	- Material testing techniques				
	Ship Stresses				
	- Terminologies				
	- Behavior of simple beam under load				
	- Hogging and sagging				
	- Relationship between liquid pressure and depth below the liquid surface				

	- Liquid pressure loads				
	- Causes of racking stress				
	- Pounding/slamming and panting				
	- Localized loading				
	- Corrosion and its effect on ship structure				
	- Stress compensation measure				
10.0 10 TH WEEK	Hull Structures				
	- Ship structural components				
	- Standard steel sections				
	- Framing system				

	- Hold drainage system				
	- Structural arrangement of ship hull				
	- Connection of superstructures to the hull at ship's side				
	Bow and Stern Structures				
	- Ship bow structure				
	- Provisions within bow and stern structure to withstand pounding				
	- Stern structural arrangements to withstand panting				
	- Functions of the stern frame				

	- Purpose of fore end structure				
	- Constructional details of stern frame for a single screw ship				
	- Structural arrangements of different types of sterns				
11.0 11 TH WEEK	Fittings				
	- Fittings on board ship				
	- Structural arrangement of ship fittings				
	- Measures to ensure water tightness is achieved at coamings and cross joint				
	- Functional and constructional				

	arrangement of ship forecastle				
	- Anchor handling arrangement				
	- Shipboard piping system				
	- Fittings and lashings				
	Rudders and Propellers				
	- Rudder action in steering a ship				
	- General arrangement of different types of modern rudders				
	- Constructional arrangement of rudder				
	- Principle of screw propulsion				
	- Propeller features				

	- construction and operation of Fixed pitch and controllable pitch propeller comparison				
	- Propeller power transmission system				
	- Stern tube and tail shaft lubrication				
	- Methods of propeller mounting on the tail shaft				
	- Constructional provision to maintain shaft tunnel watertight				
12.0 12 TH WEEK	Load lines and Draught Marks				
	- Terminologies				
	- Load line mark				

	- Use of chart of zones, area and seasonal period				
	- Significance of freeboard				
	- Condition for assignment of freeboard				
	- Variation in required height of sill				
	Ship Building				
	- Stages of ship design and building				
	- Ship design concepts				
	- Dry docking				
	- Beaching of vessels				
	- Launching of ships				
	Elementary Shipyard Practice				

	- Shipyard layout				
	- Ship drawing used in carrying out shipyard				
	- Practice				
	- Ship yard practices				

ADDITIONAL REMARKS

Students Name: Signature: Date:

Supervisor's Name:..... Signature: Date:



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