**IALA Model Course**

V-103/1

Vessel Traffic Services Operator Training

Revised Module 3 – in new table format – for review at VTS51As reviewed at ICG09 – 20211215;

Numbering suggested:

* First number – module number
* Second number – sequential number for subject area
* Third number – sequential number for session objective
* Fourth number – subject element

This would be: 2.3.1.3 would be Module 2, Subject area 3, session objective 1, subject element 3

For ICG10 – review and revise as per comments, amend table

At ICG10 – review and remove track changes / address comments; confirm the old table is covered in the new format, delete the old table.

For review at VTS52

Edition 2.0

December 2009

Revisions to this IALA Document are to be noted in the table prior to the issue of a revised document.

|  |  |  |
| --- | --- | --- |
| Date | Page / Section Revised | Requirement for Revision |
| March 1988 | 1st issue |  |
| December 2005 | Ed.1.1 |  |
| December 2009 | Ed.2  Entire document | Reflecting 10 years’ experience and the evolution of technology |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

MODULE 3 - Provision of VTS

# SUBJECT FRAMEWORK

## Scope

This module covers the theory and practice of the provision of VTS, including area limits, shipping lanes, safety zones, traffic separation schemes and geographical constraints.

It also deals with the theory and practice of monitoring and organising traffic.

* + 1. Objectives of Module 2

On completion of the course the student will implement the principles of the provision of VTS to provide timely and relevant information, monitor and manage ship traffic and respond to developing unsafe situations. This includes:

* the VTS environment
* principles of waterway and traffic management
* provision of timely and relevant information
* monitoring and managing ship traffic
* responding to unsafe situations.

.

.

* + 1. Suggested Training aids and exercises

The teaching methods for that are suggested for use in the delivery of this module include:

* Classroom presentations and facilitated discussion
* Case studies and activities
* Simulation
* E-learning
* [to be developed]
  + 1. References relevant to this module

The following references are relevant to the planning and delivery of this module:

[to be developed…]

* 1. SUBJECT OUTLINE OF MODULE 3

1. Subject outline – Provision of VTS

| Subject Area | Recommended Competence Level | Recommended Hours | |
| --- | --- | --- | --- |
| Presentations/ Lectures | Exercises/ Simulation |
| VTS environment |  |  |  |
| VTS area | Level 2 |  |  |
| Options to manage traffic in VTS area | Level 2 |  |  |
| Developments that affect VTS environment | Level 2 |  |  |
| Promulgation of maritime information | Level 2 |  |  |
| Principles of waterway and traffic management |  |  |  |
| Planning a safe and efficient waterway | Level 4 |  |  |
| Risk mitigation | Level 4 |  |  |
| Space allocation | Level 4 |  |  |
| Considerations for safe movements of ships | Level 4 |  |  |
| Principles of channel design | Level 1 |  |  |
| Provision of Information |  |  |  |
| Timely and relevant information | Level 4 |  |  |
| Monitor and Management of Vessel Traffic | Level 4 |  |  |
| Traffic patterns | Level 4 |  |  |
| Situational analysis | Level 4 |  |  |
| Respond to unsafe situations |  |  |  |
| Maintain safe and efficient waterway when responding to unsafe situations | Level 4 |  |  |
|  |  | Total 42 hours | Total 44 hours |

* 1. DETAILED competence table OF MODULE 3 – Provision of VTS

1. Competence Table – Traffic management

| Element | Session Objective | Sub-element | Subject Elements | Level of Competence |
| --- | --- | --- | --- | --- |
| **3.1** | **VTS Environment** |  |  |  |
| **3.1.1** | *Define the VTS area.* | 3.1.1.1 | Area limits, boundaries, separation zones, shipping lanes and channels | 2 |
| 3.1.1.2 | Prohibited or dangerous areas, anchorages and restricted areas | 2 |
| 3.1.1.3 | [other?] |  |
| **3.1.2** | *Identify options to manage traffic in the VTS area.* | 3.1.2.1 | Shipping routes and separation criteria (temporal and spatial separation) | 2 |
| 3.1.2.2 | Constraints (geographic, operational, priorities, etc) | 2 |
| 3.1.2.3 | Aids to Navigation | 2 |
| **3.1.3** | *Identify developments that affect the VTS environment* | 3.1.3.1 | Technical | 2 |
| 3.1.3.2 | Operational | 2 |
| 3.1.3.3 | Environmental | 2 |
| **3.1.4** | *Describe principles of channel design* | 3.1.4.1 | Principles of a safe channel design for calm and adverse conditions | 1 |
| 3.1.4.2 | Limiting factors in channel design | 1 |
| 3.1.4.3 | Implications of channel design on ship movements | 1 |
| 3.1.4.4 | [other?] |  |
| **3.1.5** | *Explain procedures to mitigate risk.* | 3.1.5.1 | Introduction to risk and risk management | 2 |
| 3.1.5.2 | The IALA Risk Toolbox | 2 |
| 3.1.5.6 | Risk management process | 3 |
| 3.1.5.7 | Options to mitigate risk | 3 |
| **3.1.6** | *Demonstrate space allocation within the VTS environment.* | 3.1.6.1 | Ship domain | 4 |
| 3.1.6.7 | Ship safety Zone / exclusion zones | 4 |
| 3.1.6.8 | Authorising ship movements (including traffic clearances) | 4 |
| 3.1.6.9 | Prioritisation of ship movements | 4 |
| **3.2** | **Principles of waterway and traffic management** |  |  |  |
| **3.2.1** | *Evaluate factors for the safe movements of ships.* | 3.2.1.1 | Water reference level (tide gauges, correlation between predicted and actual water levels,, allowance for delayed manoeuvres) | 4 |
| 3.2.1.2 | Safe underkeel clearance   * (draft measurements, * vertical ship movements, * allowance for squat and swell, * safety margins in rock and soft sea bed conditions, * allowance for weather, exposure and topography * safe underkeel clearance across channel width) | 4 |
| 3.2.1.3 | Safe air draft (factors affecting and sources of information for calculating air draft) | 4 |
| 3.2.1.4 | Shipping movement authorisation (Traffic Clearance)   * Consideration * Process when safe criteria has been determined and conditions met) | 4 |
| 3.2.1.2 | Limiting factors in navigation | 1 |
| 3.2.1.3 | Allocation of priorities | 1 |
| 3.2.1.5 | [other?] |  |
| **3.2.2** | *Demonstrate procedures to maintain a safe and efficient waterway related to planning* | 3.2.2.1 | Ship routeing (i.e. channel geography, traffic restriction areas, anchorage areas, obstructions) | 4 |
| 3.2.2.2 | Types of traffic (i.e. ship characteristics, cargo characteristics) | 4 |
| 3.2.2.3 | Waterway Information (i.e. ship traffic, waterway, shipping regattas, fishing, etc) | 4 |
| 3.2.2.4 | Environmental aspects (visibility, waterspouts, dust storms, pollution, etc) | 4 |
| **3.3** | **Provide Information** |  |  |  |
| **3.3.1** | *Explain timely and relevant information* | 3.3.1.1 | Participating / non-participating traffic | 3 |
| 3.3.1.2 | National and international regulations | 3 |
| 3.3.1.3 | Local procedures | 3 |
| 3.3.1.4 | Waterway conditions | 3 |
| **3.3.2** | *Demonstrate provision of timely and relevant information to assist with onboard decision making.* | 3.3.2.1 | Types and sources of information | 4 |
| 3.3.2.2 | Information from ships (name, call sign, type of ship, position, speed, destination, ETA, special reports) | 4 |
| 3.3.2.3 | Information to ships   * content (what information) * timely, * relevant, * process for traffic information (identity, position, intention – IPI) | 4 |
| 3.3.2.4 | Priority information to be provided | 4 |
| 3.3.2.5 | Anticipating calls using information available / sensors | 4 |
|  |  | 3.3.2.6 | [other?] |  |
| **3.4** | **Monitor and manage vessel traffic** |  |  |  |
| **3.4.1** | *Explain procedures to plan safe and efficient movement of vessel traffic* | 3.4.1.1 | Restrictions to ship routeing (i.e. channel design, geography, bathymetry, traffic restriction areas, anchorage areas, obstructions, etc) | 4 |
| 3.4.1.2 | Interaction of ship traffic in the VTS area ( i.e. ship types and characteristics, cargo, operations, etc.) | 4 |
| 3.4.1.3 | Situational information (i.e. waterway congestion, availability of berth, small vessel activity, regattas, fishing activity, etc) | 4 |
| 3.4.1.4 | Environmental considerations (i.e. visibility, waterspouts, dust storms, pollution, etc | 4 |
|  | [other?] |  |
| **3.4.2** | *Organise ships ship traffic to manage risk and maintain a safe and efficient waterway* | 3.4.2.1 | Routine (normal) Traffic patterns | 4 |
| 3.4.2.2 | Non-routine (abnormal) traffic patterns (i.e. rogue vessels, sudden change in weather, etc) |  |
| 3.4.2.3 | Voyage (passage) plans | 4 |
|  |  |  |
| **3.5** | **Respond to unsafe situations** |  |  |  |
| **3.5.1** | *Monitor ship traffic to identify unsafe situations* | 3.5.1.1 | Situational awareness | 4 |
| 3.5.1.2 | Tools for determining relevant vessel traffic information (i.e. risk of collision, unclear intentions, non-routine action, blind corner etc | 4 |
| 3.5.1.3 | Conflict assessment (spatial (space, distance) separation / temporal (time) separation) | 4 |
| **3.5.2** | *Respond to unsafe situations to maintain a safe and efficient waterway.* | 3.5.2.1 | Situations that may require intervention  Ship unsure of route or position  Ship deviating from route  Ship requiring guidance to position / anchor  Defects or deficiencies/equipment failure  Severe weather conditions  Emergency response | 4 |
| 3.5.2.2 | Provision support to safe navigation  On request  On demand  As defined in procedures | 4 |
|  |  |  |