

Edition number: 1.1
Edition date: 01.10.2011
Status: released issue
Intended for: General public

AIS Training Development Guidelines

AIS Training Development Guidelines

Edition Number	:	1.1
Edition Date	:	01.10.2011
Status	:	Released Issue
Intended for	:	General Public

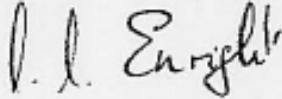

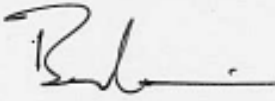
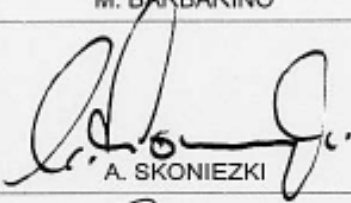

DOCUMENT CHARACTERISTICS

TITLE		
AIS Training Development Guidelines (AIS TDG)		
Publications Reference:		07/09/07-42
ISBN Number:		978-2-87497-003-0
Document Identifier	Edition Number:	1.1
AIS_TDG_v11	Edition Date:	01.10.2011
Abstract		
<p>This document provides guidelines for the development of AIS training courses. The guidelines present a harmonised approach to AIS training in a modular format in two phases. Phase 1 presents common core content and training objectives for a foundation or basic course for all AIS students. Phase 2 emulates the AIS functions developed by the CASP (Common AIS Staff Profiling) group. This provides sufficient flexibility to fulfil the training needs of most AIS organisations. The guidelines allow transparency for designers, instructors and students alike. In particular, instructors have the freedom to create their own lesson plans and adapt the common core content according to their needs.</p> <p>The guidelines are intended as working documents to form the basis of detailed training plans.</p>		
Keywords		
AIS	Training	Development
Guidelines	Common core content	Aeronautical Information Services
Contact Persons	Tel	Unit
Katarina NEUSCHLOVA	+32 2729 3310	Information Management (DSR/CMN/IM)
Philippe SACRE	+352 43 60 61 506	ATM Training (DNM/COO/TRG/ATR)

STATUS, AUDIENCE AND ACCESSIBILITY			
Status	Intended for		Accessible via
Working Draft	General Public	✓	Intranet <input type="checkbox"/>
Draft <input type="checkbox"/>	EATM Stakeholders	<input type="checkbox"/>	Extranet <input type="checkbox"/>
Proposed Issue <input type="checkbox"/>	Restricted Audience	<input type="checkbox"/>	Internet (www.eurocontrol.int) <input checked="" type="checkbox"/>
Released Issue <input checked="" type="checkbox"/>	Electronic copies of this document can be downloaded from http://www.eurocontrol.int/aim/public/standard_page/hrm_new.html		

DOCUMENT APPROVAL

The following table identifies all management authorities who have successively approved the original issue of this document.

AUTHORITY	NAME AND SIGNATURE	DATE
Project Leader	 A. ENRIGHT	2.10.2007
Chairman HRT Training Focus Group (TFG)	 M. PISTRE	2.10.2007
Manager SENSE Programme Chairman Human Performance Focus Group (HPFG)	 M. BARBARINO	2.10.2007
Chairman EATM Human Resources Team (HRT)	 A. SKONIEZKI	2.10.2007
Director ATM Programmes (DAP)	 G. KERKHOFS	2.10.2007

DOCUMENT CHANGE RECORD

The following table records the history of the successive editions of the present document.

EDITION NUMBER	EDITION DATE	PUBLICATIONS REFERENCE	REASON FOR CHANGE	PAGES AFFECTED
0.95	05.03.2007	N/A	Proposed Issue. Approved for release at HRT 27 March 2007.	All
1.0	02.10.2007	07/09/07-42	Released issue (document configuration).	All
1.1	01.10.2011	07/09/07-42	Released issue (minor textual updates in all Parts 1-4, revision of all Reference Documents and Acronyms, revision of column 5 for all tables, including input from INF06 Focus Group).	All

Publications

EUROCONTROL Headquarters
 96 Rue de la Fusée
 B-1130 BRUSSELS

Tel: +32 (0)2 729 4715
 Fax: +32 (0)2 729 5149
 E-mail: publications@eurocontrol.int

CONTENTS

DOCUMENT CHARACTERISTICS	2
DOCUMENT APPROVAL	3
DOCUMENT CHANGE RECORD	4
EXECUTIVE SUMMARY	9
PART 1 - STRUCTURE OF THE GUIDELINES	11
1. INTRODUCTION	12
2. SCOPE	12
3. BENEFITS.....	12
4. AIM OF THE DOCUMENT	12
5. METHODOLOGY	13
6. TRAINING STRUCTURE	14
7. COMPETENCIES.....	14
PART 2 – BASIC AIS TRAINING.....	15
1. INTRODUCTION TO AIS TRAINING.....	15
1.1 Course management.....	15
1.2 Course content and assessment process.....	15
1.3 AIS Functions and career opportunities.....	15
1.4 Conditions of Service.....	15
1.5 National AIS organisation.....	15
1.6 Security.....	16
2. AVIATION LEGISLATION	17
2.1 Overview of aviation legislation.....	17
2.2 International organisations.....	17
2.3 National organisations.....	17
2.4 Financing Air Navigation Services.....	18
2.5 Airspace.....	18
2.6 Rules of the Air.....	18
3. THE AERONAUTICAL INFORMATION SERVICES	19
3.1 Principles of AIS.....	19
3.2 Organisation of AIS.....	19
3.3 Documentation.....	19
3.4 Responsibilities and functions of AIS.....	19
3.5 Integrated Aeronautical Information Package.....	20
3.6 Aeronautical charts.....	21
4. ARO and AERODROME AIS UNITS.....	23
4.1 ATS reporting office and Aerodrome AIS Unit.....	23
4.2 Flight plans.....	23
4.3 Flight crew information.....	24
5. PRINCIPLES OF AIR TRAFFIC MANAGEMENT.....	25
5.1 Organisation of Air Traffic Management.....	25
5.2 Air-ground communications.....	25
5.3 Flight data processing.....	25
5.4 ATC clearances and instructions.....	26
5.5 Co-ordination between controllers.....	26
5.6 Altimetry and level allocation.....	26
5.7 Principles of separation.....	26
5.8 Collision avoidance.....	27
5.9 Data displays.....	27
5.10 Air Traffic Flow and Capacity Management (ATFM/ATFCM).....	27
5.11 Airspace Management (ASM).....	28
6. AERODROMES	30
6.1 Aerodrome layout.....	30
6.2 Runways.....	30
6.3 Taxiways.....	30
6.4 Aprons.....	31
6.5 Landing aids.....	31

6.6	Services / Facilities	31
6.7	Obstacles.....	31
6.8	Aerodrome data.....	32
6.9	Heliports.....	32
7.	CHARACTERISTICS OF AIRCRAFT	33
7.1	Principles of flight	33
7.2	Aircraft propulsion.....	33
7.3	Factors affecting aircraft performance.....	33
7.4	Flight instruments	34
7.5	Types and categories of aircraft.....	34
8.	METEOROLOGY	35
8.1	Influence of meteorology on aviation.....	35
8.2	Atmosphere	35
8.3	Atmospheric processes	35
8.4	Meteorological phenomena	35
8.5	Organisation of meteorological services	36
8.6	Meteorological information	36
9.	NAVIGATION	38
9.1	Introduction.....	38
9.2	The Earth.....	38
9.3	Projections.....	38
9.4	Applied navigation	39
9.5	Navigation aids.....	39
10.	QUALITY MANAGEMENT SYSTEMS.....	40
10.1	Introduction.....	40
10.2	ISO (International Standards Organisation).....	40
10.3	Key Performance Indicators (KPI).....	40
10.4	ICAO and EUROCONTROL Requirements.....	40
10.5	Company Quality Management System.....	41
10.6	Company QMS Documentation.....	41
10.7	Company AIS Processes.....	41
11.	SAFETY MANAGEMENT SYSTEMS	42
11.1	Principles of Safety Management.....	42
11.2	ATS Safety Management	42
11.3	EATM Safety Policy	42
11.4	Safety Regulations	42
11.5	National and Company Safety Management Systems.....	43
12.	HUMAN PERFORMANCE	44
12.1	Individual behaviour.....	44
12.2	Professional conduct	44
12.3	Teamwork.....	44
12.4	Stress.....	44
12.5	Human error	45
12.6	Interpersonal communication	45
12.7	The working environment	45
12.8	Health and well-being.....	45
13.	EQUIPMENT AND SYSTEMS	46
13.1	ANS equipment	46
13.2	Communications systems.....	46
13.3	Aeronautical telecommunications systems	46
13.4	Surveillance systems.....	47
13.5	European AIS Database (EAD).....	47
13.6	Computerisation	47
14.	ATM AND AIM CONCEPTS / STRATEGIES / TECHNOLOGIES	49
14.1	European ATM Master Plan	49
14.2	Single European Sky	49
14.3	Free routing	50
14.4	Transition from AIS to AIM (IM).....	50
14.5	Data exchange standards.....	50
14.6	eAIP	51

14.7 Digital NOTAM.....	51
14.8 Integrated Briefing	51
14.9 Geographic Information System (GIS) technology.....	51
15. ENGLISH FOR THE AERONAUTICAL INFORMATION SERVICES	52
15.1 Basic requirements.....	52
15.2 Aviation Terms.....	52
PART 3 – AIS FUNCTIONS	53
1. GENERAL DATA MANAGEMENT	54
1.1 Working procedures.....	54
1.2 Emergency procedures.....	54
1.3 Operation of equipment and software	54
1.4 Error indications (computer, software).....	54
1.5 Encode/decode aeronautical information	55
1.6 Translate aeronautical information	55
1.7 Perform quality checks on raw data and aeronautical information.....	55
1.8 Process post-flight information	55
1.9 Provide data for compiling statistical data	55
1.10 Ensure traceability of data/aeronautical information	56
1.11 Process raw data.....	56
2. STATIC DATA	58
2.1 Significance of static data	58
2.2 Compile positional data	58
2.3 Store static data (including positional data).....	58
2.4 Maintain database of static data	58
2.5 Maintain the library of foreign AIS publications	59
2.6 Prepare static data for other national and international databases.....	59
3. DYNAMIC DATA	60
3.1 Significance of dynamic data	60
3.2 General	60
3.3 Process foreign dynamic data	60
3.4 Publish NOTAM	61
3.5 Publish NOTAM checklist.....	61
3.6 Publish Trigger NOTAM.....	62
3.7 Publish SNOWTAM	62
3.8 Publish ASHTAM	63
3.9 Produce PIB.....	63
3.10 Prepare tailored dynamic data.....	64
4. PUBLICATIONS	65
4.1 General procedures	65
4.2 Publish AIC	65
4.3 Publish AIP	65
4.4 Publish AIP AMENDMENT	66
4.5 Publish AIP SUPPLEMENT.....	66
4.6 Publish additional information for specific purposes	66
5. CHARTING	67
5.1 General introduction	67
5.2 Updating existing charts	67
5.3 Creating new charts.....	67
5.4 Verification of updated or new charts	68
5.5 Maintain aeronautical chart library.....	68
6. ARO FUNCTIONS	69
6.1 Process FPL and FPL associated messages.....	69
6.2 IFPS / CFMU.....	70
6.3 Provide information for flight preparation.....	71
6.4 Accept post-flight information and transmit it to ATS/AIS.....	72
6.5 Support incident investigation (ARO side).....	72
6.6 Compile statistical data.....	72
7. COORDINATION.....	73
7.1 General	73
7.2 Co-ordinate with data sources	73

7.3 Co-ordinate between AIS functions	73
7.4 Co-ordinate with customers	73
7.5 Human factors aspects in co-ordination	74
PART 4 – APPENDICES	76
1. CLASSIFICATION OF TRAINING OBJECTIVES	76
1.1 Classification of Training Objectives	76
1.2 Summary of Action Verbs	77
2. COMPETENCIES	78
3. ACRONYMS	79
4. REFERENCE DOCUMENTS	84
5. AIS TRAINING TASK FORCE	87
TERMS OF REFERENCE FOR THE AIS TRAINING TASK FORCE	88

EXECUTIVE SUMMARY

These training guidelines have been developed to assist training managers and course designers to create efficient and effective training programmes to meet the operational requirements of the Aeronautical Information Services. Through development of a harmonised approach in modular format, the guidelines provide sufficient flexibility to fulfil the training needs of most AIS organisations. Presented in the form of common core content and training objectives, the guidelines allow transparency for designers, instructors and students alike. Instructors have the freedom to create their own lesson plans.

Two phases of AIS training are proposed. Phase 1 is the basic or foundation course intended for all AIS students irrespective of destination and is primarily knowledge based. Phase 2 follows the AIS Functions developed by the CASP (Common AIS Staff Profiling) group and is essentially on-the-job training with periods of classroom study. It is more practical in its approach.

The guidelines are intended as working documents to form the basis of detailed training plans.

Page intentionally left blank

PART 1 - STRUCTURE OF THE GUIDELINES

(Common Core Content and Training Objectives)

The guidelines have been produced as one document in four parts:

- Part 1 – Introduction, Scope, Benefits, Aim of the document, Methodology and Competencies;
- Part 2 – Training guidelines for Basic AIS training (Phase 1);
- Part 3 – Training guidelines for AIS operational functions (Phase 2);
- Part 4 – Appendices (Classification of training objectives, competencies, glossary of acronyms, etc.).

The document is published in electronic format (PDF format) so that users can create their own loose-leaf folder giving easy access to the parts most relevant to them.

Note: The AIS training guidelines reflect the changes taking place as the Aeronautical Information Services move from manual operations to automated processes and data is easily and quickly exchanged. In Europe many of these advances are being led by EUROCONTROL in co-operation with its Member States. Thus there arise differences with ICAO in operating procedures because of the implementation of new technologies. These differences are most obvious in the acronyms and terminology used. Reference will be made in these guidelines to either ICAO or EUROCONTROL terms, and occasionally to both, depending on the document being referred to.

1. INTRODUCTION

The AIS community has commented on the number of new developments and changes that have taken place since the original training guideline documents for AIS were developed in 1997. These changes reflect not only on new functions in AIS but also on the overall approach taken by the Service Providers to AIS training.

The AIS Team (at its 19th and 20th meetings) agreed on the Terms of Reference for the creation of an AIS Training Task Force (AIS-TF). These TOR were reviewed by TFG 20 and subsequently passed to HRT 21 for approval. The AIS Team members nominated participants to the Task Force.

HRT 21 “Agreed to establish the AIS Task Force to conduct an initial feasibility study to identify immediate benefits to be gained by reviewing, revising and updating the CCC, Training Objectives and Syllabi for AIS operational personnel”; and

“Agreed that the AIS-TF should report its findings and recommendations to the Training Focus Group (TFG), the Training Focus Group will report the results to the Human Resources Team”.

The AIS Training Task Force shall keep the AIS community informed of its progress through presentations to the AIS OPS sub-group and the AIS Team.

2. SCOPE

The AIS Training task force revised and updated the EATCHIP guideline documents HUM.ET1.ST05.2000.GUI-01 (October 1997) Common Core Content and Training Objectives for basic AIS training and HUM.ET1.ST05.2000.GUI-02 (July 1998) Common Core Content and Training Objectives for specialist AIS training. The content was updated in line with recent developments in AIS operating practices.

The Task Force decided that the EATCHIP document HUM.ET1.ST05.1000.GUI-03 (November 1998) Specification of Training Tools and Methods for AIS Training has limited appeal. Consequently this document was not revised and should no longer be used.

The revision of the scope and contents of the guideline document Common Core Content and Training Objectives is necessary because of:

Significant amendments to ICAO Annex 15 and Doc 8126;

The introduction of Quality and Safety Management in AIS as a mandatory requirement;

The AIS environment has largely changed from manual operations to automated processes (e.g. the provision of aeronautical information has changed from printed to electronic format);

New global strategies have been approved (AIS to AIM);

ICAO Annex 15 has introduced new requirements on skills and knowledge required for different AIS functions.

3. BENEFITS

Bringing AIS training guidelines in line with recent developments;

Preparing AIS personnel for recently developed operating practices;

Instilling a quality ethic in newly recruited personnel;

Being better prepared for the introduction of automated AIS systems;

Contributing to the global environment of AIM.

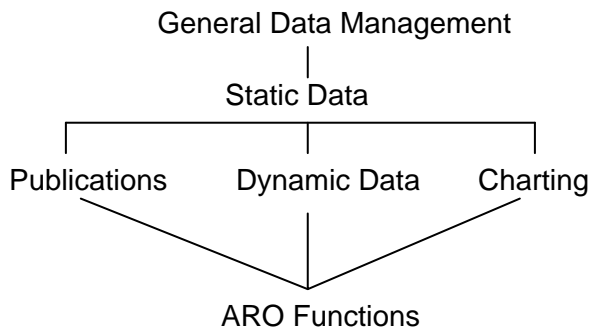
4. AIM OF THE DOCUMENT

This guideline document presents common core content and training objectives to assist course planners in the creation of appropriate training courses for ab-initio AIS students. The AIS Training Task Force has endeavoured to create a working document reflecting the training needs of the Aeronautical Information Services as it moves from manual operations to automated processes. It

also takes into account the mandatory requirement for Air Navigation Service Providers to introduce quality and safety management systems.

5. METHODOLOGY

An overview of the work of the activities of the drafting group for the Common AIS Staff Profiling (CASP) was presented to the members of the Task Force. The approach taken by CASP identifies work in terms of functions as opposed to jobs. This is considered to provide a more flexible means of developing training allowing any AIS provider, irrespective of its internal organisation, to select the optimum training module(s) for its requirements. After discussion and deliberation the Task Force agreed to accept this approach and apply it to the revision of the document Phase 2 – Specialist.



The diagram above illustrates the process of data flow from initial reception of raw data by AIS to the moment that data is accessed from the static data base for a specific requirement. The other operational functions (static data management, dynamic data management, publications and charting) would then treat data according to their needs. In a similar manner ARO personnel would receive knowledge of data processing - through SDO, NOF, PUB, CHARTS and other sources - until the moment that it requires specific treatment. The module General Data Management should be considered common to all students and a prerequisite for the other AIS Functions.

It was decided that Phase 1, considered as the foundation for all AIS training and a prerequisite to Phase 2, would remain essentially unchanged. Some topics have been transferred from Phase One to Phase Two and vice versa.

Thus, AIS ab-initio training comprises both Phase 1 and Phase 2. Phase 1 can be considered essentially as institutional training whereby the students receive the required knowledge and understanding before advancing to more specialised training. Phase 2 could take place during on-the-job training with time in the classroom / simulator to acquire the desired knowledge/skills for a particular AIS operational function. The diagram illustrates this approach:

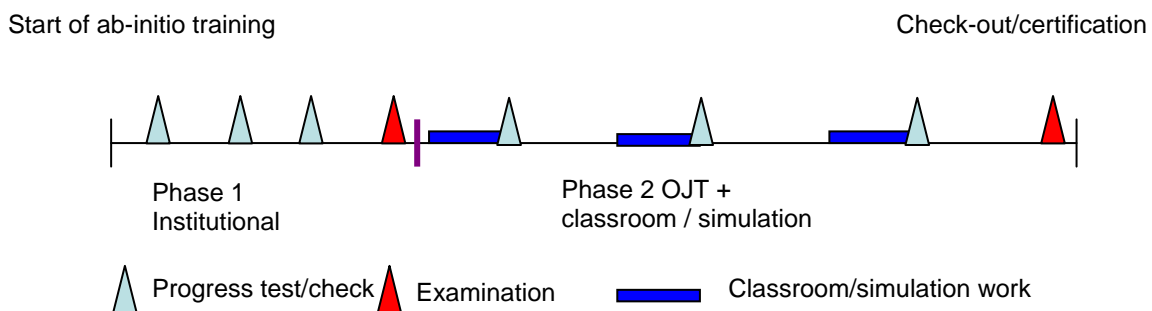


Illustration of Phase 1 and Phase 2 AIS training

The members of the Task Force worked with the revised template created for the Common Core Content and Training Guidelines for ATC training thus providing harmonisation of training guidelines between the various ATM professions.

The members of the Task Force felt that the time to complete Phase 1 - Basic AIS training would be approximately 12 weeks. It is difficult to estimate the time required to complete Phase 2 – AIS operational functions because it depends on several factors, e.g. service provided, the function, training tools available etc.

6. TRAINING STRUCTURE

These guidelines provide a listing of subjects and topics showing the training necessary to fill the training gap and achieve the course aim.

In both Phases 1 and 2 they are divided into subjects which are divided then into topics; these topics being themselves divided into sub-topics. Training objectives are aligned with sub-topics. A training objective should be a clear statement of what the student has to do, at a particular stage of training. The document is formatted in tables to present the “Topic” breakdown, an “Objective” which will lead to the “General Objective”, “Content” and “Reference Documents”. In some cases there is no corresponding entry in the “Content” column as the “Objective” is deemed to be self explanatory.

Four different levels, or grades, were allocated to the Training Objectives:

Level 0: “to be aware of” - Awareness

Level 1: “to know” - Knowledge

Level 2: “to understand” - Understanding

Level 3: “to practice” (skill development) - Application

A list of action verbs was written and an appropriate verb was chosen depending on the grading allocated to each objective.

The full list is attached in Part 4 - Appendices (1.2 Summary of Action Verbs).

7. COMPETENCIES

The Common AIS Staff Profiling (CASP) group developed competencies to assist Human Resources personnel with the recruitment of staff to AIS. The AIS Training Task Force decided to promote these competencies (mapped and prioritised by the CASP Consultation seminar July 2003) as being beneficial to training development in assisting OJT instructors to make the most effective use of the teaching techniques available to them. A list of the most relevant competencies for Phase 2 training (AIS Functions) can be found at the beginning of Part 3.

An explanation of competencies and definition of each competency can be found in Part 4 Appendices.

PART 2 – BASIC AIS TRAINING

1. INTRODUCTION TO AIS TRAINING

The general objective is to enable students to:

Gain an understanding of the training programme and their future career in AIS.

1.1 Course management				
1.1.1	Name the course leader and teachers/instructors.	1		
1.1.2	State the aims and main objectives of the course.	1	Course aim, course objectives.	
1.1.3	Use the appropriate documentation for the course.	3	Library, training documentation, CBT library, web access.	
1.2 Course content and assessment process				
1.2.1	Be aware of the different methods used during the course to assist learning.	0	Theoretical lessons, practical simulations, group work, self study, CBT and course visits.	
1.2.2	Describe, in general terms, the content of the course.	2	Aviation legislation, aeronautical information services, principles of ATM, etc.	
1.2.3	Identify the feedback mechanisms available.	1	Instructor discussions, training progress, assessments, results.	
1.2.4	Describe the assessment process.	2	Written, oral and practical assessments pass marks, re-sit procedures.	
1.3 AIS Functions and career opportunities				
1.3.1	Identify the operational functions of AIS.	1	Functions: Data management (static data, dynamic data, charting and publications), ARO.	
1.3.2	Explain the training and qualification of AIS personnel.	2	Approved training courses, Qualifying Authority.	
1.3.3	Identify future career developments.	1	OJT Instructor, supervisor, operational managerial posts, non-operational posts.	
1.4 Conditions of Service				
1.4.1	Describe the administrative Employment Rules and Regulations which apply to AIS personnel.	2	Employment rules and regulations.	
1.4.2	Recognise the management/staff negotiation and discussion procedures.	1	Staff committee or similar.	
1.4.3	Recognise the role of trade unions and other professional organisations.	1	National and international trade unions.	
1.5 National AIS organisation				
1.5.1	Describe the structure and	2	In the context of national provision	

	organisation of the national AIS.		of aeronautical services.	
1.6 Security				
1.6.1	Recognise security and safety issues.	1	Personal, workplace, systems, etc.	
1.6.2	State the rules and regulations concerning security at an AIS unit and within the Aeronautical Information Service.	1	National and local security issues.	

2. AVIATION LEGISLATION

The general objectives are to enable students to:

Appreciate the development and application of Aviation Legislation;

Recognise the Rules of the Air and regulations governing airspace.

2.1 Overview of aviation legislation				
2.1.1	State the necessity for Air Law.	1	Standardisation; harmonisation.	
2.1.2	Name the key National & International aviation organisations.	1	ICAO, ECAC, EU, EASA, EUROCONTROL, National Supervisory Authority (NSA).	
2.1.3	Describe the impact these organisations have on Air Navigation Services and air traffic operations and their interaction with each other.	2	Regulatory process.	
2.2 International organisations				
2.2.1	Explain the purpose, organisation and function of ICAO.	2	ICAO Convention, ICAO Council, Air Navigation Commission (ANC), ICAO Regional Offices.	
2.2.2	Describe the methods by which ICAO notifies and implements legislation.	2	Annexes, SARPS, PANS, SUPPS, Documents.	
2.2.3	Describe the purpose and function of other international agencies and their relevance to Air Navigation Services and Air Traffic Operations.	2	ECAC, EU, EASA, EUROCONTROL.	
2.2.4	Be aware of the various international controller, pilot, airline operator and airspace user associations.	0	IFATCA, IFATSEA, IFALPA, IATA, IAOPA, IACA, ACI, CANSO, ACI.	
2.3 National organisations				
2.3.1	State the National Organisations responsible for the regulation of aviation and their relevance to Air Navigation Services and Air Traffic Operations.	1	National Supervisory Authorities, Government Authorities, Military Authorities.	
2.3.2	State the relationship between service providers and regulators.	1	ANSP, NSA.	
2.3.3	State the methods by which legislation is implemented and notified.	1	National legislation, Air Law.	
2.3.4	Specify the organisation of the National Supervisory Authority.	1	National Supervisory Authority.	
2.3.5	Describe how the body carries out its regulation responsibilities.	2	National legislation, audits and inspections.	
2.3.6	Be aware of the various national controller, pilot, airline operator and airspace user associations.	0		

2.4 Financing Air Navigation Services				
2.4.1	Be aware of the cost of air navigation services	0		
2.4.2	Describe the principle of route charges.	2	e.g. EUROCONTROL.	www.eurocontrol.int
2.4.3	Describe the principle of local charges.	2	e.g. ATC charges, Navigation charges, APP charges, DEP charges.	National AIP and/or AIC
2.4.4	Be aware of charges for AIS publications.	0	e.g. AIP, charts, etc.	National AIP and/or AIC
2.4.5	Be aware of charges for web-based products.	0	e.g. Home briefing.	National AIP and/or AIC
2.5 Airspace				
2.5.1	List the different types of airspace.	1	Control zones, control areas, airways, upper and lower airspace, FIR, TMA, ATZ.	ICAO Annex11
2.5.2	Explain the function of each type of airspace.	2	FIR, CTR, TMA, etc.	ICAO Annex11
2.5.3	Explain how airspace is applied nationally.	2	FIR, CTR, TMA, etc.	National AIP
2.5.4	List the ICAO airspace classes.	1	Classes A-G.	ICAO Annex 11
2.5.5	Explain the differences between the airspace classes.	2	Classes A-G.	ICAO Annex 11
2.5.6	Explain the national application.	2	Classes A-G.	National AIP
2.6 Rules of the Air				
2.6.1	State the categories of International Rules of the Air.	1	General, visual, instrument.	ICAO Annex 2
2.6.2	Be aware of the influence of relevant general flight rules on ATM.	0	e.g. Applying separation.	ICAO Annex 2
2.6.3	Explain those rules of the air that have most relevance to AIS.	2	Applicability, protection of persons and property, flight plans, time, VFR, IFR.	ICAO Annex 2
2.6.4	Differentiate between flying in accordance with visual and instrument flight rules (VFR and IFR).	2		ICAO Annex 2
2.6.5	Be aware of any notified national differences with ICAO.	0		National AIP; GEN 1.7; ICAO Annexes

3. THE AERONAUTICAL INFORMATION SERVICES

The general objectives are to enable students to:

Appreciate how the aeronautical information services function;

Explain how information is collected and distributed.

3.1 Principles of AIS				
3.1.1	Recognise the need for AIS.	1		ICAO Annex; ICAO Doc 8126
3.1.2	Recognise the need for aeronautical information in ATM.	1		ICAO Annex 11
3.1.3	Identify the need for global uniformity.	1		ICAO Annex 15; ICAO Doc 8126
3.1.4	Identify the volume and scope of information handled by AIS.	1		ICAO Doc 8126
3.1.5	Differentiate between permanent and temporary information as well as information of an explanatory, advisory or administrative nature.	2	NOTAM and SUP versus AIP, AIP Amendment and AIC.	ICAO Doc 8126; ICAO Annex 15
3.2 Organisation of AIS				
3.2.1	Describe the status of AIS within the aviation administration.	2		ICAO Doc 8126
3.2.2	Describe the organisation of the Aeronautical Information Service.	2		ICAO Doc 8126
3.2.3	Explain the liaison with other related services.	2		ICAO Doc 8126
3.2.4	Illustrate the information flow within AIS.	2		ICAO Doc 8126
3.3 Documentation				
3.3.1	Explain the need for documentation.	2		ICAO Annex 15; National documentation
3.3.2	List the sources of documentation available.	1	ICAO publications, EUROCONTROL, national regulations.	
3.3.3	List the documentation used in AIS.	1	National or local documentation, OPADD, ADP and SDP.	ICAO Doc 8126
3.3.4	Describe the content of the most frequently used documents in AIS.	2	ICAO SARPs (Annexes), Docs (Procedures for Air Navigation Services), Manuals, Air Navigation Plan Publications, other - IATA, ITU, WMO, local or national documentation.	ICAO Doc 8126
3.3.5	List methods to store, locate and retrieve documentation.	1	Electronic form (aeronautical databases), paper copy (manual library).	ICAO Doc 8126
3.4 Responsibilities and functions of AIS				
3.4.1	Specify the responsibilities of a contracting state.	1	Provision of AIS.	ICAO Annex 15

3.4.2	Describe the functions of AIS.	2		ICAO Annex 15
3.4.3	Appreciate the need for the distribution of appropriate information.	2		ICAO Annex 15; ICAO Doc 8126; EUROCONTROL OPADD
3.4.4	Appreciate the need for the authenticity of information to be distributed.	2	Quality Management Systems.	ICAO Annex 15; ICAO Doc 8126
3.4.5	State the originators of raw data.	1	Local originators.	ICAO Doc 8126
3.4.6	List the various types of raw data.	1		ICAO Doc 8126
3.4.7	Describe the exchange of aeronautical information with other services or States.	2	e.g. EAD.	ICAO Annex 15
3.4.8	Describe the means by which aeronautical information is distributed.	2	NOTAM, AIP, AIC, AIRAC, SUP.	
3.4.9	Recognise the information distributed through the AFS.	1	ATS messages, NOTAM, MET, AO, service messages, etc.	
3.5 Integrated Aeronautical Information Package				
3.5.1	Explain the need for the Integrated Aeronautical Package.	2	Collect, collate, edit, format, publish and distribute aeronautical information.	ICAO Annex 15
3.5.2	List the principle users of the Integrated Aeronautical Package.	1	Flight operations, ATS units, third party suppliers.	
3.5.3	List the contents of the Integrated Aeronautical Package.	1	AIP, AIP AMDT, AIP SUP, NOTAM, PIB, AIC and checklists, list of valid NOTAM.	ICAO Annex 15; ICAO Doc 8126
3.5.4	State the authority responsible for the publication and distribution of the Integrated Aeronautical Package.	1	National AIS/ANSP/NSA or delegated authority.	ICAO Annex 15; ICAO Doc 8126
3.5.5	Describe the methods of distribution of the Integrated Aeronautical Package.	2	Distribution list, mailing, fax, AFTN, email, other electronic means.	
3.5.6	Explain the purpose of the AIP.	2	Essential information of a lasting character, permanent information and temporary changes of a long duration.	ICAO Annex 15; ICAO Doc 8126
3.5.7	Explain the structure of the AIP.	2	General (GEN), En route (ENR) and Aerodromes (AD).	ICAO Annex 15; ICAO Doc 8126
3.5.8	List the basic contents of Part 1 General (GEN).	1	National regulations and requirements, tables and codes, services, charges for ADs/Heliports and air navigation services.	ICAO Annex 15; ICAO Doc 8126
3.5.9	List the basic contents of Part 2 En route (ENR).	1	General rules and procedures, airspace classification, ATS routes, radio navigation aids and systems, navigation warnings, en route charts.	ICAO Annex 15; ICAO Doc 8126
3.5.10	List the basic contents of Part 3 Aerodromes (AD).	1	Aerodromes, heliports, charts.	ICAO Annex 15; ICAO Doc 8126

3.5.11	Explain how an AIP is updated.	2	AIP amendments, AIRAC, AIP supplements, NOTAM.	ICAO Annex 15
3.5.12	Explain the purpose of the AIP Amendment.	2	Permanent changes.	ICAO Annex 15; ICAO Doc 8126
3.5.13	Describe how AIP Amendments are produced.	2	Specifications, format, colour coding.	ICAO Annex 15
3.5.14	Explain the purpose of the AIP Supplement.	2	Temporary changes of long duration, information of short duration with extensive text/graphics.	ICAO Annex 15; ICAO Doc 8126
3.5.15	Describe how AIP Supplements are produced.	2	Specifications, format, colour coding.	ICAO Annex 15; ICAO Doc 8126
3.5.16	Explain the purpose of NOTAM.	2	Information of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration.	ICAO Annex 15; ICAO Doc 8126
3.5.17	List the information contained in a NOTAM.	1		ICAO Annex 15; ICAO Doc 8126
3.5.18	Describe the NOTAM format.	2		ICAO Annex 15; ICAO Doc 8126
3.5.19	List special series NOTAM.	1	SNOWTAM, ASHTAM, BIRDTAM.	ICAO Annex 15; ICAO Doc 8126
3.5.20	Explain the purpose of the Pre-flight Information Bulletin (PIB).	2	Plain language bulletins, current information on the status of facilities.	ICAO Annex 15; ICAO Doc 8126
3.5.21	State sources of information in a PIB.	1	NOTAM, SNOWTAM and Met.	ICAO Annex 15; ICAO Doc 8126
3.5.22	Recognise the scope of a PIB.	1	Area to be covered.	ICAO Doc 8126
3.5.23	Describe the contents of a PIB.	2	Navigation warnings, general information, date and time of issue.	ICAO Doc 8126
3.5.24	List the bulletin types.	1	Area, route, aerodrome, urgent operational significance.	ICAO Doc 8126
3.5.25	Identify the structure of the PIB output.	1	Heading, en route and aerodrome information, navigation warnings.	ICAO Doc 8126
3.5.26	Explain the purpose of the Aeronautical Information Circular (AIC).	2	Administrative information, advanced notice of major changes.	ICAO Annex 15; ICAO Doc 8126
3.5.27	Explain the structure of the AIC.	2		ICAO Annex 15 ; ICAO Doc 8126
3.5.28	List information appropriate to an AIC.	1		ICAO Annex 15 ; ICAO Doc 8126
3.5.29	Explain the purpose of Checklists.	2		ICAO Doc 8126
3.5.30	Explain the purpose of lists of valid NOTAM.	2		ICAO Doc 8126
3.6 Aeronautical charts				
3.6.1	Explain the need for aeronautical charts.	2		ICAO Annex 15; ICAO Doc 8126 ; ICAO Doc 8697

3.6.2	List the types of aeronautical charts.	1		ICAO Annex 15; ICAO Annex 4; ICAO Doc 8697
3.6.3	State the information contained in aeronautical charts.	1		ICAO Annex 4; ICAO Doc 8697
3.6.4	Identify symbols and information found on maps and charts.	1		ICAO Annex 4
3.6.5	Describe the operational function of aeronautical charts.	2		ICAO Annex 4; ICAO Doc 8697
3.6.6	Differentiate between the various relevant charts and state their specific use.	2	Charts provided by AIS, AIP charts, national and military aeronautical charts.	
3.6.7	State the ICAO categories for instrument approach charts.	1	Categories A, B, C, D - approach speeds.	ICAO Doc 8168

4. ARO and AERODROME AIS UNITS

The general objectives are to enable students to:

Understand the function of the Air Traffic Services Reporting Office (ARO);

Understand the function of the Aerodrome AIS Unit;

Recognise the information required by pilots prior to a flight.

4.1 ATS reporting office and Aerodrome AIS Unit				
4.1.1	State the main functions of an Air Traffic Services Reporting Office (ARO).	1	Flight plan acceptance.	
4.1.2	State the main functions of an Aerodrome AIS Unit.	1	Pre-flight briefing, post flight information.	
4.1.3	Specify the requirements for the physical location of an ARO/Aerodrome AIS Unit.	1		Doc 8126
4.1.4	Describe the coverage zone of an ARO/Aerodrome AIS Unit.	2		Doc 8126
4.1.5	List the detailed information to be held.	1		ICAO Annex 15; ICAO Doc 8126
4.2 Flight plans				
4.2.1	Define flight plan.	1		ICAO Annex 2
4.2.2	Differentiate the types of flight plan.	2	FPL, AFIL, RPL.	ICAO Doc 4444
4.2.3	Recognise ICAO model flight plan form.	1		ICAO Doc 4444
4.2.4	List the items contained in a flight plan.	1	Items and their denomination.	ICAO Annex 2; ICAO Doc 4444
4.2.5	Differentiate the three parts of a flight plan form.	2	Section COM, ATS data and supplementary information.	
4.2.6	Recognise the AFTN format (including supplementary information).	1	AFTN format, Flight plan AFTN message.	ICAO Doc 4444
4.2.7	Describe the conditions under which a flight plan shall be submitted.	2	Rules of the Air; national differences.	ICAO Annex 2
4.2.8	State the times when a flight plan has to be submitted.	1	Rules of the Air; national and regional differences.	ICAO Annex 2; ICAO Doc 7030
4.2.9	Explain the procedure for the submission of a flight plan.	2		ICAO Doc 4444
4.2.10	List the categories of ATS messages.	1	Emergency, movement/control and flight information messages.	ICAO Doc 4444
4.2.11	List the flight plan associated messages.	1		ICAO Doc 4444
4.2.12	Describe the organisation and function of the IFPS.	2		EUROCONTROL Basic CFMU Handbook - General & CFMU Systems
4.2.13	List the air traffic affected by the IFPS.	1	IFR, GAT and mixed flights (IFR/VFR, GAT/OAT).	EUROCONTROL Basic CFMU Handbook - IFPS Users Manual

4.2.14	Recognise the ADEXP format.	1	The ADEXP format.	EUROCONTROL Basic CFMU Handbook - IFPS Users Manual
4.2.15	Identify the operational reply message (ORM).	1	ACK, MAN and REJ.	EUROCONTROL Basic CFMU Handbook - IFPS Users Manual
4.2.16	State the function of an ORM.	1		EUROCONTROL Basic CFMU Handbook - IFPS Users Manual
4.3 Flight crew information				
4.3.1	State the responsibility of pilots to obtain pre-flight briefing.	1		ICAO Annex 2; ICAO Annex 6
4.3.2	Be familiar with the flight preparation of a pilot.	0	Aircraft and equipment serviceability. Fuel, passenger and cargo manifest. AIS and MET briefing.	ICAO Annex 6
4.3.3	List methods of briefing.	1	Self-briefing (internet); personal, telephone, fax.	
4.3.4	State the purpose of post-flight information.	1		ICAO Annex 15; ICAO Doc 8126

5. PRINCIPLES OF AIR TRAFFIC MANAGEMENT

The general objectives are to enable students to:

Understand the basic operational procedures used by the air traffic control service in providing separation to aircraft;

Be aware of the necessity for ATC to apply these procedures to ensure a safe and expeditious service to airspace users.

5.1 Organisation of Air Traffic Management				
5.1.1	List the types of Air Navigation Services.	1	Definitions: ATM (ATS, ATFM/ATFCM, ASM), AIS, MET, CNS, SAR.	ICAO Doc 9713; ICAO Annex 11; ICAO Annex 15; ICAO Annex 3 ; ICAO Annex 12
5.1.2	State the objectives of the Air Traffic Services.	1		ICAO Annex 11
5.1.3	List the types of Air Traffic Services.	1	ATC, Advisory Service, FIS, ALRS.	ICAO Annex 11
5.1.4	Define ATC Service.	1		ICAO Annex
5.1.5	Explain specific areas of responsibility of ATC Services.	2	Area Control, Approach Control, Aerodrome Control.	ICAO Annex 11
5.1.6	Be aware of different types of control services.	0	Radar, non-radar.	
5.1.7	Define Flight Information Service.	1		ICAO Annex 11
5.1.8	State the information that shall be passed to aircraft by a controller.	1		ICAO Annex 11
5.1.9	Define Alerting Service.	1		ICAO Annex 11
5.1.10	Describe the phases of emergency.	2	Uncertainty, alert, distress phase.	ICAO Annex 11
5.1.11	Describe the organisation, responsibilities and structure of Rescue Co-ordination Centres.	2	National AIP, National RCC.	
5.1.12	State the purpose of ATFM/ATFCM.	1	Flow management.	ICAO Annex 11; ICAO Doc 4444
5.1.13	State the purpose of ASM.	1	Flexible use of airspace (FUA).	ICAO Doc 4444
5.2 Air-ground communications				
5.2.1	State the different methods of air-ground communications.	1	Radiotelephony, ADS-B, Mode S, ACARS, CPDLC, SELCAL, etc.	ICAO Annex 11; ICAO Doc 4444
5.2.2	Be aware of the need for standard ICAO phraseology.	0		ICAO Annex 10; ICAO Doc 4444
5.2.3	Be aware of the ICAO phonetic alphabet and expressions for numerals and time.	0		ICAO Annex 10
5.3 Flight data processing				
5.3.1	State the need for Flight Data Processing.	1		ICAO Doc 4444
5.3.2	List the stages of the flight plan process.	1	FPL+estimate+clearance.	ICAO Doc 4444
5.3.3	Specify the methods of exchange	1	Telephone, OLDI-System, etc.	ICAO Doc 4444

	of estimates.			
5.4 ATC clearances and instructions				
5.4.1	Define ATC Clearance.	1		ICAO Annex 11
5.4.2	State the contents of an ATC clearance.	1		ICAO Annex 11
5.4.3	Define ATC Instructions.	1		ICAO Doc 4444
5.4.4	State the contents of an ATC Instruction.	1		ICAO Doc 4444
5.5 Co-ordination between controllers				
5.5.1	Be aware of the necessity of co-ordination.	0	Safe conduct of flight.	ICAO Annex 11
5.5.2	Describe the principles of co-ordination.	2	Negotiation, notification, agreement.	
5.5.3	State methods of co-ordination.	1	Data link, Telephone, Intercom, Voice, etc.	ICAO Annex 11
5.6 Altimetry and level allocation				
5.6.1	Explain the relationship between flight level, height and altitude.	2	QNH, QFE, Standard Pressure Setting.	ICAO Doc 4444
5.6.2	Define transition level, transition altitude and transition layer.	1		ICAO Doc 8168
5.6.3	Be aware of the consequences of the variability of the transition Level.	0	Broadcast of Transition Level.	ICAO Doc 4444
5.6.4	State the cruising level allocation system.	1	Table of cruising levels.	ICAO Annex 2
5.6.5	Describe the factors that determine lowest useable flight level.	2		ICAO Doc 4444; ICAO Doc 8168
5.6.6	Describe the concept of RVSM.	2	Table of cruising levels.	ICAO Annex 2; ICAO Doc 7030
5.7 Principles of separation				
5.7.1	State the vertical separation minima.	1	Vertical separation minima (500, 1000 and 2000 ft).	ICAO Doc 4444
5.7.2	Describe the use of vertical separation.	2	Vertical separation minima as per Flight Level Allocation, Use of Mode C and Mode S derived information.	ICAO Doc 4444
5.7.3	Be aware of longitudinal separation based on time and distance.	0	Longitudinal separations.	ICAO Doc 4444; RNAV
5.7.4	Be aware of the use of lateral separation.	0	Lateral separations.	ICAO Doc 4444
5.7.5	State the general radar separation minima.	1	Radar separation (3NM, 5NM, 10NM).	ICAO Doc 4444
5.7.6	Be aware of the influence of wake turbulence on separation.	0	Aircraft spacing – time/distance/altitude.	ICAO Doc 4444

5.8 Collision avoidance				
5.8.1	State the working principle of the available airborne collision avoidance systems.	1	ACAS, TCAS.	ICAO Doc 8168
5.8.2	State the working principle of the available ground based collision avoidance systems.	1	MTCA, STCA.	
5.9 Data displays				
5.9.1	Explain the purpose of the controller's flight progress display.	2	Flight Progress Strips, Electronic Data Display.	ICAO Doc 4444
5.9.2	List the pertinent data to be extracted from a flight plan to produce a flight progress display.	1		ICAO Doc 4444
5.9.3	State the pertinent data from other sources to produce a flight progress display.	1	Pilot Reports, Controller Co-ordination, Data Exchange.	ICAO Doc 4444
5.9.4	Describe how a controller updates the data display to accurately reflect the traffic situation.	2	Strip display update procedures.	
5.10 Air Traffic Flow and Capacity Management (ATFM/ATFCM)				
5.10.1	Define air traffic flow management/air traffic flow and capacity management.	1		ICAO Doc 4444
5.10.2	Be aware of the need for ATS system capacity management.	0		ICAO Doc 4444
5.10.3	List the main factors influencing ATS capacity.	1		ICAO Doc 4444
5.10.4	Explain the objectives of the ATFCM service.	2		EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
5.10.5	State the CFMU Mission.	1		EUROCONTROL Basic CFMU Handbook - General and CFMU Systems
5.10.6	Identify the area of responsibility.	1		EUROCONTROL Basic CFMU Handbook - General and CFMU Systems; EUROCONTROL Basic CFMU Handbook - ATFCM Users manual
5.10.7	Draw the operational structure of the CFMU.	1	FDOD, FMD - operational divisions.	EUROCONTROL Basic CFMU Handbook - General and CFMU Systems
5.10.8	List the CFMU system elements	1	ENV, RPL, IFPS, TACT, ARC,	EUROCONTROL

	and interfaces.		IFPUV, PREDICT, ATC and FMPs, AOs.	Basic CFMU Handbook - General and CFMU Systems
5.10.9	Describe the function of the CFMU system elements.	2		EUROCONTROL Basic CFMU Handbook - General and CFMU Systems
5.10.10	List exemptions from ATFCM.	1	Types of flights excluded from ATFCM measures.	
5.10.11	Identify the phases of ATFCM activities.	1	Strategic, pre-tactical and tactical.	ICAO Doc 4444; EUROCONTROL Basic CFMU Handbook - ATFCM Users manual
5.10.12	Explain strategic planning.	2	Research, planning, co-ordination activities, route allocation plans, Period of action.	ICAO Doc 4444; EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
5.10.13	Explain pre-tactical planning.	2	Period of action, tasks (calculation of rates, post tactical analysis), ANM, AIM.	ICAO Doc 4444; EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
5.10.14	Explain tactical operations.	2	Period of action, tasks, re-routing, slot allocation procedures and messages.	ICAO Doc 4444; EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
5.11 Airspace Management (ASM)				
5.11.1	State the need for airspace management.	1		EUROCONTROL 2015 Airspace Concept & Strategy for the ECAC Area & Key Enablers; EC Regulation No 730/2006; ICAO Annex 2; ICAO Annex 11; EUROCONTROL ASM Handbook; EUROCONTROL European ARN
5.11.2	Explain the need for Flexible Use of Airspace (FUA).	2		ICAO Doc 4444; EC Regulation No 2150/2005; EUROCONTROL European ARN
5.11.3	State the responsibilities for airspace management.	1		EUROCONTROL ASM Handbook
5.11.4	List the objectives of airspace	1		EUROCONTROL

	management.			ASM Handbook
5.11.5	Explain the basic procedures for airspace management.	2		EUROCONTROL ASM Handbook
5.11.6	Differentiate between the different types of Conditional Routes.	2		EUROCONTROL ASM Handbook

6. AERODROMES

The general objectives are to enable students to:

Be familiar with the layout of an aerodrome;

Describe aerodrome marking and lighting systems.

6.1 Aerodrome layout				
6.1.1	Define "aerodrome".	1		ICAO Annex 14
6.1.2	Differentiate aerodrome areas.	2	Movement and manoeuvring areas.	ICAO Annex 14
6.1.3	Identify the parts of the manoeuvring area.	1	Runways and taxiways.	
6.1.4	Be aware of the terms airside/landside.	0	The movement area of an airport, adjacent terrain and buildings or portions thereof, access to which is controlled.	ICAO Annex 17
6.2 Runways				
6.2.1	Define "runway".	1		ICAO Annex 14
6.2.2	List the elements of a runway.	1	Threshold, end, TDZ, etc.	ICAO Annex 14
6.2.3	Describe the physical characteristics of a runway.	2		ICAO Annex 15; ICAO Annex 14
6.2.4	Define "runway shoulder".	1		ICAO Annex 14
6.2.5	State the characteristics of runway shoulders.	1		ICAO Annex 14
6.2.6	Define "runway strip".	1		ICAO Annex 14
6.2.7	State the dimensions of a runway strip.	1		ICAO Annex 14
6.2.8	Define "RESA" (Runway End Safety Area).	1		ICAO Annex 14
6.2.9	State the dimensions of a RESA.	1		ICAO Annex 14
6.2.10	Explain the purpose of aerodrome marking and lighting systems.	2	Visual guidance to pilots.	ICAO Annex 14
6.2.11	Describe runway markings.	2	RWY designation, centre line, threshold, fixed distance, TDZ.	ICAO Annex 14
6.2.12	Describe runway lighting systems.	2	Runway, threshold identification, edge, end, centre line, touchdown zone and SWY.	
6.2.13	Define "clearway".	1		ICAO Annex 14
6.2.14	State the dimensions of a clearway.	1		ICAO Annex 14
6.2.15	Define "stopway".	1		ICAO Annex 14
6.2.16	State the dimensions of a stopway.	1		ICAO Annex 14
6.3 Taxiways				
6.3.1	Define "taxiway".	1		ICAO Annex 14
6.3.2	Describe the main characteristics of taxiways.	2	Rapid exit, taxiway shoulders, etc.	ICAO Annex 14
6.3.3	State the dimensions of a taxiway.	1		ICAO Annex 14
6.3.4	Describe taxiway markings.	2	Centre line, taxi holding point and	ICAO Annex 14

			taxiway intersection.	
6.3.5	Describe taxiway lighting.	2	Centre line, edge lights and stop bars.	ICAO Annex 14
6.4 Aprons				
6.4.1	Define "apron".	1		ICAO Annex 14
6.4.2	List the elements of an apron.	1	Apron taxiway, aircraft stand, aircraft stand taxi lane.	ICAO Annex 14
6.4.3	Describe the main characteristics of an apron.	2		ICAO Annex 14
6.4.4	Be aware of visual docking/parking guidance systems.	0		ICAO Annex 14
6.5 Landing aids				
6.5.1	List visual landing aids.	1	VASIS, PAPI and APAPI.	ICAO Annex 14
6.5.2	Describe visual landing aids.	2	VASIS, PAPI and APAPI.	ICAO Annex 14
6.5.3	List approach lighting systems.	1	Simple, precision and Category I, II and III systems, CALVERT.	ICAO Annex 14
6.5.4	Describe approach lighting systems.	2	Simple, precision and Category I, II and III systems, CALVERT.	ICAO Annex 14
6.5.5	Be aware of the effect of partial/total unserviceability of landing aids on aircraft operations.	0	Airport operations minima.	ICAO Annex 14; ICAO Annex; ICAO Doc 8168
6.5.6	State the function of the signal area.	1		ICAO Annex 14
6.5.7	Describe a wind direction indicator.	2	e.g. Wind sock (description, position, relative wind speed indication).	ICAO Annex 14
6.6 Services / Facilities				
6.6.1	List the different services found at an airport.	1	Fuel, de-icing, customs, fire fighting service, security, maintenance, etc.	ICAO Annex 9
6.6.2	Be aware of the impact of the degradation of services on airport operations.	0	Fuel, de-icing, customs, fire fighting service, security, etc.	ICAO Annex 9
6.6.3	Identify the information that has to be passed between aeronautical information services (AIS) and the airport authorities.	1	Aerodrome conditions, fire/rescue category, condition of ground equipment and NAVAIDS.	ICAO Annex 14
6.7 Obstacles				
6.7.1	Define "obstacle".	1		ICAO Annex 14
6.7.2	Describe how obstacles are identified.	2	Marking/lighting of objects.	ICAO Annex 14,
6.7.3	List the obstacle limitation surfaces.	1		ICAO Annex 14
6.7.4	Explain the purpose of obstacle limitation surfaces.	2		ICAO Annex 14
6.7.5	State the obstacle limitation	1		ICAO Annex 14

	requirements.			
6.7.6	Describe the marking of unusable or unserviceable areas on the movement area.	2	Closed runways/taxiways, apron.	ICAO Annex 14
6.8 Aerodrome data				
6.8.1	List significant elements of aerodrome data.	1	Aerodrome reference point, Aerodrome reference temperature, Aerodrome dimensions, strength of pavements, declared distances, rescue and fire fighting, etc.	ICAO Annex 14
6.8.2	Define "Aerodrome Reference Point" (ARP).	1		ICAO Annex 14
6.8.3	Explain the significance of the ARP.	2		ICAO Annex 14
6.8.4	Define "aerodrome elevation".	1		ICAO Annex 14
6.8.5	Explain the significance of the aerodrome elevation.	2		ICAO Annex 14
6.8.6	Define "runway elevation".	1		ICAO Annex 14
6.8.7	Explain the significance of the runway elevation.	2		ICAO Annex 14
6.8.8	Define "threshold elevation".	1		ICAO Annex 14
6.8.9	Explain the significance of threshold elevation.	2		ICAO Annex 14
6.8.10	Define "strength of pavements".	1	PCN/ACN.	ICAO Annex 14
6.8.11	Explain the significance of the strength of pavements.	2		ICAO Annex 14
6.8.12	Define the terms TORA, TODA, ASDA and LDA.	1		ICAO Annex 14
6.8.13	Explain the significance of these distances.	2		ICAO Annex 14
6.9 Heliports				
6.9.1	Define "heliport".	1		ICAO Annex 14
6.9.2	List the physical characteristics of a heliport.	1	Final approach and take-off areas (FATO), helicopter clearways, touchdown and lift-off areas, safety areas, helicopter ground taxiways, helicopter air taxiways, etc.	ICAO Annex 14
6.9.3	Recognise the different visual aids at a heliport.	1	Wind direction indicators, markings and markers, lights, etc.	ICAO Annex 14

7. CHARACTERISTICS OF AIRCRAFT

The general objectives are to enable students to:

Understand the basic principles of the theory of flight;

Be familiar with factors affecting aircraft performance.

7.1 Principles of flight				
7.1.1	Describe the forces acting on an aircraft in flight.	2	Lift, thrust, drag, weight.	
7.1.2	List the factors affecting these forces.	1	Streamline airflow, airfoil, angle of attack.	
7.1.3	List the main structural components of an aircraft.	1	Wings, tail plane, fuselage, flaps, elevator, rudder.	
7.1.4	Describe how the control surfaces influence the movements of an aircraft.	2	Flaps, elevator, rudder.	
7.1.5	Identify the critical factors that affect aircraft performance.	1	Maximum speed, stall speed, ceiling, streamline flow, turbulent flow.	
7.2 Aircraft propulsion				
7.2.1	Explain the operating principles, of the piston engine and propeller.	2	Piston engines, fixed pitch, variable pitch, number of blades.	
7.2.2	List the advantages and disadvantages of piston engines.	1	Quick reaction, cost effective, short runway operations – less power at high altitude, slow, high maintenance, unfavourable power/weight ratio.	
7.2.3	List the different types of gas turbines.	1	Straight jet, turbofan, afterburner.	
7.2.4	Explain the operating principles of turbine engines.	2	Inlet compression, combustion, exhaust.	
7.2.5	List the advantages and disadvantages of turbine engines.	1	Efficient at high level, very powerful, high speed, reliable – expensive.	
7.2.6	Explain the operating principles of turbo-prop propulsion.	2		
7.2.7	List the advantages and disadvantages of turbo prop propulsion.	1	Efficient at medium altitudes, short runway operations, fast and economical – older types are slow, less efficient, noise and vibrations.	
7.3 Factors affecting aircraft performance				
7.3.1	Be familiar with the factors affecting aircraft on take-off.	0	Runway characteristics and conditions, wind, temperature and aircraft weight.	
7.3.2	Be familiar with the factors affecting aircraft during climb.	0	Speed, weight, altitude, wind and temperature.	
7.3.3	Be familiar with the factors affecting aircraft at cruise.	0	Altitude, cruising speed, wind, effect of weight and air density on ceiling, cruising systems, i.e. LRC, cost index.	

7.3.4	Be familiar with the factors affecting aircraft during descent.	0	Wind, speed, rate of descent, aircraft configuration and pressurisation.	
7.3.5	Be familiar with the factors affecting aircraft during final approach and landing.	0	Wind, aircraft configuration, weight, meteorological and runway conditions.	
7.3.6	Be familiar with the factors affecting aircraft during missed approach and holding.	0	Flap setting, power setting, speeds.	
7.3.7	Be familiar with performance restrictions due to ecological constraints.	0	Fuel dumping, noise abatement procedures.	
7.4 Flight instruments				
7.4.1	List the basic flight instruments for VFR flights.	1	Magnetic compass, timepiece, pressure altimeter, airspeed indicator, etc.	ICAO Annex 6
7.4.2	List the additional flight instruments for IFR flights.	1	Turn and slip indicator, artificial horizon, directional gyroscope, rate of climb/descent, etc.	ICAO Annex 6
7.4.3	List the basic onboard navigation instruments.	1	To include: ADF, VOR (TACAN), DME, ILS, MLS, GNSS, INS, IRS.	
7.4.4	Be familiar with vital engine monitoring parameters.	0	Oil pressure and temperature, engine temperature, rpm, fuel state and flow, EGT, vibration, etc.	
7.4.5	Be familiar with the use of other cockpit instruments.	0	e.g. TCAS, Transponder mode C-S, Head up display, (E)GPWS/TAWS, Wind Shear Indicator, Weather Radar, Autopilot, FMS, EFIS.	ICAO Annex 10
7.5 Types and categories of aircraft				
7.5.1	List the different groups of aircraft.	1	Fixed wing, rotary wing, balloons, gliders, etc.	
7.5.2	State the wake-turbulence categories.	1	ICAO categories, national categories.	<i>Note: reference to FPL items</i>
7.5.3	Identify the most common types of aircraft in operational use.	1	Especially the most common local aircraft typical to the state/region.	<i>Note: reference to FPL items</i>
7.5.4	State the ICAO aircraft type designators and categories.	1	The most common local aircraft typical to the state/region.	ICAO Doc 8643

8. METEOROLOGY

The general objectives are to enable students to:

Understand the basics of meteorology;

Appreciate how meteorological phenomena affect airline operations and aircraft performance.

8.1 Influence of meteorology on aviation				
8.1.1	Explain the relevance of meteorology to aviation.	2		ICAO Annex 3
8.2 Atmosphere				
8.2.1	State the composition and structure of the atmosphere.	1	Gases, layers.	
8.2.2	Describe the main elements of the International Standard Atmosphere (ISA).	2	Temperature, pressure and density.	ICAO Doc 7488; ICAO Annex 8
8.2.3	State the reasons why the ISA has been defined.	1	Standardisation, reference data.	
8.2.4	Describe the characteristics of different types of air masses and their origin.	2	Polar, arctic, tropical, continental, maritime.	
8.2.5	Describe the major wind systems.	2	Polar east winds, west wind zone, trade winds, inner-tropical convergence zone.	
8.2.6	Describe high and low pressure systems.	2	Cyclones and anticyclones, ridges troughs.	
8.2.7	Describe the different types of fronts and the weather associated with them.	2	Fronts, warm, cold, occluded, squalls.	
8.3 Atmospheric processes				
8.3.1	Explain the processes by which heat is transferred and how the atmosphere is heated.	2	Radiation, convection, advection, conduction, turbulence.	
8.3.2	Describe temperature variation.	2	Lapse rates, land/sea variations, diurnal variation, inversion, freezing level.	
8.3.3	Differentiate between the different terms relating to air saturation levels.	2	Saturation, condensation, evaporation, relative humidity, dew point, sublimation, latent heat, spread super-cooled water.	ICAO Annex 3; ICAO Doc 8896
8.3.4	Explain the measurement of air pressure.	2	Barometer, hPa.	ICAO Annex 3; ICAO Doc 8896
8.3.5	Describe the relationship between pressure, temperature and height.	2	Boyle's Law, influence of changing density on engine performance.	
8.3.6	Define the various Pressure Data.	1	QFE, QNH, Standard Pressure Setting, altitude, height, flight level.	
8.4 Meteorological phenomena				
8.4.1	Explain the different conditions	2	Saturation level, instability,	

	necessary for the formation of clouds.		adiabatic lifting processes.	
8.4.2	Explain how clouds are formed.	2	Advection, orographic lift, convection, rising along a warm front.	
8.4.3	Identify different cloud types and state their characteristics.	1	Stratus, Cumulus, etc.	
8.4.4	State how the amount of cloud is measured.	1	Okta, FEW, SCT, BKN, OVC, SKC.	ICAO Annex 3; ICAO Doc 8896
8.4.5	Explain the significance of precipitation in aviation.	2	Runway Conditions, icing.	
8.4.6	Describe all types of precipitation.	2	Rain, snow, sleet, hail, etc.	ICAO Doc 9328
8.4.7	Explain the causes of atmospheric obscurity.	2	Advection fog, radiation fog, mixing, evaporation, mist, drizzle, haze.	ICAO Doc 9328
8.4.8	State how visibility is measured.	1	Human eye, transmissometer.	ICAO Annex 3; ICAO Doc 8896; ICAO Doc 9328
8.4.9	Explain different types of visibility.	2	Meteorological visibility, RVR, slant visibility, prevailing visibility, flight visibility.	ICAO Doc 9328
8.4.10	Explain the different types of wind phenomena and their significance to aviation.	2	Veering, backing, gusting, jet streams, land/sea breezes, mountain/valley breezes, Föhn, surface wind, upper winds, Coriolis force.	
8.4.11	State how wind is measured.	1	Anemometer.	ICAO Annex 3; ICAO Doc 8896
8.4.12	List the significant meteorological phenomena hazardous to flight.	1	Turbulence, thunderstorms, icing, wind shear, micro bursts, wake turbulence, hail, CAT, freezing precipitation.	
8.4.13	Describe their origins and impact on flight operations.	2		

8.5 Organisation of meteorological services				
8.5.1	Name the basic duties, organisation and working methods of MET offices.	1	Collating MET reports and making forecasts, drawing weather charts.	ICAO Annex 3; ICAO Doc 8896; AIP GEN 1.1.2, 3.5 AD 2.11 and 3.11
8.5.2	Be aware of the international and national standards for the exchange of meteorological data.	0		ICAO Annex 3; ICAO Doc 8896
8.5.3	Specify methods of collection and recovery of meteorological data.	1	Barometer, thermometer, ceilometers, anemometer, weather balloons, transmissometer, radar, satellites.	ICAO Annex 3
8.6 Meteorological information				
8.6.1	List the most common types of weather reports and forecasts.	1	METAR, SPECI, TAF, SIGMET, AIRMET, GAMET.	ICAO Annex 3; ICAO Doc 8896

8.6.2	Explain the contents of weather reports and forecasts.	2	Wind, visibility, clouds, temperature/dew point, pressure.	
8.6.3	List the most common types of weather charts.	1	Low level charts, High level charts significant weather charts.	ICAO Annex 3; ICAO Doc 8896
8.6.4	List the information depicted on the most commonly used weather charts.	1	Isobars, icing, turbulence, clouds, fronts, jet streams, temperature, wind signatures, etc.	

9. NAVIGATION

The general objective is to enable students to:

Understand the basic principles of navigation and air navigation systems.

9.1 Introduction				
9.1.1	Explain the need for navigation in aviation.	2	Most economic route, safety, accuracy.	
9.1.2	Be aware of navigation methods used in aviation.	0	e.g. Historical overview, celestial, on-board, radio, satellites, navigation systems.	
9.2 The Earth				
9.2.1	Describe the physical characteristics of the Earth.	2	Shape, size, rotation, revolution in space.	
9.2.2	State the different temporal reference systems used in aviation.	1	Gregorian calendar, UTC, 24-hour local mean time, daylight saving time, time zones, dateline, atomic clocks, units of time measurement, beginning of the day – 0000, end of the day - 2359, SR and SS.	ICAO Annex 2; ICAO Annex 5; National AIP
9.2.3	Differentiate between UTC and local mean time.	2		National AIP GEN 2
9.2.4	List commonly used reference points/lines on the Earth's surface.	1	Meridians, parallels, equator, poles.	
9.2.5	Explain direction and distance on the earth.	2	(Units of measurement) Cardinal and inter-cardinal points, great circle, small circle, thumb lines, etc.	
9.2.6	Describe how a position on the Earth's surface is determined.	2	Latitude and longitude, units of measurement (degrees, minutes, seconds, NM, KM).	
9.2.7	Identify the general principles of horizontal reference system.	1	WGS-84 (World Geodetic System -1984).	ICAO Annex 4; ICAO Annex 11; ICAO Annex 15; ICAO Doc 9674
9.2.8	Identify the general principles of vertical reference system.	1	Mean sea level datum, Earth Gravitational Model 1996 (EGM – 96), local geoid models.	ICAO Annex 4; ICAO Annex 15; ICAO Doc 9674
9.2.9	Explain the general relationship between the Earth's magnetic field and the compass.	2	Magnetic variation, deviation, inclination, isogonals.	
9.2.10	Differentiate between the three north designations.	2	True north, magnetic north and compass north.	
9.3 Projections				
9.3.1	Describe how the Earth is projected as a map.	2	Principle and types of projection.	
9.3.2	Describe the properties of an ideal map.	2	Conformality, constant scale, true azimuth, distance, topography, accuracy.	

9.3.3	Explain the properties and uses of different projections.	2	Conformal Lambert, Mercator, Polar stereographic, middle latitude chart.	
<i>Note: For objectives concerning aeronautical maps and charts see 3.6 Aeronautical Charts</i>				
9.4 Applied navigation				
9.4.1	Explain how to measure the distance between two points.	2	Co-ordinates/points, ruler, protractor, computer, calculator (NM and minutes of a meridian).	
9.4.2	List types of aircraft speed.	1	True airspeed (Mach number), Indicated airspeed, Ground speed (knots, KM/h).	
9.4.3	Differentiate between air speeds.	2	True airspeed, Indicated airspeed.	
9.4.4	Explain the influence of wind on the flight path.	2	Heading, track, drift angle, wind correction angle, wind vector, flying time.	
9.5 Navigation aids				
9.5.1	List the most common ground based aids to navigation.	1	NDB, VOR, DVOR, TACAN, DME, ILS & marker beacons, MLS, LORAN-C.	
9.5.2	Explain the working principles of ground based systems.	2	NDB, VOR, DVOR, TACAN, DME, ILS & marker beacons, MLS.	
9.5.3	Describe the use, precision and limitations of ground based systems.	2	NDB, VOR, DVOR, TACAN, DME, ILS and marker beacons, MLS, coverage and range.	
9.5.4	Identify the cockpit instrument/displays of ground based systems.	1	Analogue/multifunction displays (ADF, VOR, TACAN, DME, ILS and marker Beacons, MLS).	
9.5.5	Be aware of the working principles of VDF.	0	VDF used with or without RADAR (Controller's side) DRDF (Ref. 2.3.1 radio direction finding).	
9.5.6	Be aware of the use of on-board systems.	0	INS, IRS, FMS and navigational computers (area navigation) B-RNAV, P-RNAV, EFIS (Electronic Flight Instrument System).	ICAO Doc 8168
9.5.7	Be aware of the use of satellite based navigational systems.	0	GNSS, ADS-B and C (Station holding).	ICAO Doc 8168

10. QUALITY MANAGEMENT SYSTEMS

The general objectives are to enable students to:

Understand the basic principles of quality management systems;

Being aware of the importance of quality management systems in air navigation services;

Describe the company's quality management system;

Apply pre-defined AIS processes within the quality management system.

10.1 Introduction				
10.1.1	Define quality.	1		ICAO Annex 15; www.iso.org; ISO 8402
10.1.2	Describe a process.	2		www.iso.org
10.1.3	Explain the need for quality management.	2		
10.1.4	Define a quality management system.	1		
10.1.5	List the benefits of a quality management system.	1		
10.2 ISO (International Standards Organisation)				
10.2.1	State the objectives of ISO.	1		www.iso.org
10.2.2	Describe ISO 9000 series.	2		
10.2.3	Describe how ISO 9000 works.	2		
10.2.4	Explain the need for audits.	2	External, internal.	
10.2.5	Describe the certification process.	2		
10.2.6	State the importance of certification for ANSPs.	1		
10.3 Key Performance Indicators (KPI)				
10.3.1	State company quality objectives.	1	e.g. Referring to core activities.	
10.3.2	Describe the role of a KPI.	2	Monitoring and continuous improvement.	
10.3.3	List AIS KPIs.	1	e.g. Customer satisfaction index, cost-effectiveness of AIS, staff capability, staff continuity, external co-ordination, re-work level, time spent on the product, security, traceability, user enquiries, availability, timeliness.	www.eurocontrol.int/aim
10.3.4	Describe the most important KPIs for AIS customers.	2	Timeliness of data, user enquiries, traceability.	www.eurocontrol.int/aim
10.3.5	Describe the most important KPIs for AIS organisations	2	Customer satisfaction index, re-work level	www.eurocontrol.int/aim
10.4 ICAO and EUROCONTROL Requirements				
10.4.1	Explain the need to control the quality of data.	2	Accuracy, integrity and relevance of data, user requirements.	ICAO Annex 15
10.4.2	State the ICAO quality system	1		ICAO Annex 15

	requirements.			
10.4.3	Describe the EUROCONTROL requirements for AIS data/ information quality management.	2	ESSIPs, European Commission	EUROCONTROL Strategic Guidance in Support of the Execution of the European Master Plan; EC Regulation 73/2010
10.5 Company Quality Management System				
10.5.1	State the company policy on quality management.	1		Quality management policy
10.5.2	Describe the company's process model.	2		Process model
10.5.3	List the process levels.	1		Process model
10.5.4	Differentiate between process owner, process manager and process user.	2		Process model
10.6 Company QMS Documentation				
10.6.1	Describe the structure of the QMS documentation.	2		Process description
10.6.2	State where to find the process document.	1		Process description
10.6.3	Describe the template.	2	Identify QMS document, its significance.	Process description
10.6.4	Describe the notification of changes in regulatory documents.	2		Process description
10.7 Company AIS Processes				
10.7.1	Describe the AIS processes.	2		Process documentation
10.7.2	List AIS quality indicators.	1	KPIs, balanced score card.	Process documentation
10.7.3	Apply pre-defined AIS processes.	3	Relevant work instructions.	Process documentation

11. SAFETY MANAGEMENT SYSTEMS

The general objectives are to enable students to:

Understand the basic principles of safety management systems;

Describe the impact of safety management systems to AIS/AIM.

11.1 Principles of Safety Management				
11.1.1	Be aware of the underlying need for safety management policy and principles.	0	Lessons learnt from accidents, rising traffic levels, best practice.	
11.1.2	Be aware of the reactive and proactive nature of safety management policy and principles.	0	Nature of accidents, Reason Model, incident investigation, safety assessment.	
11.2 ATS Safety Management				
11.2.1	State the responsibilities of the different authorities responsible for ATS safety management.	1		ICAO Annex 11; ICAO Doc 4444
11.2.2	State the objectives of ATS safety management.	1		ICAO Doc 4444
11.2.3	List the main elements of an ATS safety management programme.	1		ICAO Doc 4444
11.2.4	Be aware of the need for incident reporting systems.	0		ICAO Doc 4444
11.2.5	State the need for safety reviews.	1		ICAO Doc 4444
11.2.6	Be aware of the scope of safety reviews.	0		ICAO Doc 4444
11.2.7	State the need for safety assessments.	1		ICAO Doc 4444
11.2.8	Be aware of safety enhancing measures.	0		ICAO Doc 4444
11.3 EATM Safety Policy				
11.3.1	Be aware of the EATM Safety Policy Statement.	0	Safety management, safety responsibility, the priority of safety, the safety objective of an air navigation system.	European Safety Programme for ATM 2010-2014
11.3.2	Be aware of EATM safety management principles.	0	Safety management system framework, safety achievement, safety assurance; safety promotion, safety plan...	EATM Safety Management Handbook
11.4 Safety Regulations				
11.4.1	Be aware of the role of safety regulations.	0	Purpose of safety regulations, objectives of the national regulator, objectives of international safety institutions, European Aviation Safety Agency (EASA)	EC Regulations EUROCONTROL ESARR EASA publications
11.4.2	List the safety regulation documents.	1	EUROCONTROL Safety Regulatory Requirements (ESARRs), regulation advisory documentation, national	

			regulations.	
11.4.3	Be aware of general safety regulatory requirements for ATM service personnel.	0		ESARR 5
11.4.4	Be aware of the impact of safety regulations on AIS.	0		
11.5 National and Company Safety Management Systems				
11.5.1	State the organisation of national safety management systems.	1		
11.5.2	Be aware of the working principles of the national safety management systems.	0		
11.5.3	State the organisation of the company's safety management system.	1		
11.5.4	Be aware of the company's safety management policy statement.	0		
11.5.5	Describe the working principles of the company's safety management system.	2		
11.5.6	List the publications or information provided by the company's safety management system.	1		
11.5.7	Describe the impact of safety management on AIM.	2		

12. HUMAN PERFORMANCE

The general objective is to enable students to:

Appreciate the factors that affect personal performance;

Appreciate the factors that affect team performance.

12.1 Individual behaviour				
12.1.1	Recognise the differences and shared attributes that exist between people.	1	Attitudes, culture, language, etc.	
12.1.2	Recognise the danger of boredom.	1		
12.1.3	Recognise the danger of overconfidence and complacency.	1		
12.1.4	Recognise the danger of fatigue.	1	Sleep disturbance/deprivation, heavy workload.	
12.1.5	Identify factors involved in work satisfaction.	1		
12.1.6	Apply appropriate learning techniques.	3	Interactive methods, self-study, practical, etc.	
12.2 Professional conduct				
12.2.1	Recognise the need for professional conduct in AIS.	1	Adherence to rules and regulations, quality and safety issues.	
12.3 Teamwork				
12.3.1	Identify factors involved in human relations.	1	Team resource management.	
12.3.2	Describe the positive effect of learning and working together.	2	Sharing knowledge and experiences.	
12.3.3	Describe the principles of team work.	2	Team membership, group dynamics, conflict and conflict solutions.	
12.3.4	Identify leader style and group interaction.	1		
12.4 Stress				
12.4.1	Define "stress".	1		
12.4.2	Recognise the symptoms and sources of stress.	1	Behavioural changes, lifestyle changes, physical symptoms, crisis events.	EUROCONTROL Human Factors Module: Critical Incident Stress Management.
12.4.3	Recognise the stages of stress.	1	Stress performance curve.	
12.4.4	Name techniques for stress management.	1	Relaxation techniques, diet and lifestyle, exercise.	

12.5 Human error				
12.5.1	Define "human error".	1		
12.5.2	Describe the factors that help to cause error.	2	Fatigue, lack of skill, misunderstanding, distraction, etc.	
12.5.3	List types of error.	1	Mistakes, violations, lapse, etc.	
12.5.4	Explain the danger of violations becoming accepted as practice.	2		
12.6 Interpersonal communication				
12.6.1	Define "communication".	1		
12.6.2	Define "the communication process".	1	Sender, encoder, transmitter, signal, interference, reception, decoder, receiver.	
12.6.3	Describe the factors that affect verbal communication.	2	Word choice, intonation, speed, tone, distortion, expectation, noise, interruption.	
12.6.4	Describe the factors that affect non-verbal communication.	2	Touch, sight, sound, choice, body language, expectation, distortion, interruption.	
12.6.5	List good communication practices.	1	Speaking, listening, visual communication.	
12.7 The working environment				
12.7.1	Define "ergonomics".	1		
12.7.2	Recognise the need for good workplace design.	1	Light, insulation, décor, space, facilities, etc.	
12.7.3	Recognise the need for effective design at the workstation.	1	Good seating position, avoid strain, etc.	
12.7.4	Identify equipment at a workstation.	1	Communication means, information monitors, computer, printer, etc.	
12.8 Health and well-being				
12.8.1	Recognise the effect of health on performance.	1	Fitness, diet, drugs, alcohol, etc.	
12.8.2	Be aware of company policy on healthcare.	0	Preventive programmes.	
12.8.3	State the company programmes on healthcare.	1		
12.8.4	Be aware of resources available for counselling.	0		

13. EQUIPMENT AND SYSTEMS

The general objectives are to enable students to:

Recognise the equipment and systems that are in general use in ANS;

Appreciate how this equipment and systems contribute to safe and efficient ANS;

Use computer and other equipment required for AIS functions.

13.1 ANS equipment				
13.1.1	Recognise the main items of ANS equipment.	1	Communications systems, surveillance systems, safety systems.	
13.1.2	Recognise the main items of AIS equipment.	1	Communications systems, data processing systems, plotting systems.	
13.2 Communications systems				
13.2.1	State the principles of radio.	1		
13.2.2	Recognise the characteristics of radio waves.	1	Propagation limitations.	
13.2.3	State the use, characteristics and limitations of frequency bands.	1	Use in ATS, navigation and communications, usage and application in the Aeronautical Mobile Service, VHF, UHF, HF.	
13.2.4	State the use of radio in ANS.	1		
13.2.5	Describe the working principles of a transmitting and receiving system.	2		
13.2.6	Recognise, on a basic block diagram, the components of a transmitter/receiver system.	1		
13.2.7	State the principles of VDF/UDF.	1	VDF/UDF, QDM, QDR, QTF.	
13.2.8	State the precision of VDF/UDF used in the national system.	1		
13.2.9	State the use of other communications systems in ANS.	1	Telephone, interphone, intercom, email, internet, fax, etc.	
13.2.10	State the use of SELCAL and ACARS.	1	Airline operations.	
13.2.11	State the use of data link communications.	1	CPDLC.	
13.3 Aeronautical telecommunications systems				
13.3.1	List the main telecommunications networks used for the exchange of information.	1	AFTN, SITA, CIDIN, ATN, AMHS.	ICAO Annex 10; ICAO Annex 15; ICAO Doc 8126
13.3.2	Describe the main features of these networks.	2		ICAO Annex 10
13.3.3	Identify messages sent via these networks.	1	NOTAM, ATS and MET messages, etc.	
13.3.4	Recognise the benefits of the automatic exchange of AIS data.	1	Accuracy, speed, security, non-verbal communication.	
13.3.5	Recognise the limitations of the	1	Non-recognition of systems	

	automatic exchange of AIS data.		failure.	
13.3.6	State the working principles of broadcasting systems.	1	e.g. ATIS, VOLMET.	
13.3.7	Explain the use of these broadcasting systems in ATS.	2		
13.3.8	State the principles of closed circuit information systems.	1	CCIS.	
13.3.9	Explain the use of CCIS in AIS.	2	Data carried on CCIS.	
13.4 Surveillance systems				
13.4.1	State the principles of radar.	1		
13.4.2	Recognise the characteristics of radar waves.	1		
13.4.3	Recognise the use of different types of radar.	1	Long and short range radars, weather radar, high resolution radars.	
13.4.4	Recognise the characteristics, including limitations, of different types of radar.	1	Frequency bands, long and short range radars, weather radar, high resolution radars.	
13.4.5	Explain the working principles of primary radar.	2	PSR.	
13.5.6	Explain the working principles of secondary surveillance radar.	2	SSR, Mode A, Mode C.	
13.4.7	State the uses of PSR and SSR in ATC.	1	Surface movement, DFTI, PAR/GCA, aerodrome, approach and en-route.	
13.4.8	List the advantages and disadvantages of PSR and SSR.	1		
13.4.9	State the principles of Mode S.	1		
13.4.10	Recognise the use of Mode S in ATC systems.	1		
13.4.11	State the working principles of Automatic Dependent Surveillance systems.	1	ADS, satellite systems (GPS, GNSS), data links.	
13.4.12	Be aware of the use and limitations of ADS.	0	Situational awareness, Update times, no voice prompts, universal availability.	
13.5 European AIS Database (EAD)				
13.5.1	State the principles of the European AIS Database.	1	EAD.	www.ead.eurocontrol.int
13.5.2	Describe the main components of the EAD.	2	PAMS, INO, SDO.	
13.5.3	Describe the data flow between the EAD and its clients.	2	ESI, ECIT, internet.	
13.5.4	Recognise the methods used to exchange data between the EAD and its clients.	2	AICM/AIXM, xml.	
13.6 Computerisation				
13.6.1	State the difference between	1		

	hardware and software.			
13.6.2	Recognise hardware components.	1	Terminal, printer, keyboard, monitor, modem, network, etc.	
13.6.3	Recognise software components.	1	Programmes and applications, operating systems, files, etc.	
13.6.4	Describe common operating systems.	2	DOS, UNIX, LINUX, WINDOWS, etc.	
13.6.5	Use input devices.	3	Mouse, keyboard, touch input display, etc.	
13.6.6	Use text processing applications.	3	e.g. MS Word, Excel.	
13.6.7	Use information storage devices.	3	File systems, CD-ROM, DVD, memory stick, etc.	

14. ATM AND AIM CONCEPTS / STRATEGIES / TECHNOLOGIES

The general objectives are to enable students to:

Appreciate ongoing developments in ATM and AIS;

Be aware of their possible impact on AIS.

14.1 European ATM Master Plan				
14.1.1	Be aware of the European ATM Master Plan	0	Future of ATM in Europe, SESAR,	European ATM Master Plan; EUROCONTROL Strategic Guidance in support of the execution of the European ATM Master Plan
14.1.2	Be aware of the impact on future ATM systems.	0	Performance, network, information management, infrastructure.	
14.1.3	Be aware of the impact on AIS.	0	Transition from AIS to AIM, Information Management, SWIM.	www.eurocontrol.int/aim
14.2 Single European Sky				
14.2.1	Be aware of the concept of SES.	0	EC Regulatory Framework	EC Regulation No 549/2004 amended by Regulation No 1070/2009 SES II; EC Regulation No 550/2004 amended by Regulation No 1070/2009 SES II; EC Regulation No 551/2004 amended by Regulation No 1070/2009 SES I; EC Regulation No 552/2004 amended by Regulation No 1070/2009 SES II
14.2.2	Be aware of the concept of FAB.	0	FAB initiatives in Europe	www.eurocontrol.int/articles/functional-airspace-blocks-fabs-and-single-european-sky-ses ; EC Regulation No 1070/2009
14.2.3	Be aware of the impact of SESAR on future operations.	0	The SESAR (Single European Sky ATM Research) programme building the future European air traffic management system. The technological and operational dimension of the Single European Sky (SES) initiative to meet future airspace capacity and safety needs. The mission of the SESAR Joint	www.sesarju.eu ; www.eurocontrol.int/content/sesar-and-research

Undertaking.				
14.3 Free routing				
14.3.1	Be aware of the Free Route Concept of Operations (FRA)	0	Specified airspace, route planning, defined entry and exit points.	EUROCONTROL European ARN
14.3.2	Be aware of the concept of Airspace Organisation regarding FRA	0	Airspace reservations, vertical limits, horizontal limits, sectorisation	EUROCONTROL European ARN
14.3.3	Be aware of (publication) coordination within FRA	0	AIP, Letters of Agreement	EUROCONTROL European ARN
14.3.4	Be aware of Flight Planning procedures within FRA	0	Format, lat/long points, route description, submission	EUROCONTROL European ARN
14.4 Transition from AIS to AIM (IM)				
14.4.1	Recognise the need for an AIM Strategy.	1	From AIS to AIM , Digital AIM, Towards Information Management (AIM, SWIM),	ICAO Annex 15; ICAO Roadmap for transition from AIS to AIM, EUROCONTROL Strategic Guidance in support of the execution of the European ATM Master Plan; www.atmmasterplan.eu
14.4.2	Be aware of the objectives of AIM.	0	Objectives of the transition to AIM	ICAO Roadmap for transition from AIS to AIM; EUROCONTROL Strategic Guidance in support of the execution of the European ATM Master Plan; www.eurocontrol.int/aim
14.4.3	Be aware of the benefits and impact of implementing AIM on the existing AIS environment.	0	Automation, digitize, metadata, datasets, data models, standardized data exchange formats, new technologies	ICAO Roadmap for transition from AIS to AIM, EUROCONTROL Strategic Guidance in support of the execution of the European ATM Master Plan
14.5 Data exchange standards				
14.5.1	Be aware of a need to adopt a common data model.	0	Standardisation.	
14.5.2	State data exchange standards commonly used in AIS/AIM.	1	EUROCONTROL standards, e.g. AICM, AIXM, WXXM, ANXM ISO standards, e.g. series 19100	

14.6 eAIP				
14.6.1	Be aware of the need for a harmonized presentation of aeronautical information in electronic format.	0		
14.6.2	Be aware of the EUROCONTROL specification for an electronic AIP.	1	EUROCONTROL eAIP Specification, html, DTD, xml, SVG, EC Regulation 73/2010 (Means of compliance)	
14.7 Digital NOTAM				
14.7.1	Be aware of the concept for a digital NOTAM.	0	EUROCONTROL Digital NOTAM concept	EUROCONTROL Digital NOTAM concept
14.8 Integrated Briefing				
14.8.1	Describe the principle of integrated briefing.	2	AIS, MET, ARO, ATFM/ATFCM, etc.	ICAO EUR Doc 010; ICAO Annex 2; ICAO Annex 15; ICAO Doc 8126; ICAO Annex 3
14.9 Geographic Information System (GIS) technology				
14.9.1	Define "GIS".	1		OpenGIS; ISO19100
14.9.2	List the elements of a GIS.	1	3 essential components of geographic information	
14.9.3	Be aware of the use of GIS in AIM.	0	interoperable aeronautical geospatial information layers. Electronic Terrain & Obstacle Data, aerodrome data, electronic charts	

15. ENGLISH FOR THE AERONAUTICAL INFORMATION SERVICES

The general objectives are to enable students to:

Communicate effectively, in English, according to the demands of the job;

Use the aviation terminology required for AIS tasks.

Note: This training module highlights the need for familiarisation with aviation terminology for AIS practice. Students will normally require a level of general English equivalent to B1 of the Common European Framework Reference for Languages.

15.1 Basic requirements				
15.1.1	Demonstrate appropriate level of English language proficiency.	3	Speaking, listening, reading and writing as determined for AIS practice.	
15.2 Aviation Terms				
15.2.1	Use ICAO alphabet and numbers.	3		ICAO Annex 10
15.2.2	Communicate expressions of radio frequencies and time.	3		ICAO Annex 10
15.2.3	Recognise common acronyms.	1		EUROCONTROL ATM Lexicon; ICAO Doc 7300
15.2.4	Recognise terminology associated with AIS.	1	Responsibilities and functions, AIP, NOTAM, AIC, pre-flight information service, post-flight information, etc.	ICAO Annex 15; ICAO Doc 8126
15.2.5	Recognise terminology associated with aircraft.	1	The forces of flight, parts of an aircraft, propulsion systems, etc.	ICAO Annex 6
15.2.6	Recognise terminology associated with aerodromes.	1	Physical areas of an aerodrome, manoeuvring area, movement area, passenger terminal, services provided at an aerodrome, electronic aids, visual aids, etc.	ICAO Annex 14
15.2.7	Recognise ATS terminology.	1	Air traffic control service, flight information service, alerting service, communication facilities, radar facilities, airspace division, classification of airspaces, etc.	ICAO Annex 11; ICAO Doc 4444
15.2.8	Recognise terminology associated with aeronautical telecommunications.	1	Aeronautical fixed service, aeronautical mobile service, aeronautical radio navigation service aeronautical broadcasting service, etc.	ICAO Annex 10
15.2.9	Recognise terminology associated with meteorology for aviation.	1	wind, temperature, dew point, atmospheric pressure, clouds, visibility, thunderstorms, meteorological messages, etc.	ICAO Annex 3
15.2.10	Recognise terminology associated with Search and Rescue operations.	1	SAR organisation, SAR facilities, procedures, search and rescue signals, etc.	ICAO Annex 12
15.2.11	Recognise terminology associated with Aeronautical Charts.	1	Types of ICAO aeronautical charts, chart distribution, aeronautical chart data, etc.	ICAO Annex 4

PART 3 – AIS FUNCTIONS

A Competency is “an underlying characteristic of a person which results in an effective and/or superior performance in a job” (Boyzatis 1982).

All of the competencies listed below relate to the AIS Functions. Depending on the function some will be more relevant than others. They are all proposed in order to help OJT instructors get the most out of their students in terms of performance and commitment.

critical examining

information analysis

operational knowledge

professional expertise

adherence to procedures

aviation safety awareness (Safety culture + ATC safety conscious)

language skills

judgement and decision making

reliability

accuracy

methodical

selective attention

quality focus

customer focus

See Part 4 Competencies for the definition of individual competencies.

1. GENERAL DATA MANAGEMENT

The general objectives are to enable students to:

Receive and process incoming data;

Determine the method of publication;

Distribute data for further processing.

Note: General data management is presented as a basic module to be followed by all students regardless of their ultimate position in AIS operations.

1.1 Working procedures				
1.1.1	Explain the need for working procedures.	2	Uniformity, reduction of errors, mistakes and duplication of work.	
1.1.2	Describe local working procedures.	2	e.g. Special filing procedures, local lists, checks for completeness, additional duties during night shift, etc.	Local procedures
1.1.3	Apply local working procedures.	3		
1.2 Emergency procedures				
1.2.1	Describe procedures applicable in the event of equipment failure.	2	Hardware.	Local procedures
1.2.2	Describe procedures applicable in the event of the loss or non-reception of critical data.	2	Software and hardware.	Local procedures
1.2.3	Describe procedures applicable in the event of a severe threat to the AIS unit.	2	e.g. Fire, emergency evacuation, Local Quick Reference Handbook.	Local procedures
1.2.4	Select the appropriate checklists for the above emergency situations.	3	Local Quick Reference Handbook.	Local procedures
1.3 Operation of equipment and software				
1.3.1	List the equipment and applications in use at the AIS unit.	1	Hardware and software.	
1.3.2	Describe the use of the various applications.	2	Software packages for AIS systems.	
1.3.3	Describe the use of the various items of equipment.	2		
1.3.4	Operate the equipment.	3	Simulated and/or under supervision.	
1.4 Error indications (computer, software)				
1.4.1	Recognise the most significant error messages given by the software applications in use at the AIS unit.	1		Local procedures
1.4.2	Describe the significance of error messages given by the software applications in use at the AIS unit.	2		Local procedures
1.4.3	Take appropriate corrective action.	3		Local procedures

1.5 Encode/decode aeronautical information				
1.5.1	Encode and decode ICAO “abbreviations and codes”.	3		ICAO Doc 8400
1.5.2	Encode and decode national “abbreviations and codes”.	3		National AIP; GEN 2
1.5.3	Encode and decode ICAO Location Indicators.	3		ICAO Doc 7910
1.5.4	Encode and decode ICAO Aircraft Type Designators.	3		ICAO Doc 8643
1.5.5	Encode and decode ICAO chart symbols.	3		ICAO Annex 4
1.5.6	Encode and decode national chart symbols.	3		National AIP GEN 3
1.5.7	Encode and decode NOTAM qualifiers.	3	NSC and Q-line.	ICAO Doc 8126
1.5.8	Encode and decode NOTAM items.	3	Items A-G.	ICAO Annex 15
1.5.9	Encode and decode SNOWTAM, ASHTAM, (BIRDTAM) items.	3	Items A-T.	ICAO Annex 15; EUROCONTROL SNOWTAM Harmonisation Guidelines
1.6 Translate aeronautical information				
1.6.1	Translate aeronautical information using appropriate ICAO terminology.	3	Translate into English and/or local language.	ICAO Doc 9713
1.7 Perform quality checks on raw data and aeronautical information				
1.7.1	Verify the raw data.	3	Authorised source, completeness, accuracy, validity, etc.	ICAO Annex 15; EUROCONTROL ADP and SDP; ICAO Doc 8126
1.7.2	Verify completeness, validity and presentation of aeronautical information.	3	<i>Note: Refers to product before distribution.</i>	
1.8 Process post-flight information				
1.8.1	Describe the method of processing post-flight information.	2		ICAO Annex 15; ICAO Doc 8126
1.8.2	Process post-flight information.	3		
1.9 Provide data for compiling statistical data				
1.9.1	Select the required data for compiling statistical data.	3		Local procedures
1.9.2	Retrieve the required data for compiling statistical data.	3		Local procedures

1.9.3	Deliver the required data for compiling statistical data.	3		Local procedures
1.10 Ensure traceability of data/aeronautical information				
1.10.1	Explain the need for recording and filing raw data.	2		ICAO Doc 8126; EUROCONTROL ADP and SDP
1.10.2	Describe the procedures to ensure traceability of data/aeronautical information.	2	Manual or electronic log sheet.	Local procedures
1.10.3	Apply the procedures to ensure traceability of data/aeronautical information.	3		
1.10.4	Detect data anomalies or errors.	3		
1.10.5	Correct data anomalies or errors.	3		Local procedures
1.11 Process raw data				
1.11.1	List the authorised sources of raw data.	1		ICAO Doc 8126
1.11.2	Describe the type of data originating from authorised sources of raw data.	2		
1.11.3	List channels of communication for the submission of raw data.	1	Fax, email, mail, AFTN, etc.	ICAO Doc 8126
1.11.4	Verify that the raw data to be published by AIS comes from an appropriate originator.	3		ICAO Annex 15; Local procedures
1.11.5	Describe the process used for filing raw data.	2		Local procedures
1.11.6	File raw data.	3		
1.11.7	Describe the process of verifying the raw data.	2		ICAO Annex 15; EUROCONTROL ADP and SDP
1.11.8	Verify raw data.	3		
1.11.9	Describe the criteria to be applied for determining the categories of information.	2	Basic, permanent, temporary and of short duration, temporary and of long duration. Information of an explanatory, advisory or administrative nature.	ICAO Doc 8126
1.11.10	Associate the categories of information with the methods of publication.	3	AIP + AMDT, AIC, SUP, NOTAM and charts.	ICAO Annex 15
1.11.11	Select the means of publication.	3		
1.11.12	Determine if proposed publication/effective date can be met.	3		Local procedures
1.11.13	Request a new publication date if necessary.	3	Co-ordinate a new publication/effective date when the proposed publication/effective date cannot	Local procedures

			be met.	
1.11.14	Describe the process of data distribution for further processing.	2		Local procedures
1.11.15	Distribute the data for further processing.	3		Local procedures

2. STATIC DATA

The general objectives are to enable students to:

Describe and explain the purpose, function and significance of static data;

Store static data in a database;

Provide required static data for other databases.

2.1 Significance of static data				
2.1.1	Explain the purpose, function and significance of static data.	2		EUROCONTROL ADP and SDP; ICAO Doc 8126; www.eurocontrol.int/aim
2.2 Compile positional data				
2.2.1	Explain the requirements for the formatting and resolution of positional data.	2		ICAO Annex 15; ICAO Doc 812;6 ICAO Annex 4
2.2.2	Convert positional data into the required format and resolution.	3		ICAO Doc 9674; ICAO Doc 8126; ICAO Annex 4
2.3 Store static data (including positional data)				
2.3.1	Describe the procedures for storing static data.	2		EUROCONTROL ADP and SDP; Local Database Manual
2.3.2	Describe the criteria to be applied for storing data into the database.	2		EUROCONTROL ADP and SDP; Local Database Manual
2.3.3	Store data in the database.	3		EUROCONTROL ADP and SDP; Local Database Manual
2.4 Maintain database of static data				
2.4.1	Describe the model of the database used.	2	ORACLE, SQL, SAP Relational databases, Connection to GIS, AICM/AIXM	Local Database Manual
2.4.2	Describe the structure of the database used.	2		Local Database Manual
2.4.3	Operate the database used.	3		Local Database Manual
2.4.4	Describe the quality checks carried out on the data base.	2	Automatic or manual.	Local Database Manual; Local procedures
2.4.5	Carry out quality checks.	3		Local procedures

2.4.6	Compile the necessary reports/notifications on changes in the database.	3		Local procedures
2.4.7	Transmit the reports/notifications to database users.	3		Local procedures
2.4.8	Record updates to the static data database.	3		Local procedures
2.5 Maintain the library of foreign AIS publications				
2.5.1	Describe the procedures for updating the library of foreign AIS publications.	2		Local procedures
2.5.2	Update the library of foreign AIS publications.	3		Local procedures
2.5.3	Record updates made to the library of foreign AIS publications.	3		Local procedures
2.6 Prepare static data for other national and international databases				
2.6.1	List the requirements of the EAD for static data.	1		EAD User manual SDO DP Operational User Handbook DP
2.6.2	Describe the process of updating the EAD data base.	2		EAD User manual SDO DP; Operational User Handbook DP
2.6.3	Select the required static data for EAD.	3		Local procedures
2.6.4	Provide static data to EAD.	3		EAD User manual SDO DP; Operational User Handbook DP
2.6.5	Explain the requirements of national databases for static data.	2		Local procedures
2.6.6	Describe the process of updating other national databases.	2		Local procedures
2.6.7	Select the required static data for other national databases.	3		Local procedures
2.6.8	Provide static data to other national databases.	3		Local procedures
2.6.9	Record the provision of static data to other national database.	3		Local procedures

3. DYNAMIC DATA

The general objectives are to enable students to:

- Describe and explain the purpose, function and significance of dynamic data;
- Prepare, distribute and store outgoing dynamic data;
- Receive process and store incoming dynamic data.

3.1 Significance of dynamic data				
3.1.1	Explain the purpose, function and significance of dynamic data.	2		EUROCONTROL ADP; EUROCONTROL OPADD
3.2 General				
3.2.1	State NOTAM types.	1	NOTAM -N, -R and -C.	ICAO Doc 8126; EUROCONTROL OPADD
3.2.2	Explain the application of NOTAM -N, -R and -C.	2		ICAO Doc 8126; EUROCONTROL OPADD
3.2.3	State NOTAM series and number.	1		ICAO Annex 15; National series assignment
3.2.4	Describe NOTAM item content.	2	Item Q) and Items A) to G).	ICAO Annex 15
3.2.5	Explain the purpose of NOTAM qualifiers (Q-Line).	2	NOTAM Selection Criteria (NSC), automation.	ICAO Doc 8126
3.2.6	State the general rules relating to NOTAM qualifiers.	1	NSC.	ICAO Doc 8126; EUROCONTROL OPADD
3.2.7	Describe the content of NOTAM qualifiers.	2	FIR, NOTAM code, traffic, purpose, scope, lower/upper, geographical reference, radius.	ICAO Annex 15; EUROCONTROL OPADD
3.3 Process foreign dynamic data				
3.3.1	Convert NOTAM received into a correctly formatted system NOTAM.	3		Local procedures
3.3.2	Check all items of incoming NOTAM.	3	Syntax.	Local procedures
3.3.3	Translate Item E into English.	3		Local procedures
3.3.4	Clarify erroneous and/or ambiguous NOTAM content.	3	Check with NOTAM originator.	Local procedures; EUROCONTROL OPADD
3.3.5	Check NOTAM sequence.	3	Manually or semi-automatically.	Local procedures
3.3.6	Request missing NOTAM.	3	Investigation, time limit.	Local procedures; EUROCONTROL OPADD
3.3.7	Explain the purpose of a NOTAM database.	2	NOTAM production, PIB.	ICAO Doc 8126
3.3.8	Describe NOTAM storage	2	Electronic, manual.	Local procedures

	procedures.			
3.3.9	State the area of coverage of a NOTAM database.	1		National AIP
3.3.10	Describe quality control procedures.	2		Local procedures
3.3.11	Carry out quality control checks.	3		Local procedures
3.3.12	Explain the requirement to re-distribute NOTAM.	2	User demand, NOF.	Local procedures
3.3.13	Describe procedures for NOTAM re-distribution.	2		ICAO Doc 8126; EUROCONTROL OPADD
3.3.14	Address NOTAM for re-distribution.	3		Local procedures
3.3.15	Re-distribute NOTAM.	3		ICAO Doc 8126; Local procedures
3.3.16	Identify foreign checklists.	1		Local procedures
3.3.17	Describe procedures for comparing foreign checklists with stored NOTAM.	2	Semi-automatic or manual.	Local procedures
3.3.18	Store foreign NOTAM.	3		Local procedures
3.4 Publish NOTAM				
3.4.1	Analyse NOTAM proposal for further processing.	3		Local procedures
3.4.2	Allocate NOTAM series, number and type.	3		Local procedures
3.4.3	Encode the qualifier line and all identifiers.	3	NOTAM Selection Criteria.	ICAO Doc 8126; Local procedures
3.4.4	Complete all NOTAM items.	3		ICAO Doc 8126; EUROCONTROL OPADD
3.4.5	Address NOTAM.	3		Local procedures or EAD
3.4.6	Describe procedures for NOTAM distribution.	2		Local procedures
3.4.7	Distribute NOTAM.	3		ICAO Doc 8126; Local procedures or EAD
3.4.8	Store published NOTAM in NOTAM database.	3		Local procedures
3.5 Publish NOTAM checklist				
3.5.1	Explain the rules for producing a NOTAM checklist.	2		ICAO Doc 8126; ICAO Annex 15; EUROCONTROL OPADD
3.5.2	Produce a NOTAM checklist.	3	Manual or automatic.	Local procedures;

				EUROCONTROL OPADD
3.5.3	Address a NOTAM checklist.	3		Local procedures or EAD
3.5.4	Distribute a NOTAM checklist.	3		ICAO Doc 8126; Local procedures or EAD
3.5.5	Store published NOTAM checklist in NOTAM database.	3		Local procedures
3.6 Publish Trigger NOTAM				
3.6.1	Explain the purpose of 'trigger' NOTAM.	2		ICAO Doc 8126, EUROCONTROL OPADD
3.6.2	Describe 'trigger' NOTAM procedures relevant to AIRAC Amendment.	2		ICAO Doc 8126; EUROCONTROL OPADD; Local procedures
3.6.3	Describe trigger NOTAM procedures relevant to AIP Supplements.	2		ICAO Doc 8126; EUROCONTROL OPADD; Local procedures
3.6.4	Produce 'trigger' NOTAM.	3		ICAO Doc 8126
3.6.5	Address 'trigger' NOTAM.	3		Local procedures
3.6.6	Distribute 'trigger' NOTAM.	3		Local procedures
3.6.7	Store the published 'trigger' NOTAM checklist in the NOTAM database.	3		Local procedures
3.7 Publish SNOWTAM				
3.7.1	Explain the purpose of 'SNOWTAM'.	2		ICAO Annex 15; EUROCONTROL OPADD; EUROCONTROL SNOWTAM Harmonisation Guidelines
3.7.2	Name the originator(s) of raw data for SNOWTAM.	1	Airport authorities.	Local procedures; EUROCONTROL SNOWTAM Harmonization Guidelines
3.7.3	Describe the methods of obtaining raw data for SNOWTAM.	2	SFH, Mu-meter, etc.	Local procedures; National AIP; EUROCONTROL SNOWTAM Harmonization Guidelines
3.7.4	Describe the methods by which data for SNOWTAM is transmitted to AIS.	2	Fax, AFTN, telephone.	Local procedures; EUROCONTROL SNOWTAM Harmonization Guidelines

3.7.5	Complete SNOWTAM form.	3		ICAO Annex 15, EUROCONTROL OPADD; Local procedures; EUROCONTROL SNOWTAM Harmonization Guidelines
3.7.6	Address SNOWTAM.	3		Local procedures; EUROCONTROL SNOWTAM Harmonization Guidelines
3.7.7	Distribute SNOWTAM.	3		Local procedures; EUROCONTROL SNOWTAM Harmonization Guidelines
3.7.8	Store the published SNOWTAM in NOTAM database.	3		Local procedures; EUROCONTROL SNOWTAM Harmonization Guidelines
3.8 Publish ASHTAM				
3.8.1	Explain the purpose of 'ASHTAM'.	2		ICAO Annex 15; EUROCONTROL OPADD
3.8.2	Name the originator(s) of raw data for ASHTAM.	1		Local procedures
3.8.3	Explain the methods of obtaining raw data for ASHTAM.	2		Local procedures
3.8.4	Describe the methods by which data for ASHTAM is transmitted to AIS.	2		Local procedures
3.8.5	Complete ASHTAM format.	3		ICAO Annex 15; EUROCONTROL OPADD; Local procedures
3.8.6	Address ASHTAM.	3		Local procedures
3.8.7	Describe procedures for ASHTAM distribution.	2		Local procedures
3.8.8	Distribute ASHTAM.	3		Local procedures
3.8.9	Store published ASHTAM in NOTAM database.	3		Local procedures
3.9 Produce PIB				
3.9.1	Describe the content of an area bulletin.	2	NOTAM, ASHTAM.	ICAO Doc 8126
3.9.2	Describe the content of a route bulletin.	2	NOTAM, ASHTAM.	ICAO Doc 8126
3.9.3	Describe the content of an aerodrome bulletin.	2	NOTAM, SNOWTAM, METAR, TAF.	ICAO Doc 8126

3.9.4	Describe the content of an administrative bulletin.	2		ICAO Doc 8126
3.9.5	Explain the procedure for the preparation of a PIB.	2		ICAO Doc 8126
3.9.6	Access relevant data for PIB production.	3		Local procedures
3.9.7	Retrieve selected data for PIB production.	3		Local procedures
3.9.8	Compile PIB.	3		Local procedures
3.9.9	Transmit PIB to customer.	3		Local procedures
3.10 Prepare tailored dynamic data				
3.10.1	Access relevant data for tailored dynamic data production.	3		Local procedures
3.10.2	Retrieve selected data for tailored dynamic data production.	3		Local procedures
3.10.3	Compile tailored dynamic data.	3		Local procedures
3.10.4	Transmit tailored dynamic data to customer.	3		Local procedures

4. PUBLICATIONS

The general objectives are to enable students to:

- Describe and explain the processes and procedures for the preparation of aeronautical publications;
- Process incoming data for publication;
- Prepare, distribute and store publications.

4.1 General procedures				
4.1.1	Describe the appropriate form for the publication of aeronautical information.	2	AIP, AIP Amendment, AIP Supplement, AIRAC, AIC.	ICAO Doc 8126; Local procedures
4.1.2	Describe the process for preparing the master copy.	2	Proof-reading, authorisation procedure.	ICAO Doc 8126
4.1.3	Describe the process for the reproduction of publications.	2	Electronic pre-press, offset printing, digital printing, analogue photocopying.	ICAO Doc 8126; Local procedures
4.1.4	Describe the procedure for transferring the copy to the printing office.	2		Local procedures
4.1.5	Describe the procedure for distributing printed/electronic publications.	2		Local procedures; EUROCONTROL eAIP Specification
4.1.6	Describe the procedure for maintaining the library of valid printed/electronic publications.	2	AIP, AIC, SUPs, etc.	Local procedures; EUROCONTROL eAIP Specification
4.1.7	Describe the procedure for maintaining the archive of cancelled/replaced publications.	2	AIP, AIC, SUPs, etc.	Local procedures
4.2 Publish AIC				
4.2.1	Describe the information to be notified by an AIC.	2		ICAO Annex 15; ICAO Doc 8126; Local procedures.
4.2.2	Describe the procedure for publishing an AIC checklist.	2		ICAO Doc 8126
4.2.3	Describe the format of an AIC.	2	International and national series.	ICAO Doc 8126
4.3 Publish AIP				
4.3.1	Describe the structure of the AIP.	2	GEN, ENR, AD.	ICAO Annex 15; ICAO Doc 8126,
4.3.2	List in detail the aeronautical information contained in each section of Part 1 - General (GEN).	1		ICAO Annex 15; ICAO Doc 8126; National AIP
4.3.3	List in detail the aeronautical information contained in each section of Part 2 - En-route (ENR).	1		ICAO Annex 15; ICAO Doc 8126; National AIP
4.3.4	List in detail the aeronautical information contained in each section of Part - 3 Aerodromes (AD).	1		ICAO Annex 15; ICAO Doc 8126; National AIP

4.3.5	Determine the section(s) or subsection(s) of the AIP to which aeronautical information applies.	3		ICAO Annex 15; ICAO Doc 8126; National AIP
4.3.6	Select chart(s) to be inserted in an appropriate section(s) or subsection(s) of the AIP.	3		ICAO Annex 15; ICAO Doc 8126
4.3.7	Describe the methods by which an AIP is updated.	2	AIP Amendment, AIP Supplement, AIRAC, NOTAM, eAIP.	ICAO Annex 15; EUROCONTROL eAIP Specification
4.3.8	Differentiate between AIP Amendment and AIP Supplement.	2	Permanent or temporary change.	ICAO Annex 15; ICAO Doc 8126
4.4 Publish AIP AMENDMENT				
4.4.1	Describe the information contained in an AIP Amendment.	2		ICAO Annex 15; ICAO Doc 8126
4.4.2	Describe the format of an AIP Amendment.	2		ICAO Doc 8126
4.4.3	Explain the AIRAC system.	2		ICAO Annex 15; ICAO Doc 8126
4.4.4	Describe what type of information shall be notified by AIRAC.	2		ICAO Annex 15; ICAO Doc 8126
4.4.5	Differentiate between information to be issued by AIP Amendment or AIRAC AIP Amendment.	2	Operationally significant information, AIRAC notifications, effective and publication dates, numbering, colour of cover-page.	ICAO Doc 8126
4.4.6	Adhere to the significant dates for AIRAC publication.	3	Effective, publication and latest dates.	ICAO Doc 8126; Local procedures
4.5 Publish AIP SUPPLEMENT				
4.5.1	Describe the aeronautical information contained in an AIP Supplement.	2		ICAO Doc 8126
4.5.2	Describe the format of an AIP Supplement.	2		ICAO Doc 8126
4.5.3	Describe the procedure for publishing AIP Supplements checklist.	2		ICAO Doc 8126
4.5.4	Determine what kind of information shall be notified by AIP Supplements.	3		ICAO Annex 15; ICAO Doc 8126
4.6 Publish additional information for specific purposes				
4.6.1	Describe the procedure for compiling a publication with additional information for specific purposes.	2		Local procedures

5. CHARTING

The general objectives are to enable students to:

- Describe and explain the purpose, function and significance of charting;
- Process incoming data for charting;
- Prepare, distribute and store charts.

5.1 General introduction				
5.1.1	Explain the purpose and significance of charting.	2		ICAO Annex 4
5.1.2	Describe the main characteristics of aeronautical charts.	2	Scale, format, coverage, size, layout, conformity.	ICAO Annex 4
5.1.3	List different types of Aeronautical charts.	3		ICAO Annex 4
5.1.4	Describe contents of different aeronautical charts.	3		ICAO Annex 4
5.1.5	Decode the data depicted on charts.	3	Use of data; interpretation, legend.	ICAO Annex 4 ICAO Doc 8126 ICAO Doc 8697
5.1.6	Differentiate between the ICAO categories for instrument approach charts.	2		ICAO Doc 8168
5.1.7	Describe the process for chart production.	2		Local procedures
5.2 Updating existing charts				
5.2.1	Select chart(s) to be updated.	3		Local procedures
5.2.2	Select a method of updating.	3	Chart update or hand-amendment	Local procedures
5.2.2	Allocate appropriate symbol to aeronautical information.	3	Appropriate chart symbol.	ICAO Annex 4
5.2.3	Insert new data and/or change existing data.	3		ICAO Annex 4 Local procedures
5.2.4	Adapt the layout accordingly.	3	Layout, display data for the best presentation.	ICAO Doc 8697
5.3 Creating new charts				
5.3.1	Determine the area to be covered.	3	Coverage and scale.	ICAO Annex 4
5.3.2	Verify availability of basic map data.	3	Topographical data.	Local procedures
5.3.3	Apply the appropriate format according to the type of the chart required.	3	Format.	ICAO Annex 4 ICAO Doc. 8697
5.3.4	Determine magnetic variation.	3		Local procedures
5.3.5	Compile aeronautical information/data.	3		Local procedures
5.3.6	Allocate appropriate symbol to aeronautical information.	3	Appropriate chart symbol.	ICAO Annex 4
5.3.7	Adapt the layout accordingly	3	Layout, display data for the best presentation.	ICAO Doc 8697
5.3.8	Edit / produce prototype chart	3	If in-house production.	ICAO Doc 8697

5.3.9	Prepare chart production order for a cartographer	3	If external production.	Local procedures
5.4 Verification of updated or new charts				
5.4.1	Verify completeness, accuracy and presentation of the chart	3	Perform Quality checks.	Local procedures
5.4.2	Verify the updated or new chart with originator	3		Local procedures
5.4.3	Prepare printing order	3		Local procedures
5.4.4	Print chart	3		Local procedures
5.4.5	Provide chart for distribution in requested format/ media	3		Local procedures
5.5 Maintain aeronautical chart library				
5.5.1	File charting documentation.	3		Local procedures

6. ARO FUNCTIONS

The general objectives are to enable students to:

- Receive, verify and process incoming data;
- Prepare and conduct an appropriate and complete briefing.

6.1 Process FPL and FPL associated messages				
6.1.1	Explain all the items of a flight plan form.	2	Items and their content.	ICAO Doc 4444
6.1.2	State the cruising speeds of the most common types of aircraft.	1	Especially the most common local aircraft.	Local procedures
6.1.3	Decode FPL items.	3		ICAO Doc 4444
6.1.4	Encode FPL items.	3		ICAO Doc 4444
6.1.5	Verify all items of a flight plan.	3		ICAO Doc 4444; EUROCONTROL RAD
6.1.6	Describe the procedures for addressing a flight plan.	2		ICAO Doc 7910; EUROCONTROL Basic CFMU Handbook
6.1.7	Address a flight plan.	3		ICAO Doc 7910; EUROCONTROL Basic CFMU Handbook
6.1.8	Apply the flight plan filing time procedures.	3	1hr, 3hr and national regional and local regulations, delays and earlier departures.	ICAO Annex 2; National AIP; ICAO Doc 7030; EUROCONTROL Basic CFMU Handbook - IFPS Users Manual
6.1.9	Apply flight plan transmission procedures.	3	e.g. AFTN format, local procedures.	ICAO Doc 4444; ICAO Annex 10
6.1.10	List relevant CFMU limitations when filing a flight plan.	1	CIA, ANM, CRAM, AIM, SLOT, etc. RAD and ENV database.	EUROCONTROL Basic CFMU Handbook
6.1.11	Describe the categories of ATS messages.	2	ATS or FPL.	ICAO Doc 4444
6.1.12	Differentiate the types of ATS messages and their designator.	2	ATS or FPL.	ICAO Doc 4444
6.1.13	Prepare flight plan associated messages.	3		ICAO Doc 4444
6.1.14	Address FPL associated messages.	3		ICAO Doc 4444
6.1.15	Apply flight plan associated messages transmission procedures.	3	AFTN format, local procedures.	ICAO Doc 4444; ICAO Annex 10
6.1.16	Prepare supplementary messages.	3		ICAO Doc 4444
6.1.17	Address supplementary messages.	3		ICAO Doc 4444
6.1.18	Apply supplementary messages transmission procedures.	3	AFTN format, local procedures.	ICAO Doc 4444; ICAO Annex 10
6.1.19	Describe methods of storage for a	2	Manual or electronic.	Local procedures

	flight plan and ATS messages.			
6.1.20	Store flight plan and ATS messages.	3		Local procedures
6..1.21	Explain the purpose of a repetitive flight plan (RPL).	2		ICAO Doc 4444
6.1.22	Describe all the items contained in a RPL.	2		ICAO Doc 4444
6.1.23	Explain the collection, storage and processing of RPL data.	2	Manual or electronic.	ICAO Doc 4444; ICAO Annex 10; EUROCONTROL Basic CFMU Handbook
6.1.24	Explain the implications for a flight plan with a special status.	2	STS/HOSP, Head of State, EXM833, etc.	
6.2 IFPS / CFMU				
6.2.1	Describe the general objectives of the CFMU.	2		EUROCONTROL Basic CFMU Handbook
6.2.2	Describe message exchange with IFPS.	2		EUROCONTROL Basic CFMU Handbook - IFPS Users Manual; EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual; ATFCM Quick Reference Guide
6.2.3	Describe the handling of RPL by IFPS.	2	RPL are sent 4 hr in advance.	EUROCONTROL Basic CFMU Handbook - IFPS Users Manual; EUROCONTROL Basic CFMU Handbook - General & CFMU Systems,
6.2.4	State the use of the IFPUV functions in IFPS.	1	Checking of proposed routing.	EUROCONTROL Basic CFMU Handbook - IFPS Users Manual; EUROCONTROL Basic CFMU Handbook - General & CFMU Systems
6.2.5	State the use of RQP function.	1	Interrogation message/request FPL.	EUROCONTROL Basic CFMU Handbook - IFPS Users Manual,
6.2.6	Describe implications of ORM.	2		EUROCONTROL Basic CFMU Handbook - IFPS Users Manual; EUROCONTROL

				Basic CFMU Handbook - ATFCM Users Manual; ATFCM Quick Reference Guide; EUROCONTROL Basic CFMU Handbook - General and CFMU Systems
6.2.7	Decode ORM messages.	3		EUROCONTROL Basic CFMU Handbook - IFPS Users Manual
6.2.8	Communicate ORM messages to AO.	3		Local procedures
6.2.9	Describe message exchange with CFMU.	2		EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
6.2.10	Decode CFMU messages.	3		EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
6.2.11	Communicate CFMU messages to AO.	3		Local procedures
6.2.12	Describe implications and decision making because of ATFCM messages.	2		EUROCONTROL Basic CFMU Handbook - ATFCM Users Manual
6.2.13	Describe the functionalities of the CFMU Internet Application.	2		EUROCONTROL Supplement to the CFMU Handbook - CIA Users Guide
6.2.14	Extract relevant regulation information and apply it to the flight.	3		EUROCONTROL Supplement to the CFMU Handbook - CIA Users Guide
6.3 Provide information for flight preparation				
6.3.1	List the content of pre-flight information.	1	NOTAM, SNOWTAM, ASHTAM, NAT tracks, MET info, charts, ATFM messages, national publications.	
6.3.2	Explain the scope of the available briefing material.	2		
6.3.3	Appreciate the significance of a briefing for the customer.	2		
6.3.4	Locate the required information in the appropriate documentation.	3	AIP, AIC, Charts, etc.	Local procedures
6.3.5	Retrieve required information from the data base.	3	VFR, IFR, national or international flight, etc.	Local procedures

6.3.6	Communicate the required information to the customer using the appropriate technique.	3	Compile and print out, face to face, fax, phone, email, etc.	Local procedures
6.3.7	Provide additional information on request.	3	Update service.	Local procedures
6.4 Accept post-flight information and transmit it to ATS/AIS				
6.4.1	Accept post-flight information.	3	Incident/accident reports, landing information and general in-flight reports.	ICAO Annex 15; ICAO Doc 8126
6.4.2	Transmit post-flight information to ATS/AIS.	3		Local procedures
6.5 Support incident investigation (ARO side)				
6.5.1	Explain the procedures for the handling of an incident report form.	2		ICAO Doc 4444; ICAO Doc 9426; Local procedures; National AIP
6.5.2	Accept incident report forms.	3		Local procedures
6.5.3	Transmit the incident report forms to the appropriate authority.	3		Local procedures
6.5.4	Describe the procedures applicable in support of investigations.	2	Role of ARO in conjunction with other units and or police.	Local procedures
6.5.5	Apply the procedures applicable in support of investigations.	3		Local procedures
6.6 Compile statistical data				
6.6.1	List the type of statistical data required from ARO.	1		Local procedures
<i>Note: see 1.9.1 – 1.9.3</i>				

7. COORDINATION

The general objectives are to enable students to:

- Identify when co-ordination has to be performed;
- Conduct coordination in an appropriate manner.

7.1 General				
7.1.1	Explain the need for co-ordination.	2		
7.1.2	Explain the methods of coordination.	2	Face to face, phone, fax, email, internet, standardised procedures, language used, records/log sheet, etc.	Local procedures
7.1.3	Use appropriate coordination techniques.	3	Verbal, written etc.	Local procedures
7.1.4	Describe the interaction with other data systems.	2	Data links, EAD, pre-flight database, online applications etc.	Local procedures
7.2 Co-ordinate with data sources				
7.2.1	Clarify erroneous and/or ambiguous content with the source of the data.	3	SLA's	Local procedures; EC Regulation 73/2010
7.2.2	Request missing elements.	3	SLA's	Local procedures
7.3 Co-ordinate between AIS functions				
7.3.1	Describe the principle functions within AIS.	2	AIS functions.	EUROCONTROL CASP; ICAO Doc 8126
7.3.2	Determine when/what to coordinate with other AIS functions.	3	AIS functions at local and adjacent units.	Local procedures
7.4 Co-ordinate with customers				
7.4.1	List the principle customers of an AIS unit.	1	AOs, private pilots, ATC, handling companies, other AIS units local/foreign etc.	ICAO Doc 8126
7.4.2	Characterise the customers of the AIS unit.	2	e.g. Professional, non-professional, frequent or infrequent user, etc.	
7.4.3	Describe co-ordination procedures with ATS units.	2	TWR, APP, ACC, FIC, SLA's.	Local procedures
7.4.4	Describe co-ordination procedures with other agencies/services.	2	MET, technical services, aircraft operators, CFMU, regulator, SLA's etc.	ICAO Doc 9377; Local procedures; EUROCONTROL Basic CFMU Handbook - General & CFMU Systems; etc.
7.4.5	Communicate the required information to the customer.	3		Local procedures
7.4.6	Clarify the meaning of the information provided, if requested.	3		Local procedures
7.4.7	Provide any additional information if requested.	3		Local procedures

7.5 Human factors aspects in co-ordination				
7.5.1	State factors affecting the quality of communication.	1		ICAO Doc 9683
7.5.2	Identify communication and thinking patterns.	1		
7.5.3	Explain common behavioural patterns of customers.	2		
7.5.4	Select the appropriate way for dealing with customers.	3		
7.5.5	Apply the rules for concise communication.	3		
7.5.6	Demonstrate correct behaviour in a conflict situation.	3		
7.5.7	Demonstrate correct handling of customer complaints.	3		

Note: Content and structure of section 7.5 “Human factors aspects in co-ordination” will depend upon the focus (e.g. TRM, commercial) and the service being provided by the AIS organisation.

Page intentionally left blank

PART 4 – APPENDICES

1. CLASSIFICATION OF TRAINING OBJECTIVES

The **General Objectives** found at the beginning of each subject/function indicate the overall teaching task to be achieved by the instructor.

The **Training Objective** associated to each sub-topic/sub-function determines what has to be achieved by the student.

1.1 Classification of Training Objectives

A taxonomy is a classification based on explicit principles. The purpose of a taxonomy in the training domain is to classify training objectives, according to the level of learning and performance required.

They are defined as follows:

This document makes use of the taxonomy defined as Levels 0 to 3.

Level 0 Essentially 'nice to know' material which will aid the student's overall understanding of a subject.

Level 1 Requires a basic knowledge of the subject. It is the ability to remember essential points; the trainee is expected to memorise data and recall it.

Level 2 Requires an understanding of the subject sufficient to enable the student to discuss intelligently. The individual is able to represent for him or herself certain objects and events and to act upon these objects and events.

The verb 'to appreciate' (in Level 2) means that the student is able to state the plan but not required to apply it. In a given situation the student will say that co-ordination should be done and with whom (the student appreciates the necessity for co-ordination). In a practical solution (i.e. Level 3) the student will co-ordinate, that is he/she will apply the techniques and procedures learnt (derived from Brien and Eastmond 1992/1994).

Level 3 Requires a thorough knowledge of the subject and the ability to apply it with accuracy. The student should be able to make use of his/her repertoire of knowledge and understanding in order to develop plans and activate them.

1.2 Summary of Action Verbs

AWARENESS	KNOWLEDGE	UNDERSTANDING
Level 0	Level 1	Level 2
BE AWARE OF BE FAMILIAR WITH	DEFINE DRAW IDENTIFY LIST NAME RECALL RECOGNISE SPECIFY STATE	APPRECIATE CHARACTERISE DESCRIBE DIFFERENTIATE EXPLAIN IDENTIFY ILLUSTRATE

APPLICATION (of skills)			
Level 3			
ACCEPT	COMMUNICATE	ENCODE	RECORD
ACCESS	COMPILE	EXTRACT	RE-DISTRIBUTE
ADAPT	COMPLETE	FILE	REQUEST
ADDRESS	CONDUCT	INSERT	RETRIEVE
ADHERE	CONVERT	LOCATE	SELECT
ALLOCATE	CORRECT	MAINTAIN	STORE
ANALYSE	DECODE	OPERATE	TAKE ACTION
APPLY	DELIVER	PREPARE	TRANSLATE
ASSOCIATE	DEMONSTRATE	PRINT	TRANSMIT
CALCULATE	DETECT	PROCESS	UPDATE
CARRY OUT	DETERMINE	PRODUCE	USE
CHECK	DISTRIBUTE	PROVIDE	VERIFY
CLARIFY	EDIT	RECEIVE	

2. COMPETENCIES

A Competency is “an underlying characteristic of a person which results in an effective and/or superior performance in a job” (Boyzatis 1982).

A person who has and uses the right competencies will have competence in the job.

Competency	Definition
Critical Examining	Screens data/documents and identifies the significant elements to detect any anomalies or inconsistencies. Takes all relevant details and information into account. Checks that information is in compliance with procedures and instructions. Verifies the reliability and correctness of the information before releasing it.
Information Analysis	Assesses and evaluates information using logical and appropriate analysis techniques. Seeks additional detail or clarification, if necessary. Seeks to identify and understand the real needs or issues.
Operational Knowledge	Demonstrates detailed and thorough knowledge and expertise in relation to the systems and procedures. Understands how the AIS processes are interrelated and linked. Maintains and keeps up to date with changes to systems and procedures.
Professional Expertise	Demonstrates technical or professional knowledge and skills related to the job. Maintains technical and professional knowledge and skills and keeps up to date in specialist areas. Actively keeps up to date with best practice across industry/profession.
Adherence to procedure	Acts in line with company policy and procedures. Follows verbal and written operating instructions consistently.
Safety Culture	Understands potential risk factors and takes action to minimise these. Uses materials and equipment in a safe and efficient way. Doesn't put self or others at risk of injury.
ATC Safety Conscious	Is aware of the risks associated with ATC. Knows the Safety Management System and applies it. Promote safety and ensure that his action will never endanger safety in the Air.
Language Skills	Has a very good knowledge in spelling, grammar and writing. Is able to communicate in national and English languages using appropriate vocabulary.
Judgement and Decision Making	Makes rational, realistic and sound decisions based on consideration of all the facts and alternatives available.
Reliability	Consistent and dependable. Can be relied upon to deliver what has been agreed. Punctual and conscientious.
Accuracy	Is detail conscious and accurate. Is attentive to points of detail and systematically controls data.
Methodical	Is methodical and rigorous. Shows perseverance and commitment in performing routine tasks.
Selective Attention	The ability to concentrate on a task over a period of time without being distracted.
Quality Focused	Is committed to achieve high quality work standards even when working to deadlines. Participates in identifying improvements to processes to enhance the quality of the service/work provided.
Customer Focused	Is concerned to provide a prompt, efficient service to both internal and external customers. Shows interest in customer issues and seeks to identify individual customer needs accurately.

3. ACRONYMS

For the purposes of this document the following acronyms shall apply. Those with a specific application are indicated whenever deemed relevant (e.g. ENR - En-route (ICAO)):

ACARS	Aircraft Communication Addressing and Reporting System
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ACI	Airports Council International
ACK	Acknowledge Message
ACN	Aircraft Classification Number
AD	Aerodrome
ADEXP	ATS Data Exchange Presentation
ADF	Automatic Direction Finding Equipment
ADP	Automated Data Processing
ADQ	Aeronautical Data Quality
ADS/ADS-B	Automatic Dependent Surveillance
AFIL	Air Filed Flight Plan
AFS	Aeronautical Fixed Service
AFTN	Aeronautical Fixed Telecommunications Network
AIC	Aeronautical Information Circular
AICM	Aeronautical Information Conceptual Model
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Service
AISOPS	AIS Planning and Operations Sub-Group (EATM)
AIS-TF	AIS Training Task Force
AIXM	Aeronautical Information Exchange Model
ALRS	Alerting Service
AMDT	Amendment
AMHS	Aeronautical Message Handling System
ANM	ATFM (ATFCM) Notification Message
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
APAPI	Abbreviated Precision Approach Path Indicator
APP	Approach Control
AO	Aircraft operator
ARC	Archiving System
ARO	ATS Reporting Office
ARP	Aerodrome Reference Point
ASDA	Accelerate Stop Distance Available
ASHTAM	NOTAM relating to volcanic and/or dust activity
ASM	Airspace Management
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer/Air Traffic Controller
ATFCM	Air Traffic Flow and Capacity Management
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
ATN	Aeronautical Telecommunications Network

ATS	Air Traffic Services
ATZ	Aerodrome Traffic Zone
CANSO	Civil Air Navigation Services Organisation
CASA	Computer Assisted Slot Allocation (CFMU)
CASP	Common AIS Staff Profiling
CAT	Clear Air Turbulence
CBT	Computer Based Training
CCCTF	Common Core Content Task Force (ATC Training)
CCIS	Closed Circuit Information System
CD-ROM	Compact Disc-Read Only Memory
CFMU	Central Flow Management Unit
CIA	Client Interface Access
CIDIN	Common ICAO Data Interchange Network
COM	Communications
CPDLC	Controller-Pilot Data Link Communication
CNS	Communications, Navigation and Surveillance
CRAM	Conditional Route Availability Message (CFMU)
CTR	Control Zone
DFTI	Distance from Touchdown Indicator
DME	Distance Measuring Equipment
Doc	Document (ICAO SARPS)
DOS	Disc Operating System
DQTS	Data Quality Tool Set
DRDF	Digital Radio Direction Finder
DTD	Document Type Definition
DVD	Digital Versatile Disc
EAD	European AIS Database
eAIP	electronic AIP
EASA	European Aviation Safety Authority
EATM	European Air Traffic Management (programme)
EC	European Commission
ECAC	European Civil Aviation Conference
ECIT	EAD Client Interface Terminal
EFIS	Electronic Flight Information System
EGM	Earth Gravitational Model
EGT	Exhaust Gas Temperature
ENR	En-route
ENV	Environment
ESI	EAD System Interface
ESSIP	European Single Sky ImPlementation
EU	European Union
EUROCONTROL	European Organisation for the Safety of Air Navigation
FAB	Flexible Airspace Block
FATO	Final Approach and Take-off Area
FDP	Flight Data Processing
FIC	Flight Information Centre
FIR	Flight Information Region
FIS	Flight Information Service
FMD	Flow Management Division

FMP	Flow Management Position
FMS	Flight Management System
FPL	Filed Flight Plan (message type designator)
FUA	Flexible Use of Airspace
GAT	General Air Traffic
GCA	Ground Controlled Approach
GEN	General
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
HF	High Frequency
html	Hyper Text Mark up Language
IACA	International Association of Charter Airlines
IACH	Individual ATC Flight Plan Change (CFMU)
IANS	Institute of Air Navigation Services (EUROCONTROL)
IAOPA	International Aircraft Owners and Pilots Association
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IFALPA	International Federation of Airline Pilots Associations
IFATCA	International Federation of Air Traffic Controllers Associations
IFATSEA	International Federation of Air Traffic Safety Engineers Associations
IFPL	Individual Flight Plan Message (CFMU)
IFPS	Integrated Initial Flight Plan Processing System
IFPUV	IFPS Validation System
IFR	Instrument Flight Rules IRPL
ILS	Instrument Landing System
INO	International NOTAM Office
INS	Inertial Navigation System
IRPL	Internal Repetitive Flight Plan (CFMU)
IRS	Inertial Reference System
ISA	International Standard Atmosphere
ISO	International Standards Organisation
ITU	International Telecommunications Union
LDA	Landing Distance Available
LRC	Long Range Cruise
KM	Kilometre
KPI	Key Performance Indicator
Man	Manual
MET	Meteorological/Meteorology
MLS	Microwave Landing System
MTCA	Medium Term Conflict Alert
NAT	North Atlantic Traffic
NAV	Navigation
NDB	Non Directional Radio Beacon
NM	Nautical Mile
NOF	International NOTAM Office
NOTAM	Notice To Airmen
NSA	National Supervisory Authority

NSC	NOTAM Selection Criteria
OAT	Operational Air Traffic
OJT	On-the-Job Training
OLDI	On-Line Data Interchange
OPADD	Operating Procedures for AIS Dynamic Data
ORM	Operational Reply Message (CFMU)
PAMS	Published AIP Management System
PANS	Procedures for Air Navigation Services
PAPI	Precision Approach Path Indicators
PAR	Precision Approach Radar
PCN	Pavement Classification Number
PIB	Pre-flight Information Bulletin
PSR	Primary Surveillance Radar
PUB	Publications
QMS	Quality Management System
RAD	Route Availability Document (EUROCONTROL)
RCC	Rescue Co-ordination Centre
REJ	Rejection Message
RESA	Runway End Safety Area
RPL	Repetitive Flight Plan
RQL	Request NOTAM List
RQN	Request NOTAM
RQP	Request flight Plan
RVR	Runway Visual Range
RWY	Runway
SAM	Slot Allocation Message
SAP	Service Action Point/Significant Airspace Portions/System Access Parameters
SAR	Search and Rescue
SARPS	Standards and Recommended Practices (ICAO)
SDO	Static Data Operations
SDP	Static Data Process
SELCAL	Selective Calling System
SES	Single European Sky
SFH	Surface Friction Tester – High Pressure Tyre
SIP	Slot Improvement Proposal
SITA	Société Internationale de Télécommunications Aéronautiques
SNOWTAM	NOTAM on Snow Conditions
SQL	Structured Query Language
SR	Sunrise
SRM	Slot Revision Message
SS	Sunset
SSR	Secondary Surveillance Radar
STCA	Short Term Conflict Alert
STS/HOSP	Status Hospital Flight
SUP	Supplement
SUPPS	Regional Supplementary Procedures
SWY	Stopway
SVG	Scalable Vector Graphics

TACAN	UHF Tactical Air Navigation Aid
TACT	CFMU Tactical System (EUROCONTROL)
TAF	Aerodrome Forecast (in meteorological code)
TAWS	Terrain Avoidance Warning System
TCAS	Traffic (alerting and) Collision Avoidance System
TDZ	Touchdown Zone
TODA	Take-off Distance Available
TOR	Terms of Reference
TORA	Take-off Run Available
TRM	Team Resource Management
VASIS	Visual Approach Slope Indicator System
VDF	VHF Direction-finding Station
VFR	Visual Flight Rules
VHF	Very High Frequency
Vol.	Volume (of a book/document)
VOLMET	Meteorological Information for Aircraft in Flight
VOR	VHF Omnidirectional Radio Range
UDF	UHF Direction-finding Station
UHF	Ultra High Frequency
UIR	Upper Flight Information Region
WGS-84	World Geodetic System - 1984
WMO	World Meteorological Organization
XML	Extended Mark up Language

4. REFERENCE DOCUMENTS

Reference	Latest Version (not necessarily the version used by the referencing source)
Draft ICAO Doc 7192	Part E-3 - Aeronautical Information Services Personnel Training Manual, Preliminary Edition - 2005
EC Regulation 549/2004 amended by Regulation 1070/2009 SES II	Regulation (EC) No 549/2004 of the European Parliament and of the Council –of 10 March 2004- laying down the framework for the creation of the single European Sky (the Framework Regulation)
EC Regulation 550/2004 amended by Regulation 1070/2009 SES II	Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation)
EC Regulation 551/2004 amended by Regulation 1070/2009 SES I	Regulation (EC) No 551/2004 of the European Parliament and of the Council of 10 March 2004 on the organisation and use of the airspace in the single European sky (the airspace Regulation)
EC Regulation 552/2004 amended by Regulation 1070/2009 SES II	Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)
EC Regulation 2150/2005	Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace
EC Regulation 730/2006	Commission Regulation (EC) No 730/2006 of 11 May 2006 on airspace classification and access of flights operated under visual flight rules above flight level 195
EC Regulation 1070/2009	Regulation (EC) No 1070/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004 and (EC) No 552/2004 in order to improve the performance and sustainability of the European aviation system
EC Regulation 73/2010	Commission Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky
ESARR 5 ATM Services' Personnel	EUROCONTROL Safety Regulatory Requirement for ATM Services' Personnel, edition 2, 11. April 2002
EUROCONTROL Common AIS Staff profiling (CASP)	Reference 10/09/21-74 , edition 2.0, 12 October 2010
EUROCONTROL EAD SDO Data Provider and Data User Manual	Reference EAD-DOC-STK53L, version 5.0, 21. December 2010
EUROCONTROL EAD Operational User Handbook -Data Provider	Reference EAD-DOC-GEKB38, version 6.0
EUROCONTROL EAD Operational User Handbook -Data User	Reference EAD-DOC-GEKB39, version 6.0, 05. November 2008
EUROCONTROL AIS Data Process / Static Data Procedures	Edition 2.0, 17 July 2009

EUROCONTROL CFMU Basic Handbook - General & CFMU Systems	Edition 15.0, 15 March 2011
EUROCONTROL CFMU Basic Handbook - IFPS Users Manual	Edition 15.0, 21 March 2011
EUROCONTROL OPADD	Operating Procedures For AIS Dynamic Data, edition 3.0, 08 April 2009
EUROCONTROL CFMU Basic Handbook - ATFCM Users Manual	ATFCM (Air Traffic Flow and Capacity Management) Users Manual, edition. 15.0, 15. March 2011
EUROCONTROL Supplement to CFMU Handbook - RAD (Route Availability) Document	RAD USERS Manual, Ed. 1.0, 31. July 2006
EUROCONTROL The ASM Handbook	Reference EUROCONTROL-GUID-140, edition 3.0, 15 June 2010
EUROCONTROL Strategic Guidance in support of the execution of the European ATM Master Plan	Edition 1.0, May 2009
EUROCONTROL Human Factors Module	Reference HUM.ET1.ST13.2000-REP-01, Critical Incident Stress Management
EUROCONTROL 2015 Airspace Concept & Strategy for the ECAC Area & Key Enablers	Edition 2.0, 28 February 2008
EUROCONTROL ARN	Reference 11/01/31-02, European ATS Route Network Version 7: Concept of Operations & Catalogue of Projects, 10 January 2011
EUROCONTROL eAIP Specification	Reference EUROCONTROL-SPEC-0146 , edition 2.0 , 14 February 2011
EUROCONTROL SNOWTAM Harmonisation Guidelines	Reference 10/09/24-76, edition 1.1 , 24 September 2010
ICAO Annex 2	Rules of the Air, Ed. 10 - July 2005. Reprinted, incorporating Amendments 1–42 Amendment 42 (applicable 19/11/09)
ICAO Annex 3	Meteorological Service for International Air Navigation, Ed. 16, incorporating Amendments 1-74, 2007
ICAO Annex 4	Aeronautical Charts, Ed. 11, incorporating Amendments 1–55 , July 2009
ICAO Annex 5	Units of Measurement to be Used in Air and Ground Operations, Ed. 4, incorporating Amendment 16, 1979
ICAO Annex 6	Operation of Aircraft Part 1, Ed. 08, incorporating Amendment 33B*, 2001
ICAO Annex 8	Airworthiness of Aircraft, Ed. 10, incorporating Amendment 101, 2005
ICAO Annex 9	Facilitation, Ed. 12, incorporating Amendment 21, 2005

ICAO Annex 10	Aeronautical Telecommunications, Vol. II, Ed. 06, incorporating Amendment 84, 2001
ICAO Annex 11	Air Traffic Services, Ed. 13, incorporating Amendment 47B*, 2001
ICAO Annex 12	Search and Rescue., Ed. 08, incorporating Amendment 18, 2004
ICAO Annex 14	Aerodromes. Volume 01, Ed. 05, incorporating Amendment 1-10B*, 2009 Heliports. Volume II , Ed. 03, incorporating Amendments 1-4, 2009
ICAO Annex 15	Aeronautical Information Services, Ed. 13, July 2010
ICAO Annex 17	Security, Ed. 08, incorporating Amendments 1-11, 2006
ICAO Doc 4444	ATM — Air Traffic Management, Ed. 15, 2007. Amendment 2 applicable 19/11/09
ICAO Doc 7030	Regional Supplementary Procedures, Ed. 05 - 2008, Amendment 2 (25/8/09)
ICAO Doc 7488	Manual of the ICAO Standard Atmosphere extended to 80 kilometres
ICAO Doc 7910	Location Indicators, Ed. 135, March 2010
ICAO Doc 8126	Aeronautical Information Services Manual, Ed. 06 - 2003, Amendment 2 (28/9/2009)
ICAO Doc 8168	Aircraft Operations, Ed. 05, 2006
ICAO Doc 8400	ABC - ICAO Abbreviations and Codes, Ed. 07 - 2007, incorporating Amendments 1–28. Amendment 29 applicable 20/11/08.
ICAO Doc 8643	Aircraft Type Designators, Ed. 38, April 2010.
ICAO Doc 8697	Aeronautical Chart Manual, Ed. 02 - 1987, Amendment 3, Reprinted May 2010
ICAO Doc 8896	Manual of Aeronautical Meteorological Practice, Ed. 08, 2008
ICAO Doc 9328	Manual of Runway Visual Range Observing and Reporting Practices, Ed. 03, 2008
ICAO Doc 9377	Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services, Ed. 04, 2008
ICAO Doc 9426	Air Traffic Services Planning Manual
ICAO Doc 9674	World Geodetic System — 1984 (WGS-84) Manual, Ed. 02, 2002
ICAO Doc 9713	International Civil Aviation Vocabulary, Ed. 03, 2007.
ICAO Doc 9855	Guidelines on the Use of the Public Internet for Aeronautical Applications, Ed. 01, 2005
ICAO Doc 9683	Human Factors Training Manual
ICAO EUR Doc 010	AIS and MET Services Access, second edition

5. AIS TRAINING TASK FORCE

Members:

Bertil ASKLUND	Entry Point North, Sweden
Lesley CLAYTON	NATS, United Kingdom (<i>First two meetings</i>)
Jorge DIAS	NAV Portugal
Adrian ENRIGHT	EUROCONTROL (Chairman)
Stefan HOFMANN	German Air Force
Piet de HONDT	LVNL, The Netherlands
Katarina NEUSCHLOVA	LPS, Slovakia
Daniela RADEVA	ATSA, Bulgaria
Peter TIEGEL	Skyguide, Switzerland
Jean-Jacques VITEL	DSNA, France

The Terms of Reference for the AIS Training Task Force are displayed on the next page.

TERMS OF REFERENCE FOR THE AIS TRAINING TASK FORCE

Full Task Force Name:	AIS TRAINING TASK FORCE		
Acronym: (as in COFM)	AISTF	Associated Domain:	HUM
Associated Sub-Group:	TRAINING FOCUS GROUP (TFG)		
Associated Group:	HUMAN RESOURCES TEAM (HRT), AIS TEAM		
Associated Programme/Service:	HUMAN FACTORS DOMAIN		
Creation date:	01.06.2004	End date: (if relevant)	31.05.2006
Chairperson:	A. Enright	Secretary:	TBD
Unit:	IANS/TDH	Unit:	IANS/TDH
TOR Approved by:	TRAINING FOCUS GROUP (TFG)	Date:	10.12.2003

TERMS OF REFERENCE

1. Mission:

The mission for the AIS Training Task Force (AISTF) shall be to review, revise and update the Common Core Content, Training Objectives and Syllabi for AIS operational personnel.

2. Authority:

The AISTF reports to the Training Focus Group (TFG) and informs the AIS Operations Sub-group of the AIS Team of its progress.

3. Participation:

Agency staff: IANS/TDH training experts and AIM experts.

ECAC Members: AIS training experts from ECAC STATES

Non-ECAC Members: N/A

Observers: N/A

4. Tasks:

The Task Force shall establish the scope and detail the rationale for the review of EATM Guidelines:

- HUM.ET1.ST05.2000-GUI-01 (Common Core Content and Training Objectives for Basic AIS Training – Phase 1 ab-initio),
- HUM.ET1.ST05.2000-GUI-02 (Common Core Content and Training Objectives for Basic AIS Training – Phase 2 specialist), and
- HUM.ET1.ST05.2000-GUI-03 (Specification of Training Tools and Methods – AIS).

The Task Force shall then revise and update their content in line with recent developments in AIS operating practices.

5. Occurrence of this WA per year:

2 to 3 times per year.



© October 2011 - European Organisation for the Safety of Air Navigation (EUROCONTROL)

This document is published by EUROCONTROL for information purposes. It may be copied in whole or in part, provided that EUROCONTROL is mentioned as the source and it is not used for commercial purposes (i.e. for financial gain). The information in this document may not be modified without prior written permission from EUROCONTROL.

www.eurocontrol.int