European Union Aviation Safety Agency

Notice of Proposed Amendment 2021-08(B)

in accordance with
Articles 6(3), 7 and 8 (Standard procedure: public consultation) of MB Decision No 18-2015

Enhanced mobility options and streamlined qualifications for air traffic controllers

RMT.0668

AMC1 ATCO.D.010(a)(1) Composition of initial training

BASIC TRAINING — ~~SUBJECT OBJECTIVES AND~~ TRAINING OBJECTIVES

TRACK CHANGES FILE

This document has been provided to help reviewers make a comparison between the Easy Access Rules for Air Traffic Controllers' Licensing and Certification (Regulation (EU) 2015/340) and associated AMCs published in December 2019 (Reference: AMCs to ATCO. D.010(a)(1) Composition of initial training - BASIC TRAINING) and the amendments proposed by the ATCO CCCT TF. Proposed changes are the result of the review process agreed between EASA and EUROCONTROL and performed in 2020

The text of the amendment is arranged to show deleted, new or relocated text as shown below:

Deleted information is in red colour with the ~~strikethrough effect~~
New information is in blue colour text.
Relocated information is in black colour with the ~~strikethrough effect~~

> **The rationale**/explanation of the change is, when appropriate, in the blue text box beneath the modified objective.

When an existing objective has been relocated (and consequently renumbered), the new number is shown in black to the left of the objective and the original (former version) number in red below the new one.

3.2.1 current objective number (if not modified it is the same as in the earlier version)

3.3.3 former objective number that may have an additional subject indication if moved from one subject to another or B(asic) and R(ating) if moved from one syllabus to another. In Human Factors subject HUMUC indication means that related objective has been deleted and proposed for relocation to later stages of ATCO training (Unit-Continuation).

1.5.3 new objective number for relocated objectives at its original location that may have an additional indication of a new subject or B(asic) and R(ating) if moved from one syllabus to another.

BASIC TRAINING — ~~SUBJECT OBJECTIVES AND~~ TRAINING OBJECTIVES
(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).
(b) Basic training should contain the following ~~subject objectives and~~ training objectives that are associated with the subjects, topics and subtopics contained in Appendix 2 ~~to~~ of Annex I to Commission Regulation (EU) 2015/340 — Basic training.
(c) Subjects, topics and subtopics from Appendix 2 ~~to~~ of Annex I to Commission Regulation (EU) 2015/340 are repeated in this AMC for the convenience of the reader and do not form part of it.

Subject 1 : INTRODUCTION TO THE COURSE

~~The subject objective is:~~

~~Learners shall know and understand the training programme that they will follow and how to obtain the appropriate information, and recognise the potential for development of their careers in ATC.~~

TOPIC INTRB 1 COURSE MANAGEMENT

Subtopic	INTRB 1.1	Course introduction		
BASIC INTRB 1.1.1	Explain the aims and main objectives of the course.	2 2		

ACCCT TF decided to discontinue (delete) the subject objectives, now being AMCs to ATCO Licensing Regulation, since they have no added value to the remaining training content (subjects/topics/subtopisc in the IR and associated training objectives in the AMCs).

Subtopic	INTRB 1.2	Course administration		
BASIC INTRB 1.2.1	State how the course is administered.	1 1		

Subtopic	INTRB 1.3	Study material and training documentation		
BASIC INTRB 1.3.1	Use appropriate documents and their sources for the course.	3 3	*Optional content: training documentation, library, CBT library, web, learning management server*	
BASIC INTRB 1.3.2	Integrate appropriate information into course studies.	4 4	Training documentation *Optional content: supplementary information, library*	

TOPIC INTRB 2 INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic	INTRB 2.1	Course content, methodology and organisation		
BASIC INTRB 2.1.1	State the different training methods used during the course.	1 1	Theoretical training, practical training, self-study, types of training events	
BASIC INTRB 2.1.2	State the subjects covered by the course and their purpose.	1 1		

BASIC INTRB 2.1.3	Describe the organisation of theoretical training.	2 2	*Optional content: course programme*
BASIC INTRB 2.1.4	Describe the organisation of practical training.	2 2	*Optional content: PTP, simulation, briefing, debriefing, course programme*
BASIC INTRB 2.1.5 INTRB 2.1.5 HUMB 1.1.1.	Appreciate appropriate learning techniques.	3 2	How the influence of interactive techniques can lead to improved learning.

"Introduction to the course" subject is more appropriate for this objective-rather than being Human factors requirement!

Subtopic	**INTRB 2.2**	**Training ethos**	
BASIC INTRB 2.2.1	Recognise the feedback mechanisms available.	1 1	*Optional content: instructor discussions, training progress, assessment, examinations, results, briefing, debriefing*
BASIC INTRB 2.2.2	Describe the positive effect of working and learning together with course participants.	2 2	Teamwork in theoretical and practical training

Subtopic	**INTRB 2.3**	**Assessment process**	
BASIC INTRB 2.3.1	Describe the assessment process.	2 2	

TOPIC INTRB 3 INTRODUCTION TO THE ATCO'S FUTURE

Subtopic	**INTRB 3.1**	**Job prospects**	
BASIC INTRB 3.1.1	Recognise an ATCO's working environment.	1 1	Area control unit, approach control unit, aerodrome control unit
BASIC INTRB 3.1.2	Recognise career developments.	1 1	*Optional content: OJT instructor, supervisor, operational managerial posts, non-operational posts*

Subject 2 : AVIATION LAW

~~The subject objective is:~~

~~Learners shall apply the regulations governing rules of the air, airspace and flight planning and explain their development or, where applicable, their incorporation into national legislation.~~

TOPIC LAWB 1 INTRODUCTION TO AVIATION LAW

Subtopic	LAWB 1.1	Relevance of aviation law		
BASIC LAWB 1.1.1	State the necessity for air law, the sources and development of aviation law.	1 1	Relevant EU legislation, ICAO Convention *Optional content: ICAO Annex 2, national aviation law*
BASIC LAWB ~~1.1.2~~ 1.1.2 1.1.2	~~Name the key national and international aviation organisations.~~	1 1	~~*Optional content: ICAO, ECAC, EASA, EUROCONTROL, national authority*~~

Objective removed and merged with the following 1.1.3 (now 1.1.2)

BASIC LAWB 1.1.2 1.1.3	Describe the impact that key international and national ~~these~~ organisations have on ATC and their interaction with each other.	2 2	ICAO, EASA, EUROCONTROL, national organisations

Corpus modified and content introduced to enable merging of two objectives into single one.

TOPIC LAWB 2 INTERNATIONAL ORGANISATIONS

Subtopic	LAWB 2.1	ICAO		
BASIC LAWB 2.1.1	Explain the purpose and function of ICAO.	2 2	
BASIC LAWB 2.1.2	Describe the methods by which ICAO notifies and implements legislation.	2 2	SARPs, PANS, ICAO annexes, ICAO documents *Optional content: regional offices*

Subtopic	LAWB 2.2	European and other agencies		
BASIC LAWB 2.2.1	Explain the purpose and functions of EUROCONTROL.	2 2	Network Manager function

BASIC LAWB 2.2.2	Explain the purpose and functions of EASA.	2 2	
BASIC LAWB 2.2.3	State the purpose and function of other international agencies and their relevance to air traffic operations.	1 1	*Optional content: ECAC, EU, ITU, CANSO , WMO*
Subtopic	**LAWB 2.3**	**Aviation associations**	
BASIC LAWB 2.3.1	State the purpose of controller, pilot, airline and airspace user associations and their interaction with ATC.	1 1	*Optional content: IFATCA, IFALPA, IATA, AEA, IAOPA, IACA, military services, ETF, ATCEUC*
TOPIC	**LAWB 3**	**NATIONAL ORGANISATIONS**	
Subtopic	**LAWB 3.1**	**National authorities ~~Purpose and function~~**	
BASIC LAWB 3.1.1	Describe the purpose and function of appropriate national agencies and their relevance to air traffic operations.	2 2	*Optional content: civil aviation administration agencies, government agencies*

Modified action verb and removed content that is now covered in the new subtopic LAWB 5.5 — Overview of Aeronautical Information Management (AIM)

Subtopic	**LAWB 3.2**	**National legislative procedures**	
BASIC LAWB 3.2.1	Recognise ~~Describe the means by which~~ how legislation is implemented, notified and updated	1 1<~~2~~	~~ICAO Annex 15~~ ~~*Optional content: AIS, AIPs, AIRAC, SUPs, AICs, NOTAMs, integrated aeronautical information package, national legislation, letters of agreement, operations manual*~~

Modified action verb and removed content that is now covered in the new subtopic LAWB 5.5 — Overview of Aeronautical Information Management (AIM)

BASIC LAWB ~~3.2.2~~ 5.5.2	~~Recognise the information contained in the different parts of the AIP.~~	1 ~~1~~	

Objective moved to new subtopic LAWB 5.5 — Overview of Aeronautical Information Management (AIM) as 5.5.2

Subtopic	LAWB 3.3	Competent authority		
BASIC LAWB 3.3.1	Name the competent authorities~~y~~ responsible for ATCO licensing and oversight of ANSPs. ~~enforcing legislation and operational procedures.~~	1 1		
Better wording				
BASIC LAWB 3.3.2	State ~~Describe~~ how the competent authority carries out its safety oversight ~~regulation~~ responsibilities.	1 1<~~2~~		
Better wording				
Subtopic	**LAWB 3.4**	**National aviation associations**		
BASIC LAWB 3.4.1	State the purpose of national controller, pilot, airline and airspace user associations.	1 1		

TOPIC LAWB 4 ATS SAFETY MANAGEMENT

Subtopic	LAWB 4.1	Safety regulation		
BASIC LAWB 4.1.1	Describe the need for safety regulation.	2 2	Regulation (EU) 2018/1139 *Optional content: Regulation (EU) 2017/373, national regulations*	
BASIC LAWB 4.1.2	Describe the general principles of ~~the~~ safety regulation. ~~organisation.~~	2 2	~~Safety regulation~~ *Optional content: Regulation (EU) 2017/373, national regulations*	
Too generic mandatory content deleted and integrated into more appropriate corpus of the objective.				
BASIC LAWB 4.1.3	Explain the impact of safety regulation on the controller.	2 2	*Optional content: Regulation (EU) 2015/340, ~~on ATCO Licensing~~ Regulation (EU) 2017/373*	
Regulation (EU) 2017/373 added to optional content and title of the Regulation (EU) 2015/340 (~~ATCO Licensing~~) deleted here and elsewhere in the content as unnecessary information..				
Subtopic	**LAWB 4.2**	**Safety management system**		
BASIC LAWB 4.2.1	Explain the regulatory requirements of safety management systems in ATM.	2 2	Regulation (EU) 2017/373	
BASIC LAWB 4.2.2	Explain the principles of the safety management systems.	2 2	Regulation (EU) 2017/373	

BASIC LAWB 4.2.3	Describe the safety assessment methodology.	2 2	Regulation (EU) 2017/373 *Optional content: EATMP Air navigation system safety assessment methodology, national regulations*

TOPIC LAWB 5 RULES AND REGULATIONS

Subtopic	LAWB 5.1	Units of measurement		
BASIC LAWB 5.1.1	List ~~Describe~~ the units of measurement used in aviation.	1 1<~~2~~	Council Directive 80/181/EEC on units of measurement, ICAO Annex 5

More appropriate action verb (modified by ACCCT TF)

Subtopic	LAWB 5.2	ATCO licensing/certification		
BASIC LAWB 5.2.1	Explain the ATCO licensing/certification process.	2 2	Regulation (EU) 2015/340 ~~on ATCO Licensing~~, Approved training courses; ATCO licences, ratings and endorsements *Optional content: national processes*
BASIC LAWB 5.2.2	Explain the privileges and limitations of controller licences.	2 2	Regulation (EU) 2015/340 ~~on ATCO Licensing~~

Subtopic	LAWB 5.3	Overview of ANS ~~and ATS~~		
BASIC LAWB 5.3.1	Differentiate between the Air Navigation Services.	2 2	Regulation (EC) 2018/1139, Regulation (EC) No 549/2004

Modified subtopic by separating the ANS and ATS (new subtopic) - Renumbering is necessary when major changes in the structure of the syllabus are foreseen (due to introduction/deletion of the Topics/subtropics and associated objectives). Therefore, the principles of AMC ATCO.D.010(a) 1.(b)(1) cannot always be respected. It is beneficial for training designers to have it in the appropriate order, particularly for the Basic training.

Subtopic	LAWB 5.4	Overview of ATS		
BASIC LAWB 5.4.1 5.3.2	State ~~Explain~~ the considerations which determine the need for the ATS.	1 1<~~2~~	~~ICAO Annex 11~~ Regulation (EU) 2017/373

More appropriate action verb for improved (reduced) content - updated with the Regulation (EU) 2017/373 (transposed within Annex IV 'Part-ATS' as ATS.TR.100) + Introduction of new subtopic focusing on ATS only.

BASIC LAWB 5.4.2 5.3.3	Differentiate between the ATS.	2 2	ATCS, ADVS, FIS, ALRS
BASIC LAWB 5.4.3 5.3.4	Explain the objectives of ATS.	2 2	Regulation (EU) No 923/2012

Reference to a single Regulation (EU) No 923/2012 (SERA...) is enough in case of the same content contained in both regulations? There is no need for Regulation (EU) 2017/373 (Part ATS Annex IV) here.

Subtopic	**LAWB 5.5**	**Overview of Aeronautical Information Management (AIM)**	
BASIC LAWB 5.5.1 3.2.1	Describe the means by which Aeronautical Information is notified, updated and disseminated.	2 2	ICAO Annex 15 *Optional content: AIS, integrated aeronautical information package (AIPs, AIRAC, SUPs, AICs, NOTAMs)*

Introduction of new AIM related subtopic and associated objectives - the restructuring and renumbering could not be avoided.

BASIC LAWB 5.5.2 5.5.2 3.2.2	Recognise the information contained in the different parts of the AIP.	1 1	

Objective moved from topic 3 to new subtopic LAWB 5.5 — Overview of Aeronautical Information Management (AIM) as 5.5.2

Subtopic	**LAWB 5.6 ~~5.4~~**	**Rules of the air**	
BASIC LAWB 5.6.1 5.4.1	Explain the Rules of the Air.	2 2	Regulation (EU) No 923/2012, Flight over the high seas, Applicability and compliance, General rules and collision avoidance

In addition to SERA regulation, that replaced former reference to ICAO Annex 2, some explicit content added to stress SERA sections not covered elsewhere. Another proposal to introduce new LAW objectives on pilot's emergency reports and how to handle that by ATCOs, rejected as already covered here and in ATMB 1.4 Alerting service Levels 1&2 and Rating 1.3 Alerting service Levels 3&4.

BASIC LAWB 5.6.2 5.4.2	State the published ~~any notified~~ differences with ICAO.	1 1	Regulation (EU) No 923/2012 *Optional content: Supplements to ICAO Annex 2 and ICAO Annex 11*

Better wording.

BASIC LAWB 5.6.3 5.4.3	Appreciate the influence of relevant flight rules on ATC.	3 3	General flight rules, instrument flight rules, visual flight rules

The proposal to reduce the level not accepted. This objective is enabler for practical part in the Basic training. L3 verb "appreciate" contains lower levels by default. In order to appreciate one must be able to "remember/memorise essential points/data (L1 definition) and "understand and discuss the subject matter intelligently".

BASIC LAWB 5.6.4 5.4.4	Appreciate the differences between flying in accordance with VFR, Special VFR and IFR, in VMC and IMC.	3 3	Regulation (EU) No 923/2012

Improved corpus to cover Special VFR flights.

Subtopic	**LAWB 5.7 5.5 Airspace and ATS routes**		
BASIC LAWB 5.7.3 5.5.3	Differentiate between the different types of ATS routes.	2 2	Airway, arrival route, departure route, advisory route, controlled route, uncontrolled route, etc.
BASIC LAWB 5.7.4 5.5.4	Decode information from aeronautical charts.	3 3	~~*Optional content: control zones, control areas, ATS routes, upper and lower airspace, restricted areas, prohibited and danger areas, FIR, aerodrome traffic zone, etc.*~~

The optional content removed - objective's corpus implicit enough!

BASIC LAWB 5.7.1 5.5.1	Explain airspace classification.	2 2	Regulation (EU) No 923/2012

BASIC LAWB 5.7.2 5.5.2	Differentiate between the different types of airspace.	2 2	*Optional content: control zones, control areas, airways, upper and lower airspace, restricted areas, prohibited and danger areas, FIR, aerodrome traffic zone, etc.*

Making the examples from the optional content mandatory could limit the implementation of this objective to listed items only.

Subtopic	**LAWB 5.8 5.6 Flight plan**		
BASIC LAWB 5.8.1 5.6.1	Explain the functions of a flight plan.	2 2	Regulation (EU) No 923/2012, ICAO Doc 4444
BASIC LAWB 5.8.2 5.6.2	Explain the different types of flight plans and associated update messages.	2 2	Regulation (EU) No 923/2012, ICAO Doc 4444
BASIC LAWB 5.8.3 5.6.3	Explain the pilot's responsibilities in relation to adherence to flight plan.	2 2	Inadvertent changes, intended changes, position reporting
BASIC LAWB 5.8.4 5.8.4 5.6.4	Describe flight plan submission and distribution processesing.	2 2	Regulation (EU) No 923/2012 ~~*Optional content: AFTN, IFPS*~~

Modified corpus and relevant EU reference added to mandatory content.

Subtopic	**LAWB 5.9 5.7 Aerodromes**		
BASIC LAWB 5.9.1 5.7.1	Describe the general design and layout of an aerodrome.	2 2	Runway(s), taxiways, apron, movement area, manoeuvring area, designated positions on an aerodrome
BASIC LAWB 5.9.2 5.7.2	Explain the numbering system and orientation of runways.	2 2	Regulation (EU) No 139/2014

BASIC LAWB 5.9.3 5.7.3	Differentiate between different types of aerodromes.	2 2	Controlled, uncontrolled *Optional content: military, international, regional*
BASIC LAWB 5.9.4 5.7.4	Describe designated positions in the traffic circuit.	2 2	
BASIC LAWB 5.9.5 5.7.5	List the factors affecting the selection of runway in use.	1 1	
Subtopic	**LAWB 5.10 ~~5.8~~ Holding procedures for IFR flights**		
BASIC LAWB 5.10.1 5.8.1	Describe the purpose of holding.	2 2	Traffic management, weather, pilot request, ~~ICAO Doc 4444,~~ Regulation (EU) 2017/373, ICAO Doc 8168 *Optional content: ICAO Doc 4444*
	Regulatory update with the Regulation (EU) 2017/373 that is complemented with ICAO content transposed in the AMCs and GM to Part ATS.TR.210.(a)(3) , though not all PANS provisions, and, therefore ICAO Doc 4444 moved to optional content.		
BASIC LAWB 5.10.2 5,8,2	Describe types of holding patterns.	2 2	Published, non-published
BASIC LAWB 5.10.3 5,8,3	Describe an ICAO holding pattern.	2 2	ICAO Doc 8168 - Parts of an IFR holding pattern, entry/exit procedures, dimensions of patterns, protected airspace, holding areas, alignment, rates of turns, holding times, expect further clearance, Expected Approach Times (EATs)
BASIC LAWB 5.10.4 5.8.4	Describe the factors affecting the holding pattern.	2 2	Effect of speed, effect of level used, effect of navigation aid in use, turbulence

Subtopic	LAWB 5.11 5.9 Holding procedures for VFR flights	
BASIC LAWB 5.11.1 5.9.1	Describe VFR holding.	2 2

Subject 3 : AIR TRAFFIC MANAGEMENT

~~The subject objective is:~~

~~Learners shall describe the basic principles of air traffic management and apply basic operational procedures.~~

TOPIC ATMB 1 AIR TRAFFIC MANAGEMENT

Subtopic	**ATMB 1.1**	**Application of units of measurement**		
BASIC ATMB 1.1.1	Apply the units of measurement appropriate to ATM.	3 3		
Subtopic	**ATMB 1.2**	**Air traffic control (ATC) service**		
BASIC ATMB 1.2.1	Define ATC service.	1 1	Regulation (EU) No 923/2012	
BASIC ATMB 1.2.2	Explain the division of the ATC service.	2 2	Regulation (EC) No 549/2004, ~~ICAO Annex 11,~~ Regulation (EU) 2017/373	
	Regulatory update of the content.(Transposed within Annex IV 'Part-ATS' as ATS.TR.105,)			
BASIC ATMB 1.2.3	Explain the responsibility for the provision of the ATC service.	2 2	~~ICAO Annex 11~~ Regulation (EU) 2017/373	
	Regulatory update of the content to Regulation (EU) 2017/373.(Transposed within Annex IV 'Part-ATS' as ATS.TR.205 - ATS.TR.225).			
BASIC ATMB 1.2.4	Differentiate between the different methods of providing ATC services.	2 2	Aerodrome, surveillance, procedural	
Subtopic	**ATMB 1.3**	**Flight information service (FIS)**		
BASIC ATMB 1.3.1	Define FIS.	1 1	Regulation (EU) No 923/2012	
BASIC ATMB 1.3.2	Describe the scope of the FIS.	2 2	Regulation (EU) No 923/2012	

BASIC ATMB 1.3.3	Explain the responsibility for the provision of the FIS.	2 2	Regulation (EU) No 923/2012, ~~ICAO Doc 4444~~ Regulation (EU) 2017/373

Regulatory update of the content to Regulation (EU) 2017/373.(Transposed within Annex IV 'Part-ATS' as AMC ATS.TR.300 - AMC ATS.TR.305). Suggested addition of the Regulation (EC) No 549/2004 not accepted - Regulation (EC) No 549/2004 is a very high level and inappropriate for implementation in the Basic training.

BASIC ATMB 1.3.4	State the methods of transmitting information.	1 1	RTF, data link, ATIS, VOLMET ~~*Optional content: RTF, data link, ATIS, VOLMET, etc.*~~

The proposal to make the optional content mandatory accepted. The idea of having it optional was that listing the possible methods of this level one objective do no limit the future options but also, that those listed now, if become redundant, could be avoided.

BASIC ATMB 1.3.5	List the content of ATIS and VOLMET.	1 1	Regulation (EU) No 923/2012, ICAO Annex 3 *Optional content: meteorological data obtained by data link*
BASIC ATMB 1.3.6	Issue information to aircraft.	3 3	*Optional content: SIGMET, serviceability of navaids, weather, flight safety information, essential traffic, essential local traffic, information related to aerodrome conditions, etc.*

The proposal to make the optional content mandatory not accepted. This is L3 objective - in basic training the application should not be too prescriptive and making all examples mandatory would be unnecessary and very demanding both for the students and TOs

Subtopic	**ATMB 1.4**	**Alerting service**	
BASIC ATMB 1.4.1	Define ALRS.	1 1	Regulation (EU) No 923/2012
BASIC ATMB 1.4.2	Describe the scope of the ALRS.	2 2	Regulation (EU) No 923/2012, ICAO Annex 11
BASIC ATMB 1.4.3	Explain the responsibility for the provision of the ALRS.	2 2	~~ICAO Doc 4444~~ Regulation (EU) 2017/373, Regulation (EU) No 923/2012

Regulatory update of the content: Transposed within Annex IV 'Part-ATS' as ATS.TR.400(a), and probably ATS.TR.110;

BASIC ATMB 1.4.4	Differentiate between the phases of emergency.	2 2	Uncertainty, alert, distress
BASIC ATMB 1.4.5	Describe the organisation of an ALRS.	2 2	Responsibilities, local organisation
BASIC ATMB 1.4.6	Describe the cooperation between units providing the alerting services and the SAR units.	2 2	
	The proposal to add ICAO Annex 12 in the mandatory content not accepted. Annex 12 is about and for SAR service - there is almost nothing there about how ATC units providing alerting service should co-operate with SAR.		
BASIC ATMB 1.4.7	Differentiate between distress and urgency signals.	2 2	Mayday, Pan Pan, Pan Pan Medical *Optional content: visual signals, etc.*
Subtopic	**ATMB 1.5 Air traffic advisory service**		
BASIC ATMB 1.5.1	Define air traffic advisory service.	1 1	Regulation (EU) No 923/2012
BASIC ATMB 1.5.2	State ~~Describe~~the scope of the air traffic advisory service.	1 1<-2	Regulation (EU) No 923/2012, ~~ICAO Doc 4444~~ Regulation (EU) 2017/373
	More appropriate action verb for improved (reduced) content - Advisory service rarely used in Europe. Updated with the Regulation (EU) 2017/373. ICAO Do 4444 transposed within Annex IV 'Part-ATS' as ATS.TR.105(b)		
BASIC ATMB 1.5.3	Explain the responsibility for the provision of the air traffic advisory service.	2 2	Regulation (EU) No 923/2012, ~~ICAO Doc 4444~~ Regulation (EU) 2017/373
	Regulatory updated with the Regulation (EU) 2017/373 that is complemented in the appropriate AMCs and GM to Part. ATS.TR.105(b) transposed from ICAO Do 4444		
~~BASIC ATMB 1.5.4~~	~~State to which flights air traffic advisory service shall be provided.~~	1 ~~1~~	~~ICAO Doc 4444~~
	Deleted - covered in the remaining Advisory service objectives and advisory service rarely used in Europe.		

Subtopic	ATMB 1.6	ATS system capacity and air traffic flow management		
BASIC ATMB 1.6.1	Define ATFM.		1 1	Regulation (EC) No 549/2004
~~BASIC ATMB 1.6.2~~ 1.6.2	~~State the scope of capacity management.~~		1 ~~1~~	~~Regulation (EU) No 255/2010, Regulation (EU) 2019/123, ICAO Doc 4444~~
Deleted Level 1 objective - the scope is covered at higher level 2 in the following objective.				
BASIC ATMB 1.6.2 1.6.2 1.6.3	Describe the scope of air traffic flow and capacity management (ATFCM).		2 2	Regulation (EU) No 255/2010, Regulation (EU) 2019/123, ICAO Doc 4444, EUROCONTROL ATFCM Users Manual
Improved corpus: ATFM has been evolving towards the integration of capacity management which is gradually developing into the new concept of Air Traffic Flow and Capacity Management (ATFCM). ATFCM is the abbreviation now used within the EU Area. ICAO at the moment doesn't have this abbreviation, but already talk about Capacity Management (Do 4444 Chap 3). With this change we first teach ATFM in general then we go to the modern concept of ATFCM. The proposal to move ATFCM objectives to Rating training rejected as these are common for all ratings				
BASIC ATMB 1.6.3 1.6.3 1.6.4	Explain the responsibility for the provision of ATFCM.		2 2	Regulation (EU) No 255/2010, Regulation (EU) 2019/123, ICAO Doc 4444, EUROCONTROL ATFCM Users Manual
The proposal to move ATFCM objectives to Rating training rejected as these are common for all ratings.				
BASIC ATMB 1.6.4 1.6.4 1.6.5	List ~~Explain~~ the methods of providing ATFCM.		1 1<~~2~~	Regulation (EU) No 255/2010, Regulation (EU) 2019/123, ~~ICAO Doc 4444,~~ EUROCONTROL ATFCM Users Manual
Changed action verb (Explain to List) - level 1 and ICAO Do 4444 removed from the content				
Subtopic	**ATMB 1.7**	**Airspace management (ASM)**		
BASIC ATMB 1.7.1	Define ASM.		1 1	Regulation (EC) No 549/2004 *Optional content: Commission Regulation (EC) No 2150/2005*
The proposal to simplify this objective, already at the level of definition (1), not accepted.				

BASIC ATMB 1.7.2	Describe the scope of ASM.	2 2	Regulation (EC) No 2150/2005, Regulation (EU) 2019/123 *Optional content: FABs, EUROCONTROL Specification for the application of the FUA*

Regulatory update of the content - Regulation (EU) 2019/123 added to mandatory content as it s laying down detailed rules for the implementation of air traffic management (ATM) network functions including some definitions, the scope, responsibilities and methods of airspace management. The proposal to move this ASM objective to Rating training rejected - it is common for all ratings.

BASIC ATMB 1.7.3	Explain the responsibility for the provision of ASM.	2 2	Regulation (EC) No 2150/2005, Regulation (EU) 2019/123 *Optional content: EUROCONTROL Specification for the application of the FUA*

As above.

BASIC ATMB 1.7.4	State ~~Explain~~ the methods of managing airspace.	1 1<2	Regulation (EC) No 2150/2005, Regulation (EU) 2019/123 *Optional content: Flexible use of airspace, airspace design, CDRs, TSAs*

Regulatory update of the content - Regulation (EU) 2019/123 added to mandatory content + proposal to reduce the level accepted - More appropriate action verb for Basic training. In Ratings we start with L3 (Appreciate) which by definition incorporates L1 and L2.

TOPIC ATMB 2 ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATMB 2.1 Altimetry

BASIC ATMB 2.1.1	Appreciate the relationship between height, altitude and flight level.	3 3	QFE, QNH, standard pressure

Subtopic ATMB 2.2 Transition level

BASIC ATMB 2.2.1	Appreciate the relationship between transition level, transition altitude and transition layer.	3 3	Regulation (EU) No 923/2012, ICAO Doc 4444 *Optional content: ICAO Doc 8168*
BASIC ATMB 2.2.2	Calculate the appropriate levels.	3 3	*Optional content: transition level , transition layer, height, lowest useable flight level, vertical distance to airspace boundaries*

Subtopic	ATMB 2.3	Level allocation		
BASIC ATMB 2.3.1	Describe the cruising level allocation system.	2 2	Regulation (EU) No 923/2012, table of cruising levels	
BASIC ATMB 2.3.2	Choose the appropriate levels.	3 3	Flight levels, altitudes, heights	

TOPIC ATMB 3 RADIOTELEPHONY (RTF)

Subtopic	ATMB 3.1	RTF general operating procedures		
BASIC ATMB 3.1.1	Explain the need for approved phraseology.	2 2		
BASIC ATMB 3.1.2	Use approved phraseology.	3 3	Regulation (EU) No 923/2012 *Optional content: national documents*	

National (local phraseology) documents added to optional content.

BASIC ATMB 3.1.3	Perform communication effectively.	3 3	Regulation (EU) No 923/2012, Communication techniques, readback/verification of readback	

Regulatory updated with the Regulation (EU) 923/2012 added as all PANS provisions related to phraseology have been transposed there (Appendix 1 to AMC SERA.14001 General)

TOPIC ATMB 4 ATC CLEARANCES AND ATC INSTRUCTIONS

Subtopic	ATMB 4.1	Type and content of ATC clearances		
BASIC ATMB 4.1.1	Define ATC clearance.	1 1	Regulation (EU) No 923/2012	
BASIC ATMB 4.1.2	Describe the contents of an ATC clearance.	2 2	Regulation (EU) No 923/2012, ICAO Doc 4444	
BASIC ATMB 4.1.3	Issue appropriate ATC clearances.	3 3	Regulation (EU) No 923/2012 *Optional content: ICAO Doc 4444, national documents*	

Subtopic	ATMB 4.2	ATC instructions		
BASIC ATMB 4.2.1	Define ATC Instructions.	1 1	Regulation (EU) No 923/2012	
BASIC ATMB 4.2.2	Describe the contents of an ATC instruction.	2 2	Regulation (EU) No 923/2012, ICAO Doc 4444	
BASIC ATMB 4.2.3	Issue appropriate ATC instructions.	3 3	Regulation (EU) No 923/2012, ICAO Doc 4444 *Optional content: national documents*	

TOPIC ATMB 5 COORDINATION

Subtopic	ATMB 5.1	Principles, types and content of coordination		
BASIC ATMB 5.1.1	Explain the principles, types and content of coordination.	2 2	Regulation (EU) No 923/2012, ICAO Doc 4444, ICAO Annex 11 *Optional content: notification, negotiation, agreement, transfer of flight data and local agreements, etc.*	
Subtopic	**ATMB 5.2**	**Necessity for coordination**		
BASIC ATMB 5.2.1	Appreciate the need for coordination.	3 3	*Optional content: ICAO Doc 4444, Regulation (EU) No 923/2012, local procedures, letters of agreement*	
BASIC ATMB 5.2.2	Differentiate between transfer of control and transfer of communication procedures.	2 2	~~ICAO Doc 4444~~ Regulation (EU) 2017/373	

Regulatory update. The reference to procedures for 'transferring of control of aircraft' is established within the Regulation (EU) 2017/373 Annex IV 'Part-ATS' in the ATS.TR.155(c)(6) transposed from ICAO Doc 4444

Subtopic	ATMB 5.3	Means of coordination		
BASIC ATMB 5.3.1	Describe the means of coordination.	2 2	*Optional content: data link, telephone, intercom, voice, etc.*	
BASIC ATMB 5.3.2	Use the available means for coordination.	3 3		

TOPIC ATMB 6 DATA DISPLAY

Subtopic	ATMB 6.1	Data extraction		
BASIC ATMB 6.1.1	Encode and decode an appropriate selection of standard ICAO abbreviations.	3 3	*Optional content: ICAO Doc 8585, ICAO Doc 8643, ICAO Doc 7910*

The proposal to remove ICAO documents from the content here not accepted. These ICAO Documents are a very valid source of information needed during Initial training (theoretical and practical part)

BASIC ATMB 6.1.2	Extract pertinent data from relevant sources to produce a flight progress display.	3 3	Pilot reports, coordination, data exchange *Optional content: flight plan*
BASIC ATMB 6.1.3	Encode and decode flight plans (including supplementary information).	3 3	ICAO format, AFTN format

Subtopic	ATMB 6.2	Data management		
BASIC ATMB 6.2.1	Update the situation display to accurately reflect the traffic situation.	3 3	*Optional content: strip marking symbols, strip movement procedures, electronic data, label*

The proposal to move "strip marking" to mandatory content not accepted. In the basic (and rating) training the application of this objective should not be too prescriptive and making the strips/strip marking mandatory would be very demanding for those TOs (and students) not using strips anymore!

TOPIC ATMB 7 SEPARATIONS

Subtopic	ATMB 7.1	Vertical separation and procedures		
BASIC ATMB 7.1.1	State the vertical separation standards.	1 1	Regulation (EU) No 923/2012, Regulation (EU) 2017/373 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*

Regulatory update with the Regulation (EU) 2017/373 and transposed ICAO content in the AMCs and GM to Part.ATS.TR.210(c)(1) (Parts transposed to SERA.8005 (c) Operation of air traffic control service + the table of cruising levels) - though not all provisions, and, therefore ICAO Do 4444 moved to optional content.

BASIC ATMB 7.1.2	Explain the vertical separation procedures.	2 2	Regulation (EU) No 923/2012, Regulation (EU) 2017/373 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*

Regulatory update with the Regulation (EU) 2017/373 with the transposed content in the AMCs and GM to Part.ATS.TR.210(c)(1) - though not all provisions, and, therefore ICAO Do 4444 moved to optional content.

Subtopic	ATMB 7.2	Horizontal separation and procedures		
BASIC ATMB 7.2.1	State the principles of longitudinal separation procedures based on time and distance.	1 1	Regulation (EU) 2017/373, Regulation (EU) No 923/2012 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*	
Regulatory update with the Regulation (EU) 2017/373 and ICAO content transposed in the AMCs and GM to Part.ATS.TR.210(c)(1) - though not all provisions, and, therefore ICAO Do 4444 moved to optional content.				
BASIC ATMB 7.2.2	State the principles of lateral separation procedures.	1 1	Regulation (EU) 2017/373, Regulation (EU) No 923/2012 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*	
Regulatory update with the Regulation (EU) No 923/2012 (SERA) and Regulation (EU) 2017/373 - though not all provisions, and, therefore ICAO Doc 4444 moved to optional content.				
Subtopic	**ATMB 7.3**	**Visual separation**		
BASIC ATMB 7.3.1	State the occasions when clearance to fly maintaining own separation while in VMC can be used.	1 1		
Subtopic	**ATMB 7.4**	**Aerodrome separation and procedures**		
BASIC ATMB 7.4.1	State the aerodrome separation standards.	1 1	Separation on the manoeuvring area, in the traffic circuit, for departing and arriving aircraft	
BASIC ATMB 7.4.2	Explain the aerodrome separation procedures.	2 2	Regulation (EU) 2017/373, Regulation (EU) No 923/2012 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*	
Regulatory update with the Regulation (EU) No 923/2012 (SERA) and Regulation (EU) 2017/373 - though not all provisions, and, therefore ICAO Do 4444 moved to optional content.				
BASIC ATMB 7.4.3	Define essential local traffic.	1 1	Regulation (EU) 2017/373 ~~ICAO Doc 4444~~	
Regulatory update with the Regulation (EU) 2017/373 (Transposed in Annex IV 'Part-ATS' as ATS.TR.250 (b) and Annex I 'Part-DEFINITIONS)				
Subtopic	**ATMB 7.5**	**Separation based on ATS surveillance systems**		
BASIC ATMB 7.5.1	Explain the use of ATS surveillance systems in ATS.	2 2	Separation, identification, monitoring, vectoring, expedition and assistance to traffic *Optional content: ICAO Doc 4444*	

BASIC ATMB 7.5.2	Explain the ATS surveillance systems separation standards and procedures.	2 2	Regulation (EU) 2017/373 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*

Regulatory update - Regulation (EU) 2017/373 with ICAO content transposed in the AMCs and GM to Part-ATS , though not all, and, therefore ICAO Do 4444 moved to optional content.

BASIC ATMB 7.5.3 ATMB 7.5.3 ATM 9.4.1	Explain the methods and procedures for establishing identification.	2 2	Regulation (EU) 2017/373 ~~ICAO Doc 4444~~ *Optional content: ICAO Doc 4444*

Here the proposal to relocate the objective from one topic (ATMB 9) to an earlier topic (ATMB 7) accepted and objective added at the end of the assigned subtopic to avoid renumbering and reduce the workload for training designers/experts. Regulatory update - Regulation (EU) 2017/373 with ICAO content transposed in the AMCs and GM to Part-ATS , though not all, and, therefore ICAO Do 4444 moved to optional content.

Subtopic	**ATMB 7.6**	**Wake turbulence separation**	
BASIC ATMB 7.6.1	Explain the wake turbulence separations.	2 2	~~ICAO Doc 4444,~~ Regulation (EU) No 923/2012, Regulation (EU) 2017/373 *Optional content: EASA SIB 2017-10 'En-route Wake Turbulence Encounters'*

Regulatory updated with the Regulation (EU) 2017/373 (Transposed in Annex IV 'Part-ATS' as AMC ATS. TR.220.)

TOPIC	**ATMB 8**	**AIRBORNE ~~COLLISION AVOIDANCE SYSTEMS~~ AND GROUND-BASED SAFETY NETS**	
Subtopic	**ATMB 8.1**	**Airborne safety nets ~~collision avoidance systems~~**	
BASIC ATMB 8.1.1	State the European Union requirement for carriage of airborne collision avoidance system.	1 1	Regulation (EU) No 1332/2011
BASIC ATMB 8.1.2	Explain the main characteristics of airborne safety nets ~~warning systems~~ and their relevance to ATC operations.	2 2	ACAS, TAWS *Optional content: TCAS, EGPWS, Wind shear alerts*

More appropriate wording for this Topic, subtopic and associated objectives

BASIC ATMB 8.1.3	Explain the function of ACAS Traffic Alerts and Resolution Advisories.	2 2	Regulation (EU) No 1332/2011, ICAO Doc 8168 *Optional content: ~~EUROCONTROL ACAS web page~~ Skybrary Safety Nets*

Update of redundant optional content reference.

BASIC ATMB 8.1.4	List the actions of the pilot in case of TA and RA.	1 1	Regulation (EU) No 923/2012, ~~Regulation (EU) No 1332/2011, ICAO Doc 8168~~, ICAO Doc 9863

Updated mandatory content by adding the relevant EU and ICAO references

BASIC ATMB 8.1.5	List the ACAS limitations.	1 1	ICAO Doc 9863 *Optional content: ~~EUROCONTROL ACAS web page~~ Skybrary Safety Nets*

Update of redundant reference link - in general, the www. links should not be used at all as they may change - rather the official name of the library/source (in this case Skybrary Safety Nets)

Subtopic	**ATMB 8.2**	**Ground-based safety nets**	
BASIC ATMB 8.2.1	Explain the main characteristics of ground-based safety nets and their relevance to ATC operations.	2 2	*Optional content: STCA, MSAW, APW, APM, Skybrary Safety Nets*

A relevant reference (Skybrary Safety Nets) added to optional content
The proposal to widen the scope of this objective to all ATS not accepted.

TOPIC ATMB 9 BASIC PRACTICAL SKILLS

Subtopic	**ATMB 9.1**	**Traffic management process**	
BASIC ATMB 9.1.1	Consider human-information processing in the provision of ATC.	2 2	Situational awareness, conflict detection, planning, decision making, prioritisation, execution
BASIC ATMB 9.1.2	Consider the need for verification that actions are carried out.	2 2	Monitoring

Subtopic	**ATMB 9.2**	**Basic practical skills applicable to all ratings**	
BASIC ATMB 9.2.1	Verify that the settings of the working position are appropriate.	3 3	
BASIC ATMB 9.2.2	Operate the available working position equipment.	3 3	

BASIC ATMB 9.2.3	Maintain situational awareness by monitoring traffic.	3 3	Information gathering, scanning, planning
BASIC ATMB 9.2.4	Appreciate priority of actions.	3 3	
BASIC ATMB 9.2.5	Execute selected plan.	3 3	
BASIC ATMB 9.2.6	Apply the prescribed procedures for the area of responsibility.	3 3	*Optional content: LOPs, transfer of control and communication, level allocation, inbound and outbound procedures*

This is L3 objective - in basic training the application should not be too prescriptive and making all examples mandatory (as suggested) would be very demanding both for the students and TOs

BASIC ATMB 9.2.7	Appreciate relative velocity between aircraft.	3 3	
BASIC ATMB 9.2.8	Identify separation problems.	3 3	
BASIC ATMB 9.2.9	Choose the appropriate separation methods.	3 3	
BASIC ATMB 9.2.10	Apply separation.	3 3	*Optional content: vertical, longitudinal, lateral, aerodrome, based on ATS surveillance systems, distances from airspace boundaries*

The proposal to delete the objective not accepted as this L3 objective is used in the basic training to introduce practical elements - and not explicitly related to "conventional" separation methods.

Subtopic	**ATMB 9.3**	**Basic practical skills applicable to aerodrome**	
BASIC ATMB 9.3.1	Perform the basic functions of aerodrome control.	3 3	

BASIC ATMB 9.3.2	Perform the control of aerodrome traffic.	3 3	Single runway operations including VFR and IFR traffic

Subtopic	ATMB 9.4	Basic practical skills applicable to surveillance	
~~BASIC ATMB 9.4.1~~ 7.5.2 9.4.1	~~Explain the methods and procedures of establishing identification.~~	~~2~~ 2	~~ICAO Doc 4444~~

Accepted proposal to move this objective to ATMB 7 - more appropriate to link this L2 objectives with the similar objectives about ATS surveillance separation standards.

BASIC ATMB 9.4.1 9.4.2	Apply the procedures of establishing identification.	3 3	Any of the ATS surveillance systems identification methods
BASIC ATMB 9.4.2 9.4.3	Estimate the heading for a new track and the distance to the next way point.	3 3	
BASIC ATMB 9.4.3 9.4.4	Apply vectoring techniques.	3 3	
BASIC ATMB 9.4.4 9.4.5	Conduct level changes.	3 3	*Optional content: cruising level allocation, requested level change, climb/descent to exit level, descent to an altitude or a height*

Subject 4 : METEOROLOGY

~~The subject objective is:~~

~~Learners shall describe how meteorology affects ATS operations and aircraft performance, and apply meteorological information in the basic operational procedures of ATS.~~

TOPIC METB 1 INTRODUCTION TO METEOROLOGY

Subtopic	**METB 1.1**	**Application of units of measurement**		
BASIC METB 1.1.1	Apply the units of measurement appropriate to meteorology.	3 3		
Subtopic	**METB 1.2**	**Aviation and meteorology**		
BASIC METB 1.2.1	Recognise ~~Explain~~ the relevance of meteorology in aviation.	1 1<-~~2~~		
	More appropriate action verb for introduction topic in the Basic training.			
BASIC METB 1.2.2	Explain the requirements for the provision of meteorological information available to operators, flight crew members, and to air traffic services.	2 2	Regulation (EU) 2017/373 *Optional content: ICAO Annex 3, ICAO Annex 11*	
BASIC METB 1.2.3	State the meteorological hazards to aviation.	1 1	Turbulence, thunderstorms, icing, micro bursts, squall, macro burst, wind shear, volcanic ash	
Subtopic	**METB 1.3**	**Organisation of meteorological service**		
BASIC METB 1.3.1	State ~~Name~~ the basic duties, ~~organisation and working methods~~ of meteorological offices.	1 1	*Optional content: WAFS, WAFC, MWO, VAAC, TCAC, SADIS*	
	The original text was to complex for L1 action verb. The simple wording that reduces the scope of he objective is more appropriate for ATCO's basic training.			
BASIC METB 1.3.2	State the international and national standards for coordination between ATS and MET services.	1 1		

TOPIC METB 2 ATMOSPHERE

Subtopic	**METB 2.1**	**Composition and structure**	
BASIC METB 2.1.1	State the composition and structure of the atmosphere.	1 1	Gases, layers
BASIC METB 2.1.2	Describe the basic characteristics of the atmospheric parameters measured.	2 2	Temperature, pressure, wind, humidity, density
BASIC METB 2.1.3	List the tools used for the collection of meteorological data.	1 1	*Optional content: barometer, thermometer, ceilometer, anemometer, weather balloons, transmissometer, radar, satellites, etc.*
Subtopic	**METB 2.2**	**Standard atmosphere**	
BASIC METB 2.2.1	Describe the elements of the ISA.	2 2	Temperature, pressure, density
BASIC METB 2.2.2	State the reasons why the ISA has been defined.	1 1	
Subtopic	**METB 2.3**	**Heat and temperature**	
BASIC METB 2.3.1	Define the processes by which heat is transferred and how the atmosphere is heated.	1 1	Radiation, convection, advection, conduction, water cycle
BASIC METB 2.3.2	Describe how temperature varies.	2 2	Adiabatic processes, lapse rates, stability, instability
BASIC METB 2.3.3	State the influencing factors on surface temperature.	1 1	
Subtopic	**METB 2.4**	**Water in the atmosphere**	
BASIC METB 2.4.1	Differentiate between the different processes related to atmospheric moisture.	2 2	Condensation, evaporation, sublimation, saturation

BASIC METB 2.4.2	Characterise relative humidity, dew point and latent heat.	2 2	

Subtopic	**METB 2.5**	**Air pressure**	
BASIC METB 2.5.1	Describe the relationship between pressure, temperature, density and height.	2 2	
BASIC METB 2.5.2	Explain the relationship between pressure settings.	2 2	QFE, QNH, standard pressure
BASIC METB 2.5.3	Explain the effect of air pressure and temperature on altimeter readings and the true altitude of aircraft.	2 2	
~~BASIC METB 2.5.4~~	~~State how atmospheric pressure is measured.~~	1 1	

The proposal to delete this objective accepted - "How it is measured" is unnecessary knowledge for ATCOs. The measuring tool(s) are covered in MET 1.2.3

TOPIC METB 3 ATMOSPHERIC CIRCULATION

Subtopic	**METB 3.1**	**General air circulation**	
BASIC METB 3.1.1	State the major atmospheric circulation features on the Earth.	1 1	*Optional content: Hadley cells, high and low belts, polar fronts, westerly winds, upper-level jet streams*

Subtopic	**METB 3.2**	**Air masses and frontal systems**	
BASIC METB 3.2.1	State ~~Describe the origin and movement of~~ typical air masses ~~and their general effect on~~ relevant to European weather.	1 1 <-2	~~Polar, arctic, tropical, equatorial (maritime and continental)~~ *Optional content: Polar, arctic, tropical, equatorial (maritime and continental)*

The proposal to modify the action verb, wording of the objective corpus and to make the mandatory content optional accepted in order to reduce the scope of the original objective. Level 1 is enough for ATCO's training.

BASIC METB 3.2.2	Recognise ~~Describe~~ the main isobaric features.	1 1<2	~~Cyclones, anticyclones, ridge, trough~~ *Optional content: Cyclones, anticyclones*

The proposal to modify the action verb and to make the mandatory content optional accepted in order to reduce the scope of the original objective. Level 1 is enough for ATCO's training.

BASIC METB 3.2.3	Describe the difference between various fronts and the associated weather.	2 2	Warm front, cold front, occluded front

The proposal to reduce the level not accepted - relevant and important content for ATCOs

Subtopic	**METB 3.3**	**Mesoscale systems**	
BASIC METB 3.3.1	Recognise ~~Describe~~ the main phenomena caused by mesoscale systems.	1 1<-2	Mountain waves, ~~Föhn, slope and~~ valley winds, thunderstorm, squall line *Optional content: land/sea breezes, tornadoes, land spouts, waterspout, Föhn, slope wind*

The proposal to reduce the level accepted. More appropriate action verb here - Higher level 2 covered in the following objectives. Improved content by making some items optional.

BASIC METB 3.3.2	Explain the relevance of mesoscale systems to aviation.	2 2	

Subtopic	**METB 3.4**	**Wind**	
BASIC METB 3.4.1	Explain the significance of wind phenomena and types.	2 2	*Optional content: veering, backing, gusting, jet streams, land/sea breezes, Föhn, surface, upper*
BASIC METB 3.4.2	State the means by which ~~how~~ wind is measured.	1 1	Anemometer, wind sock *Optional content: wind sensor, beaufort scale, etc.*

The proposal to improve the wording both for the objective and content accepted for clarity.

BASIC METB 3.4.3	Explain the effect of forces which influence wind.	2 2	

TOPIC	METB 4	METEOROLOGICAL PHENOMENA	
Subtopic	**METB 4.1**	**Clouds**	
BASIC METB 4.1.1	Explain the different conditions for the formation of clouds.	2	2
~~BASIC METB 4.1.2~~ ADC 1.1.2 4.1.2	~~Recognise different cloud types.~~	1	~~1~~
	Objective deleted and corpus merged with the following objective on cloud types and characteristics. Recognition moved to ADC rating only.		
BASIC METB 4.1.2 4.1.3	State the different cloud types and their main characteristics.	1	1
	Better wording to incorporate the deleted recognition objective above (moved to rating training - ADC only)		
BASIC METB 4.1.3 4.1.4	State how the cloud base and the amount of cloud are measured and/or observed.	1	1
BASIC METB 4.1.4 4.1.5	Define cloud base and ceiling.	1	1
BASIC METB 4.1.5 4.1.6	Differentiate between cloud base and ceiling.	2	2
	The proposal to delete this objective not accepted - relevant and important content for ATCOs		
Subtopic	**METB 4.2**	**Types of precipitation**	
BASIC METB 4.2.1	Explain the significance of precipitation in aviation.	2	2

BASIC METB 4.2.2	Describe types of precipitation and their corresponding cloud families.	2 2	*Optional content: rain, snow, snow grains, hail, ice pellets, ice crystals, drizzle*

The proposal to make some optional content mandatory not accepted. With the climate changes everything is possible and optional content is more appropriate.

Subtopic	**METB 4.3**	**Visibility**	
BASIC METB 4.3.1	Explain the causes of atmospheric obscurity.	2 2	
BASIC METB 4.3.2	Differentiate between different types of visibility.	2 2	Horizontal visibility, slant visibility, prevailing visibility, RVR
BASIC METB 4.3.3	State the means by which ~~how~~ visibility is measured.	1 1	

The proposal to improve the wording both for the objective and the content accepted for clarity.

BASIC METB 4.3.4	Explain the significance of visibility in aviation.	2 2	

Subtopic	**METB 4.4**	**Meteorological hazards**	
BASIC METB 4.4.1	Explain the meteorological hazards to aviation.	2 2	Turbulence, icing, micro bursts, macro burst, wind shear, thunderstorms, volcanic ash *Optional content: squall*
BASIC METB 4.4.2	Describe the effect of meteorological hazards to aviation.	2 2	

TOPIC METB 5 METEOROLOGICAL INFORMATION FOR AVIATION

Subtopic	**METB 5.1**	**Messages and reports**	
BASIC METB 5.1.1	Decode the content of weather reports and forecasts.	3 3	METAR, SPECI, TAF, SIGMET *Optional content: local reports*

Subject 5 : NAVIGATION

~~The subject objective is:~~

~~Learners shall explain the basic principles of navigation and use this knowledge in ATS operations.~~

TOPIC NAVB 1 INTRODUCTION TO NAVIGATION

Subtopic	**NAVB 1.1**	**Application of units of measurement**		
BASIC NAVB 1.1.1	Apply the units of measurement appropriate to navigation.	3 3		
Subtopic	**NAVB 1.2**	**Purpose and use of navigation**		
BASIC NAVB 1.2.1	Explain the need for navigation in aviation.	2 2		
BASIC NAVB 1.2.2	Characterise navigation methods.	2 2	*Optional content: historical overview, celestial, on-board, radio, satellites*	

TOPIC NAVB 2 THE EARTH

Subtopic	**NAVB 2.1**	**Place and movement of the Earth**		
BASIC NAVB 2.1.1	Explain the Earth's properties and their effects.	2 2	Form, size, rotation, revolution in space, seasons, day, night, twilight, units of time, time zones, UTC ~~*Optional content: form, size, rotation, revolution in space, seasons, day, night, twilight, units of time, time zones, UTC*~~	

The proposal to move the optional content to mandatory accepted. All of those items should be mandatory otherwise the objective is surplus.

Subtopic	**NAVB 2.2**	**System of coordinates, direction and distance**		
BASIC NAVB 2.2.1	Characterise the general principles of a grid system.	2 2	Latitude/longitude, degrees, minutes, seconds ~~*Optional content: degrees, minutes, seconds, WGS-84, latitude/longitude*~~	

The proposal to move the optional content (with the exception of WSG-85) to mandatory accepted - more appropriate for further application in practical training.

BASIC NAVB 2.2.2	Explain direction and distance on a globe.	2 2	*Optional content: great circle, small circle, rhumb line, cardinal points, intercardinal points*	

BASIC NAVB 2.2.3	Estimate position on the Earth's surface.	3 3	Latitude/longitude ~~*Optional content: latitude/longitude*~~

The proposal to move the optional content to mandatory accepted - more appropriate for further application in practical training.

BASIC NAVB 2.2.4 2,2,4	~~Estimate distance and direction between two points~~.	3 3	

The proposal to delete this objective accepted. Difficult and unnecessary to estimate in nowadays working environment. The L2 objective above is enough.

BASIC NAVB 2.2.4 2.2.5 2.2.5	State the reference system used in aviation.	1 1	WGS 84 *Optional content: Impact of alternative reference models*

Subtopic	**NAVB 2.3**	**Magnetism**	
BASIC NAVB 2.3.1	Explain the general principles of the Earth's magnetism.	2 2	True North, magnetic North, variation, deviation, inclination, declination
BASIC NAVB 2.3.2	Calculate conversions between the three north designations.	3 3	True North, magnetic North, compass North

TOPIC NAVB 3 MAPS AND AERONAUTICAL CHARTS

~~**Subtopic**~~	~~**NAVB 3.1**~~	~~**Map making and projections**~~	
~~BASIC NAVB 3.1.1~~	~~State how the Earth is projected to create a map.~~	1 1	~~Types of projection~~

The proposal to remove (delete) the whole suptopic and associated objectives accepted - irrelevant for ATCO training (and competence).

~~BASIC NAVB 3.1.2~~	~~Describe the properties of a map.~~	2 2	~~Projection, scale~~

As above.

~~BASIC NAVB 3.1.3~~	~~Describe the properties of an ideal map.~~	2 2	~~*Optional content: conformality, constant scale, true azimuth, rhumb lines and great circles*~~

As above.

~~BASIC NAVB 3.1.4~~ 3.1.4	~~State the properties and use of different projections.~~	1 1	~~*Optional content: Lambert, Mercator, stereographic*~~

As above.

Subtopic	**NAVB 3.1**	**Maps and charts used in aviation**	
BASIC NAVB 3.1.1 3.2.1	Differentiate between the various maps and charts.	2 2	AIP

The proposal to introduced explicit content for clarity accepted.

BASIC NAVB 3.1.2 3.2.2	State the specific use of various maps and charts.	1 1	
BASIC NAVB 3.1.3 3.2.3	Decode symbols and information displayed on maps and charts.	3 3	*Optional content: chart scale, topographical features, NAV aids, fixes, fly over and fly by waypoints, display of True North, magnetic North, variation etc.*

The proposal to improve the optional content accepted. This change makes the link with the preceding topic on Magnetism but also compensates a bit for deleted Subtopic on Map making and projections.

TOPIC NAVB 4 NAVIGATIONAL BASICS

Subtopic	**NAVB 4.1**	**Influence of wind**	
BASIC NAVB 4.1.1	Appreciate the influence of wind on the flight path.	3 3	Heading, track, drift, wind vector *Optional content: Triangle of velocities*

Subtopic	**NAVB 4.2**	**Speed**	
BASIC NAVB 4.2.1	Explain the relationship between various speeds used in aviation.	2 2	True air speed, ground speed, indicated air speed (including Mach number)

BASIC NAVB 4.2.2	Appreciate the use of various speeds in ATC.	3 3	

Subtopic	**NAVB 4.3**	**Visual navigation**	
BASIC NAVB 4.3.1	Describe visual navigation.	2 2	Map reading, visual reference
BASIC NAVB 4.3.2	State the cases where visual navigation is primarily used in commercial aviation.	1 1	Approach and landing, taxiing *Optional content: Visual aids*
Subtopic	**NAVB 4.4**	**Navigational aspects of flight planning**	
BASIC NAVB 4.4.1	Describe the navigational aspects affecting flight planning.	2 2	*Optional content: fuel/time calculations, min altitudes, alternative routes, weather conditions, ICAO Flight Plan (Item 18 use)*

The proposal to make some content mandatory not accepted - In the basic training we should not be too prescriptive and making all examples mandatory would be very demanding both for the students and TOs.

TOPIC NAVB 5 INSTRUMENT NAVIGATION

Subtopic	**NAVB 5.1**	**Ground-based systems**	
BASIC NAVB 5.1.1	Explain the basic working principles of ground-based systems.	2 2	~~VDF, NDB,~~ VOR, DME, ILS *Optional content: VDF, NDB, TACAN*

The proposal to move NDB and VDF from mandatory to optional content accepted. NDB is not standard equipment anymore in according to ICAO. No need to promote it.

BASIC NAVB 5.1.2	State the use of ground-based systems.	1 1	~~VDF, NDB,~~ VOR, DME, ILS *Optional content: VDF, NDB, TACAN*

As above.

BASIC NAVB 5.1.3	Characterise the main radio navigation techniques based on ground-based systems.	2 2	Area navigation, conventional navigation *Optional content: homing, inbound/outbound tracking, instrument approach procedures, holding, drift assessment*

BASIC NAVB 5.1.4	Explain the accuracy and limitations of ground-based systems.	2 2	VDF, NDB, VOR, DME, ILS *Optional content: TACAN*
Subtopic	**NAVB 5.2**	**Inertial navigation systems**	
BASIC NAVB 5.2.1	Explain the basic working principles, precision and limitations of on-boards systems.	2 2	*Optional content: INS/IRS*
BASIC NAVB 5.2.2	State the use of on-board systems.	1 1	
Subtopic	**NAVB 5.3**	**Satellite-based systems**	
BASIC NAVB 5.3.1	Explain the basic working principles of a satellite positioning systems.	2 2	*Optional content: GPS, GLONASS, Galileo, Beidou*
BASIC NAVB 5.3.2	State the basic principles of GNSS concept.	1 1	Basic, ABAS, SBAS, GBAS *Optional content: Core constellations, MCMF, integrity, RAIM, accuracy improvement, geometric altitude accuracy*
BASIC NAVB 5.3.3	Explain the limitations of satellite-based systems.	2 2	GPS, Galileo *Optional content: GLONASS, Beidou, integrity, GPS NOTAMs*

The proposal to move some items from optional to mandatory content (relevant NOTAMs on outages/limitations) not accepted - current distribution good enough to cover the objective.

Subtopic	**NAVB 5.4**	**Instrument approach procedures**	
BASIC NAVB 5.4.1	Recognise various types of instrument approach using aeronautical charts.	1 1	Precision Approach (PA), Approach Procedure with Vertical guidance (APV), Non Precision Approach (NPA)
BASIC NAVB 5.4.2	Differentiate between precision approach and non-precision approach procedures.	2 2	*Optional content: 2D/3D operations*

The proposal to introduce explicit optional content accepted to stress the different understandings of 3D advisory vs. guided RNP approach 2D or 3D RNP AR approach and precision approach predicated on vertical navigation.

BASIC NAVB 5.4.3	Recognise the different minima used during an instrument approach.	1 1	
BASIC NAVB 5.4.4	Define the terms appropriate to instrument approach minima.	1 1	OCA/OCH, MDA/MDH and DA/DH
BASIC NAVB 5.4.5	List the instrument~~al~~ approach fixes.	1 1	IAF, IF, FAF, FAP, MAPt

The proposal to expand this objective to what happens at the relevant fixes not accepted as this is covered in APP/APS rating where it counts. The TF only made a minor editorial correction in the corpus.

TOPIC NAVB 6 PERFORMANCE BASED NAVIGATION

Subtopic	NAVB 6.1	Principles and benefits of area navigation	
BASIC NAVB 6.1.1	Explain the basic principles of area navigation.	2 2	*Optional content: Requirement for navigation computer, suitable sensors, ICAO Doc 9613*
BASIC NAVB 6.1.2	State the benefits of area navigation.	1 1	*Optional content: ICAO Doc 9613*
BASIC NAVB 6.1.3	State the effects of navigational performance accuracy of RNAV systems on the flight.	1 1	TSE, PDE, NSE, FTE *Optional content: high-quality data, ICAO Doc 9613*
BASIC NAVB 6.1.4	Characterise the main aircraft and avionics functionalities used in area navigation.	2 2	*Optional content: database, fly over and fly by waypoints transitions, managed turns (RF and FRT), path terminators, parallel offset,autopilot/flight director (AP/FD)*

The proposal to make some content mandatory not accepted - In the basic training we should not be too prescriptive and making all examples mandatory would be very demanding both for the students and TOs.

BASIC NAVB 6.1.5	Characterise the navigational functions of FMS.	2 2	*Optional content: VNAV, LNAV*

Subtopic	NAVB 6.2	Introduction to PBN		
BASIC NAVB 6.2.1	State the general concept of PBN.	1 1	Components of PBN *Optional content: key enabler, ICAO Doc 9613*	
The proposal for restructuring of PBN topic in ATCO Basic training not accepted. Current structure and associated objectives proposed, accepted and updated in 2019) were appropriate.				
BASIC NAVB 6.2.2	Differentiate between RNAV and RNP.	2 2	On-board performance monitoring and alerting *Optional content: different generations of aircraft and on-board systems*	
BASIC NAVB 6.2.3	State the navigation infrastructure that may be used in PBN.	1 1	VOR, DME, GNSS *Optional content: functionality IRS/INS*	
BASIC NAVB 6.2.4	State the benefits of PBN concept.	1 1	*Optional content: global interoperability, limited number of navigation specifications, the PBN concept enables continuous descent operations (CDO) and continuous climb operations (CCO)*	
The proposal to make some content mandatory not accepted.				
BASIC NAVB 6.2.5	List the navigation specifications and the phases of flight they are applicable to.	1 1	RNAV 10, RNAV 5, RNAV 2, RNAV 1, RNP 4, RNP 2, RNP 1, RNP 0.3, A-RNP, RNP APCH and RNP AR APCH *Optional content: ICAO Doc 9613*	
Subtopic	**NAVB 6.3**	**PBN applications**		
BASIC NAVB 6.3.1	State the navigation applications used in Europe.	1 1	RNAV 5, RNAV 1, RNP 1 with RF, RNP 0.3, RNP APCH *Optional content: PCP (Regulation (EU) No 716/2014) (AF #1, AF #3), PBN (Regulation (EU) 2018/1048*	

TOPIC NAVB 7 DEVELOPMENTS IN NAVIGATION

Subtopic	NAVB 7.1	Future developments		
BASIC NAVB 7.1.1	State future developments in navigation.	1 1	*Optional content: 3D VNAV outside FA, trajectory-based operations*	

Subject 6 : AIRCRAFT

~~The subject objective is:~~

~~Learners shall describe the basic principles of the theory of flight and aircraft characteristics and how these influence ATS operations.~~

TOPIC ACFTB 1 INTRODUCTION TO AIRCRAFT

Subtopic	ACFTB 1.1	Application of units of measurement		
BASIC ACFTB 1.1.1	Apply the units of measurement appropriate to aircraft and principles of flight.	3 3		

Subtopic	ACFTB 1.2	Aviation and aircraft		
BASIC ACFTB 1.2.1	Explain the relevance of theory of flight and aircraft characteristics in ATS operations.	2 2		

TOPIC ACFTB 2 PRINCIPLES OF FLIGHT

Subtopic	ACFTB 2.1	Forces acting on aircraft		
BASIC ACFTB 2.1.1	Explain the forces acting on an aircraft in flight and their interaction.	2 2	Lift, thrust, drag, weight during level flight *Optional content: during climb, descent, turn*	
BASIC ACFTB 2.1.2	Explain causes and effects of wake turbulence.	2 2	Induced drag	

Subtopic	ACFTB 2.2	Structural components and control of an aircraft		
BASIC ACFTB 2.2.1	Describe the main structural components of an aircraft.	2 2	Rotary and fixed wing, tail plane, fuselage, flap, aileron, elevator, rudder, landing gear	
BASIC ACFTB 2.2.2	Explain how the pilot controls the movements of an aircraft.	2 2	Rudder, aileron, elevator, throttle, rotary wing controls	
BASIC ACFTB 2.2.3	Explain the factors affecting aircraft stability.	2 2		

BASIC ACFTB 2.2.4 2.2.4	List aircraft design features reducing induced drag.	1 1	*Optional content: winglet, tip tanks, reducing wing incidence, aspect ratio, etc.*

The proposal to introduce this new objective accepted - the content was missing before.

BASIC ACFTB 2.2.5 2.2.5	Explain aircraft lights and their functions.	2 2	Regulation (EU) No 923/2012, ICAO Annex 6 *Optional content: Position lights, anti-collision lights, taxi light, navigation lights, stroboscopic lights, landing lights*

The proposal to introduce new objective on aircraft lights accepted - the content was missing before.

Subtopic	**ACFTB 2.3**	**Flight envelope**	
BASIC ACFTB 2.3.1	Characterise the critical factors which affect aircraft performance.	2 2	Maximum speeds, minimum and stall speeds, ceiling, critical angle of attack, maximum ROC

TOPIC ACFTB 3 AIRCRAFT CATEGORIES

Subtopic	**ACFTB 3.1**	**Aircraft categories**	
BASIC ACFTB 3.1.1	List the different categories of aircraft.	1 1	Fixed wing, rotary wing, balloon, glider, RPAS

Subtopic	**ACFTB 3.2**	**Wake turbulence categories**	
BASIC ACFTB 3.2.1	List the wake turbulence categories.	1 1	~~ICAO Doc 4444~~ Regulation (EU) 2017/373

Regulatory updated with the Regulation (EU) 2017/373 that is complemented in the transposed AMC ATS.TR.220.

Subtopic	**ACFTB 3.3**	**ICAO approach categories**	
BASIC ACFTB 3.3.1	List the ICAO approach categories.	1 1	ICAO Doc 8168

Subtopic	**ACFTB 3.4**	**Environmental categories**	
BASIC ACFTB 3.4.1	List ICAO noise classification.	1 1	ICAO Annex 16 *Optional content:https://www.easa.europa.eu/eaer/topics/technology-and-design/aircraft-noise*

TOPIC ACFTB 4 AIRCRAFT DATA

Subtopic	ACFTB 4.1	Recognition		
BASIC ACFTB 4.1.1	Recognise the most commonly used aircraft.		1 1	

Subtopic	ACFTB 4.2	Performance data		
BASIC ACFTB 4.2.1	State the ICAO aircraft type designators and categories for the most commonly used aircraft.		1 1	Type designators, approach and wake turbulence categories
BASIC ACFTB 4.2.2	State the standard average performance data of the most commonly used aircraft.		1 1	Rate of climb/descent, cruising speed, ceiling

TOPIC ACFTB 5 AIRCRAFT ENGINES

Subtopic	ACFTB 5.1	Piston engines		
BASIC ACFTB 5.1.1	Explain the operating principles, advantages and disadvantages of the piston engine and propeller.		2 2	Piston engines, fixed pitch, variable pitch, number of blades

Subtopic	ACFTB 5.2	Jet engines		
BASIC ACFTB 5.2.1	Explain the operating principles, advantages and disadvantages of the jet engine.		2 2	
BASIC ACFTB 5.2.2	List the different types of jet engines.		1 1	

Subtopic	ACFTB 5.3	Turboprop engines		
BASIC ACFTB 5.3.1	Explain the operating principles, advantages and disadvantages of the turboprop engine and propeller.		2 2	

Subtopic	ACFTB 5.4	Electric engines		
BASIC ACFTB 5.4.1 5.4.1	Explain the operating principles, advantages and disadvantages of the electric engine.	2 2		

The proposal to introduce new subtopic and associated objective on aircraft electric engines accepted - the content was missing before.

Subtopic	ACFTB 5.5	Sources of energy used in aviation ~~Aviation fuels~~		
BASIC ACFTB 5.5.1 5.5.1 5.4.1	List the ~~most common~~ sources of energy used in aviation propulsion systems.~~ fuels.~~	1 1	Petroleum-based fuels (Avgas, Jet A -1, Jet B, Biokerosene), electrical energy stored or generated on board of aircraft *Optional content: hydrogen cell*	

The proposal to modify the wording of subtopic and this objective accepted to cater for the application of new technology (source of energy) that was missing in the ATCO training content earlier.

TOPIC ACFTB 6 AIRCRAFT SYSTEMS AND INSTRUMENTS

Subtopic	ACFTB 6.1	Flight instruments		
BASIC ACFTB 6.1.1	Explain the basic operating principles and interpretation of the information displayed by flight instruments.	2 2	Altimeter, air speed indicator, vertical speed indicator, turn and bank indicator, artificial horizon, gyrosyn compass	
BASIC ACFTB 6.1.2	Explain the impact of errors and abnormal indications of flight instruments on aircraft operations.	2 2	*Optional content: pitot-static failures, unreliable gyro source*	

Subtopic	ACFTB 6.2	Navigational instruments		
BASIC ACFTB 6.2.1	Describe the basic on-board operating principles and interpretation of the information displayed by navigational instruments/systems.	2 2	*Optional content: ADF, VOR (TACAN), DME, ILS, inertial reference system, satellite-based systems*	

Subtopic	ACFTB 6.3	Engine instruments		
BASIC ACFTB 6.3.1	List the vital engine monitoring parameters and their associated instruments.	1 1	*Optional content: oil pressure and temperature, engine temperature, rpm, fuel state and flow, battery resource*	

The proposal to amend the optional content accepted: New technology that was missing in the ATCO training content.

Subtopic	ACFTB 6.4	Aircraft elements and systems		
BASIC ACFTB 6.4.1	Explain the use of the most common aircraft systems.	2 2	SSR transponder, GPWS, EFIS, flight director, autopilot, FMS; ice protection ~~systems~~, cabin pressurisation, fire detection and extinguishing, emergency oxygen supply systems *Optional content: ADS capability, head-up display, wind shear indicator, weather radar, hydraulic system, electrical system, environmental system*	

The proposal to modify the wording of subtopic and amend the mandatory content accepted to cater for the acft elements and systems that were missing in the ATCO training content earlier.

BASIC ACFTB 6.4.2	Explain the impact of degradation/failure of the most common aircraft systems on aircraft operations.	2 2	Engine failure *Optional content: hydraulic failure, electrical failure, environmental system failure, degradation of aircraft position source data*	

The proposal to remove (delete) this objective not accepted - important prerequisite for the following emergency training in all ratings

BASIC ACFTB 6.4.3 6.4.3	Explain common aircraft elements and their functions.	2 2	Aircraft cabin, flight deck, galley, doors, cargo compartments	

The proposal to introduce new objective on aircraft elements accepted - the content was missing before. (some proposed mandatory content not accepted)

TOPIC ACFTB 7 FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic	ACFTB 7.1	Take-off factors		
BASIC ACFTB 7.1.1	Explain the factors affecting aircraft during take-off.	2 2	Runway conditions, runway slope, wind, temperature, aerodrome elevation, aircraft mass	

The proposal to change the order of the items in the content - not accepted.

Subtopic	ACFTB 7.2	Climb factors		
BASIC ACFTB 7.2.1	Explain the factors affecting aircraft during climb.	2 2	Speed, mass, wind, wind shear, temperature, cabin pressurisation, air density	

Subtopic	ACFTB 7.3	Cruise factors		
BASIC ACFTB 7.3.1	Explain the factors affecting aircraft during cruise.	2 2	Level, cruising speed, wind, mass, cabin pressurisation	

Subtopic	ACFTB 7.4	Descent and initial approach factors		
BASIC ACFTB 7.4.1	Explain the factors affecting aircraft during descent.		2 2	Wind, speed, rate of descent, aircraft configuration, cabin pressurisation
BASIC ACFTB 7.4.2	Explain the factors affecting an aircraft in a holding pattern.		2 2	Speed, level, turbulence, icing
BASIC ACFTB 7.4.3	Explain the benefits of continuous descent operations.		2 2	
Subtopic	**ACFTB 7.5**	**Final approach and landing factors**		
BASIC ACFTB 7.5.1	Explain the factors affecting aircraft during final approach and landing.		2 2	Aircraft configuration, mass, wind, wind shear, aerodrome elevation, runway conditions, runway slope
Subtopic	**ACFTB 7.6**	**Economic factors**		
BASIC ACFTB 7.6.1	Explain the economic consequences of ATC changes on the flight profile of an aircraft.		2 2	Routing, flight level, speed, rates of climb or descent, continuous descent operations (CDO), continuous climb operations (CCO)
Subtopic	**ACFTB 7.7**	**Environmental factors**		
BASIC ACFTB 7.7.1	Explain performance restrictions due to environmental considerations.		2 2	*Optional content: continuous descent operation (CDO), continuous climb operations (CCO), fuel-dumping, noise-abatement procedures, minimum flight levels*

Subject 7 : HUMAN FACTORS

~~The subject objective is:~~

~~Learners shall characterise factors which affect personal and team performance.~~

TOPIC HUMB 1 INTRODUCTION TO HUMAN PERFORMANCE ~~FACTORS~~

~~Subtopic~~	**~~HUMB 1.1~~**	**~~Learning techniques~~**	
BASIC ~~HUMB~~ ~~1.1.1~~ INTRB 2.1.5 HUMB 1.1.1	~~Appreciate appropriate learning techniques.~~	3 3	~~How the influence of interactive techniques can lead to improved learning~~

The proposal to move this objective to INTRB accepted. "Introduction to the course" subject is more appropriate for this objective-rather than being Human factors requirement!

Subtopic	**HUMB 1.1 ~~1.2~~ Relevance of human factors for ATC**		
BASIC HUMB 1.1.1 1.1.1 1.3.1	Define human factors.	1 1	~~*Optional content: ICAO Human Factors Training Manual*~~

The proposal to delete the redundant content accepted.

BASIC HUMB 1.1.2 1.1.2	Define human performance.	1 1	

The whole subject is dealing more with the Human performance as per ICAO Annex 1 requirements, therefore definition of HP is relevant to distinguish the two (HP/HF).

BASIC HUMB 1.1.3 1.2.1	Explain the relevance ~~and importance~~ of human factors in ATM.	2 2	Historical background, safety impact on ATM, licensing requirements, incidents

The proposal to expend the relevance of this HUMB objective to ATS (not only ATC) accepted and even modified to ATM.+ better wording with more accurate meaning and alignment with the associated mandatory content.

BASIC HUMB 1.1.4 1.3.2	Recognise the evolution of Human Performance during an ATCO's career. ~~Explain the relationship between human factors and the aviation environment.~~	1 1	*Optional content:* ~~*ICAO Human Factors Training Manual, visits to the simulator and operational room, SHELL model, PEAR model*~~ *Regulation (EU) 2015/340, experience, initial, unit, continuation and development training*

A better wording with more accurate meaning and narrowing down the scope to ATCOs environment + update of redundant reference in the optional content.

Subtopic	**HUMB 1.3 Human factors and ATC**		
BASIC HUMB 1.3.3 HUMR 5.1.1 1.3.3	Explain the concept of systems.	2 2	People, procedures, equipment, ATM in system terms
	All system related HUMB objectives modified and moved to Rating - The suggested content included there.		
BASIC HUMB 1.3.4	Explain ATM in systems terms.	2 2	
	The proposal to delete this objective and merge with the preceding (modified and moved to Rating) accepted.		
BASIC HUMB 1.3.4 HUMR 5.1.2 HUMB 1.3.5	Explain the consequences of a systems failure in ATS.	2 2	
	Deleted in the Basic training and moved to Rating training + reworded for students to better understand the content.		
BASIC HUMB 1.3.5 HUMR 5.1.3 HUMB 1.3.6	Explain the need for matching human and equipment.	2 2	*Optional content: ICAO Human Factors Training Manual*
	Moved to Rating training for students to better understand the content.		
BASIC HUMB 1.3.6 1.3.7	Explain the information requirement of ATC.	2 2	Relevant, timely, accurate
	The proposal to remove this unclear objective accepted - students can hardly understand the issue at this stage of training.		

BASIC ~~HUMB~~ ~~1.3.7~~ 1.1.3 1.3.8	~~Describe the role of the human in the evolution of ATC.~~	2 ~~2~~	~~*Optional content: history of ATC, airspace, communications, radar, advanced ATS systems, the future of ATC*~~

The proposal to remove this objective accepted. Well covered in the new 1.1.3 Explain the relevance of human factors in ATM. The proposal to expend the scope to ATS (not only ATC) accepted - ATM instead of ATC.

BASIC ~~HUMB~~ ~~1.3.8~~ 1.3.9	~~Explain the importance of situational awareness for decision-making.~~	2 2	

The proposal to remove this objective accepted. Already covered in ATMB 9 – Basic practical skills.

TOPIC HUMB 2 HEALTH AND WELL-BEING

Subtopic HUMB 2.1 Fitness for duty

BASIC HUMB 2.1.1 2.1.1	Recognise the effect of health and well-being on fitness for duty.	1 1	

Introduction of the new Topic and associated subtopics/objectives accepted.

BASIC HUMB 2.1.2 2.1.2	List the reasons for provisional inability to exercise the privileges of ATCO Licence.	1 1	Regulation (EU) 2015/340

New objective to stress the reasons for provisional inability + regulatory alignment.

BASIC HUMB 2.1.3 2.1.3 HUMR 2.2.1	Recognise signs of lack of personal fitness.	1 1	Cognitive and physical fitness

Objective moved from Rating to Basic training and improved content

BASIC HUMB 2.1.4 2.1.4	Describe good practices that contribute to maintaining fitness for duty.	2 2	*Optional content: fitness, diet*

New objective about the importance of maintaining fitness for duty.

Subtopic	HUMB 2.2	Stress and fatigue		
BASIC HUMB 2.2.1 2.6.1	Define stress.		1 1	Regulation (EU) 2017/373 ~~Stress definition~~ ~~*Optional content: EATCHIP Human Factors Module - Stress*~~

Relocation of the objective and improved content (regulatory alignment). Stress is now in the Basic training combined with the fatigue (in this subtopic) and elaborated in more details in the Rating training.

BASIC HUMB 2.2.2 2.2.2	Define fatigue.	1 1	Regulation (EU) 2017/373

Introduction of "fatigue" definition objective and improved content.

BASIC HUMB 2.2.3 2.2.3	Differentiate between stress and fatigue.	2 2	ICAO Doc 9966

Introduction of the "fatigue" and "stress" differentiation objective and improved content.

BASIC HUMB 2.2.4 2.2.4	Explain the causal factors of stress and fatigue.	2 2	*Optional content: EUROCONTROL Fatigue and sleep management*

Introduction of the "fatigue" and "stress" causal factors objective and improved content.

Subtopic	HUMB 2.3	Substance use and responsibility		
BASIC HUMB 2.3.1 2.3.1	Define psychoactive substance.		1 1	Regulation (EU) 2017/373

Introduction of "psychoactive substance" definition objective and regulatory update.

BASIC HUMB 2.3.2 2.3.2	Explain the effect of psychoactive substance use on the individual and on safety.	2 2	

Introduction of the effect of "psychoactive substance" objective.

BASIC HUMB 2.3.3 2.3.3	Describe individual responsibility in terms of psychoactive substance use.	2 2	Regulation (EU) 2017/373

Introduction of the individual responsibility in terms of "psychoactive substance" objective and regulatory update.

~~Subtopic~~	~~HUMB 2.3~~	~~Health and well-being~~	
~~BASIC HUMB 2.3.1~~ 2.3.1	~~Consider the effect of health on performance.~~	2 ~~2~~	~~Optional content: fitness, diet, drugs, alcohol~~

Now well covered in the new Topic 2. HEALTH AND WELL-BEING and associated objectives

~~Subtopic~~	~~HUMB 2.6~~	~~Stress~~	
~~BASIC HUMB 2.6.2~~ 2.2.4 2.6.2	~~Describe stress symptoms and sources.~~	2 ~~2~~	~~Behavioural changes, lifestyle changes, physical symptoms, crisis events, main causes of stress~~ ~~Optional content: EATCHIP Human Factors Module - Stress~~

Integrated in the new objective 2.2.3 Explain the causal factors of stress and fatigue
Stress reduced from the Topic to subtopic level and combined with the fatigue as part of the new Topic 2 HEALTH AND WELL-BEING and associated objectives.

~~BASIC HUMB 2.6.3~~ 2.6.3	~~Describe the stages of stress.~~	2 ~~2~~	~~Stress performance curve~~ ~~Optional content: EATCHIP Human Factors Module - Stress~~

HUM subject restructured with some stress objectives in the Basic and some in the Rating training. This one, including the content questioned by one of the stake holders is deleted.

~~BASIC HUMB 2.6.4~~ HUMR 2.2.3 2.6.4	~~Appreciate techniques for stress management.~~	3 ~~3~~	~~Optional content: relaxation techniques, diet and lifestyle, exercise, EATCHIP Human Factors Module - Stress~~

More appropriate for Rating training (covered in the new rating subtopic 2.2 Stress and associated objectives 2,2,2, 2.2.3 and 2.2.4

TOPIC HUMB 3 2 HUMAN PERFORMANCE			
Subtopic	**HUMB 3.1 2.1 Individual behaviour**		
BASIC HUMB 3.1.1 3.1.1	Define human behaviour.	1 1	
	Introduction of "human behaviour" definition		
BASIC HUMB 3.1.2 2.1.1	Explain the differences and commonalities that exist between people.	2 2	*Optional content: attitudes, cultural, language, motivation*
	Reordering and modified optional content.		
BASIC HUMB 3.1.3	Describe the reasons for complacency and the associated effects.	2 2	Safety, working relationship-team
	Introduction of "complacency" objective as a single objective that includes the associated effects		
BASIC HUMB 3.1.4 2.1.3	Describe ~~Explain~~ the reasons for ~~dangers of~~ overconfidence and the associated effects. ~~complacency.~~	2 2	Safety, working relationship - team
	Objective modified to split the "overconfidence" and "complacency" in two separate objectives		
BASIC HUMB 3.1.5 2.1.2	Explain the dangers of boredom.	2 2	
~~BASIC~~ ~~HUMB~~ ~~2.1.4~~ 2.1.4	~~Explain the dangers of fatigue.~~	2 ~~2~~	~~Sleep disturbance, heavy workload~~
	In the Basic training the "fatigue" and "stress" are combined in the single subtopic and in more details in the Rating training. .		
Subtopic	**HUMB 3.2 2.2 Safety culture and professional conduct**		
BASIC HUMB 3.2.1 3.2.1	Recognise professional conduct in the work place.	1 1	*Optional content: Professionalism, attitude, communication, teamwork*
	Introduction of "professional conduct" objective.		

BASIC HUMB 3.2.2 2.2.1	Describe ~~Characterise the role of~~ how the air traffic controller contributes to a ~~for~~ positive safety culture.	2 2	*Optional content: attitude towards safety, punctuality, rigour, adherence to rules and regulations, teamwork attitude, etc.*

A better wording and improved content.

BASIC HUMB 3.2.3 HUMB 3.2.3 HUM 3.3.1	Consider the factors which influence responsible behaviour.	2 2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*

Moved from Rating – more appropriate for Basic and this Topic/subtopic

~~BASIC~~ ~~HUMB~~ ~~2.2.2~~ 2.2.2	~~Describe the need for professional standards in ATC.~~	2 ~~2~~	~~*Optional content: adherence to rules and regulations, etc.*~~

Objective is deleted and content merged in the modified 3.2.1 above

~~BASIC~~ ~~HUMB~~ ~~2.2.3~~ 3.2.1 2.2.3	~~Appreciate the needed basic professional attitudes appropriate to a high level of safety.~~	3 3	~~*Optional content: punctuality, rigour, adherence to rules, teamwork attitude*~~

This objective is deleted and content merged in the modified 3.2.1 and 3.2.3 above

~~BASIC~~ ~~HUMB~~ ~~2.2.4~~ HUMUC 2.2.4	~~Describe the impact of responsibility on controllers' action(s).~~	2 ~~2~~	~~Responsibility as a guidance for appropriate action~~

This objective is deleted and proposed for clarification/move to later stages of ATCO training (Unit-Continuation-Development)

~~BASIC~~ ~~HUMB~~ ~~2.2.5~~ HUMUC 2.2.5	~~Recognise the different responsibilities of a controller.~~	1 ~~1~~	~~Prospective and retrospective responsibility, guilt and obligation, types of responsibility (moral, welfare, legal, task, role responsibility etc.)~~

This objective is deleted and proposed for clarification/move to later stages of ATCO training (Unit-Continuation-Development)

TOPIC HUMB 4 ~~3 HUMAN~~ ERROR

~~Subtopic HUMB 3.01 Dangers of error~~			
~~BASIC HUMB 3.1.1~~	~~Recognise the dangers of error in ATC.~~	1 ~~1~~	~~*Optional content: Air Traffic Control-Human Performance Factors, (Anne Isaac 1999), Human Factors in Air Traffic Control, (V. David Hopkin 1995)*~~
Some basic error objectives kept in the Basic and some (like this) covered at higher level (2) in the new Rating training "Threat and error management" topic.			
Subtopic	**HUMB 4.1 ~~3.2~~ Definition of ~~human~~ error**		
BASIC HUMB 4.1.1 3.2.1	Define ~~human~~ error.	1 1	
A better wording to remove the notion of "human" from the error (as recommended by HF experts)			
Subtopic	**HUMB 4.2 ~~3.3~~ Classification of ~~human~~ error**		
BASIC HUMB 4.2.1 3.3.1	List ~~State~~ the types of errors.	1 1	*Optional content: slips, lapses, mistakes*
A better wording by changing the action verb to more appropriate "list"			
BASIC HUMB 4.2.2 3.2.2	Describe ~~the~~factors ~~which~~ contributing to the occurrence of different types of ~~cause~~ errors and how these may be reduced.	2 2	Fatigue, lack of skill, misunderstanding, multitasking, lack of information, distraction, lack of work satisfaction
Improved wording.			
BASIC HUMB 4.2.3 3.3.2	Define violations.	1 1	
BASIC HUMB 4.2.4 3.3.3	Differentiate between errors and violations of rules and their consequences for the controller.	2 2	
Improved wording to link the consequences with the related errors.			
~~BASIC HUMB 3.3.4~~	~~Describe the three levels of performance according to the Rasmussen model.~~	2 ~~2~~	~~Skill based, knowledge based, rule based~~
The proposal to remove this objective accepted. Too demanding and unnecessary for student ATCOs to deal with this model.			

Subtopic HUMB 3.4 Risk analysis and risk management			
BASIC HUMB 3.4.1 HUMUC	Describe risk analysis and risk management of human systems and error.	2 2	Active failures and latent conditions *Optional content: Reason model, HFACS (Human Factors Analysis & Classification System) model, Heinrich Theory*
	Too demanding and unnecessary for student ATCOs to deal with the risk analyses in the Basic training. Treat and error Management covers needed content in the Rating training while Risk analyses and risk management may be subject of development training for ATCOs –Safety specialists.		
BASIC HUMB 3.4.2 HUMUC	Apply one risk analysis model on error during a case study.	3 3	
	As above.		

TOPIC HUMB 5 TEAMWORK

Subtopic HUMB 2.5 Basic needs of people at work			
BASIC HUMB 2.5.1 HUMUC 2.5.1	List basic needs of people at work.	1 1	*Optional content: balance between individual ability and workload, working time and rest periods; adequate physical working conditions, positive working environment*
	Unnecessary for student ATCOs to deal with the basic needs of people at work in Initial training. Possibly move to later stages of ATCO training (Unit-Continuation-Development)		
BASIC HUMB 2.5.2 HUMUC	Characterise the factors of work satisfaction.	2 2	*Optional content: money, achievement, recognition, advancement, challenge*
	Unnecessary for student ATCOs to deal with the factors of work satisfaction in Initial training. Possibly move to later stages of ATCO training (Unit-Continuation-Development)		
Subtopic HUMB 5.1 2.4 Teamwork and team roles			
BASIC HUMB 2.4.4 2.4.4	Describe leader style and group interaction.	2 2	
	Too demanding and unnecessary for student ATCOs to deal with the leader style in Initial training. This could be subject of development training for ATCOs –Supervisor/Management role etc.		

BASIC HUMB 5.1.1	Define teamwork.	1 1	

Introduction of the "teamwork" definition to support the content of the following objectives.

BASIC HUMB 5.1.2 2.4.1	Describe the differences between social human relations and professional interactions.	2 2	

BASIC HUMB 5.1.3	Explain the different types of teams in the ATC environment.	2 2	*Optional content: executive/planner, shift team, sector group or ATC unit team, team with pilots, team with adjacent ATC units*

Improved training content linked with the Teamwork.

BASIC HUMB 5.1.4 2.4.2	Recognise ~~Describe~~ the different types, roles and characters in a team.	1 1<-2	~~*Optional content: leader, follower*~~

Improved wording and reduced level of the action verb.

BASIC HUMB 5.1.5 2.4.3	Characterise ~~Appreciate~~ the principles of teamwork.	2 2<-3	*Optional content: team membership, team roles, group dynamics, advantages/disadvantages of teamwork, conflicts and their solutions*

Improved wording for corpus and content and reduced level of the action verb.

TOPIC HUMB 6 ~~4~~ COMMUNICATION

Subtopic HUMB 6.1 ~~4.1 Importance of good~~ Communications in ATC

~~BASIC HUMB 4.1.1~~	~~Appreciate the importance of good communications in ATC.~~	3 ~~3~~	

HUM subject restructured: this L3 objective replaced with the new L1 and L2 objectives that are more appropriate for Basic training. Modified wording for subtopic as well.

BASIC HUMB 6.1.1 4.2.1	Define communication.	1 1	

BASIC HUMB 6.1.2	List an ATCO’s communication partners.	1 1	
Introduction of the new "communication" related objective.			
BASIC HUMB 6.1.3 4.3.3	Explain ~~Apply~~ good communication practices.	2 2<3	Speaking and listening
The proposal to reduce the action verb level (3 to 2) accepted.			
BASIC HUMB 6.1.4	Differentiate between hearing and listening.	2 2	
Introduction of new objective to stress the importance of hearing and listening for good communication.			
~~BASIC~~ ~~HUMB~~ ~~4.2.2~~	~~Define the communication process~~.	1 ~~1~~	~~*Optional content: sender, encoder, transmitter, signal, interference, reception, decoder, receiver, feedback*~~
The subtopic and associated objective deleted . Content covered in 6.1.1 (communication definition) above			
Subtopic	**HUMB 6.2**	**Communication modes**	
BASIC HUMB 6.2.1 4.3.1	Describe the factors which affect verbal communication.	2 2	*Optional content: word choice, intonation, speed, tone, distortion, load, expectation, noise, interruption, language competence ~~knowledge (i.e. accent, dialect, vocabulary)~~*
Improved optional content			
BASIC HUMB 6.2.2 4.3.2	Describe the factors which affect non-verbal communication.	2 2	*Optional content: touch, choice, expectation, noise, interruption*
BASIC HUMB 6.2.3	Describe misunderstandings that may arise during a controller’s communication.	2 2	
Introduction of new objective on ATCO's communication misunderstandings			

TOPIC HUMB 5 THE WORK ENVIRONMENT

Subtopic	**HUMB 5.11**	**Ergonomics and the need for good design**	
BASIC HUMB 5.1.1	Define ergonomics.	1 1	
	Too demanding and unnecessary for ATCOs to deal with these ergonomic issues.		
BASIC HUMB 5.1.2	Recognise the need for good building design.	1 1	*Optional content: light, insulation, decor, space, facilities*
	Too demanding and unnecessary for ATCOs to deal with these ergonomic issues.		
BASIC HUMB 5.1.3	Explain the need for good work position design.	2 2	*Optional content: anthropometry (seating, work station design, input device, etc.)*
	Too demanding and unnecessary for ATCOs to deal with these ergonomic issues.		
Subtopic	**HUMB 5.2**	**Equipment and tools**	
BASIC HUMB 5.2.1	Characterise the equipment and tools that will be used in simulation in accordance with the SHELL model.	2 2	The physical environment, visual displays, suites, input devices, communications equipment, console profile and layout
	Too demanding and unnecessary for student ATCOs to deal with this model in Initial training.		
Subtopic	**HUMB 5.3**	**Automation**	
BASIC HUMB 5.3.1	Explain the reasons for automation.	2 2	
HUMUC HUMB 5.3.1	The proposal to move the human factors related issues of automation to later stages of ATCO training (Unit-Continuation) accepted. It will be easier for students to understand it in the operational environment when they will be regularly confronted with this topic.		
BASIC HUMB 5.3.2	Describe the advantages and constraints of automation.	2 2	
HUMUC HUMB 5.3.2	The proposal to move the human factors related issues of automation to later stages of ATCO training (Unit-Continuation) accepted. It will be easier for students to understand it in the operational environment when they will be regularly confronted with this topic.		

Subject 8 : EQUIPMENT AND SYSTEMS

~~The subject objective is:~~

~~Learners shall explain the basic working principles of equipment that is generally used in ATC and appreciate how this equipment aids the controller in providing safe and efficient ATS.~~

TOPIC EQPSB 1 ATC EQUIPMENT

Subtopic	EQPSB 1.1	Main types of ATC equipment		
BASIC EQPSB 1.1.1	Explain the relevance of ATC equipment.	2 2	CWP, communication equipment, ATS surveillance systems	

The proposal to to expend the relevance of this objective to ATS (not only ATC) not accepted. The Topic and subtopic scope is ATC.

TOPIC EQPSB 2 RADIO

Subtopic	EQPSB 2.1	Radio theory		
~~BASIC EQPSB 2.1.1~~	~~State the principles of radio waves.~~	1 1		

The proposal to merge two "Radio theory" objectives accepted - the principles considered to be part of the following L2 objective.

BASIC EQPSB 2.1.1 2.1.2	Describe the characteristics of radio waves.	2 2	Propagation, limitations	
BASIC EQPSB 2.1.2 2.1.3	State the use, characteristics and limitations of frequency bands.	1 1	Use in ATC, communication, navigation, and surveillance, use and application in the Aeronautical Mobile Service, ~~HF, VHF, UHF~~	

SUR added to mandatory content but frequency bands removed as already implied in the text of the objective.

BASIC EQPSB 2.1.3 2.1.4	State the different uses of radio wave spectrum.	1 1		

Subtopic	EQPSB 2.2	Direction finding		
BASIC EQPSB 2.2.1	State the principles and use of VDF/UDF.	1 1	VDF/UDF, QDM, QDR, QTE ~~QTF~~ *Optional content: precision of VDF/UDF used in the State system*

Deleted EQPS objective 2.2.2 merged in the optional content here as some States don't have the precision of VDF/UDFs in their State system.

~~BASIC EQPSB 2.2.2~~	~~State the precision of VDF/UDF used in the State system.~~	1 1	

The proposal to increase the level not accepted. Objective deleted and merged in the optional content of EQPSB 2.2.1 above as some States have no precision of VDF/UDFs system in place.

TOPIC EQPSB 3 COMMUNICATION EQUIPMENT

Subtopic	EQPSB 3.1	Radio communications		
BASIC EQPSB 3.1.1	State the use of the radio in ATC.	1 1	

The proposal to expend the relevance of this EQPSB objective to ATS (not only ATC) not accepted.

BASIC EQPSB 3.1.2	Describe the working principles of a transmitting and receiving system.	2 2	
BASIC EQPSB 3.1.3	Explain the effect of antenna shadowing on RTF communications.	2 2	

Subtopic	EQPSB 3.2	Voice communication between ATS units/positions and others		
BASIC EQPSB 3.2.1	Describe the use of other voice communications. ~~in ATC~~	2 2	*Optional content: telephone, interphone, intercom*

The proposal to expend the relevance of this EQPSB objective to ATS (not only ATC) accepted - the subtopic, that already contains ATS, modified and ATC removed in the objective.

Subtopic	EQPSB 3.3	Data link communications		
BASIC EQPSB 3.3.1	Explain the use and benefits of Controller Pilot Datalink Communications (CPDLC).	2 2	

BASIC EQPSB 3.3.2	Explain the use and benefits of Aircraft Communications Addressing and Reporting System (ACARS).	2 2	

3.3.2
3.4.2

The proposal to move this objective to Data link accepted. ACARS belongs more to Data link than just Airline communications.

Subtopic	**EQPSB 3.4**	**Airline communications**	
BASIC EQPSB 3.4.1	State the use of SELCAL.	1 1	

TOPIC EQPSB 4 INTRODUCTION TO SURVEILLANCE

Subtopic	**EQPSB 4.1**	**Surveillance concept in ATS**	
BASIC EQPSB 4.1.1	Describe the concept of surveillance for the provision of ATS.	2 2	

TOPIC EQPSB 5 RADAR

Subtopic	**EQPSB 5.1**	**Principles of radar**	
BASIC EQPSB 5.1.1	State the principles of radar.	1 1	
BASIC EQPSB 5.1.2	Recognise the characteristics of radar wavelengths.	1 1	
BASIC EQPSB 5.1.3	Recognise the use, characteristics and limitations of different radar types.	1 1	*Optional content: frequency bands, long and short-range radar, weather radar, high-resolution radar*

Subtopic	**EQPSB 5.2**	**Primary radar**	
BASIC EQPSB 5.2.1	Explain the working principles of PSR.	2 2	

Subtopic	EQPSB 5.3	Secondary radar		
BASIC EQPSB 5.3.1	Explain the working principles of SSR.	2 2	Mode A, Mode C, Mode S	
The proposal to merge/remove the whole Mode S subtopic and integrate the content in the objective 5.3.1 of Secondary radar subtopic 5.3 accepted.				
BASIC EQPSB 5.3.2	Explain SSR code management.	2 2	Discrete, non-discrete codes, special codes	
BASIC EQPSB 5.3.3	Explain the effect of antenna shadowing on SSR operation.	2 2		
Subtopic	**EQPSB 5.4**	**Use of radars**		
BASIC EQPSB 5.4.1	Explain the use of PSR/SSR in area, approach and aerodrome control. ~~ATC.~~	2 2	Mode A, Mode C , Mode S, SMR ~~Area, approach, aerodrome, surface movement radar, DFTI~~ *Optional content: DFTI*	
Objective modified to integrate the content and make it more explicit.				
BASIC EQPSB 5.4.2	Explain the advantages and disadvantages of PSR/SSR.	2 2		
~~**Subtopic**~~	~~**EQPSB 5.5**~~	~~**Mode S**~~		
~~BASIC EQPSB 5.5.1~~ 5.3.1	~~Explain the principles of Mode S.~~	2 ~~2~~		
The proposal to merge/remove the whole Mode S subtopic and integrate the content in the objective 5.3.1 of Secondary radar subtopic 5.3 accepted.				
~~BASIC EQPSB 5.5.2~~	~~Explain the use of Mode S in ATC systems.~~	2 ~~2~~		
The proposal to merge/remove the whole Mode S subtopic and integrate the content in the objective 5.4.1 of Secondary radar subtopic 5.4 accepted.				

TOPIC EQPSB 6 AUTOMATIC DEPENDENT SURVEILLANCE

Subtopic	**EQPSB 6.1**	**Principles of automatic dependent surveillance**		
BASIC EQPSB 6.1.1	State the different applications of ADS.	1 1	ADS-B, ADS-C	
BASIC EQPSB 6.1.2	Explain the working principles of ADS.	2 2		
Subtopic	**EQPSB 6.2**	**Use of automatic dependent surveillance**		
BASIC EQPSB 6.2.1	Describe the use of ADS in ATC.	2 2	Area, approach, aerodrome, ICAO Doc 4444	
BASIC EQPSB 6.2.2	Explain the limitations of ADS.	2 2	Dependency on GNSS, dependency on airborne equipment	

TOPIC EQPSB 7 MULTILATERATION

Subtopic	**EQPSB 7.1**	**Principles of multilateration**		
BASIC EQPSB 7.1.1	State the different applications of MLAT.	1 1	*Optional content: ATC, environmental management, airport operations, LAM, WAM*	
BASIC EQPSB 7.1.2	Explain the working principles of MLAT.	2 2	*Optional content: passive and active MLAT*	
Subtopic	**EQPSB 7.2**	**Use of multilateration**		
BASIC EQPSB 7.2.1	Describe the use of MLAT in ATC.	2 2	Area, approach, aerodrome	
BASIC EQPSB 7.2.2	Explain the limitations of MLAT.	2 2	Dependency on airborne equipment	

TOPIC EQPSB 8 ~~SURVEILLANCE~~ DATA PROCESSING

Subtopic	EQPSB 8.1	Surveillance data networking		
BASIC EQPSB 8.1.1	Explain the advantages and disadvantages of different surveillance technologies.	2 2	Data quality, coverage, refresh rate, reliability, redundancy, cost-effectiveness	
BASIC EQPSB 8.1.2	Describe the implementation of Surveillance Data Networks.	2 2	*Optional content: different technologies/sensors, network*	

Subtopic	EQPSB 8.2	Working principles of surveillance data networking		
BASIC EQPSB 8.2.1	State ~~Explain~~ the working principles of surveillance data processing.	1 1<-~~2~~	~~Track fusion process,~~ Surveillance information presented on CWP	

More appropriate action verb and modified content. + The topic name modified to include data processing in general and not only surveillance.

BASIC EQPSB 8.2.2	State other use of processed surveillance data.	1 1	*Optional content: safety nets, airport operations, environmental management*	

Subtopic	EQPSB 8.3	Flight data processing		
BASIC EQPSB 8.3.1 8.3.1	Explain the FDPS core functions.	2 2	*Optional content: System flight plan, data input, SSR code management, coordination, correlation/decorrelation etc.*	

The proposal to introduce new FDPS subtopic and associated objective in EQPSB accepted - missing in the training content before!

TOPIC EQPSB 9 FUTURE EQUIPMENT

Subtopic	EQPSB 9.1	New developments		
BASIC EQPSB 9.1.1	State the developments in the equipment field for introduction in the near future.	1 1		

The proposal to delete this objective or introduce explicit content not accepted - could limit the implementation of a simple L1 objective in this fast changing ATM world.

TOPIC EQPSB 10 AUTOMATION IN ATS

Subtopic	EQPSB 10.1	Principles of automation		
BASIC EQPSB 10.1.1	Describe the principles of automation in communication and datalinks in ATS.	2	2	

The proposal to add the "dissemination of data" in this topic and associated objective not accepted. Not the right place to introduce suggested "dissemination of data" in ATS.

Subtopic	EQPSB 10.2	Aeronautical fixed telecommunication network (AFTN)		
BASIC EQPSB 10.2.1	Describe the principles of AFTN.	2	2	

Subtopic	EQPSB 10.3	On-line data interchange		
BASIC EQPSB 10.3.1	Describe the benefits of automatic exchange of ATS data in coordination and transfer processes.	2	2	Accuracy, speed and safety, non-verbal communications

The proposal to add new objective on automated co-ordination of flight data in the new EQPS DATA PROCESSING subtopic not accepted - already well covered in this objective and newly introduced FEPs core functions objective.

BASIC EQPSB 10.3.2	Describe the limitations of automatic exchange of ATS data in coordination.	2	2	Non-recognition of a systems failure

Subtopic	EQPSB 10.4	Systems used for the automatic dissemination of information		
BASIC EQPSB 10.4.1	State the working principles of broadcasting systems.	1	1	*Optional content: ATIS, VOLMET*
BASIC EQPSB 10.4.2	Explain the use of ATIS and VOLMET in ATS.	2	2	Regulation (EU) No 923/2012, ICAO Annex 3

TOPIC EQPSB 11 WORKING POSITIONS

Subtopic	EQPSB 11.1	Working position equipment		
BASIC EQPSB 11.1.1	Recognise equipment in a working position.	1 1	*Optional content: FPB, radio, telephone and other communication equipment, relevant maps and charts, strip printer, teleprinter, clock, information monitors, situation displays*

The proposal to make some content mandatory not accepted - In the basic training making some examples mandatory could be demanding both for the students and TOs but also limit the focus on mandatory content only.

Subtopic	EQPSB 11.2	Aerodrome control		
BASIC EQPSB 11.2.1	Recognise equipment to be found specifically in a TWR.	1 1	*Optional content: wind indicator, aerodrome traffic monitor, SMR, crash alarm, signalling lamp, lighting control panel, runway-in-use indicator, binoculars, signalling/flare gun, IRVR and altimeter setting indicators, local information systems*

Subtopic	EQPSB 11.3	Approach control		
BASIC EQPSB 11.3.1	Recognise equipment to be found specifically in an APP.	1 1	*Optional content: sequencing system, PAR, RVR indicators*

Subtopic	EQPSB 11.4	Area control		
BASIC EQPSB 11.4.1	Recognise equipment to be found specifically in an ACC.	1 1	

Subject 9 : PROFESSIONAL ENVIRONMENT

~~The subject objective is:~~

~~Learners shall recognise the need for close cooperation with other parties concerning ATM operations and aspects of environmental protection.~~

TOPIC PENB 1 FAMILIARISATION

Subtopic	PENB 1.1	ATS and aerodrome facilities		
BASIC PENB 1.1.1	Recognise civil and military ATS facilities.	1	1	*Optional content: TWR, APP, ACC, AIS, RCC, Air Defence Unit*
BASIC PENB 1.1.2	Recognise airport facilities and local operators.	1	1	*Optional content: firefighting and emergency services, airline operations*

TOPIC PENB 2 AIRSPACE USERS

Subtopic	PENB 2.1	Civil aviation		
BASIC PENB 2.1.1	Describe airspace usage by civil aircraft.	2	2	*Optional content: commercial flying, recreational flying, RPAS, gliders, balloons, calibration flights, aerial photography, skydiving*

Subtopic	PENB 2.2	Military aviation		
BASIC PENB 2.2.1	Describe airspace usage by ~~the~~ military aircraft.	2	2	Airspace reservations, training, interception, in-flight refuelling, RPAS *Optional content: low-level flying, test flights, special military operations*

Editorial correction for subtopic and associated objective - alignment with the civil aviation objective.

Subtopic	PENB 2.3	Expectations and requirements of pilots		
BASIC PENB 2.3.1	Recognise the expectations and requirements of pilots.	1	1	

The proposal to merge all PEN objectives in Basic training and remove it from appropriate ratings (after long discussion) not accepted.

BASIC PENB 2.3.2	State the use of standard operating procedures (SOPs) by aircraft operators.	1 1	

The proposal to merge all PEN objectives in Basic training and remove it from appropriate ratings not accepted.

TOPIC PENB 3 CUSTOMER RELATIONS

Subtopic	PENB 3.1	~~Customer relations~~ ATS as a service provider	
BASIC PENB 3.1.1	State the role of ATS ~~ATC~~ as a service provider.	1 1	*Optional content: Skybrary - Air Traffic Service*

Improved wording both for the subtopic title and associated objective to broaden the scope from ATC only to all ATS. The proposal to add the reference to Regulation (EU) 2017/373 not accepted (there are many requirements for ATS providers there but for this L1 objective referring to all of them would be too demanding. Therefore, the more generic overview from the *Skybrary* has been suggested in the optional content.

BASIC PENB 3.1.2	Recognise the means by which ATS providers are ~~ATC is~~ funded.	1 1	

Improved wording both for the subtopic tile and associated objective to broaden the scope from ATC only to all ATS.

TOPIC PENB 4 ENVIRONMENTAL PROTECTION

Subtopic	PENB 4.1	Environmental protection	
BASIC PENB 4.1.1	Describe the impact aviation has on the environment.	2 2	Noise, air quality, climate change, third-party risks
BASIC PENB 4.1.2	Explain the role of ATS ~~ATC~~ in the concept of sustainable development.	2 2	*Optional content: ICAO Annex 16*

Improved wording of this objective to broaden the scope from ATC only to all ATS.

BASIC PENB 4.1.3	State how the impact of aviation ~~has~~ on the environment can be ~~to measure, monitore and~~ mitigated by ANSPs.	1 1	*Optional content: EU ETS, SES initiative, EUROCONTROL role, continuous descent operations (CDO), continuous climb operations (CCO), collaborative environmental management (CEM), noise-abatement procedures*

Improved wording to focus on what ANSP is doing with respect to environmental protection rather than measuring and monitoring process.