



IALA MODEL COURSE

L1.2

MASTER OF MARINE AIDS TO NAVIGATION MANAGEMENT

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FOREWORD

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) recognises that training in all aspects of the management of Marine Aids to Navigation (AtoN) service delivery is critical to the consistent provision of that AtoN service.

Taking into account that under the SOLAS Convention, Chapter V, Regulation 13, paragraph 2, published by the International Maritime Organization (IMO), Contracting Governments, mindful of their obligations, undertake to consider the international recommendations and guidelines when establishing marine aids to navigation, including recommendations on training and qualification of AtoN managers, IALA has published IALA Standard 1050 on training and certification and adopted Recommendation R0141 on Standards for Training and Certification of AtoN personnel.

IALA Committees working closely with the IALA World Wide Academy (The Academy) have developed a series of model courses for AtoN personnel having “Level 1” management functions. This model course extends that basic level of competency so that a more senior AtoN manager can demonstrate competency as a “Master of Aids to Navigation”.

This model course, which is an extension of the IALA Level 1 AtoN Manager course, is intended to provide national members and other appropriate authorities charged with the provision of AtoN services with specific guidance on further training of senior AtoN managers. It is intended to be delivered primarily by the IALA World-Wide Academy and by a training organisation accredited by a national Competent Authority. Assistance in implementing this and other model courses may be obtained from the IALA World-Wide Academy at the following address:

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PART 1 - COURSE OVERVIEW

1. OVERVIEW

IALA Standard 1050 on training and certification recommends that national Competent Authorities and the accredited training organisations (ATOs) in their country utilise model courses concerned with the provision of AtoN services, in accordance with IALA Recommendations O-149 and R0141.

IALA Standard 1050 recognises that Competent Authorities have a transition period of four years from June 2018 to conform to the normative provisions to claim compliance to that Standard. Successful completion of this model course would be taken as a clear indication of compliance.

2. PURPOSE OF THE MODEL COURSE

This Master of Marine Aids to Navigation Manager course is an extension of the IALA Level 1 AtoN Manager course. While the Level 1 course focuses on training the operational, technical and managerial aspects of AtoN service provision at a practical level, the Master of AtoN Management course is more theoretical and addresses key aspects of AtoN governance from a strategic perspective. Its purpose is to assist ATOs and their teaching staff with the preparation and introduction of a specific training course for senior management personnel concerned with AtoN service provision or its supervision.

The knowledge, skills and dedication of model course Trainers, Teachers and/or Instructors (TTIs) are the key elements enabling those being trained (the participants) to acquire the necessary level of competence; that is the ability to perform defined tasks or duties effectively. These competencies are the way that individuals deal with work and other people. They are the combination of personality, intelligence and innate skills together with acquired knowledge, skills and attitude mastered during an individual's lifetime.

It is not the intention of this model course programme to restrict TTIs in the way they deliver their lectures, particularly as the cultural backgrounds of the participants may vary considerably from country to country. However, TTIs should possess excellent interpersonal and communications skills and should have a comprehensive understanding of diversity and cultural differences.

3. USE OF THE MODEL COURSE

The complete course comprises two modules. Module One covers specific subjects or areas of knowledge in which senior AtoN managers are required to have competence. Module Two is a group task to produce a specific strategic document. Both modules are written in the learning-objective format outlined in IALA Guideline G1103 – Train the Trainer.

Both modules of this model course are based on a subject framework which states their scope, aims and the levels of competency to be acquired. Each competence is defined in terms of its learning objectives, required knowledge, skills and attitude. The main subject in each module is sub-divided into subject elements and sub-elements. The sub-elements form the detailed syllabus which takes account of IALA publications, which together form the “international recommendations and guidelines” referred to in SOLAS Chapter V Regulation 13 paragraph 2.

In order to set up an effective training system to deliver this model course, a Training Management System (TMS) should be in place as set out in IALA Recommendation R0141 Annex A Part 7. A TMS would, amongst others, analyse the detailed syllabus and determine the entry standard for participants undertaking the training.

Because the majority of IALA publications are written in English, it is envisaged that this model course will be delivered primarily using the English language. However, some National Members may choose to develop this course to be delivered in their own languages. In either case, explanations and clarifications can be presented in other regional languages, if required, with additional time allocated during lesson planning.

4. ACRONYMS

To assist in the use of this model course, the following acronyms have been used:

| | |
|-------|---|
| AtoN | Aid(s) to Navigation |
| IALA | International Association of Marine Aids to Navigation and Lighthouse Authorities |
| L | Level |
| SOLAS | International Convention for the Safety of Life at Sea, 1974 (as amended) |
| WWA | World Wide Academy |
| ATO | Accredited Training Organisation |
| AtoN | Marine Aid(s) to Navigation |
| IALA | International Association of Marine Aids to Navigation and Lighthouse Authorities |
| IMO | International Maritime Organisation |
| MoU | Memorandum of Understanding |
| SOLAS | International Convention for the Safety of Life at Sea (SOLAS) |
| SIRA | Simplified IALA Risk Analysis (tool) |
| TMS | Training Management System |
| TTI's | Trainers, Teachers and/or Instructors |

5. DEFINITIONS AND CLARIFICATIONS

The most pertinent definitions and clarifications related to this model course can be found at Annex A section 9 of IALA Recommendation R0141. Other definitions are listed below.

The term “AtoN Manager” is taken to mean a person who has been awarded an IALA Level 1 AtoN Certificate and holds the post of at least a junior manager.

The term “International Aids to Navigation Certificate” is taken to mean a certificate of competency issued by the IALA WWA since 2014 or by an ATO in a State with whom IALA has signed a training MoU with that State’s national Competent Authority (Refer to IALA Recommendation R0141 article 2.5 for further details).

The term “Senior AtoN Manager” is taken to mean a person who has held an IALA Level 1 AtoN Certificate for at least 2 years, or an uncertified AtoN manager who has had at least 5 years’ experience in a recognised AtoN service provider, or at least 5 years’ experience in the maritime department of a national Competent Authority.

The term “Master of AtoN Management” is taken to mean a person who has been awarded an IALA Level 1.2 AtoN certificate.

PART 2 – DELIVERY OF THE MODEL COURSE

1. INTRODUCTION

The training and assessment of participants seeking formal qualification as a Master of AtoN Management through the award of an IALA AtoN Level 1.2 Certificate by an ATO is exactly as set out in IALA model course L1.1 which should be referred to before the delivery of this course.

2. COURSE MODULES

A modular system enables the Training Organisation to modify the course content and provide any revisions to the objectives as required. Having determined what needs to be taught to whom, TTIs or Course Facilitators or Assessors should draw up lesson plans which match the detailed syllabus for each module and the references in that module to teaching material suggested for the course. Lesson plans can often be in the form of structured presentations (see G1100 article 2.3 concerning presentations developed by the IALA World-Wide Academy).

Lesson plans shown in Part 5 of this model course assume that all participants will receive instruction in all sub-elements of the complete syllabus. Reference publications that are unlikely to change in the medium term (e.g. UNCLOS and SOLAS) that the TTI may wish to use, are listed under each modular subject element. References to IALA publications are contained in the presentation lectures which form part of the IALA World-Wide Academy's TMS. These are updated at least every six months and will be available to Accredited Training Organisations that have signed a Memorandum of Understanding (MoU) with IALA (see article 2.3 in IALA Guideline G1100). Accredited Training Organisations should add local publications and training aids as appropriate.

The level of competence required from a potential Master of AtoN Management is shown for each element or sub-element as required. These are graded from level 1 (basic understanding) to level 4 (detailed understanding). Details are at Table 1 in model course L1.1.

3. SUBJECT OUTLINE; DETAILED TEACHING SYLLABUS AND PRESENTATION

A subject outline and detailed teaching syllabus for each module is shown in tabular form in Part 5 of this document. Detail on subject outline, the teaching syllabus and how it is presented for this course are identical to those for IALA model course L1.1 which should be consulted when planning the delivery of this course.

4. EVALUATION OR ASSESSMENT OF THE COURSE PARTICIPANTS

The cornerstone of a competency-based training and assessment system is a rigorous and objective assessment of the trainee against accepted standards. The award of a certificate of competency as a Master of AtoN Management will be based on the principle that satisfactory results are obtained during Module Two of this course. Further guidance is at Part 3 paragraph 3.

5. IMPLEMENTATION

It is self-evident that planning and preparation are essential to the successful implementation of this model course. In order to ensure that participants receive high quality instruction, Training Organisations will ensure that the following minimum assets are available before the course commences:

- Qualified TTIs;
- Support staff and facilities;
- Instruction and rest rooms;

- Training aids and equipment. Where possible presentations should be capable of being projected onto a suitable white background or screen. A separate white-board should form part of the minimum suite of training aids.
- Reference books; publications or extracts and other reference material. References to appropriate IALA Recommendations and Guidelines are given in the suite of presentations developed by the IALA World-Wide Academy (see Article 2 above).

PART 3 – COURSE FRAMEWORK

1. INTRODUCTION

This model course is based on IALA Recommendation R0141. Having demonstrated the required level of competence in Module Two of this course, or other assessments required by the Accredited Training Organisation, participants will be awarded a “Master of AtoN Management” Certificate.

2. ENTRY LEVEL REQUIREMENTS FOR THE MASTER OF ATON MANAGEMENT

It will be for the Accredited Training Organisation, in consultation with the Competent Authority, to determine minimum entry requirements for Senior AtoN Manager training. The following list provides guidance on criteria for selection of participants who must have a demonstrable competence in English (or other official course language); be expected to be employed as a Senior AtoN Manager for at least two years after successful completion of the course and at least one of the following proven competencies or qualifications:

- L1 Alumni with at least 2 years subsequent experience as an AtoN Manager.
- or
- at least 5 years’ experience as an un-certificated AtoN Manager in an recognised AtoN service provider.
- or
- at least 5 years’ experience in the maritime department of a national Competent Authority.

3. COURSE PREQUALIFICATION

The course requires participants to have acquired a demonstrated competency as an AtoN Manager. Potential participants who have held an International Level 1 certificate as an AtoN Manager for at least 2 years will automatically pre-qualify for this course. All other potential participants, including those who hold a Certificate of Competence issued by a Competent Authority during the transition period of four years specified in IALA Standard 1050, will be required to take a prequalification test set by the IALA World-Wide Academy. This will comprise 50 “easy” questions taken from the data-bank for the complete L1.1 syllabus. Potential participants who answer at least 20 questions correctly will prequalify.

4. COURSE INTAKE – LIMITATIONS

The Accredited Training Organisation will determine the maximum number of participants that can reasonably acquire the necessary competence during this one-week course. Experience has shown that given the specialised nature of the syllabus, a satisfactory level of understanding can be transferred to a maximum of 20 participants.

5. TRAINING STAFF REQUIREMENTS

IALA Recommendation R0141 Article 5.2.2 states that ‘Competent Authorities should ensure that TTIs and assessors are appropriately qualified and experienced for the particular training and assessment of competence for which they are given responsibility. TTIs should hold suitable professional qualifications’. The same should apply to the person responsible for training supervision and the assessment of participants’ competence – the Assessor.

Specialist TTIs for Module 1 may be invited to deliver specific elements and should have proven competence, knowledge and experience in their respective field.

Accredited Training Organisations will be accountable to the Competent Authority for ensuring that the TTIs and assessors tasked with the conduct of this model course, and any supporting staff, are appropriately qualified and subject to review by approved Quality Management System procedures. The key factor is that both TTIs and assessors should have an appropriate balance of professional and teaching competencies.

5.1. COURSE TRAINERS, TEACHERS AND/OR INSTRUCTORS (TTIS)

Course TTIs should meet at least three of the following criteria.

- Fluency in English or other approved main language of instruction;
- Be in possession of an IALA AtoN Level 1 Certificate and at least 4 years' management experience in AtoN service provision;
- At least 5 years' work experience with a recognised AtoN service provider or IALA Industrial Member in a senior management capacity;
- Lecturing experience at a recognised nautical or engineering higher education establishment;
- Proven professional or technical expertise in a specialist field related to syllabus elements or sub-elements (for example maritime law; virtual AtoN; funding an AtoN service or strategic planning).

5.2. COURSE ASSESSORS

Course Assessors should have the required competency as an Instructor and meet at least one of the following criteria.

- At least 4 years' experience as an IALA AtoN Level 1 trainer;
- Chair or Vice-Chair of an IALA Technical Committee.

5.3. TEACHING FACILITIES AND EQUIPMENT

It is assumed that standard lecturing equipment will be provided. Additional teaching aids and equipment which might be appropriate to specific lectures are listed in the detailed teaching syllabus for each module. This includes suggestions for external visits where they might be available and appropriate.

PART 4 - GUIDELINES FOR TRAINERS, TEACHERS AND/OR INSTRUCTORS (TTIS)

1. INTRODUCTION

The guidelines for TTIs on this course are exactly as set out in Part 4 of IALA model course L1.1.

2. CURRICULUM

The curriculum for this model course is based on two broad modules. These are shown in Part 5 of this document. Each module has been broken down into non-prioritised subject elements and sub-elements which show the level of knowledge that the TTI must impart to the course participants in order for them to achieve the specified level of competence.

The levels of competence shown in Part 5 explain what a successful participant should be capable of doing in the workplace on the completion of the model course. The objective of each lecture is to ensure that each participant acquires the required level of understanding in each sub-element so that the required learning outcome can be achieved.

Sub-elements have been grouped into lectures capable of being delivered in 40 minutes under normal circumstances. Each Training Organisation will determine the optimum lecture length, the sub-elements it covers and over what period lectures will be delivered.

An example of course planning is shown in Table 1 below. Guidance on assessment is at Article 3 below.

Table 1 is intended only as a guideline which Training Organisations may use to determine their own training programme based on participant numbers, availability and entry-level standards determined from the training needs analysis, which is explained more fully at Annex A.

Table 1 *Example Course Outline Planning Programme*

| Work Day | Module /Sub-Module | Lectures (see Part 5) | Instruction hours | Other Activity | Remarks |
|----------|--------------------|-----------------------|-------------------|-------------------------|--------------------------------------|
| 1 | 1A | 1 to 4 | 6 | Self-test and exercises | Course registration and introduction |
| 2 | 1B | 5 – 7 | 5 | Exercises | Technical aspects of AtoN management |
| 3 | 1C | 8 - 11 | 6 | Exercises | Funding AtoN services |
| 4 | 1D | 12 - 16 | 6 | Exercises | HR and strategic planning |
| 5 | 2 | 0 | 3 | Major drafting exercise | Strategic Plan |
| | | Total hours | 26 | | |

The course Assessor should be involved actively in course planning and its conduct. Additional time should be allocated for tutorials so that every participant who is willing to gain the required competence has every opportunity to do so. A generic outline programme, including all aspects of the 1-week model course, has been developed by the IALA World-Wide Academy and will be supplied to any Accredited Training Organisation on request.

In order to ensure quality management, suggestions for improvement to the standard of lectures should be obtained through satisfaction feedback from participants based on TMS principles.

3. EVALUATION AND ASSESSMENT

It is anticipated that participants on this course will have a wide range of managerial and technical experience. To give them a common starting point, it is recommended that following the course introduction, the participants take a revision test comprising 30 questions from the L1.1 syllabus. The course Supervisor will then provide the answers as a presentation and participants will mark their own papers. This will enable each participant to determine whether they might need to conduct some private study to bring them up to speed for the rest of the course.

The principal method of evaluating whether participants have acquired the required level of competence on this model course is by the preparation of a satisfactory draft “strategic plan” for a theoretical coastal State, which encompasses most of the elements covered during the course. Each Accredited Training Organisation will, in consultation with the Competent Authority, determine the most appropriate method of assessing the standard of this plan. The following points provide guidance on the allocation of group and individual marks for such an assessment, which ATOs may find helpful in determining the most appropriate marking scheme:

- Participants should be divided into groups of 5 so that each group has about the same level of professional experience and competency in the main language of instruction (usually English).
- Each group should nominate a team leader who will coordinate the tasks to be done and produce a timetable so that the final document is completed on time.
- Each group will be allocated a “group mark” based on the quality of the final document, including its style, readability and presentation. Only a near-perfect document should be awarded a score of 17 or more.
- Each participant will be allocated an “individual mark” based on positive interventions during formal instruction which contribute to the conduct of the course and the quality of the section of the final document for which he or she was responsible.
- The award of the Certificate as a “Master of AtoN Management” will depend on achieving a combined group and individual mark of at least 25 marks out of a possible maximum of 50 marks.

Each Training Organisation will determine how marks are to be allocated, however a possible marking scheme are shown in Tables 2 and 3 below ¹. A “X” in Table 3 indicates that a specific task has been allocated to a selected participant. An example mark has been shown for Participant C.

¹ The subject headings for the draft Strategic Plan are taken from Module Three, Lecture 42 of the training plan developed by the IALA WWA for the delivery of model course L1.1 for AtoN managers.

Table 2 Individual Marking Scheme

| Individual marks | Course mark [maximum 10] | Task mark [maximum 10 per task; maximum total 20] | Total individual mark [maximum 30] | Group mark [maximum 20] | Final mark [maximum 50] |
|------------------|-----------------------------|---|---------------------------------------|----------------------------|----------------------------|
| Participant A | | | | | |
| Participant B | | | | | |
| Participant C | 6 | 10 | 16 | 15 | 31 |
| Participant D | | | | | |
| Participant E | | | | | |
| etc. | | | | | |

Table 3 Strategic Plan Marking Scheme

| Group 1 | Participant A | Participant B | Participant C | Participant D | Participant E |
|---|---------------|---------------|---------------|---------------|---------------|
| Role of the Competent Authority | X | | | | |
| Discharge of responsibilities | | | 5 | | |
| Corporate values | | | 5 | | |
| Governance | X | | | | |
| Funding of the AtoN service | | X | | | |
| Technical factors affecting AtoN service delivery | | | | X | |
| User Consultancy | | X | | | |
| Forecast changes in maritime traffic and the degree of risk | | | | | X |
| Plans to install, amend or replace AtoN | | | | X | |
| Environmental protection statement | | | | | X |
| Individual task mark [maximum 20] | | | 10 | | |
| Group task mark [maximum 20] | | | 15 | | |

PART 5 - COURSE SYLLABUS

An introduction and subject framework for each module broken down into a detailed teaching syllabus for each sub-element is shown below.

1. MODULE 1 - GOVERNANCE, MANAGEMENT AND FUNDING OF ATON SERVICE DELIVERY

1.1. INTRODUCTION

Module 1 covers the proper governance, management and funding of an AtoN service by a national Competent Authority. It is split into four elements; governance and demonstration of the quality of maritime management (Element 1A); technical aspects of AtoN management (Module 1B); funding options for AtoN service delivery (Module 1C) and finally, human resource management and the analysis of competence (Module 1D).

Module 1A introduces the principles of proper governance, including effective maritime legislation. This competency is consolidated through exercises to analyse the demonstrable quality of maritime management of a theoretical coastal State and the preparation of a Level of Service statement for that State.

Module 1B focusses on technical aspects of AtoN management; principally the calculation of AtoN reliability statistics, and the production of probability and consequence criteria for use when running the Simplified IALA Risk Assessment (SIRA) tool in the theoretical coastal State identified in Module 1A. Module 1B also allocates a lecture to a specific technical aspect of AtoN service delivery, e.g. the use of virtual AtoN. It will be for each ATO to determine which technical aspect it will cover during that lecture.

Module 1C covers the total cost of ownership of an AtoN service, insurance aspects and the advantages and disadvantages of contracting out an AtoN service. Competency is consolidated using funding and cost-benefit analysis exercises.

Module 1D addresses Human Resource and competency issues, and the function of a national maritime committee. Competency is consolidated by the preparation of a strategic plan for the theoretical coastal State identified in Module 1A.

1.2. SUBJECT FRAMEWORK

1.2.1. SCOPE

The syllabus for Module 1A requires participants to gain the appropriate level of competence in understanding the role of a national Competent Authority; the proper governance of AtoN service provision, including national maritime legislation and the level of service (LOS) provided to key stakeholders.

The syllabus for Module 1B requires participants to gain the appropriate level of competence in the calculation of AtoN reliability; the generation of probability and consequence matrices to be used in SIRA, and the understanding of at least one other technical aspect of AtoN management.

The syllabus for Module 1C requires participants to gain the appropriate level of competence in the total cost of ownership of an AtoN service and how such a service should be funded.

Module 1D requires participants to gain an appropriate level of competence in the management of human resources; the role of a national maritime committee and the preparation of a strategic plan.

1.2.2. AIMS OF MODULE 1

On successful completion of Module 1A, participants will demonstrate the ability to determine the factors necessary for proper governance and legal delivery of an AtoN service.

On successful completion of Module 1B, participants will demonstrate the ability to calculate reliability statistics for AtoN in a coastal State; generate probability and consequence matrices to be used in a SIRA analysis and an understanding of at least one other technical aspect of AtoN management.

On successful completion of Module 1C, participants will demonstrate the ability to understand all factors affecting the total cost of ownership of an AtoN service and the options to fund such a service.

On successful completion of Module 1D, participants will demonstrate the ability to manage human resources within an AtoN service; understand the role played by a national maritime committee and the subjects to be included in a strategic plan.



1.2.3. DETAILED TEACHING SYLLABUS FOR MODULE 1A – THE GOVERNANCE OF A NATIONAL ATO N SERVICE

Table 4 Detailed Teaching Syllabus Module 1A

| Module | Element | Sub-Element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|-----------|-------------|-------------|---|---------------------|---|---------------------------------------|-------------|
| 1A | | | GOVERNANCE OF ATO N SERVICES | | | | |
| | 1a.1 | | PRINCIPLES OF PROPER GOVERNANCE | | | | |
| | | 1a.1.1 | International obligations related to safety of navigation | 4 | Self-test of basic L1.1 AtoN manager knowledge | SOLAS Chapter V IALA Standard 1010 | 1 |
| | | 1a.1.2 | The role and responsibilities of a national Competent Authority | | | | |
| | | 1a.1.3 | External and internal audits and inspections | 3 | | | |
| | | 1a.1.4 | Quality Management of AtoN service provision | | | | |
| | | 1a.1.5 | The administration of proper AtoN governance | | | | |
| | | 1a.1.6 | Management plans to be produced by a Competent Authority | | | | |
| | 1a.2 | | ANALYSIS OF THE QUALITY OF MARITIME MANAGEMENT | | | | |
| | | 1a.2.1 | Definition of maritime management | 3 | Assessment of the quality of maritime management exercise | | 2 |
| | | 1a.2.2 | Indicators of the quality of maritime management | | | | |
| | | 1a.2.3 | Analysis of the quality of maritime management in a theoretical coastal State | 2 | | | |



| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|--------|-------------|-------------|--|---------------------|--|---|-------------|
| | 1a.3 | | NATIONAL MARITIME LAW RELATING TO ATON SERVICES | | | | |
| | | 1a.3.1 | The definition of a “ship” and “marine aid to navigation” | 4 | | SOLAS Draft maritime law IALA Standard 1070 | 3 |
| | | 1a.3.2 | Embodiment of SOLAS into national law | 3 | | | |
| | | 1a.3.3 | The “Shipping” Act | 2 | | | |
| | | 1a.3.4 | Legal nomination of a national Competent Authority | | | | |
| | | 1a.3.5 | Responsibility for the promulgation of Maritime Safety Information | | | | |
| | | 1a.3.6 | Regulations for the installation, amendment or removal of an AtoN | | | | |
| | | 1a.3.7 | The legal right to conduct audits and inspections | | | | |
| | | 1a.3.8 | Funding of AtoN service / Light Dues Act | | | | |
| | 1a.4 | | LEVEL OF SERVICE | | | | |
| | | 1a.2.1 | The definition of “Level of Service” | 4 | Level of Service exercise | IALA Standard 1010 | 4 |
| | | 1a.2.2 | LoS statement on type, extent and quality of services | | | | |
| | | 1a.2.3 | Publication of Level of Service statement | | | | |



1.2.4. DETAILED TEACHING SYLLABUS FOR MODULE 1B – TECHNICAL ASPECTS OF ATON MANAGEMENT

Table 5 Detailed Teaching Syllabus Module 1B

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|--------|---------|---|--|---|--|--|-------------|
| 1B | | | TECHNICAL ASPECTS OF ATON MANAGEMENT | | | | |
| | | 1b.1 | THE CALCULATION OF ATON PERFORMANCE | | | | |
| | | 1b.1.1 | Definitions of “availability”, “reliability” and “integrity” | 4 | AtoN reliability calculation exercise | IALA Standard 1020 | 5 |
| | | 1b.1.2 | Performance indicators | 3 | | | |
| | | 1b.1.3 | Availability calculations | | | | |
| | | 1b.1.4 | System reliability calculations and models | | | | |
| | | 1b.2 | TECHNICAL SUBJECT (e.g. Virtual AtoN) | Note: Each ATO should select a specific technical subject to cover for Lecture 6 | | | |
| | | 1b.2.1 | Definition of a Virtual AtoN | 3 | Group discussion of the use of Virtual AtoN | IMO MSC.1/CIRC1473 (May 2014) IALA Standards 1030; 1060 | 6 |
| | | 1b.2.2 | IMO policy on the use of Virtual AtoN | | | | |
| | | 1b.2.3 | Virtual AtoN and Electronic chart display & information system (ECDIS) | | | | |
| | | 1b.2.4 | Use of Virtual AtoN by IALA member States | | | | |
| | | 1b.3 | SIMPLIFIED IALA RISK ASSESSMENT TOOL – CRITERIA | | | | |
| | | 1b.3.1 | Definitions of “hazard”, “risk”, “probability” and “consequence” | 4 | SIRA probability and consequence criteria selection exercise | IALA Standard 1010 | 7 |
| | | 1b.3.2 | Assessment of probability criteria | 3 | | | |
| | 1b.3.3 | Assessment of consequence criteria | | | | | |
| | 1b.3.4 | Selection of probability and consequence criteria | | | | | |



1.2.5. DETAILED TEACHING SYLLABUS FOR MODULE 1C – FUNDING ATON SERVICES

Table 6 Detailed Teaching Syllabus for Module 1C

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|--------|---------|-------------|--|--|--|------------|-------------|
| 1C | | | FUNDING ATON SERVICES | | | | |
| | 1c.1 | | THE TOTAL COST OF OWNERSHIP | | | | |
| | | 1c.1.1 | Components of the total cost of an AtoN | 4 | | | 8 |
| | | 1c.1.2 | Design, procurement and commissioning costs | 3 | | | |
| | | 1c.1.3 | Government charges and warranty issues | | | | |
| | | 1c.1.4 | Through-life maintenance and disposal costs | | | | |
| | | 1c.1.5 | Management and administrative costs | | | | |
| | 1c.2 | | FUNDING ATON SERVICES | | | | |
| | | 1c.2.1 | Options for funding AtoN services | 4 | Total cost and light dues calculation exercise | | 9 |
| | | 1c.2.2 | Advantages and disadvantages of the “user-pays” system | 3 | | | |
| | | 1c.2.3 | Justification for charging light dues | | | | |
| | | 1c.2.4 | Light dues and their administration | | | | |
| | 1c.3 | | INSURANCE OF ATON ASSETS AND SERVICES | | | | |
| | | 1c.3.1 | Insurance of vessels and the role of P&I Clubs | 2 | | | 10 |
| | | 1c.3.2 | AtoN asset insurance | 3 | | | |
| | | 1c.3.3 | Third-party liability insurance | | | | |
| | | 1c.3.4 | Manpower insurance | | | | |
| | 1c.4 | | CONTRACTING OUT – CASE STUDY | Note: Each ATO should select an appropriate case study for Lecture 11 | | | |
| | | 1c.4.1 | Advantages and disadvantages of “Contracting Out” | | Cost-benefit analysis exercise | | 11 |
| | | 1c.4.2 | Legal contract, liability and ownership issues | | | | |



| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|--------|---------|-------------|--|---------------------|--|------------|-------------|
| | | 1c.4.3 | Quality control and inspection | 3 | | | |
| | | 1c.4.4 | Variation of light dues to fund contracted-out service | | | | |
| | | 1c.4.5 | Contract termination | | | | |



1.2.6. DETAILED TEACHING SYLLABUS FOR MODULE 1D – HUMAN RESOURCES; COMPETENCIES AND NATIONAL PLANNING

Table 7 Detailed Teaching Syllabus for Module 1D

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|--------|---------|-------------|--|---------------------|--|--------------------|-------------|
| 1D | | | HUMAN RESOURCES; COMPETENCIES AND PLANNING | | | | |
| | 1d.1 | | COMPETENCY AND CERTIFICATION | | | | |
| | | 1d.1.1 | The definition of “competency” | 4 | | IALA Standard 1050 | 12 |
| | | 1d.1.2 | IALA Standard of Training and Certification | | | | |
| | | 1d.1.3 | Certification of VTS personnel | | | | |
| | | 1d.1.4 | Certification and AtoN personnel | | | | |
| | | 1d.1.5 | Career Development of AtoN personnel | | | | |
| | 1d.2 | | HUMAN RESOURCE COMPETENCY IN A COASTAL STATE | | | | |
| | | 1d.2.1 | AtoN service organisational structure | 4 | HR planning exercise | | 13 |
| | | 1d.2.2 | Human resource planning in a theoretical coastal State | | | | |
| | | 1d.2.3 | Retention and exploitation of AtoN expertise | | | | |
| | 1d.3 | | THE NATIONAL MARITIME COMMITTEE | | | | |
| | | 1d.3.1 | The requirement for a national maritime committee | 3 | National Maritime Committee Terms of Reference exercise | | 14 |
| | | 1d.3.2 | Composition and authority of a national maritime committee | | | | |
| | | 1d.3.3 | Marine spatial planning issues | | | | |
| | | 1d.3.4 | Coordinated approach to protection of the marine environment | | | | |
| | 1d.4 | | STRATEGIC PLANNING | | | | |
| | | 1d.4.1 | The requirement for formal strategic planning | 4 | | | 15 |
| | | 1d.4.2 | Content of a strategic plan for AtoN service delivery | 3 | | | |
| | | 1d.4.3 | Approval of a strategic plan by higher management | | | | |
| | | 1d.4.4 | Publication of a strategic plan | 4 | | | |

2. MODULE 2 – PREPARATION OF A DRAFT STRATEGIC PLAN

2.1. INTRODUCTION

Module 2 – Preparation of a Strategic Plan deals with the subjects to be included in the draft strategic plan for the theoretical coastal State introduced during Module 1. It is designed to be a group task for 5 participants, however the number of participants in each task can be adjusted as necessary

2.2. SUBJECT FRAMEWORK

2.2.1. SCOPE

The syllabus for Module 2 requires participants to gain the appropriate level of competence in the preparation of a strategic plan for a theoretical Coastal State. Competencies gained during module 1 will be consolidated during Module 2.

2.2.2. AIM

On successful completion of Module 2, participants will demonstrate the ability to prepare a draft strategic plan for a theoretical Coastal State.



2.2.3. DETAILED TEACHING SYLLABUS FOR MODULE 2 – PREPARATION OF A DRAFT STRATEGIC PLAN

Table 8 Detailed Teaching Syllabus for Module 2

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids; exercises and external visits | References | Lecture No. |
|--------|---|--|---|---------------------|--|------------|-------------|
| 2 | 2.1 | PREPARATION OF A STRATEGIC PLAN | | | | | |
| | | REVIEW OF A STRATEGIC PLAN | | | | | |
| | | 2.1.1 | Recommended chapter headings | | | | |
| | | 2.1.2 | The role of the Competent Authority and its responsibilities | | | | |
| | | 2.1.3 | Factors affecting the governance of AtoN service provision | | | | |
| | | 2.1.4 | Funding mechanisms and Light Dues administration | | | | |
| | | 2.1.5 | LOS statement and technical factors affecting AtoN service delivery | | | | |
| | | 2.1.6 | Forecast changes in traffic patterns and the degree of risk | | | | |
| | | 2.1.7 | Plans to install, amend or remove AtoN | | | | |
| | | 2.1.8 | Environmental protection statement | | | | |
| 2.2 | PRESENTATION OF A STRATEGIC PLAN | | | | | | |
| | 2.2.1 | Method of presenting the final draft strategic plan | 3 | Presentation | | | |
| | 2.2.2 | Assessment of the preparation and presentation of the strategic plan | 2 | | | | |