

IALA Model Course E-141/2

On

“Level 1+”

Obligations of Senior Management in National Competent Authorities

Edition 2

December 2015



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Document Revisions

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

| Date | Page / Section Revised | Requirement for Revision |
|---------------|------------------------|------------------------------------------------|
| December 2015 | Whole document | Review of scope, objective and course syllabus |
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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 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 5, Regulation 13, paragraph 2, Contracting Governments, mindful of their obligations published by the International Maritime Organisation, undertake to consider the international recommendations and guidelines when establishing aids to navigation, including recommendations on training and qualification of AtoN managers, IALA has adopted Recommendation E-141 Edition 3 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 E-141 Level 1 management functions. This model course on the obligations of Competent Authorities should be read in conjunction with IALA Recommendation E-141/1 – Model Course on Level 1 Manager Training, which contains standard guidance for the conduct of all Level 1 model courses.

This model course is intended to be delivered by The Academy (with other International Organizations where appropriate) to national Competent Authorities responsible for safety of navigation and particularly those charged with the provision of AtoN services in a particular State or region. It contains specific guidance on the training of senior managers in national Competent Authorities on their international obligations. It is advisable to deliver such a course in association with IMO and/or IHO to cover most of the coastal State obligations regarding safety of navigation.

Assistance in delivering this and other model courses may be obtained from the IALA World Wide Academy at the following address:

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PART A – COURSE OVERVIEW

1 PART A - COURSE OVERVIEW

1.1 Scope

This course or seminar is intended to provide senior managers in national Competent Authorities and other interested parties with the training necessary to have a satisfactory understanding of their obligations to provide appropriate Aids to Navigation (AtoN) services as set out in international legislation.

1.2 Objective

Upon successful completion of this seminar, participants will have acquired sufficient knowledge to ensure that plans to meet the obligations placed on the national Competent Authorities responsible for the provision of AtoN services in their waters can be implemented individually or in cooperation with adjacent States.

1.3 Course or Seminar Outline

This course or seminar is intended to cover the knowledge required by a senior AtoN manager in a national Competent Authority to gain an understanding of the obligations placed on a State for the proper provision of AtoN services and to disseminate that knowledge more widely. The course comprises 3 teaching modules and a final seminar forum.

1.4 List of Teaching Modules

| Module Title | Time in hours | Overview |
|---------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| International Organisations and Legislation | 2 | This module describes the role of IALA and its Academy; its liaison with other international organisations and Coastal State responsibilities under SOLAS Chapter V and other international legislation. |
| Navigational Factors | 5 | This module describes the concept of navigation in general and e-navigation in particular focussing on the IALA Maritime Buoyage System (MBS); Aids to Navigation (AtoN) including Automatic Identification Systems (AIS) and Vessel Traffic Services (VTS); and Maritime Safety Information. |
| Management of Aids to Navigation Services | 2 | This module describes the principles of managing an AtoN service with the focus on volume of maritime traffic and degree of navigation risk. |
| Final Course or Seminar Forum | 1 | The course or seminar ends with a forum in which participants can interact with the lecturers and presenters with the aim of producing a number of recommendations to be implemented by the national Competent Authority(ies) |
| Total Hours: | 10 | Two day course |

1.5 Specific Course Related Teaching Aids and Notes

- 1 This seminar will be delivered in an appropriate venue with presentations delivered using MS PowerPoint®. The seminar is not limited to a maximum number of participants; however the venue

should be big enough to permit the participants to sit at desks large enough to operate a laptop computer with room for printed material to hand. Each desk should be provided with a power socket.

- 2 The seminar venue should be equipped with overhead projectors and screens to enable presentation of the subject matter.
- 3 To enable all participants to receive clear guidance from instructors and to raise questions that can be heard throughout the venue, lapel or fixed lectern microphones should be provided together with a roving microphone for use by participants.
- 4 Participants should have Wi-Fi internet access.

1.6 References

In addition to any specific references required by the Competent Authority, the following material is relevant to this course:

- The IALA NAVGUIDE
- Relevant IALA Recommendations and Guidelines
- The United Nations Convention on the Law of the Sea
- The Safety of Life at Sea Convention

2 PART B - TEACHING MODULES

Module 1 – International Organizations and Legislation

2.1.1 Scope

This module describes the role of IALA and its Academy; its liaison with other international organisations and Coastal State responsibilities under SOLAS Chapter V and other international legislation.

2.1.2 Learning Objectives

To gain a **satisfactory** (Level 2) understanding of IALA; its relationship with other international organisations and the process of training and accreditation; and a **good** (Level 3) understanding of the responsibility of and obligations placed on Coastal States related to the provision of Aids to Navigation services.

2.1.3 DETAILED TEACHING SYLLABUS FOR MODULE 1 – INTERNATIONAL ORGANISATIONS AND LEGISLATION

Table 1 Detailed Teaching Syllabus Module 1

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids and exercises | References Rec = Recommendation GL = Guideline | Lecture No. |
|--------|---------|------------------------------------------------------------|-----------------------------------------------------------|---------------------|-----------------------------------------|----------------------------------------------------------|-------------|
| 1 | 1.1 | INTERNATIONAL ORGANISATIONS AND LEGISLATION | | | | | |
| | | IALA; IMO and SOLAS CH V; IHO and Other Authorities | | | | | |
| | | 1.1.1 | Review of IALA structure and functions | 2 | IALA flyers on IALA and its Academy | NAVGUIDE 1.1 – 1.6 www.iala-aism.org | 1 |
| | | 1.1.2 | IALA World Wide Academy | 2 | | NAVGUIDE 1.6.5; 8.12 IALA Rec E-141 | |
| | | 1.1.3 | IHO; ITU; IEC; and ILO organisation and responsibilities | 1 | | www.iho-ohi.net; www.ilo.org; www.iec.ch; www.itu.int | |
| | | 1.1.4 | IMO Mandatory Instruments – SOLAS; MARPOL; STCW; COLREG | 3 | | www.imo.org/conventions | |
| | | 1.1.5 | IMO Audit Scheme | 1 | | IALA GL 1054 | |
| | | 1.1.6 | SOLAS Ch. V Regulations applicable to maritime safety (1) | 3 | | NAVGUIDE 8.1 SOLAS V Regulations 10; 11; 12 and 13 | |
| | | 1.1.7 | SOLAS Ch. V Regulations applicable to maritime safety (2) | 3 | | SOLAS V Regulations 4 and 9 | |

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids and exercises | References Rec = Recommendation GL = Guideline | Lecture No. |
|--------|------------|-------------|-------------------------------------------------------------------|---------------------|-----------------------------------------|----------------------------------------------------------|-------------|
| | 1.2 | | UNCLOS 82 | | | | |
| | | 1.2.1 | United Nations Convention on Law of the Sea | 2 | | UNCLOS Articles 5; 6-14; 17-26 UNCLOS Part III Art.43 | |
| | | 1.2.2 | UNCLOS Articles pertaining to AtoN service provision | | | | |
| | 1.3 | | National (Competent) Authorities | | | | |
| | | 1.3.1 | Definition of a National (Competent) Authority | 2 | | NAVGUIDE 1.8; IALA Rec E-105 | 2 |
| | | 1.3.2 | National legislation to implement international laws | | | National Maritime Laws | |
| | | 1.3.3 | International best-practice: IALA Recommendations and Guidelines | | | NAVGUIDE 1.6 | |
| | | 1.3.4 | Importance of liaison with regional stakeholders | | | IALA GL 1079 | |
| | | 1.3.5 | Funding AtoN service provision – State versus user-pays principle | | | IALA Rec V-102 | |
| | 1.4 | | Aids to Navigation Training and Accreditation | | | | |
| | | 1.4.1 | VTS and AtoN training model courses | 2 | | IALA Rec E-141 and V-103 | 3 |
| | | 1.4.2 | Human resources and competency | | | IALA GL 1100 and 1014 | |
| | | 1.4.3 | The training and accreditation process | | | | |
| | | 1.4.4 | IALA Training policy and training hubs | | | | |

Module 2 – Navigational Factors

2.1.4 Scope

This module describes the concept of navigation in general and e-navigation in particular focussing on the IALA Maritime Buoyage System (MBS); Aids to Navigation (AtoN) including Automatic Identification Systems (AIS) and Vessel Traffic Services (VTS) and Maritime Safety Information.

2.1.5 Learning Objectives

To gain a **good** understanding of the obligations on a Competent Authority to provide MSI services, a **satisfactory** understanding of the concept of navigation; the types of AtoN; the IALA MBS; AIS and VTS and a **basic** understanding of e-navigation.

2.1.6 DETAILED TEACHING SYLLABUS FOR MODULE 2 – NAVIGATIONAL FACTORS

Table 2 Detailed Teaching Syllabus Module 2

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids and exercises | References Rec = Recommendation GL = Guideline | Lecture No. | | |
|--------|---------|------------------------------------------|-------------------------------------------------|---------------------|-----------------------------------------|---------------------------------------------------------------------|-------------|--|--|
| 2 | 2.1 | NAVIGATIONAL FACTORS | | | | | | | |
| | | Positional Accuracy and Standards | | | | | | | |
| | | 2.1.1 | IMO policy on accuracy and standards | 2 | | IMO Resolution A.923(23) IALA Rec O-118 IALA GL 1072 and 1057 | 4 | | |
| | | 2.1.2 | Methods of navigation | | | | | | |
| | | 2.1.3 | Introduction to radio navigation | | | | | | |
| | | 2.1.4 | Accuracy standards for the phases of navigation | | | | | | |
| | | 2.2 | Aids to Navigation | | | | | | |
| | | 2.2.1 | The IALA Maritime Buoyage System | 2 | | | 5a | | |
| | | 2.2.2 | Types of Aids to Navigation | | | | 5b | | |
| | | 2.3 | e-Navigation | | | | | | |
| | | 2.3.1 | Background to e-Navigation | 1 | "MonaLisa" video | IALA Rec ENAV 140 NAVGUIDE 4.1 -4.6 | 6 | | |
| | | 2.3.2 | The e-Navigation concept and its development | | | | | | |
| | | 2.3.3 | IMO strategy and the future of e-Navigation | | | | | | |

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids and exercises | References Rec = Recommendation GL = Guideline | Lecture No. |
|--------|------------|-------------|---------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | 2.4 | | The Pillars of e-Navigation | | | | |
| | | 2.4.1 | Introduction to Position, Navigation and Timing(PNT); Electronic Nautical Charts (ENCs) and Communications | 2 | | NAVGUIDE Chapter 4 IALA Recs R-121 [R-115 (EU)]; R-129; R-135 IALA GLs 1016; 1053; 1060 | 7 |
| | | 2.4.2 | Global Satellite Navigation Systems and their vulnerability | | | | |
| | | 2.4.3 | IALA WWRN Plan: GNSS-1; GNSS-2; SBAS and GBAS | | | | |
| | | 2.4.4 | Terrestrial systems: Differential GPS; Loran-C and e-Loran | | | | |
| | | 2.4.5 | Developments with ENCs for ECDIS; IHO S-100 standard | | | | |
| | | 2.4.6 | World-Wide Communication systems and the IALA WWRC Plan | | | | |
| | 2.5 | | Automatic Identification Systems | | | | |
| | | 2.5.1 | Introduction to AIS and system characteristics | 2 | | NAVGUIDE Chapter 4 IALA Recs A-126; R-101; O-113 IALA GLs 1010; 1028; 1029; 1062; 1081 IALA Recs A123; A-124; E-142 IALA GLs 1026; 1050; 1056; 1071; 1068; | 8 |
| | | 2.5.2 | Shipboard AIS | | | | |
| | | 2.5.3 | Shore-based AIS | | | | |
| | | 2.5.4 | AIS Aids to Navigation | | | | |
| | | 2.5.5 | IALA-Net; satellite AIS and LRIT | | | | |
| | 2.6 | | Vessel Traffic Services | | | | |
| | | 2.6.1 | The purpose and definition of VTS | 2 | Visit to VTS Centre if available | NAVGUIDE Chapter 5 IALA VTS Manual IALA Recs V-103; V-119; V- 120; V-127; V-136 IALA GL 1055 | 9 |
| | | 2.6.2 | The types of VT services | | | | |
| | | 2.6.3 | VTS personnel | | | | |
| | | 2.6.4 | Promulgation of information | | | | |
| | 2.7 | | Maritime Safety Information | | | | |
| | | 2.7.1 | Definition of MSI | 3 | | NAVGUIDE 6.6 | 10 |
| | | 2.7.2 | World-Wide Radio Navigation Warning Service and NAVWARNS | | | | |
| | | 2.7.3 | Obligations for MSI on Competent Authorities | | | | |
| | | 2.7.3 | Navigation warnings for AtoN and standard nomenclature | | | | |

Module 3 – Management of Aids to Navigation Services

2.1.7 Scope

This module describes the principles of managing an AtoN service with the focus on volume of maritime traffic and degree of navigation risk.

2.1.8 Learning Objectives

To gain a **satisfactory** understanding of the principles of managing an AtoN service based on an analysis of the volume of maritime traffic and degree of navigational risk.

2.1.9 DETAILED TEACHING SYLLABUS FOR MODULE 3 – MANAGEMENT OF AIDS TO NAVIGATION SERVICES

Table 3 Detailed Teaching Syllabus Module 3

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids and exercises | References Rec = Recommendation GL = Guideline | Lecture No. |
|----------|------------|-------------|--------------------------------------------------------------|---------------------|-----------------------------------------|-----------------------------------------------------------------------|-------------|
| 3 | | | MANAGEMENT OF ATON SERVICES | | | | |
| | 3.1 | | The Management of Navigational Risk | | | | |
| | | 3.1.1 | The definition of risk | 2 | | NAVGUIDE 8.3 IALA Rec O-134 and O-138 IALA GLs 1018; 1057; 1058 | 11 |
| | | 3.1.2 | Hazards and losses | | | | |
| | | 3.1.3 | Risk factors and control options | | | | |
| | | 3.1.4 | Quantifying risk | | | | |
| | | 3.1.5 | The risk management process | | | | |
| | | 3.1.6 | IALA Risk management tools: PAWSA; IWRAP Mk.2 and simulation | | | | |

| Module | Element | Sub-element | Subject | Level of Competence | Recommended training aids and exercises | References Rec = Recommendation GL = Guideline | Lecture No. |
|----------|------------|-------------|-----------------------------------------------------------|---------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------|
| | 3.2 | | Principles of AtoN Management | | | | |
| | | 3.2.1 | Review of SOLAS Chapter V Regulation 13 | | | | |
| | | 3.2.2 | Analysis of maritime traffic | | | | |
| | | 3.2.3 | Stakeholders | | | | |
| | | 3.2.4 | Obligations and responsibilities of a Competent Authority | 2 | | NAVGUIDE Chapter 8 IALA Recs O-130; O-132; R-121 IALA GLs 1004; 1008; 1033; 1035; 1037; 1050; 1052;1077 | 12 |
| | | 3.2.5 | Levels of Service Statements | | | | |
| | | 3.2.6 | Operational Performance Statements | | | | |
| | | 3.2.7 | Strategic and annual plans – the NAVPLAN | | | | |
| | | 3.2.8 | Categories of short-range AtoN | | | | |
| | | 3.2.9 | AtoN availability objectives | 2 | | NAVGUIDE Chapter 8 IALA Rec V-102 | 12 |
| | | 3.2.10 | Funding of AtoN services | | | | |
| 4 | 4.1 | | Seminar Forum | | Generate Recommendations | | |

Aids to Navigation Certificate

Level 1+

This is to certify that

Name.....

*Has participated in the [insert name] Seminar
##th – ##th Month 20##*

Organised by the **International Association of Marine Aids to Navigation and Lighthouse Authorities** in association with [insert name of host organisation]

Issued on behalf of the **IALA World-Wide Academy** :

.....
[insert name]
[insert title]

Date: ##th Month 20##

This certificate is awarded in accordance with IALA Recommendation E-141 and model course E-141/2