**Vessel Traffic Services**

**Revalidation and Refresher Training**

**For VTS Personnel – A Model Course**

TThis document needs to be put into the IALA format

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# foreword

The Australian VTS Working Group is a consultative group to facilitate communication and information sharing between VTS authorities and key stakeholders, and a common understanding of the delivery of vessel traffic services across Australia.

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 Recommendation V-103 on Standards of Training and Certification of VTS personnel and the IALA model training courses.

In addition, this Guideline was developed using the draft IALA Model Course V-103/5 – Revalidation and Refresher for VTS Personnel.

The Guideline is intended to provide Authorities charged with the provision of Vessel Traffic Services guidance on the training of VTS Operators, VTS Supervisors and VTS Instructors.

# Section 1 - Introduction

## Background

VTS personnel may, during their careers, need to be trained in any of the following circumstances:

**Revalidation Training** – training that occurs to ensure competence after a break in service The Competent Authority or the VTS Authority should determine the duration of the break in service, which results in a demand for revalidation training..

Revalidation training may also be required when deemed necessary – either by the VTS Management or the VTS Authority.

**Refresher Training** – training necessary to maintain a satisfactory level of operational performance. Refresher training may follow an assessment of that performance by the VTS Authority, or may take place as a part of a training programme / continuing professional development. Refresher training should be carried out at regular intervals.

## Purpose of the Revalidation Model Course

The purpose of this Model Course is to assist VTS Authorities and accredited VTS Training Centres and their teaching staff in delivering and organising revalidation training for VTS personnel where a formal and more comprehensive course is necessary.

The required standard of competence is considered to be the level of proficiency that should be achieved for the supervision and delivery of revalidation training. The training should take into account the level of competence already acquired and build on this to meet the needs of the VTS personnel.

It is not the intention of this Model Course to present Instructors with a rigid teaching package, which they are expected to follow blindly. The knowledge, skills and dedication of the instructors are key components in the transfer of knowledge and skills to those being trained through this Model Course material.

To assist in the development of lesson plans and training courses five levels of competence are used in this Model Course. Each level of competence is defined in terms of the learning outcome, the instructional objectives and the required skills.

Recognising that educational systems and the cultural backgrounds of VTS personnel vary considerably from country to country, the Model Course material has been designed accordingly. The course material also specifies clearly the technical content and levels of knowledge and skill necessary to achieve the standards of competence defined in IALA Recommendation V-103.

In this regard, the defined standards of competence are considered to be the level of proficiency which should be maintained for the proper performance and functions at the VTS Centre in accordance with internationally agreed criteria, incorporating prescribed standards or levels of knowledge, understanding and demonstrated skills.

## Use of the Model Course

This course is intended to cover the assessment of continued knowledge and practical competence required for revalidation of operational personnel. The course is in modular format and is aimed at providing the “revalidation training” described in IALA Recommendation V-103,

The course is designed to ensure VTS personnel are provided with realistic exercises for assessment of their competence. These exercises should, wherever practicable, use simulation. However, where simulation is not practicable, the exercises should be designed to be fully representative of appropriate situations that occur in a VTS environment.

The complete course comprises eight modules, each of which deals with a specific subject representing a requirement of function of a operational personnel.

Training personnel should refer to relevant Model Courses in V-103- Detailed Teaching Syllabus, for a description of the content of each subject and learning objectives. The actual level of knowledge, skills and prior educational qualifications of the course participants should be kept in mind. Any differences between the level of skills and competencies of the participants and those identified within the detailed training syllabus should be identified. To compensate for such differences, the Instructor is expected to adjust the course content to recognise knowledge or skills already attained and demonstrated at that particular VTS Centre by the participants. The Instructor should also identify any academic knowledge, skills or technical training that the participants may not have acquired.

## Lesson Plans

The Instructor should draw up lesson plans based on each section of the syllabus of Model Course V-103/1 and include references to textbooks and teaching material suggested for the course. Where no adjustment has been found necessary in the learning objectives, the lesson plans may simply consist of the syllabus with keywords or other reminders added to assist the Instructor in making his/her presentation of the material.

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 basic training of VTS Operators and levels 3 to 5 are used in the Model Course for advancement to VTS Supervisor.

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 Section 3 – Course Outline of each module.

Section 3 – Course Outline includes a recommended minimum time that should be allotted to each subject. However, it should be appreciated that these allocations are arbitrary, assuming course participants have met fully all of the entry requirements specified for each subject. The Instructor should therefore review these time assessments during course and lesson plan design and consider the need to reallocate the time required to achieve each specific learning objective.

In preparing a teaching scheme and lesson plans, the Instructor is free to use any teaching method or combination of methods that will ensure that the participants can meet the stated objectives. However, it is essential that the participants attain all objectives set out in each syllabus.

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Instructional Objectives** | **Skill** |
| **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 an action demonstrated by the Instructor and using a multi-response approach (trial and error method) to identify an appropriate response. |
| **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. |
| **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 overt 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 |
| **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 modify movement patterns to fit special requirements or to meet a problem situation. |
| **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. | **Origination**  The creation of new practices or procedures to fit a particular situation or specific problem and emphasise creativity based upon highly developed skills. |

Table 1: Levels of Competence

## Presentation

Competent Authorities should ensure that Instructors are appropriately qualified and experienced for the particular types and levels of training and corresponding assessment of competence as described in Tables 1 and 2 of IALA Recommendation V-103. In addition, the Competent Authority should ensure that Instructors have an appropriate balance of professional VTS knowledge and academic qualifications.

Lesson plans should contain references to Standard Operating Procedures, textbooks, teaching materials, teaching aids and student material that will be required during the presentation of the course (as per Model Course V-103).

## Implementation

For the course to run smoothly and effectively, considerable attention must be paid to the availability and use of:

1. Qualified Instructors
2. Support staff
3. Classrooms and other spaces
4. Equipment, including simulators
5. Textbooks, technical papers
6. Other reference material

Thorough preparation is the key to successful implementation of the course.

# Section 2 – Course Framework

**REFRESHER TRAINING**

## Scope

This Model Course is designed to enable operational personnel to obtain a revalidation of their qualifications.

This modular format may also assist the VTS Authorities and VTS Training Centres in designing and providing refresher training.

## Objective

Holders of the VTS Certification Log will refresh the requisite skills and knowledge and will demonstrate practical ability to perform their duties subject to the terms set out in IALA Recommendation V-103.

Specifically, the training programme should ensure that all course participants:

* are qualified in the task for which training is being conducted and assessment is being made;
* have an appropriate level of knowledge & understanding of the competence to be assessed.

## VTS Certification Log

Successful completion of this course should be recorded in the individual’s VTS Certification Log, in order to receive the appropriate endorsement.

The assessment process for the issue of an endorsement in the VTS Certification Log is a matter for the Competent Authority concerned.

## Course Intake Limitations

Class sizes may be limited at the discretion of the Competent Authority in order to allow the Instructor to give adequate attention to individual course participants. In general it is recommended that a maximum of 12-14 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 to deal with participants on an individual basis.

During practical sessions, assessment and group activities there may be additional constraints on class size. In particular, 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 workstation or piece of equipment.

## Training Staff

Accredited training programmes for this course should ensure that the qualifications and experiences of Instructors and assessors are covered in the application of appropriate quality training standards. Such qualifications, experience and application of quality standards should incorporate appropriate training in techniques, training and assessment methods and practices and comply with all applicable recommendations set out in the following paragraphs.

As well as Instructors, Supervisors 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.

### Instructors

Any person conducting training for the revalidation of VTS personnel should:

* have a detailed understanding of the training programme and of the specific training objectives for the particular type of training being conducted;
* be appropriately qualified in the task for which training is being conducted;
* have an appropriate balance of professional and teaching qualifications;
* if conducting training with the use of a simulator:
  + have received appropriate guidance in instructional techniques involving the use of simulators; and,
  + have gained practical operational experience on the particular simulator being used.

### Assessors

Any person conducting assessment of competence of VTS personnel during training should:

* have an appropriate level of knowledge and understanding of the competence to be assessed;
* be qualified in the task for which the assessment is being made;
* have received appropriate guidance in assessment methods and practices;
* have gained practical assessment experience; and
* if conducting assessment involving the use of simulators, have gained practical instruction on the particular type of simulator under the supervision, to the satisfaction of an experienced assessor.

## Teaching Facilities and Equipment

Facilities other than an ordinary classroom fitted with a blackboard or whiteboard, an overhead projector or computer-assisted projector and screen are given in the detailed teaching syllabus of the respective model courses.

In order to assist Instructors, references and publications, additional technical material and teaching aids are given in the detailed teaching syllabus of the respective model courses.

The material listed in the subject frameworks has been used to structure the detailed teaching syllabuses of the respective model courses, in particular teaching aids, equipment needed by trainees and references.

# Section 3 – Course Outline

## Subject Outline

In addition to the theoretical subjects listed below, the course should consist of practical assignments and tasks to be performed by the course participants to ensure competence and confidence as a VTS Operator. For a more detailed subject outline and recommended competence levels, see Model Course V-103/1.

The recommended hours shown in the table are the minimum required for each module and will depend on previous experience, entrance level and requirements of the individual.

|  |  |  |
| --- | --- | --- |
| **Subject Area** | **Recommended Competence Level** | **Recommended hours** |
| 1. Language    1. Structure of the English language    2. VTS message construction    3. Standard Marine Communication Phrases (SMCP)    4. Collecting information | Level 3  Level 4  Level 2/3  Level 2 | 4 |
| 1. Traffic Management    1. Regulatory requirements    2. Roles and responsibilities    3. VTS environment    4. Principles of waterway and traffic management    5. Traffic monitoring and organisation | Level 1/2  Level 1/3  Level 4  Level 4  Level 4 | 3 |
| 1. Equipment    1. Telecommunications    2. Vessel Traffic Management Information Systems (VTMIS)    3. Radar    4. Audio, video and other sensors    5. VHF/direction finder (VHF/DF)    6. Tracking systems (e.g. AIS)    7. Equipment performance monitoring    8. Evolving technologies | Level 2  Level 2  Level 2  Level 1/3  Level 1  Level 1/3  Level 2  Level 1 | 1 |
| 1. Nautical Knowledge    1. Chartwork    2. Collision Regulations    3. Aids to Navigation    4. Navigational Aids    5. Shipboard knowledge    6. Port Operations | Level 2  Level 2/3  Level 2  Level 1  Level 1  Level 2 | 2 |
| 1. Communication co-ordination    1. General communication skills    2. Communications    3. Log and Record Keeping | Level 3  Level 3  Level 3 | 1 |
| 1. VHF Radio    1. Radio Operator practices and procedures    2. VHF Radio systems and their use in VTS    3. Operation of radio equipment    4. Communication procedures including SAR | Level 4  Level 3  Level 4  Level 3 | 2 |
| 1. Personal attributes    1. Personal interaction and human relation skills    2. Responsibility | Level 2  Level 4 | 1 |
| 1. Emergency situations    1. National and international regulations    2. Response to contingency plans    3. Prioritise and respond to situations    4. Co-ordination with, and support to, allied services    5. Record activities concerning emergencies    6. Maintain a save waterway throughout emergency situations    7. Internal/external emergencies | Level 2  Level 2  Level 2  Level 2  Level 2  Level 2  Level 2 | 1 |

Table 3.1: Subject Outline

## Practical Training

In addition to the theoretical subjects, the simulated exercises mentioned below are recommended.

The recommended hours shown in the table are the minimum required for each module and will depend on previous experience, entrance level and requirements of the individual.

|  |  |  |
| --- | --- | --- |
| **Subject Area** | **Assessment criteria** | **Recommended hours** |
| *Basic skills*   * Monitoring and identification * Communication co-ordination * Evaluation and interpretation of the traffic situation * Log keeping, recording and reporting | Ability to identify, correctly interpret and handle reports from five simulated vessels. | 2 |
| *Traffic interaction and conflict resolution*   * Waterway management in multi-ship scenarios * Anticipation and projection of traffic patterns * Critical areas * Vessels overtaking and approaching each other * VTS sailing plans, including those for deep draught vessels | Ability to identify, correctly interpret and deal with up to five simulated vessels in complex situations.  Ability to prepare VTS sailing plans, to monitor their execution and amend them due to unforeseen circumstances. | 4 |
| *Emergencies and special situations*   * Contingency plans * Adverse weather conditions * Special vessels and those with restricted manoeuvrability * Internal and external emergencies | Ability to identify, correctly interpret data and handle reports from 20 simulated vessels during emergencies and special situations. | 3 |

Table 3.2: Practical training exercises

# Section 4 - Guidelines for Instructors

## Introduction

VTS Operators are appropriately qualified persons performing one or more tasks contributing to the services of a VTS. It is essential that education and training be aimed at minimising incidents due to mistakes or errors of judgement. This Model Course is designed to meet the minimum requirements for revalidation and refresher training.

A sense of responsibility, watchfulness and preciseness characterise a competent VTS Operator. Training and education should therefore aim at stimulating these qualities. This can be achieved by impressing upon participants the importance of proper watchkeeping routines and safe procedures. Participants should also be motivated to respect instructions, rules and regulations that have been adopted with the intention of protecting life, health, material goods and the environment.

Those parts of the subjects that are important from the point of view of safety should be emphasised. The Instructor should therefore be thoroughly acquainted with the relevant rules that regulate vessel traffic services.

It is important to keep in mind the close relationship of all subjects in the VTS Operators course. In particular, Instructors should continuously monitor the personal attributes of the participants and, when appropriate, draw their attention to the need to meet the learning objectives of that module.

In vessel traffic services new methods and equipment are being continually developed. This makes it necessary for instructors to keep up to date in new techniques and in national and international rules and regulations. Instructors should also be encouraged to teach relevant new developments and techniques not mentioned in this syllabus.

## Curriculum

With respect to the Course Outline, Instructors are not obliged to follow the sequence of subjects in which they appear, but should organise them in the manner that is considered to be the most effective for the course participants. The success of the course will depend, to a large extent, upon detailed co-ordination of the individual subjects into a coherent teaching scheme. It is important that an experienced Instructor acts as course co-ordinator to plan and supervise the implementation of the course.

The teaching schemes should be reviewed carefully to ensure that:

* all of the listed subjects are covered;
* unnecessary repetition is avoided; and
* essential pre-requisite knowledge at any stage is covered.

Care should be taken to see that items excluded from the syllabus are not introduced, except where necessary to meet additional requirements of the Competent Authority.

The course co-ordinator should monitor the running of the course. There should be ongoing interaction with the Instructors concerning the progress of the participants and any problems that have become apparent. Modifications to the teaching scheme should be made where necessary to ensure that required levels of competence are met. Additional training should be arranged to enable participants requiring remedial training to achieve appropriate competence.

An adequate period of time should be allowed at the end of the course for revision and review of the course content. That period and the time occupied by assessments may be additional to the times shown in Section 3 - Course Outline.

# Section 5 - Evaluation or Assessment

Regular assessment of course participants during training should be undertaken. The assessment may be based on the performance and progress of the participants. These assessments may be additional to any examination required for the purposes of certification.

Assessments should use the following five levels to indicate the learning level attained by participants. It is recommended that an average level of three to four should be considered as being satisfactory.

|  |  |  |
| --- | --- | --- |
| LEVEL | CATEGORY | DESCRIPTION |
| LEVEL 1 | RECEIVING | The participant’s willingness to participate in the learning activity. |
| LEVEL 2 | RESPONDING | The participant’s active participation in the learning activity. |
| LEVEL 3 | SIGNIFICANCE | The value that the participant attaches to a particular object, phenomena or behaviour. |
| LEVEL 4 | ORGANISATION | The participant’s ability in bringing together different values, resolving conflicts between them and the building of an internally consistent value system. |
| LEVEL 5 | VALUE COMPLEX | The value system that has been achieved due to contrary, consistent and predictable behaviour for a sufficiently long time for the participant to have developed a characteristic ‘life style’. |

Table 5: Assessment levels

# Annex 1

## References

IALA Recommendation V-103 - Recommendations on Standards for Training and Certification of VTS Personnel

IALA Model Course V-103/1 – Vessel Traffic Services Operator Basic Training

IALA Model Course V-103/3 – Vessel Traffic Services On-the-Job Training

IALA Guidelines on the Assessment of training requirements for existing VTS Personnel, candidate VTS Operators and the Revalidation of VTS Operator Certificates

The references relevant to the planning of VTS training are listed in respective model courses.