**IALA Model Course**

V-103/1

Vessel Traffic Services Operator Training

Full track changes version of the ‘front end’ for V-103/1 for review 8/9/2021

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.

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| --- | --- | --- |
| 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 |
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FOREWORD

The International Association of Marine Aids to Navigation and Lighthouse Authorities has been associated with Vessel Traffic Services since 1955 and recognises the importance of human resources to the development of efficient Vessel Traffic Services worldwide.

Taking into account the International Convention on Standards of Training, Certification and Watchkeeping of Seafarers, 1978, as amended in 1995 (STCW Convention), the Seafarer’s Training, Certification and Watchkeeping Code (STCW Code) and STCW 95 Resolution 10, IALA has adopted Recommendation V-103 on Standards of Training and Certification of VTS personnel.

The model training courses developed, or being developed, by IALA for VTS personnel are:

* Model Course V-103/1 - VTS Operator Training
* Model Course V-103/2 - VTS Supervisor Training
* Model Course V-103/3 - VTS On-the-Job Training
* Model Course V-103/4 - VTS On-the-Job Training Instructor
* Model Course V-103/5 – VTS Revalidation Process for VTS Qualification and Certification

These model courses are intended to provide national members and other appropriate authorities charged with the provision of vessel traffic services with specific guidance on the training of VTS Personnel. They may be used by maritime training organisations, and assistance in implementing any course may be obtained through IALA at the following address:

The Secretary-General

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1. OVERVIEW OF THE MODEL COURSE

IALA recommends that training organisations and other training providers utilise model courses concerned with the provision of AtoN services, including VTS, in accordance with IALA Standard 1050 Training and Certification, IALA Standard 1040 Vessel Traffic Services and Recommendation R0103 Training and Certification of VTS Personnel.

# Introduction

IALA Model Courses are training documents which define the level of training and knowledge needed to reach levels of competence defined by IALA.

**IMO Resolution A.### (XX)** states that *“VTS personnel should only be considered competent when appropriately trained and qualified for their VTS duties.”* This includes, inter alia:

* *satisfactorily completing generic VTS training approved by a competent authority; and*
* being in possession of appropriate certification.

**IALA Recommendation 0103** **- Training and Certification of VTS personnel** specifies the practices associated with the training and certification of VTS personnel to assist authorities when recruiting, training and assessing VTS personnel to ensure the harmonized delivery of vessel traffic services world-wide.

**IALA Guideline 1156 - Recruitment, training and assessment of VTS personnel** states that *“Model courses provided by accredited training organisations should be approved by the competent authority.”*

**IALA Guideline 1014 - Accreditation and Approval Process for VTS Training** sets out the process by which a training organisation can be accredited to deliver approved VTS training courses.

# PURPOSE OF THE MODEL COURSE

The purpose of the model course is to assist maritime training organisations and their teaching staff in the preparation and introduction of new training courses for VTS Operators, or in enhancing, updating or supplementing existing training material. .This document defines the level of training and knowledge needed to reach levels of competence defined by IALA to obtaining a V103/1 certificate.

It is not the intention of the model course to present instructors with a rigid ‘teaching package’. Rather, this model course provides the curriculum content for the training for VTS Operators. It intended to be used by accredited training organisations in preparing their V103/1 training programs.

# USE OF THE MODEL COURSE

For an effective use of the model course, the instructor will need to review the curriculum and competence tables and prepare a detailed teaching syllabus. The appraisal should take into consideration existing knowledge, skills and attitudes of trainees and support the assessment and recognition of prior learning.

*IALA Guideline 1017 - Assessment for recognition of prior learning in VTS training* provides further guidance on the assessment and recognition of prior learning.

Instructors and assessors of VTS training should hold appropriate qualification and experience for the topics being presented.

*IALA Guideline 1156 - Recruitment, training, and assessment of VTS Personnel* provides further guidance on the qualifications for instructors.

*IALA Guideline 1027 – Simulation in VTS training contains information about the design and implementation of VTS exercises using a simulator.*

# Course Objective

The complete course comprises seven modules, each of which deals with a specific subject representing a requirement or function of a VTS Operator. Each module contains a subject framework stating its scope and aims, a subject outline, learning objectives and teaching points.

Upon successful completion of this course the student should have demonstrated the requisite knowledge, skills and attitude to undertake the duties associated with the provision of a VTS Operator to:

* provide timely and relevant information on factors that may influence the transit of a ship and assist on-board decision making;
* monitor and manage traffic to ensure the safety and efficiency of ship movements; and
* respond to developing unsafe situations to assist the decision-making process on board.

Note – As described in A.###(XX) “VTS personnel should only be considered competent when appropriately trained and qualified for their VTS duties. This includes:

* • satisfactorily completing generic VTS training approved by the competent authority;
* • satisfactorily completing on-the-job training at the VTS where the person is employed;
* • undergoing performance assessment and revalidation training to ensure competence is maintained; and
* • being in possession of appropriate certification.”

# Course Curriculum Outline

This Model Course presents 7 modules that are required to undertake the duties of a VTS Operator. Training activities, simulated exercises and assessments undertaken during the course are intended to represent the role of the VTS Operator and reflect events or incidents that may be experienced at a VTS.

Each module identifies the total recommended number of hours that should be allotted. If should be appreciated that these allocations are indicative, and instructors should revise as required to address the requirements of the students to ensure the learning outcomes are achieved.

The recommended duration in hours does not include the time necessary for assessments and evaluations. Further, the instructor should allow time during the course for revision of course content.[table X refers]

# Entry Requirements

Every candidate attending a V-103 model course should have achieved the International English Language Testing System (IELTS) level 5, or its equivalent. Where this level of English cannot be achieved, the training organisation should identify how the student may achieve this, for example, a suitable bridging course.

The training organisation may determine, and document, any additional entry requirements for the course.

Consideration should also be given to the recognition of prior learning, which may reduce the time requirement to meet the level required for certification.

IALA Guideline 1017 - Assessment of Training for VTS provides further guidance on the assessment and recognition of prior learning.

# CERTIFICATION

A course certificate should be issued by the training organisation where a candidate:

* demonstrates they have the theoretical and practical knowledge, and
* has passed the appropriate assessments to ensure the student has met the required competency as outlined in this model course.

1. Course Curriculum Summary for VTS Training

| Module / Subject | Recommended Duration in Hours1 | | Remarks2 | |
| --- | --- | --- | --- | --- |
| Presentations / Lectures | Exercises / Simulation |
| 1 – Communication [and Interaction] [Co-ordination]3 | 91 + 7 +11 | 75+11 +31 | * General communication skills * Language structure and VTS Messages * Use of radio communication in VTS4 | * SMCP and Standard phrases * Specific VTS messages construction * Information management |
| 2 – Legal Framework | 10 | 8 | * International, national [local] framework for VTS * Regulatory requirements | * Roles and responsibilities * Record keeping |
| 3 – Traffic Management | 52 (- 10) | 54 (-8) | * VTS environment * Provision of information * Principles of water space management | * Monitoring and management * Responding to unsafe situations |
| 4 – Nautical Knowledge | 85 | 38 | * Chart work * Collision regulations * Aids to navigation | * Navigational aids (ship borne) * Shipboard knowledge * Port operations and other allied services |
| 5 – Equipment | 39 +4 | 6 +11 | * Sensors in VTS (radar, AIS, CCTV, etc) * Benefits and limitations of VTS equipment | * Tracking systems, decision support tools * Evolving technologies |
| 6 – Personal Attributes | 6 | 4 | * Fatigue management and shiftwork * Human relation skills | * Responsibility and reliability * Teamwork |
| 7 – Emergency Situations | 12 | 10 | * Internal/external emergencies * Contingency plans * Prioritise and respond to situations | * Record activities concerning emergencies * Maintain a safe waterway throughout emergency situations |
| Total | **307** | **240** |  |  |

*Notes: 1 The recommended times are, except for Module 1, based on the assumption that trainees have no or little previous knowledge of the subject. The actual time required for each module will vary, depending on previous experience and the entrance level of the trainee.*

*2. In addition to the recommended duration in this table, see table 3 Simulation exercises in Part D, section 5 Practical training.*

*3. The recommended hours for Module 1 assume that trainees have achieved, IELTS level 5, or the equivalent.*

*4. VHF radio operator training is not included in this table (additional time would be expected to obtain radio certificate) .*

# ACRONYMS

AIS Automatic Identification System(s)

APL Accredited Prior Learning

ARPA Automatic Radar Plotting Aid

CCTV Close circuit television

COLREGS International Regulations for Preventing Collisions at Sea

DF Direction Finding

DGNSS Differential Global Navigation Satellite System(s)

DR Dead reckoning

DSC Digital Selective Calling

ECDIS Electronic Chart Display and Information System(s)

ECS Electronic Chart System(s)

EP Estimated position

ETA Estimated Time of Arrival

GMDSS Global Maritime Distress and Safety System

GNSS Global Navigation Satellite System(s)

IALA International Association of Marine Aids to Navigation and Lighthouse Authorities - AISM

ICAO International Civil Aviation Organization

IELTS International English Language Test System

IMO International Maritime Organization

ISBN International Standard Book Number

ISPS International Ship and Port Facility Security (Code)

Lat Latitude

LBP Length between perpendiculars

LLTV Low light television

LOA Length overall

LOCODE United Nations Code for Trade and Transport Locations

Long Longitude

LNG Liquified Nitrogen Gas

LOP Line(s) of position

LPG Liquified Petroleum Gas

MAS Maritime Assistance Service

OJT On-the-Job Training

PTT Press To Talk

Racon Radar beacon(s)

Ramark Radar mark(s)

ROC Restricted Operator’s Certificate (GMDSS)

Ro-ro Roll on – roll off

RR Radio Regulations

SAR Search and Rescue

SMCP Standard Marine Communication Phrases (IMO)

STCW Standards of Training, Certification and Watchkeeping of Seafarers, 1978, as amended

VHF Very High Frequency (30 MHz to 300 MHz)

VTMIS Vessel Traffic Management Information System(s)

VTS Vessel Traffic Services

1. DELIVERY OF THE MODEL COURSE

# INTRODUCTION

All training and assessment for VTS training should be:

1. Structured in accordance with written programmes, including such methods and means of delivery, procedures and course material as are necessary to achieve the prescribed standard of competence; and,
2. Conducted, monitored, assessed and supported by qualified persons.

Training staff should review the course outline and detailed competence tables for each module. The actual level of knowledge, skills and prior technical training of the student in the subject concerned should be kept in mind during this review. Any differences between the level of skills and competencies of the student and those identified within the detailed curriculum tables should be identified.

Teaching programmes should ensure that all listed elements are addressed in some manner, and that this is clearly documented.

If students are required to meet additional requirements, then the module objectives, scope and content for each subject may be adjusted to ensure the additional elements are covered. All changes to the training should be clearly documented.

The presentation of concepts and methodologies may be repeated as necessary in various ways until the instructor is satisfied that the participant has attained a good working knowledge in each subject.

# COURSE MODULES

The modular presentation enables the instructor to adjust the course content to suit the participant intake and provide any revisions of the subject objectives as required. The instructor should draw up lesson plans based on each detailed curriculum tables, references, and materials as suggested.

Presentation of the material should be tailored to reflect specific training objectives. It is not intended that the modules be presented in the order provided in this model course. It is expected that, to address effective training and learning methodologies, the content of modules will be grouped as appropriate for the learning environment. When developing lesson plans, the instructor should use a teaching method or combination of methods that will ensure students can achieve the required learning objectives.

Depending on the student intake, the recommended hours may need to be adjusted as necessary. For example, it is normal for different students to require different lengths of time to cover the same content, and minor adjustments may be needed to the course timetable.

An overall teaching syllabus including a timetable should be prepared which outlines when subject areas will be covered, practical exercises, assessments etc.

1. Competence Level Taxonomy for VTS Training

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Knowledge and/or Attitude | Skill | Verbs |
| **Level 1**  Work of a routine and predictable nature generally requiring supervision | **Comprehension**  Understands facts and principles; interprets verbal/written material; interprets charts, graphs and illustrations; estimates future consequences implied in data; justifies methods and procedures | **Guided response**  The early stages in learning a complex skill and includes imitation by repeating a demonstrated action using a multi-response approach (trial and error method) to identify an appropriate response | listen, list, locate, sketch, label, describe, follow (instructions), select, show willingness, operate, arrange |
| **Level 2**  More demanding range of work involving greater individual responsibility. Some complex/non-routine activities | **Application**  Applies concepts and principles to new situations; applies laws and theories to practical situations; demonstrates correct usage of methods or procedures | **Autonomous response**  The learned responses have become habitual, and the movement is performed with confidence and proficiency | Demonstrate, recognise, perform, display, paraphrase, proceed, comply, give examples (identify) |
| **Level 3**  Skilled work involving a broad range of work activities. Mostly complex and non-routine | **Analysis**  Recognises un-stated assumptions; recognises logical inconsistencies in reasoning; distinguishes between facts and inferences; evaluates the relevancy of data; analyses the organisational structure of work | **Complex observable response**  The skilful performance of acts that involve complex movement patterns. Proficiency is demonstrated by quick, smooth, accurate performance. The accomplishment of acts at this level includes a highly co-ordinated automatic performance | Analyse, justify, differentiate, manipulate, demonstrate, categorise, classify, solve, operate |
| **Level 4**  Work that is often complex, technical and professional with a substantial degree of personal responsibility and autonomy | **Synthesis**  Integrates learning from different areas into a plan for solving a problem; formulates a new scheme for classifying objects or events | **Adaptation**  Skills are so well developed that individuals can adapt rapidly to special requirements or problem situations | Modify, evaluate, devise, explain, adapt, plan, rearrange, organise, predict, resolve |
| **Level 5**  Complex techniques across wide and often unpredicted variety of contexts. Professional/senior managerial work | **Evaluation**  Judges the adequacy with which conclusions are supported by data; judges the value of a work by use of internal criteria; judges the value of a work by use of external standards of excellence | **Creation**  The creation of new practices or procedures to fit a particular situation or specific problem and emphasizes creativity based upon highly developed skills | Judge, evaluate, criticise, construct, compose, draw conclusion, synthesize, coordinate |

## Competence levels

To assist in the development of lesson plans, five levels of competence are used in the model courses for VTS personnel. Levels 1 to 4 are used in the model course for the training of VTS Operators and levels 3 to 5 are used in the model course for VTS Supervisor. Verb taxonomies have been provided with these levels to assist with the creation of detailed learning objectives. [table X refers]

*IALA Guideline 1103 – Train the trainer* assists instructors with the preparation and development of training courses and is aimed at courses delivered an accredited training organisation.

Each level of competence is defined in terms of the learning outcome, the instructional objectives and the required skills. The recommended level of competence for each subject is indicated in the Subject Outline of each module.

## Competence tables, teaching aids and references

Detailed competence tables are provided, with reference to the competence levels and proposed teaching aids and references. The training materials prepared (eg course notes, course presentations and reference documents etc) should be consistent with IALA standards and up-to-date taking into account any recent changes and industry developments. These training materials should be available to the student for their reference.

Where e-learning, distance or blended delivery is proposed, training organizations should consider the necessary adjustments that may be required.

## Course currency and evaluation

The course content should be reviewed for currency before the course commences to ensure that any recent changes to regulations, international guidance and new developments/techniques are reflected in the course.

On conclusion of the course, a review should be undertaken based on course feedback and observations during course delivery to identify ongoing improvements and training materials that may need updating.

# COURSE INTAKE – LIMITATIONS

The training organization is to determine the student /staff ratio and number of students enrolled on the course. The class/group size should allow the instructor(s) to give adequate individual attention to course participants as required. In general, it is recommended that a maximum of 8-10 participants be the upper limit that a single instructor can be expected to train satisfactorily to the level of competence involved. Larger numbers may be admitted if extra staff and tutorial periods are provided.

During practical sessions and group activities there may be additional restraints on class size. Where the use of a simulator or similar teaching aid is involved, it is recommended that no more than two participants be trained simultaneously on any individual piece of equipment.

# TRAINING STAFF REQUIREMENTS

All instructors and assessors should be appropriately qualified for the types and levels of training or assessment required for the model course.

As well as instructors and assessors, additional staff may be required for the maintenance of equipment and for the preparations of materials, work areas and supplies for the practical work.

*IALA Guideline 1156 - Recruitment, training, and assessment of VTS Personnel* provides further guidance on the qualifications for instructors.

# ASSESSMENT Of Competence

Student progress should be continually assessed and regular reviews undertaken. Any apparent problems should be addressed to ensure the student attains the required levels of competence. Modifications of the teaching scheme should be made where necessary to ensure that students met the course objectives. If necessary, extra tuition should be arranged to enable weaker participants to reach the required standard.

Assessments should reflect the level of competence required, as provided in the competence tables for each module.

The training organisation needs to determine if a final examination is required, alternatively ongoing course assessments to indicate the competency levels that have been attained for each subject of the module course

Assessments may take the form of written and/or practical assessments which may be conducted through simulation.

All tasks completed should be recorded by the instructor/assessor, together with any comments which would provide feedback to the student. Records of assessments are to be maintained.

# Facilities and equipment

The teaching aids, facilities and equipment students will utilise during the course should be of a sufficient standard to ensure quality course delivery and acceptable levels of health and safety.

Facilities should reflect the training methodologies implemented, which may include:

* classroom sessions
* group based learning activities
* remote learning, for example:
* e-learning (asynchronous),
* online training (synchronous),
* simulation training.

~~Training courses have traditionally been classroom focussed however with technology advances there is an opportunity to adopt a more blended training approach by integrating online e-learning and remote learning activities. Where the course is classroom based, presentations should be delivered by computer assisted equipment.~~

The ~~simulation~~ training facilities and equipment should be fit for purpose to meet the requirements of the training course delivered.

*IALA Guideline 1027 – Simulation in VTS training contains information about the design and implementation of VTS exercises using a simulator.*

# VALIDATION

The information contained in this document has been validated by a group of technical advisers, consultants and experts on training of VTS personnel. These were drawn from the IALA VTS Committee, training organisations of IALA national members and experienced VTS personnel so that the standards implemented may be as uniform as possible. Validation in the context of this document means that the group has found no grounds to object to its contents.