IALA World Wide Academy

Model Course for
Aids to Navigation

LEVEL 2
Technician Training

Maintenance Planning & Records
Module 11 Elements 11.7
(IALA WWA L2:11.7)

Edition 1

December 2013

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

FOREWORD

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) recognises that training in all aspects of 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, paragraph 2; Contracting Governments, mindful of their obligations published by the International Maritime Organisation, undertake to consider international recommendations and guidelines when establishing aids to navigation. As such publications should include recommendations on the training and qualification of AtoN technicians, IALA has adopted Recommendation E-141 on Standards for Training and Certification of AtoN personnel.

IALA Committees working closely with the IALA World Wide Academy have developed a series of model courses for AtoN personnel having E-141 Level 2 technician functions. This model course on Maintenance Planning & Records for AtoN should be read in conjunction with the Training Overview Document IALA WWA.L2.0 which contains standard guidance for the conduct of all Level 2 model courses

This model course is intended to provide national members and other appropriate authorities charged with the provision of AtoN services with specific guidance on the training of AtoN technicians in the principles of maintenance planning and records for AtoN.   Assistance in implementing this and other model courses may be obtained from the IALA World Wide Academy at the following address:

The Dean
IALA World Wide Academy   Tel: (+) 33 1 34 51 70 01
10 rue des Gaudines, 78100   Fax: (+) 33 1 34 51 82 05
Saint Germain-en-Laye   e-mail: academy@iala-aism.org
France   Internet: www.iala-aism.org

TABLE OF CONTENTS

1   PART A - COURSE OVERVIEW

1.1   Scope

This course is intended to provide technicians with the theoretical training necessary to have a good understanding of the principles of maintenance planning and records for AtoN. This course is intended to be supported by further training modules on specific aspects of AtoN Maintenance. Details of these supporting model courses can be found in the Level 2 Technician training overview document IALA WWA L2.0.

1.2   Objective

Upon successful completion of this course, participants will have acquired sufficient knowledge and skill to understand the principles of maintenance planning and records for AtoN and use them to good effect within their organisation.

1.3   Course Outline

This course is intended to cover the knowledge required for a technician to understand the principles of Maintenance Planning & Records for AtoN. The complete course comprises five classroom modules, each of which deals with a specific subject covering aspects of maintenance planning and records for AtoN. Each module begins by stating its scope and aims, and then provides a teaching syllabus.

1.4   Table of Teaching Modules

Module Title	Time in hours	Overview
Why have a maintenance programme?	1	This module describes the advantages and disadvantages of running a maintenance programme.
Maintenance systems	1	This module describes the maintenance systems available.
Work Orders	1	This module describes the principle of Work Orders and how they work.
Reports	1	This module describes how to understand what reports are available and how they can be used to optimise Maintenance Management and guide investment plans.
Demonstration	2	This module describes a practical demonstration of the maintenance system in use at the local organisation.
Evaluation	1	Written test
Total Hours:	**7**	One day

1.5   Specific Course Related Teaching Aids

1   This course involves classroom instruction only. Classrooms should be equipped with blackboards, whiteboards, and overhead projectors to enable presentation of the subject matter.

2   Examples of Computerised Maintenance systems and paper based records should be used to illustrate the processes involved in Maintenance Planning & Records for AtoN.

1.6   Reference

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

- IALA Guideline 1077 on Maintenance of Aids to Navigation

2   PART B - TEACHING MODULES

2.1   Module 1 – Why have a maintenance programme?

2.1.1   Scope

This module describes the advantages and disadvantages of running a maintenance programme

2.1.2   Learning Objective

To gain a **basic** understanding of why their organisation chooses to operate a formal Maintenance Management system.

2.1.3   Syllabus

Lesson 1   Advantages and Disadvantages

1. Assure reliability
2. Optimise asset lifecycle costs
3. Safety of staff and others
4. Legislative compliance
5. Costs and staff time associated with operating a formal maintenance management system

Lesson 2   Maintenance philosophies

1. Breakdown
2. Planned maintenance
    o Calendar based
    o Hours run based
3. Condition based
    o Manual inspection
    o Automated condition reporting

Lesson 3   Maintenance induced failures

1. Examples of maintenance induced failures
2. The Bathtub curve of breakdowns over an asset's life

2.2   Module 2 – Maintenance systems

2.2.1   Scope

This module describes the maintenance systems available

2.2.2   Learning Objective

To gain an **satisfactory** understanding the different types of maintenance systems in use and to assess the best type for the organisation.

2.2.3   Syllabus

Lesson 1   Maintenance systems

1. Manual calendar based – Tee Card
2. Computerised
   o Off the shelf
   o Large, complex & bespoke

Lesson 2   Assets and Asset structures

1. Asset structures
2. Sub Assets and components
3. Examples of asset structures in use
4. Bills of Materials
5. Links to other documents
6. Links to other similar assets in use

2.3   Module 3 – Work Orders

2.3.1   Scope

This module describes the principle of Work Orders and how they work.

2.3.2   Learning Objective

To gain a **basic** understanding of the principle of Work Orders and how they work.

2.3.3   Syllabus

Lesson 1   Work Orders

1. Work Orders for breakdowns
   o Initiating
   o Approving
   o Progressing
   o Closing
   o Archiving
2. Planned work orders
   o Set into the annual work plan
   o Drawn off and issued
   o Work done
   o Closing
   o Archiving
3. Routine work schedules
   o Setting and storing of regular work schedules for use in multiple locations
   o Standard Operating Procedures
4. Bills of materials for servicing packs
5. Work tracking
   o Identifying outstanding work at a location or on an asset
   o Identifying who has carried out work / who should have carried out work
   o Prevent duplication of work requests
   o Resource allocation and reporting of hours spent on each work order
6. Examples of
   o Work Orders
   o Work schedules
   o Planned maintenance regimes

2.4   Module 4 – Reports

2.4.1   Scope

This module describes how to understand what reports are available and how they can be used to optimise Maintenance Management and guide investment plans.

2.4.2   Learning Objective

To gain a **satisfactory** understanding of what reports are available and how they can be used to optimise Maintenance Management and guide investment plans.

2.4.3   Syllabus

Lesson 1   Reports

1. Availability reports
2. Down time reports
3. Breakdown analysis
4. Stores usage
5. Influence investment decision
6. Influence future maintenance strategies
7. Asset history

Lesson 2   Pitfalls

1. Difference between Data Overload and Useful Information
2. Effective interpretation of information
3. Decide who is to receive the reports and what they are going to do with the information
4. The accuracy of the report is only as good as the information entered

Lesson 3   Examples of:

1. Reports
2. Asset History
3. Breakdown analysis

2.5   Module 5 – Practical demonstration

2.5.1   Scope

This module describes a practical demonstration of the maintenance system in use at the local organisation.

2.5.2   Learning Objective

To gain a **satisfactory** understanding of the scope and principles of the maintenance management system in use.

2.5.3   Syllabus

Lesson 1   Demonstration

1. Work orders
2. Planned work
3. Asset structures
4. Bills of materials
5. Resource allocation
6. Search functions

Assessment. Participants will be given a short written test on completion