



MODEL COURSE

C2001-5

MARINE AIDS TO NAVIGATION – TECHNICIAN TRAINING BUOY CLEANING

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DOCUMENT REVISION

Revisions to this document are to be noted in the table prior to the issue of a revised document. The latest edition of the Model Course is the only version in force unless the Model Course is explicitly revoked by the Council.

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June 2016	Edition 1.0	
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FOREWORD

The International Organization for Marine Aids to Navigation (IALA) recognizes that training in all aspects of Marine Aids to Navigation (AtoN) service delivery, from inception through installation and maintenance to replacement or removal at the end of a planned life-cycle, is critical to the consistent provision of that AtoN service.

Under the SOLAS Convention, Chapter 5, Regulation 13, contracting governments should undertake to take into account existing international recommendations and guidelines when establishing aids to navigation. A footnote is included referencing inter alia recommendations and guidelines of IALA.

IALA has adopted the normative Recommendation R0141 on Training and Certification of AtoN Personnel. In order to help Members of the Organization, AtoN authorities and other stakeholders worldwide to confirm with the provisions of the Recommendation a series of model courses covering elements of training for AtoN personnel have been developed by the Committees and the World-Wide Academy of the Organization (WWA).

It is intended that such courses shall be conducted by a training institute or an organization accredited by a competent authority in a Member State of the Organization or Non-member State. This model course is intended to provide Members, AtoN authorities and other appropriate stakeholders with specific guidance on the training of AtoN technicians in shore marks.

PART 1 – COURSE OVERVIEW

1. SCOPE

This course is intended to provide technicians with the practical training necessary to become competent in buoy cleaning in the field.

Due to the hazardous nature of buoy cleaning, all persons attending buoy cleaning operations should be deemed by the competent authority to be responsible individuals.

2. OBJECTIVE

Upon successful completion of this course, participants will have acquired sufficient knowledge and skill to clean buoys afloat within their authorities, organizations, or other stakeholders.

3. COURSE OUTLINE

This course is intended to cover the knowledge and practical competence required for a technician to properly clean a buoy without any damage or injury to individuals or the buoy being cleaned. The complete course comprises five modules, each of which deals with a specific subject representing an aspect of buoy cleaning. Each module begins by stating its scope and aims, and then provides a teaching syllabus. This is a practical, job-centered course designed to provide trainees with a realistic, hands-on educational experience.

4. TEACHING MODULES

Table 1 *Table of teaching modules*

Module Title	Time in hours	Overview
Buoy cleaning equipment	0.5	This module describes the equipment required for cleaning a floating mark (buoy)
Planning for buoy cleaning	1	This module describes the plan for cleaning buoys on station
Cleaning Different Types of Buoys	1	This module describes how to clean different types of buoys
Cleaning a buoy	1	This module describes how marine growth, dust, corrosion and bird droppings are cleaned from a buoy
Site visit - attending a buoy cleaning operation	1.5	To attend a buoy cleaning operation in the field.
Evaluation	1.0	
Total Hours:	6	1 day course

5. SPECIFIC COURSE RELATED TEACHING AIDS

- 1 This course involves both theoretical classroom instruction and practical instruction in the field. Classrooms should be equipped with blackboards, whiteboards, and overhead projectors to enable presentation of the subject matter.
- 2 Participants should be briefed fully on all safe working procedures regarding buoys handling and cleaning when aboard all classes of service craft.
- 3 Participants should be supplied with all appropriate safety clothing and life-saving equipment during the practical module.
- 4 Models or photographs of service craft and or buoy tenders and buoys, chains, sinkers used by AtoN service providers should be considered as valuable teaching aids.
- 5 Trainees should have access to the types of equipment that they will be expected to work with on the job.
- 6 Examples of equipment used in buoy cleaning operations should be made available. These might include high-pressure washers, cleaning brushes, hand scrapers, wire rope strops, and safety equipment.
- 7 A video and/or photographs of a best-practice buoy cleaning operation will enhance the students learning experience prior to the practical site visit.

6. ACRONYMS

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

AtoN	Marine Aids to Navigation
GRP	Glass Reinforced Plastic
IALA	International Organization for Marine Aids to Navigation
L	Level
MBS	IALA Maritime Buoyage System
SOLAS	International Convention for the Safety of Life at Sea, 1974 (as amended)
WWA	World-Wide Academy

7. DEFINITIONS

The definition of terms used in this model course can be found in the International Dictionary of Marine Aids to Navigation.

8. REFERENCES

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

- 1 IALA NAVGUIDE
- 2 IALA Recommendation R1001 The IALA Maritime Buoyage System
- 3 IALA Guideline G1077 on Developing maintenance strategy for Aids to Navigation
- 4 IALA Guideline G1006 on Plastic Buoys
- 5 IALA Guideline G1091 on Bird Deterrents and Bird Fouling Solutions
- 6 Appropriate technical documentation from equipment manufacturers

PART 2 – TEACHING MODULES

1. BUOY CLEANING EQUIPMENT

1.1. MODULE 1 – BUOY CLEANING EQUIPMENT

1.1.1. SCOPE

This module describes the equipment required for cleaning a Marine Aid to Navigation floating mark (buoy).

1.1.2. LEARNING OBJECTIVE

Upon completion the student will have a satisfactory understanding of the equipment required to conduct a buoy cleaning operation.

1.1.3. SYLLABUS

1.1.3.1. Lesson 1 – Service craft used during buoy cleaning operations

- 1 Types and sizes of small service craft
- 2 Types and sizes of buoy tender vessels

1.1.3.2. Lesson 2 - Personal Protective and safety equipment

- 1 Safety clothing and equipment
- 2 Climatic considerations
- 3 Eye protection and washing
- 4 Hearing protection
- 5 Gloves and footwear
- 6 Head-face protection

1.1.3.3. Lesson 3 - Pressure washing machine

- 1 Features of pressure washing machines
- 2 Fresh water supply/tank

1.1.3.4. Lesson 4 - Tools

- 1 Marine growth scrapers and their limitations
- 2 Securing ropes/belts/wire rope strops
- 3 Cleaning brushes

1.2. MODULE 2 – PLANNING FOR BUOY CLEANING

1.2.1. SCOPE

This module describes the plan for cleaning buoys on station.

1.2.2. LEARNING OBJECTIVE

On completion, the student will have a basic understanding of the planning issues which must be considered before a buoy cleaning operation can be conducted safely and efficiently.

1.2.3. SYLLABUS

1.2.3.1. Lesson 1 – Safety Plan

- 1 Risk assessment and method statements

2 Equipment testing and certification

1.2.3.2. Lesson 2 – Cleaning Work Plan

- 1 Persons required to attend the cleaning operations
- 2 Initial inspection of the buoy
- 3 Securing the buoy for cleaning
- 4 Supervision of the operations
- 5 Consideration of weather and climatic conditions
- 6 Cleaning of signal/electrical equipment

1.3. MODULE 3 – CLEANING DIFFERENT TYPES OF BUOYS

1.3.1. SCOPE

This module describes how to clean different types of buoys.

1.3.2. LEARNING OBJECTIVE

On completion, the student will have a basic understanding how different types of buoys should be cleaned.

1.3.3. SYLLABUS

1.3.3.1. Lesson 1 - Steel buoys

- 1 Methods of cleaning steel buoys
- 2 Steel thickness inspection

1.3.3.2. Lesson 2 - Synthetic buoys

- 1 Cleaning GRP buoys
- 2 Cleaning thermoplastic buoys
- 3 Cleaning urethane coated foam buoys
- 4 Cleaning all-foam buoys

1.4. MODULE 4 – CLEANING THE BUOY

1.4.1. SCOPE

This Module describes how marine growth, dust, corrosion and bird droppings (guano) are cleaned from a buoy whilst preserving its surface coating marine aids to navigation components.

1.4.2. LEARNING OBJECTIVE

Upon completion, the student will have a satisfactory understanding of the correct methods of removing foreign matter and corrosion from both steel and plastic buoys whilst causing no damage to its surface coating and aids to navigation components.

1.4.3. SYLLABUS

1.4.3.1. Lesson 1 - Cleaning marine growth from buoys

- 1 General – marine growth
- 2 Cleaning buoys using manual scrapers and brushes
- 3 Cleaning buoys using high pressure washing machines
- 4 The care of paint coatings during cleaning operations.

1.4.3.2. Lesson 2 - Corrosion removal from steel buoys

- 1 Corrosion – general
- 2 Hand scrapers
- 3 Pressure washing machines
- 4 Drying and applying paint coatings
- 5 The application of anti-fouling paint

1.4.3.3. Lesson 3 - Cleaning dust and bird dropping from buoys

- 1 General and potential health issues
- 2 Use of hand scrapers and pressure washing machines

1.4.3.4. Lesson 4 - Protection of AtoN components during buoy cleaning operations and record keeping

- 1 The care and protection of marine lanterns, solar panels and other electric and electronic equipment fitted to buoys during cleaning operations
- 2 Recording the condition of the buoy before and after cleaning
- 3 Post cleaning checks, records and reports

1.5. MODULE 5 – SITE VISIT - ATTENDING A BUOY CLEANING OPERATION

1.5.1. SCOPE

This module comprises attending a buoy cleaning operation in the field.

1.5.2. LEARNING OBJECTIVE

Upon completion, the student will have a satisfactory understanding of how a buoy cleaning operation is conducted in practice.