AUTORITATEA AERONAUTICĂ CIVILĂ

A REPUBLICII MOLDOVA

AMC la CT-ATCO

MIJLOACE ACCEPTABILE

de punere în CONFORMITATE (AMC)

la

Cerințele tehnice referitoare la eliberarea certificatelor controlorilor de trafic aerian

Ediția 01/ noiembrie 2019

REPUBLICA MOLDOVA
MINISTERUL ECONOMIEI
ŞI INFRASTRUCTURII

РЕСПУБЛИКА МОЛДОВА
МИНИСТЕРСТВО ЭКОНОМИКИ
И ИНФРАСТРУКТУРЫ

O R D I N
cu privire la aprobarea mijloacelor acceptabile de punere în conformitate cu Cerinţele tehnice referitoare la eliberarea certificatelor controlorilor de trafic aerian

nr. 59/GEN din 05.11.2019

Monitorul Oficial nr.338-343/1893 din 15.11.2019

* * *

În temeiul art.7 alin.(3) subpct.1) lit.d) din Codul aerian al Republicii Moldova nr.301/2017 şi punctului 10 subpct.1) lit.d) din Hotărârea Guvernului Republicii Moldova nr.133/2019 cu privire la organizarea şi funcţionarea Autorităţii Aeronautice Civile, întru executarea atribuţiilor ce îi revin Autorităţii Aeronautice Civile în calitate de autoritate administrativă de certificare, supraveghere şi control în domeniul aviaţiei civile şi în scopul asigurării implementării Cerinţelor tehnice referitoare la eliberarea certificatelor controlorilor de trafic aerian,

ORDON:

1. Se aprobă ediţia 01 a mijloacelor acceptabile de punere în conformitate cu Cerinţele tehnice referitoare la eliberarea certificatelor controlorilor de trafic aerian, conform Anexei la prezentul ordin.

2. Autoritatea Aeronautică Civilă va pune la dispoziţia tuturor persoanelor interesate Anexa la prezentul ordin prin publicarea pe pagina web oficială www.caa.md, la compartimentul ”Cadrul normativ/AMC”.

3. Prezentul ordin intră în vigoare la data publicării în Monitorul Oficial al Republicii Moldova.

DIRECTORUL INTERIMAR
AL AUTORITĂŢII AERONAUTICE CIVILE Alexandr FITI

Nr.59/GEN. Chişinău, 5 noiembrie 2019.

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AMC1 ATCO.B.001(d) Student air traffic controller licence

ASSESSMENT OF PREVIOUS COMPETENCE

When establishing previous competence in a rating, the assessment should be based on the requirements set out in Part ATCO, Subpart D, Section 2.

AMC1 ATCO.B.010(b) Air traffic controller ratings

ASSESSMENT OF PREVIOUS COMPETENCE

When establishing previous competence in a rating, the assessment should be based on the requirements set out in Part ATCO, Subpart D, Section 2.

AMC1 ATCO.B.020(a) Unit endorsements

GENERAL

When aerodrome control service is provided from a remote location, each aerodrome should constitute its own unit endorsement.

AMC1 ATCO.B.020(e) Unit endorsements

VALIDITY OF THE UNIT ENDORSEMENT

When establishing the validity of a unit endorsement, the specificities of the unit and seasonal variations should be taken into account. Appropriate means should be in place to monitor the competence of the air traffic controllers. The means should be proportionate to the validity time. If the proposed validity time of the unit endorsement exceeds 12 months, additional means should be in place to monitor and ensure the continuous competence of the air traffic controllers. If the ATC unit is proposing to increase the validity time of the unit endorsement, a safety assessment should be conducted. The safety assessment may cover several units.

AMC1 ATCO.B.020(g)(3) Unit endorsements

PRACTICAL SKILLS ASSESSMENT FOR REVALIDATION OF EACH UNIT ENDORSEMENT

a) If the assessment of practical skills is taking the form of a dedicated assessment consisting of a single assessment or a series of assessments, the last assessment declaring the licence holder competent should take place within the three-month period immediately preceding the unit endorsement expiry date.
b) If the assessment of practical skills is taking the form of a continuous assessment by which the air traffic controller's competence is assessed along a defined period of time, the formal conclusion on declaring the licence holder competent should take place within the three-month period immediately preceding the unit endorsement expiry date.

AMC1 ATCO.B.025(a)(5);(6) Unit competence scheme

PROCESSES FOR ASSESSING COMPETENCE AND EXAMINING THEORETICAL KNOWLEGDE AND UNDERSTANDING

a) The practical performance and skills should be assessed in live traffic situations.
b) Theoretical competence should be examined to ascertain the knowledge and understanding of air traffic controllers.
c) Subjects taught during refresher training such as standard practices and procedures, abnormal and emergency situations and human factors should be assessed on STD or in other simulated environments and/or examined.

AMC1 ATCO.B.035(a)(3)(i) Validity of language proficiency endorsement

VALIDITY OF THE LANGUAGE ENDORSEMENT OF PROFICIENCY LEVEL 6 IN ENGLISH LANGUAGE

When replacing the licences according to Chapter VII (16) of the Government decision no.134/2019 on approval of the Regulation laying down technical and administrative procedures related to ATCO licences the validity period for the expert level (level six) language proficiency endorsements shall be introduced into the new licence. The nine-year validity period for an expert level (level six) language proficiency endorsement in English should be counted from the date of the issue of the new licence or from the date of the assessment.

AMC1 ATCO.B.040 Assessment of language proficiency

GENERAL

a) The language proficiency assessment should be designed to reflect the tasks undertaken by air traffic controllers, but with specific focus on language rather than operational procedures and knowledge.
b) The assessment should determine the applicant's ability to communicate effectively using visual and non-visual communication in both routine and non-routine situations.

AMC2 ATCO.B.040 Assessment of language proficiency

ASSESSMENT

a) The assessment should comprise the following three elements:
   (1) listening — assessment of comprehension;
   (2) speaking — assessment of pronunciation, fluency, structure and vocabulary;
   (3) interaction.
b) The switch between phraseology and plain language should be assessed for listening and speaking proficiency.
c) When the assessment is not conducted in a face-to-face situation, it should use appropriate technologies for the assessment of the applicant's abilities in listening and speaking, and for enabling interactions.
d) In case of revalidation of the language proficiency endorsement, the assessment may be conducted during training activities or on operational position, with prior notification to the air traffic controller to be assessed.
e) Irrespective of the way the assessment is organised, the requirements listed in (a) and (b) as well as the relevant provisions for language proficiency assessors should be met.

AMC3 ATCO.B.040 Assessment of language proficiency

LANGUAGE PROFICIENCY ASSESSORS

a) Persons responsible for language proficiency assessment should be suitably trained and qualified.
b) Language proficiency assessors should undergo regular refresher training on language assessment skills.
c) Language proficiency assessors should not conduct language proficiency assessments whenever their objectivity may be affected.

AMC4 ATCO.B.040 Assessment of language proficiency

CRITERIA FOR THE ACCEPTABILITY OF LANGUAGE ASSESSMENT BODIES

a) A language assessment body should provide clear information about its organisation and its relationships with other organisations.
b) If a language assessment body is also an air traffic controller training organisation, there should be a clear and documented separation between the two activities.
c) The language assessment body should employ a sufficient number of qualified interlocutors and language proficiency assessors to administer the required tests.
d) The assessment documentation should include at least the following:
   (1) assessment objectives;

(2) assessment layout, timescale, technologies used, assessment samples, voice samples;
(3) assessment criteria and standards (at least for the operational, extended and expert levels of the rating scale in Appendix 1 to CT-ATCO
(4) documentation demonstrating the assessment validity, relevance and reliability for the operational and extended levels;
(5) documentation demonstrating the assessment validity, relevance and reliability for the expert level;
(6) procedures to ensure that language assessments are standardised within the language assessment body and in the ATC community;
(7) assessment procedures and responsibilities, such as:
- preparation of individual assessment;
- administration: location(s), identity check and invigilation, assessment discipline, confidentiality/security;
- reporting and documentation provided to the competent authority and/or to the applicant, including sample certificate; and
- retention of documents and records.

(8) The assessment documentation and records should be kept for a period of time determined by the competent authority and made available to the competent authority upon request

AMC1 ATCO.B.045 Language training

a) Language training should contain communication in a job-related context particularly to handle abnormal and emergency situations and conduct non-routine coordination with colleagues, crews and technical staff.
b) Emphasis should be placed on listening comprehension, speaking interaction and vocabulary building.

AMC1 ATCO.C.001(b)(2) Theoretical instructors

INSTRUCTIONAL SKILLS FOR THEORETICAL INSTRUCTORS

A satisfactory demonstration of instructional skills for theoretical instructors should establish competence at least in the following areas:

a) lesson objectives are defined and communicated;
b) subject questions are fully answered;
c) visual aids are used appropriately;
d) language is unambiguous;
e) the lesson is correctly summarised; and
f) lesson objectives are fulfilled.

AMC1 ATCO.C.025(a) Temporary OJTI authorisation

SAFETY ANALYSIS

The safety analysis should specify the reasons for which the relevant unit endorsement requirement provided for in ATCO.C.010(b)(2) cannot be met and how the equivalent level of safety will be ensured by other means.

AMC1 ATCO.C.045(c)(2) Assessor privileges

DEMONSTRATION OF KNOWLEDGE OF CURRENT OPERATIONAL PRACTICES

The demonstration of knowledge of current operational practices may be achieved by establishing familiarity with current environment and operational procedures.

AMC1 ATCO.C.065(d) Temporary assessor authorisation

SAFETY ANALYSIS

The safety analysis should specify the reasons for which the relevant unit endorsement requirement provided for in ATCO.C.045(d)(1) cannot be met and how the equivalent level of safety will be ensured by other means. For the purpose of ensuring the independence of the assessment for reasons of recurrent nature, the safety analysis performed could encompass the recurrent nature of the need to ensure the independence of the assessments from the training process and provide a basis for the issue of multiple temporary authorisations based on the same reason.

AMC1 ATCO.D.005(a)(2) Types of air traffic controller training

UNIT TRAINING

Unit training should be undertaken by holders of student air traffic controllers licence or holders of air traffic controllers licence, as appropriate, for:

a) the issue of an air traffic controller licence with a unit endorsement;
b) the addition of a unit endorsement in an air traffic controller licence;
c) the validation of a rating and rating endorsement, if applicable, in an existing licence;
d) the addition of rating endorsement in an existing licence; and (e) the renewal of an expired, suspended or revoked unit endorsement, where applicable.

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

GENERAL

1. Structure of the basic and rating training syllabi

(a) The basic and rating training syllabi have been structured as follows:
  (1) The syllabus is divided into subjects, which are divided into topics that are in turn divided into subtopics. This structure serves the definition and classification of the objectives. There can be one or several objectives linked to each subtopic.
  (2) Objectives are assigned to a specific subject which deals with the knowledge and skills needed to accomplish the related subject objective.
  (3) Subjects, topics and subtopics are contained in Appendices 2 to 8 to CT-ATCO, and are repeated in:

- AMC1 ATCO.D.010(a)(1) Composition of initial training — BASIC TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES;
- AMC1 ATCO.D.010(a)(2)(i) Composition of initial training — AERODROME CONTROL VISUAL RATING (ADV) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES;
- AMC1 ATCO.D.010(a)(2)(ii) Composition of initial training — AERODROME CONTROL INSTRUMENT RATING FOR TOWER ADI (TWR) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES;
- AMC1 ATCO.D.010(a)(2)(iii) Composition of initial training — APPROACH CONTROL PROCEDURAL RATING (APP) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES;
- AMC1 ATCO.D.010(a)(2)(iv) Composition of initial training — AREA CONTROL PROCEDURAL RATING (ACP) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES;
- AMC1 ATCO.D.010(a)(2)(v) Composition of initial training — APPROACH CONTROL SURVEILLANCE RATING (APS) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(vi) Composition of initial training — AREA CONTROL SURVEILLANCE RATING (ACS) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

in order to provide the reader with a comprehensive and unique reference document for the basic and each of the rating trainings. Subject objectives and training objectives are included in and form an integral part of each of the aforementioned AMCs.

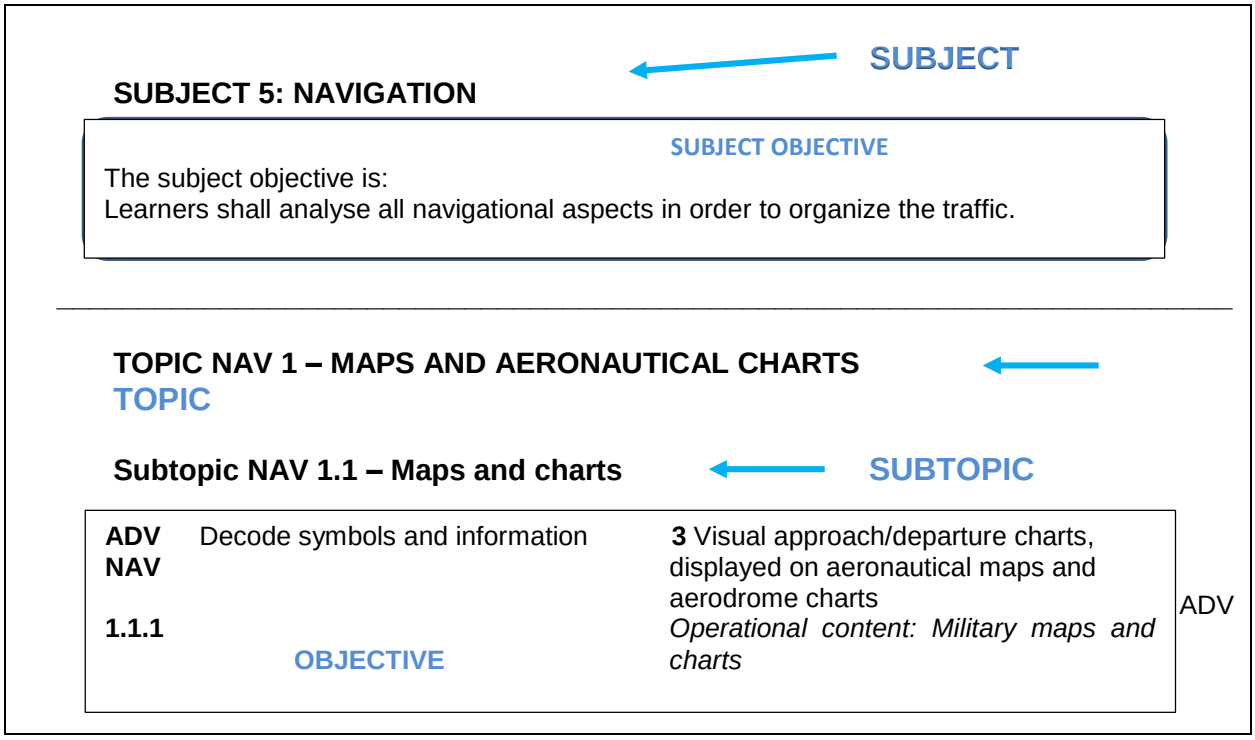

Figure 1 Layout of syllabus

(a) The following principles may be applied to the development of a training course that is based on any of the syllabi:
  (1) The structure of the syllabi and the order of the objectives contained therein is neither intended to convey a pedagogical sequence nor to indicate a relative level of importance.
  (2) No objective from the basic training syllabus is repeated as 'a refresher' in the rating training syllabi.
  (3) The number of objectives contained within a subtopic does not necessarily signify how long it should take to teach that subtopic. For example, a subtopic containing five relatively straightforward objectives, may take a shorter time to be taught than another subtopic containing two complex objectives.

2. Structure of objectives

(a) An objective consists of three elements:
  (1) The corpus, which is a description of the required performance. It always contains an action verb to ensure that the outcome is observable. The action verb is always associated with a defined taxonomy.
  (2) The level, which indicates numerically the taxonomy of the action verb.
  (3) The content, which may be implicit or explicit. The explicit content is written in the content field, while the implicit content is not but, instead, is implied in the corpus of the objective and other elements (syllabus, subject, etc.). Content that is a required part of the objective is written in the red shaded field. Optional content, written in italics, may be used if considered appropriate.

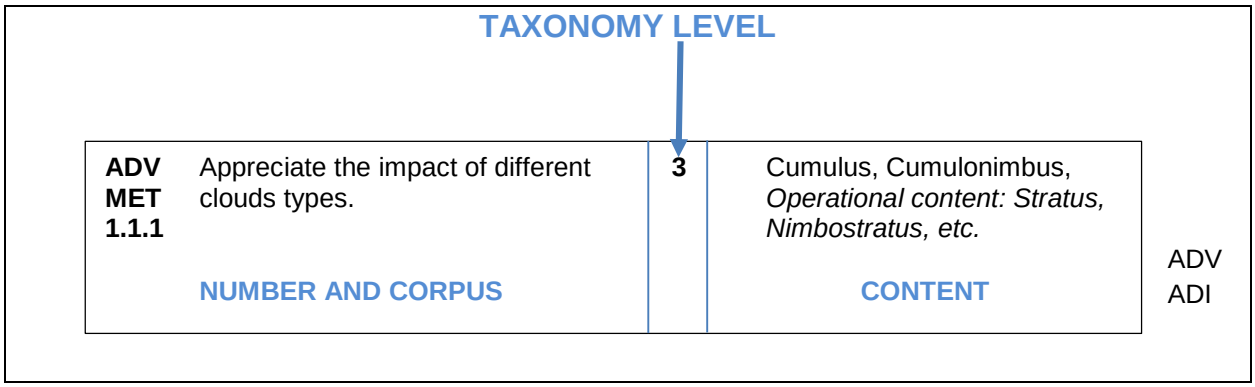

Figure 2 Layout of an objective

3. Repeated and common objectives

(a) Repeated and common objectives are only applicable to rating training.

(b) To the right of each objective, there is an indication of which other ratings contain this particular objective. If the rating is indicated in red italics, it notifies the reader that the objective(s) is (are) verbatim in each rating; however, the objective numbers are different. This indication is the first step to help the training providers in identifying the potential commonalities between the various syllabi. As a second step, the training provider must determine, at the level of local implementation, whether the objective is to be regarded as repeated or common.

Subtopic ATM 1.2 – Flight information service (FIS)				
ADV ATM 1.2.1	Describe the information that shall be passed to aircraft by an aerodrome controller.	2	ICAO Doc 4444	ADV ADI
ADV ATM 1.2.2	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ADV ATM 1.2.3	Issue appropriate information	3	ICAO Doc 4444 essential local traffic, traffic information	ADV ADI
ADV ATM 1.2.4	Appreciate the use of ATIS for the provision of flight information service by aerodrome controller.	3		ADV ADI

Figure 3: Indication of the rating that particular objective applies to

3.1 Repeated objectives

All the objectives appearing in a syllabus are implicitly appropriate to this syllabus. As a consequence, objectives may be repeated ‘verbatim’ in different rating syllabi and nevertheless specify a different performance. The reader always needs to mentally add the sentence ‘in this syllabus context’ at the end of each objective.

For example, the objective ‘use approved phraseology’ is repeated (same level, same corpus, same content) in all the syllabi but is different because the context is different in each syllabus (a

learner able to use approved phraseology for en-route traffic will need additional training before mastering the phraseology in the provision of aerodrome control).

3.2 Common objectives

(a) Common objectives are verbatim the same objectives that appear in more than one rating syllabi in the same context so that they do not need to be taught again in case of combined or successively organised courses. For example, the objective 'describe the human information processing model' is common for all the syllabi because the context is non-specific and is, therefore, not determined by the type of rating.

(b) As a general principle, the rating subject Human Factors is identical in each of the rating training syllabi and can be considered as containing common objectives because the context is always the same. This means that the rating training objectives relating to Human Factors need to be taught only once. If a learner is acquiring an additional rating, he/she would not be required to repeat the Human Factors objectives.

4. Action verbs that support the taxonomy for training objectives

(a) The five taxonomy levels should be understood to have the following levels of complexity:

(1) Action verbs for Level 1

Level 1 — A basic knowledge of the subject. It is the ability to remember essential points, to memorise data and retrieve it.

L1 Verb	Definition	Example
Define	State what it is and what its limits are; state the definition.	Define ATC service.
Draw	Produce a picture, pattern or diagram.	Draw the block diagram. Draw a holding pattern.
List	Say one after the other.	List the main structure components of an aircraft
Name	Give name of objects or procedures.	Name the components of an ILS. Name the key national and international aviation organisations.
Quote	Repeat what is written or said.	Quote ICAO definition of ATC service.
Recognise	To know what it is because you've seen it before	Recognise the information contained in the different parts of the AIP.
State	Say or write in a formal or definite way.	State the meteorological hazards to aviation.

(2) Action verbs for Level 2

Level 2 — The ability to understand and to discuss the subject matter intelligently in order to represent and act upon certain objects and events

L2 Verb	Definition	Example
Characterise	To describe the quality of features in something.	Characterise the main items of ATC equipment.
Consider	To think carefully about it.	Consider the benefits of Critical Incident Stress Management (CISM).
Demonstrate	Describe and explain; logically or mathematically prove the truth of a statement.	Demonstrate the importance of good communications in ATC.
Describe	Say what it is like or what happened.	Describe the methods by which ICAO notifies and implements legislation.
Differentiate	Show the differences between things.	Differentiate between different types of visibility.
Explain	Give details about something or describe so that it can be understood.	Explain the purpose and function of ICAO.

Take account of	Take into consideration before deciding.	Take account of the wind ATCO rules, AMC and GM Initial Training influence when calculating a ground speed. Take account of the limitations of equipment and systems.

(3) Action verbs for Level 3

Level 3 — A thorough knowledge of the subject and the ability to apply it with accuracy. The ability to make use of the repertoire of knowledge to develop plans and activate them.

L3 Verb	Definition	Example
Act	Carry out, execute.	Act to reduce stress.
Apply	Use something in a situation or activity.	Apply separation.
Appreciate	To understand a situation and know what is involved in a problem-solving situation, to state a plan without applying it.	Appreciate the necessity for coordination (The learner says that the coordination will be done and with whom, he/she does not perform the actual coordination).
Assist	Help somebody to do a job by doing part of it.	Assist the pilot.
Calculate	To discover from information you already have by arithmetic; to think about a possible cause of action in order to form an opinion or decide what to do.	Calculate appropriate levels. Calculate conversions between the three north designations.
Check	Make sure the information is correct (satisfactory).	Check the accuracy of flight data information. Check availability of information material.
Choose	Select out of number, decide to do one thing rather than another.	Choose appropriate levels. Choose which aircraft should be vectored.
Collect	Assemble, accumulate, bring or come together.	Collect examples of different types of error, their causes and consequences in ATC.
Conduct	Organise and carry out.	Conduct coordination
Confirm	Establish more firmly, corroborate.	Confirm sequence order.
Decode	Turn into ordinary writing, decipher.	Decode the content of weather reports and forecast.
Encode	Put into code or cipher.	Encode and decode flight plans (including supplementary information).
Estimate	Form an approximate judgment of a number, form an opinion.	Estimate distance and direction between two points.
Execute	Perform action.	Execute corrective actions.
Extract	Copy out, make extracts from, find, deduce.	Extract pertinent data from relevant sources to produce a flight progress display.
Identify	Associate oneself inseparably with, establish the identity.	Identify the role of ATC as a service provider and the requirements of the ATS users. Identify an aircraft.
Inform	Tell, give facts or information.	Inform supervisor of situation

Initiate	Begin, set going, originate.	Initiate appropriate coordination.
Input	Enter in the system.	Input data.
Issue	Send forth, publish.	Issue appropriate ATC clearances. Issue appropriate traffic information.
Maintain	Cause or enable to continue.	Maintain flight data display
Measure	Ascertain extent or quality of (thing) by comparison with fixed unit or with object of known size.	Measure distance on a map.
Monitor	Keep under observation.	Monitor traffic. Monitor the effect of human information processing factors on decision-making.
Notify	Make known, announce, report.	Notify runway in use.
Obtain	Acquire easily without research.	Obtain meteorological information. Obtain information from the relieving controller.
Operate	Conduct work on equipment.	Operate the equipment of the controller working position.
Pass	Move, cause to go, transmit.	Pass essential traffic information without delay.
Perform	Carry into effect, go through, execute.	Perform communication effectively.
Process	To put through the steps of a prescribed procedure.	Process pertinent data on data displays.
Record	Register, set down for remembrance or reference.	Record information by writing effectively.
Relay	Receive and pass on, broadcast.	Relay meteorological information from pilot reports
Respond	Provide an answer, perform answering or corresponding action.	Respond to loss/doubt concerning identification. Respond to distress and urgency messages and signals.
Scan	Continuously observe rapidly, sequentially and selectively in order to extract relevant data.	Scan data display.
Transfer	Hand over.	Transfer information to the relieving controller.
Update	Refresh, bring up to date.	Update the data display to accurately reflect the traffic situation.
Use	Employ for a purpose, handle as instrument, put into operation.	Use approved phraseology. Use the available means for coordination.
Verify	Establish truth of.	Verify the mode C information

(4) Action verbs for Level 4

Level 4 — Ability to establish a line of action within a unit of known applications following the correct chronology and the adequate method to resolve a problematic situation. This involves the integration of known applications in a familiar situation.

L4 Verb	Definition	Example
Acquire	Gain by oneself and for oneself, obtain after research.	Acquire relevant aeronautical information.

Adjust	Change to a new position, value or setting.	Adjust the surveillance system display.
Allocate	Assign, devote.	Allocate levels (height, altitude, flight level) according to altimetry data.
Analyse	Examine minutely the constitution of.	Analyse examples of pilot and controller communication for effectiveness. Analyse the information provided by the radar equipment.
Assign	Designate or set an element.	Assign codes.
Coordinate	Negotiate with others in order to work together effectively.	Coordinate runway in use. Coordinate in the provision of FIS.
Comply	Act in accordance with.	Comply with rules.
Delegate	Commit authority to somebody.	Delegate separation to pilots in the case of aircraft executing successive visual approaches.
Detect	Discover existence of.	Detect potential conflict
Ensure	Make safe, make certain.	Ensure the agreed course of action is carried out.
Expedite	Assist the progress of, do speedily.	Expedite traffic.
Integrate	Combine into a whole, complete by addition of parts.	Integrate appropriate ATC clearances in control service.
Manage	Handle, conduct, maintain control over something, be in charge of.	Manage traffic on the maneuvering area. Manage traffic in accordance with procedural changes.
Organise	Give orderly structure to, frame and put into working order.	Organise pertinent data on data displays. Organise priority of actions.
Predict	Forecast.	Predict positions of aircraft in the aerodrome traffic and taxi circuits.
Provide	Supply, furnish.	Provide radar separation. Provide FIS
Relate	Establish link with.	Relate a pressure setting to an altitude.

(5) Action verbs for Level 5

Level 5 — Ability to analyse new situation in order to elaborate and apply one or other relevant strategy to solve a complex problem. The defining feature is that the situation is qualitatively different from those previously met, requiring judgment and evaluation of options.

L4 Verb	Definition	Example
Assess	Estimate value or difficulty, evaluate, appraise.	Assess workload.
Balance	Weigh (a question, two arguments, etc., against each other).	Balance the workload with the traffic demand.
Discuss	Investigate by reasoning or argument.	Discuss the impact of regulation.
Evaluate	Ascertain amount of, find numerical expression for.	Evaluate the necessary information to be provided to pilots in need of navigational assistance.
Interpret	To decide on something's meaning or significance when there is a choice.	Interpret operational information.
Optimise	To make optimal; get the most out of; use best; modify to achieve maximum efficiency.	Optimise the use of support tools.
Resolve	Solve, clear up, settle	Resolve conflict.

Select	Pick out as best or most suitable.	Select the runway in use.
Theorise	Extract general principles from a particular experience.	Theorise the resolution of conflict between a slow and a fast aircraft.
Validate	Make valid, ratify, prove valid, show or confirm the validity of something.	Validate one radar vectoring option to expedite the traffic.

(a) Application of taxonomy levels to practically-based objectives
   (1) Objectives at taxonomy level 3 or higher, which are of a practical nature, related to all subjects except ATM, may be achieved by any suitable type of practical training methods, e.g. hands on, plotting on charts, etc.
   (2) Objectives at taxonomy level 3 or higher, for the ATM subject (basic and rating), are practical by nature and require the integration of several knowledge areas and skills at the same time, e.g. vectoring of an aircraft requires knowledge and skills in the areas of radio telephony, aircraft performance, navigation and radar theory. Therefore, ATM level 3 objectives should be achieved through the use of a part task trainer or a simulator.
   (3) ATM level 4 objectives should be achieved for the most part through the use of a simulator. A part task trainer, which presents operational situations at an enforced pace, may be used to achieve some ATM level 4 objectives.
   (4) ATM level 5 objectives should be achieved through the use of a simulator.

AMC2 ATCO.D.010(a) Composition of initial training

LIST OF ACRONYMS/INITIALISMS

For the purposes of:

- AMC1 ATCO.D.010(a)(1) Composition of initial training — BASIC TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(i) Composition of initial training — AERODROME CONTROL VISUAL RATING (ADV) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(ii) Composition of initial training — AERODROME CONTROL INSTRUMENT RATING FOR TOWER ADI (TWR) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(iii) Composition of initial training — APPROACH CONTROL PROCEDURAL RATING (APP) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(iv) Composition of initial training — AREA CONTROL PROCEDURAL RATING (ACP) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(v) Composition of initial training — APPROACH CONTROL SURVEILLANCE RATING (APS) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES
- AMC1 ATCO.D.010(a)(2)(vi) Composition of initial training — AREA CONTROL SURVEILLANCE RATING (ACS) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

the following acronyms/initialisms will apply:

Acronym/Initialism	Meaning
ABAS	Aircraft-based Augmentation System (EGNOS)
ACAS	Airborne Collision Avoidance System

ACC	Area Control Centre
ACP	Area Control Procedural Rating
ACFT	Aircraft (subject)
ACN	Aircraft Classification Number
ACS	Area Control Surveillance Rating
ADF	Automatic Direction Finding System
ADI	Aerodrome Control Instrument
ADS	Automatic Dependent Surveillance
ADV	Aerodrome Control Visual Rating
ADVS	Advisory Service
AEA	Association of European Airlines
AFIL	Air Filed Flight Plan
AFTN	Aeronautical fixed telecommunication network
AGA	Aerodromes AIC Aeronautical Information Circular AIP Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIRAC SUP	AIRAC Supplement
AIREP	Air-Report
AIRMET	Information concerning en-route weather phenomena which may affect the safety of low-level aircraft operations
AIS	Aeronautical Information Service
ALRS	Alerting Service
AMC	Acceptable Means of Compliance
APM	Approach Path Monitor
APP	Approach Control/Centre/Procedural Rating
APS	Approach Control Surveillance Rating
APV	Approach Procedure with Vertical guidance
APW	Area Proximity Warning
ASDA	Accelerate Stop Distance Available
ASM	Airspace Management
ASMGCS	Advanced Surface Movement Guidance and Control Systems
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATCS	Air Traffic Control Service
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service
ATM	Air Traffic Management
ATS	Air Traffic Services

ATZ	Aerodrome Traffic Zone
AVASI	Advanced Visual Approach Slope Indicator
B-RNAV	Basic Area Navigation
BIRDTAM	Bird hazard NOTAM (NOTAM reporting bird hazard)
CANSO	Civil Air Navigation Services Organisation
CAT	Clear Air Turbulence
CBA	Cross Border Area
CBT	Computer-Based Training
CCIS	Closed Circuit Information System
CDR	Conditional Route
CISM	Critical Incident Stress Management
CPDLC	Controller Pilot Data Link Communications
CPL	Current Flight Plan
D-GPS	Differential Global Positioning System
DFTI	Distance from Touchdown Indicator
DME	Distance Measuring Equipment
Doc	Document
EAM	ESARR Advisory Material
EASA	European Aviation Safety Agency
EATCHIP	European Air Traffic Control Harmonisation and Integration Programme
EATMP	European Air Traffic Management Programme
ECAC	European Civil Aviation Conference
EET	Estimated Elapsed Time
EFIS	Electronic Flight Instrument System
EGNOS	European Geostationary Overlay Service
EQPS	Equipment and Systems (subject)
ESARR	Eurocontrol Safety Regulatory Requirements
EUROCONTROL	European Organisation for the Safety of Air Navigation
FAB	Functional Airspace Block
FDPS	Flight Data Processing System
FIR	Flight Information Region
FIS	Flight Information Service
FMS	Flight Management System
FPB	Flight Progress Board
FPL	Flight Plan
FUA	Flexible Use of Airspace
GAIN	Report Global Aviation Information Network Report
GBAS	Ground-Based Augmentation System

GLONASS	Global Orbiting Navigation Satellite System
GNSS	Global Navigation Satellite System
GP	Glide Path
GPWS	Ground Proximity Warning System
GUI	Guidelines
HBK	Handbook
HF	High Frequency
HUM	Human Factors (subject)
IACA	International Air Carrier Association
IAOPA	International Council of Aircraft Owner and Pilot Associations
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisations
IFALPA	International Federation of Airline Pilots Association
IFATCA	International Federation of Air Traffic Controllers Associations
IFPS	Integrated Initial Flight Plan Processing System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INS	Inertial Navigation System
INTR	Introduction to the course (subject)
IRS	Inertial Reference System
IRVR	Instrument Runway Visual Range
ISA	International Standard Atmosphere
ITU	International Telecommunications Union
LAW	Aviation Law (subject)
LDA	Landing Distance Available
LLZ	Localizer
LNAV	Lateral Navigation
LOA	Letter of Agreement
LPV	Lateral Precision with Vertical guidance approach
MET	Meteorology (subject)
METAR	Meteorological Aviation Routine Weather Report
MLS	Microwave Landing System
Mode A	SSR identification code
Mode C	SSR Mode C (Pronounced: Mode Charlie)
Mode S	Mode Select
MONA	Monitoring Aids
MSAW	Minimum Safe Altitude Warning

MTCD	Medium Term Conflict Detection
MWO	Meteorological Watch Office
NAV	Navigation (subject)
NAVAID	Navigation(al) Aid
NDB	Non-Directional Beacon
No.	Number
NOTAM	Notice to Airmen
OJT	On the Job Training
OLDI	On-Line Data Interchange
P-RNAV	Precision Area Navigation
PANS	Procedures for Air Navigation Services
PAPI	Precision Approach Path Indicator
PAR	Precision Approach Radar
PBN	Performance Based Navigation
PCN	Pavement Classification Number
PEN	Professional Environment (subject)
PSR	Primary Surveillance Radar
PTP	Part Time Practice
QDM	Magnetic Heading
QDR	Magnetic Bearing
QFE	Atmospheric pressure at aerodrome elevation
QNH	Atmospheric pressure at mean sea level
QTF	The position of the transmitting station according to the bearings taken by the D/F station
RAIM	Receiver Autonomous Integrity Monitoring
RCC	Rescue Coordination Centre
RDPS	Radar Data Processing System
RNAV	Area Navigation
RNP	Required Navigation Performance
RNP-RNAV	Required Navigation Performance-Area Navigation
ROC	Rate of Climb
RPL	Stored Flight Plan
RTF	Radio Telephony
RVR	Runway Visual Range
RVSM	Reduced Vertical Separation Minimum
SADIS	Satellite Distribution of World Area Forecast System
SAR	Search and Rescue
SARPs	Standards and Recommended Practices (ICAO)
SBAS	Satellite Based Augmentation System

SELCAL	Selective Calling
SERA	Standardised European Rules of the Air
SHELL (model)	Software, Hardware, Environment, Live ware, Live ware Model
SID	Standard Instrument Departure (Route)
SIGMET	Significant Meteorological Information
SMR	Surface Movement Radar
SNOWTAM	NOTAM on SNOW conditions
SPECI	Aviation Selected Special Weather Report
SRC	Safety Regulation Commission
SRU	Safety Regulation Unit
SSR	Secondary Surveillance Radar
STCA	Short Term Conflict Alert
SVFR	Special Visual Flight Rules Flight
TACAN UHF	Tactical Air Navigation Aid
TAF	Terminal Area (Aerodrome) Forecast
TCAC	Tropical Cyclone Advisory Centre
TODA	Take Off Distance Available
TORA	Take Off Run Available
TRM	Team Resource Management
TSA	Temporary Segregated Area
TWR	Tower Control Unit (Aerodrome Control Tower)
UDES	Unusual Degraded Emergency Situations
UDF	Ultra High Frequency Direction Finder
UHF	Ultra High Frequency
UTC	Coordinated Universal Time
VAAC	Volcanic Ash Advisory Centre
VASI	Visual Approach Slope Indicator
VDF	Very High Frequency Direction Finder
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VNAV	Vertical Navigation
VOLMET	Routine Weather Reports Broadcast on VHF
VOR	VHF Omni-directional Radio Range
WAFC	World Area Forecast Centre
WAFS	World Area Forecast System
WGS-84	World Geodetic System 84

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

BASIC TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

TABLE OF CONTENTS

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

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 CT-ATCO — Basic training.
(c) Subjects, topics and subtopics from Appendix 2 to CT-ATCO 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	

Subtopic INTRB 1.2 — Course administration

BASIC INTRB 1.2.1	State course administration.	1	

Subtopic INTRB 1.3 — Study material and training documentation

BASIC INTRB 1.3.1	Use appropriate documentation and their sources for the course.	3	*Optional content: training documentation, library, CBT library, web, learning management server*

BASIC INTRB 1.3.2	Integrate appropriate information into course studies.	4	Training documentation *Optional content: supplementary information, library*

TOPIC INTRB 2 — INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTRB 2.1 — Course content and organisation

BASIC INTRB 2.1.1	State the different training methods applied to the course.	1	Theoretical training, practical training, self-study, types of training events
BASIC INTRB 2.1.2	State the subjects of the course and their purpose.	1	
BASIC INTRB 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*
BASIC INTRB 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*

Subtopic INTRB 2.2 — Training ethos

BASIC INTRB 2.2.1	Recognise the feedback mechanisms available.	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	Team work in theoretical and practical training

Subtopic INTRB 2.3 — Assessment process

BASIC INTRB 2.3.1	Describe the assessment process.	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	Area control unit, approach control unit, aerodrome control unit
BASIC INTRB 3.1.2	Recognise career developments	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 the 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	Aviation code, ICAO Convention *Optional content: Technical requirements related to rules of the air (further on -CT-RA)*
BASIC LAWB 1.1.2	Name the key national and international aviation organisations.	1	*Optional content: CAA, ICAO, ECAC, EASA, EUROCONTROL*
BASIC LAWB 1.1.3	Describe the impact these organisations have on ATC and their interaction with each other	2	

TOPIC LAWB 2 — INTERNATIONAL ORGANISATIONS

Subtopic LAWB 2.1 — ICAO

BASIC LAWB 2.1.1	Explain the purpose and function of ICAO.	2	
BASIC LAWB 2.1.2	Describe the methods by which ICAO notifies and implements legislation.	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	Network manager function
BASIC LAWB 2.2.2	Explain the purpose and functions of EASA.	2	
BASIC LAWB 2.2.3	State the purpose and function of other international agencies and their relevance to air traffic operations.	1	*Optional content: ECAC, EU, ITU, CANSO*

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	*Optional content: IFATCA, IFALPA, IATA, AEA, IAOPA, IACA, military services, ETF, ATCEUC*

TOPIC LAWB 3 — NATIONAL ORGANISATIONS

Subtopic LAWB 3.1 — Purpose and function

BASIC LAWB 3.1.1	Describe the purpose and function of the CAA and its relevance to air traffic operations.	2	

Subtopic LAWB 3.2 — National legislative procedures

BASIC LAWB 3.2.1	Describe the means by which legislation is implemented, notified and updated.	2	Technical requirements related to air information services (further on - CT-AIS) *Optional content: AIS, AIPs, AIRAC, SUPs, AICs, NOTAMs, integrated aeronautical information package, national legislation, letters of agreement, operations manual*
BASIC LAWB 3.2.2	Recognise the information contained in the different parts of the AIP	1	

Subtopic LAWB 3.3 — Competent authority

BASIC LAWB 3.3.1	Name the competent authority responsible for licensing and enforcing legislation and operational procedures.	1	
BASIC LAWB 3.3.2	Describe how the competent authority carries out its safety regulation responsibilities.	2	

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	

TOPIC LAWB 4 — ATS SAFETY MANAGEMENT

Subtopic LAWB 4.1 — Safety regulation

BASIC LAWB 4.1.1	Describe the need for safety regulation.	2	Aviation code no.301/2017 *Optional content: National regulations related to provision of air navigation services*
BASIC LAWB 4.1.2	Describe the general principles of the safety organisation.	2	Safety regulation *Optional content: National regulations related to provision of air navigation services*
BASIC LAWB 4.1.3	Explain the impact of safety regulation on the controller.	2	*Optional content: Technical requirements on ATCO Licensing (further on -CT-ATCO)*

Subtopic LAWB 4.2 — Safety management system

BASIC LAWB 4.2.1	Explain the regulatory requirements of safety management systems in ATM.	2	*National regulations related to provision of air navigation services*
BASIC LAWB 4.2.2	Explain the principles of the safety management systems.	2	*National regulations related to provision of air navigation services*
BASIC LAWB 4.2.3	Describe the safety assessment methodology.	2	*Optional content: EATMP Air navigation system safety assessment methodology, National regulations related to provision of air navigation services*

TOPIC LAWB 5 — RULES AND REGULATIONS

Subtopic LAWB 5.1 — Units of measurement

BASIC LAWB 5.1.1	Describe the units of measurement used in aviation.	2	Technical requirements on units of measurement in civil aviation (further on - CT-UNITS)

Subtopic LAWB 5.2 — ATCO licensing/certification

BASIC LAWB 5.2.1	Explain the ATCO licensing/certification process.	2	Government decision no.134/2019 on approval of the Regulation related to ATCO licensing (further on – GD no.134/2019) and CT-ATCO ; ATCO licences, ratings and endorsements
BASIC LAWB 5.2.2	Explain the privileges and limitations of controller licences.	2	CT-ATCO

Subtopic LAWB 5.3 — Overview of ANS and ATS

BASIC LAWB 5.3.1	Differentiate between the Air Navigation Services.	2	Aviation code, Framework for the creation of the single European sky
BASIC LAWB 5.3.2	Explain the considerations which determine the need for the ATS	2	Technical requirements related to air traffic service (further on - CT-ATS)
BASIC LAWB 5.3.3	Differentiate between the ATS	2	ATCS, ADVS, FIS, ALRS
BASIC LAWB 5.3.4	Explain the objectives of ATS.	2	CT-RA and CT-ATS

Subtopic LAWB 5.4 — Rules of the air

BASIC LAWB 5.4.1	Explain the rules of the air.	2	CT-RA and CT-ATS
BASIC LAWB 5.4.2	State any notified differences with ICAO.	1	CT-RA and CT-ATS *Optional content: Supplements to CT-RA and CT-ATS*
BASIC LAWB 5.4.3	Appreciate the influence of relevant flight rules on ATC	3	General flight rules, instrument flight rules, visual flight rules.
BASIC LAWB 5.4.4	Appreciate the differences between flying in accordance with VFR and IFR, in VMC and IMC.	3	CT-RA and CT-ATS.
Subtopic LAWB 5.5 — Airspace and ATS routes			
BASIC LAWB 5.5.1	Explain airspace classification.	2	CT-RA
BASIC LAWB 5.5.2	Differentiate between the different types of airspace.	2	*Optional content: control zones, control areas, airways, upper and lower airspace, restricted areas, prohibited and danger areas, FIR, aerodrome traffic zone, etc.*
BASIC LAWB 5.5.3	Differentiate between the different types of ATS routes	2	Airway, arrival route, departure route, advisory route, controlled route, uncontrolled route, etc
BASIC LAWB 5.5.4	Decode information from aeronautical charts	3	*Optional content: control zones, control areas, ATS routes, upper and lower airspace, restricted areas, prohibited and danger areas, FIR, aerodrome traffic zone, etc.*
Subtopic LAWB 5.6 — Flight plan			
BASIC LAWB 5.6.1	Explain the functions of a flight plan.	2	ICAO Doc 4444
BASIC LAWB 5.6.2	Explain the different types of flight plans and associated update messages.	2	ICAO Doc 4444
BASIC LAWB 5.6.3	Explain the pilot's responsibilities in relation to adherence to flight plan.	2	Inadvertent changes, intended changes, position reporting
BASIC LAWB 5.6.4	Describe flight plan processing.	2	*Optional content: AFTN, IFPS*

Subtopic LAWB 5.7 — Aerodromes

BASIC LAWB 5.7.1	Describe the general design and layout of an aerodrome.	2	Runway(s), taxiways, apron, movement area, manoeuvring area, designated positions on an aerodrome
BASIC LAWB 5.7.2	Explain the numbering system and orientation of runways.	2	GD no.653/2018 on approval of the Regulation regarding administrative procedures related to aerodromes and its implementing documents (further on – GD no.653/2018 and its implementing documents)
BASIC LAWB 5.7.3	Differentiate between different types of aerodromes.	2	Controlled, uncontrolled Optional content: military, international, regional
BASIC LAWB 5.7.4	Describe designated positions in the traffic circuit.	2	
BASIC LAWB 5.7.5	List the factors affecting the selection of runway in use.	1	

Subtopic LAWB 5.8 — Holding procedures for IFR flights

BASIC LAWB 5.8.1	Describe the purpose of holding.	2	Traffic management, weather, pilot request, ICAO Doc 4444, ICAO Doc 8168
BASIC LAWB 5.8.2	Describe the types of holding patterns.	2	Published, non-published
BASIC LAWB 5.8.3	Describe an ICAO holding pattern.	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 5.8.4	Describe the factors affecting the holding pattern.	2	Effect of speed, effect of level used, effect of navigation aid in use, turbulence

Subtopic LAWB 5.9 — Holding procedures for VFR flights

BASIC LAWB 5.9.1	Describe VFR holding	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	

Subtopic ATMB 1.2 — Air traffic control (ATC) service

BASIC ATMB 1.2.1	Define ATC service.	1	CT-RA n
BASIC ATMB 1.2.2	Explain the division of the ATC service.	2	Framework for the creation of the single European sky, CT-ATS
BASIC ATMB 1.2.3	Explain the responsibility for the provision of the ATC service.	2	CT-ATS
BASIC ATMB 1.2.4	Differentiate between the different methods of providing ATC services.	2	Aerodrome, surveillance, procedural

Subtopic ATMB 1.3 — Flight information service (FIS)

BASIC ATMB 1.3.1	Define FIS.	1	CT-RA
BASIC ATMB 1.3.2	Describe the scope of the FIS.	2	CT-RA
BASIC ATMB 1.3.3	Explain the responsibility for the provision of the FIS.	2	CT-RA ICAO Doc 4444
BASIC ATMB 1.3.4	State the methods of transmitting information.	1	*Optional content: RTF, data link, ATIS, VOLMET, etc.*
BASIC ATMB 1.3.5	List the content of ATIS and VOLMET.	1	CT-RA and, Technical requirements related to meteorological assistance for air navigation (further on - CT-MET) *Optional content: meteorological data obtained by data link*
BASIC ATMB 1.3.6	Issue information to aircraft.	3	*Optional content: SIGMET, serviceability of navaids, weather, flight safety information, essential traffic, essential*

			local traffic, information related to aerodrome conditions, etc.
Subtopic ATMB 1.4 — Alerting service			
BASIC ATMB 1.4.1	Define ALRS.	1	CT-RA
BASIC ATMB 1.4.2	Describe the scope of the ALRS.	2	CT-RA CT-ATS
BASIC ATMB 1.4.3	Explain the responsibility for the provision of the ALRS.	2	ICAO Doc 4444
BASIC ATMB 1.4.4	Differentiate between the phases of emergency.	2	Uncertainty, alert, distress
BASIC ATMB 1.4.5	Describe the organisation of an ALRS.	2	Responsibilities, local organisation
BASIC ATMB 1.4.6	Describe the cooperation between units providing the alerting services and the SAR units	2	
BASIC ATMB 1.4.7	Differentiate between distress and urgency signals.	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	CT-RA
BASIC ATMB 1.5.2	Describe the scope of the air traffic advisory service.	2	ICAO Doc 4444
BASIC ATMB 1.5.3	Explain the responsibility for the provision of the air traffic advisory service.	2	ICAO Doc 4444
BASIC ATMB 1.5.4	State to which flights air traffic advisory service shall be provided.	1	ICAO Doc 4444
Subtopic ATMB 1.6 — ATS system capacity and air traffic flow management			
BASIC ATMB 1.6.1	Define ATFM.	1	Framework for the creation of the single European sky

BASIC ATMB 1.6.2	State the scope of capacity management.	1	National regulations laying down rules on air traffic flow management, ICAO Doc 4444
BASIC ATMB 1.6.3	Describe the scope of air traffic flow capacity management (ATFCM).	2	National regulation laying down rules on air traffic flow management, ICAO Doc 4444, EUROCONTROL ATFCM Users Manual
BASIC ATMB 1.6.4	Explain the responsibility for the provision of ATFCM.	2	National regulations laying down rules on air traffic flow management, ICAO Doc 4444, EUROCONTROL ATFCM Users Manual
BASIC ATMB 1.6.5	Explain the methods of providing ATFCM.	2	National regulations laying down rules on air traffic flow management, ICAO Doc 4444, EUROCONTROL ATFCM Users Manual

Subtopic ATMB 1.7 — Airspace management (ASM)

BASIC ATMB 1.7.1	Define ASM.	1	National regulations laying down rules on air traffic flow management, *Optional content: National regulations laying down rules for the flexible use of airspace.*
BASIC ATMB 1.7.2	Describe the scope of ASM.	2	National regulations laying down rules for the flexible use of airspace. *Optional content: FABs, EUROCONTROL Specification for the application of the FUA*
BASIC ATMB 1.7.3	Explain the responsibility for the provision of ASM.	2	National regulations laying down rules for the flexible use of airspace. *Optional content: FABs, EUROCONTROL Specification for the application of the FUA*
BASIC ATMB 1.7.4	Explain the methods of managing airspace.	2	National regulations laying down rules for the flexible use of airspace. *Optional content: Flexible use of airspace, airspace design, CDRs, TSAs*

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	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	ICAO Doc 4444, ICAO Doc 8168
BASIC ATMB 2.2.2	Calculate the appropriate levels.	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	CT-RA table of cruising levels
BASIC ATMB 2.3.2	Choose the appropriate levels.	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	
BASIC ATMB 3.1.2	Use approved phraseology.	3	Parts of the following documents relevant to the Basic course: ICAO Doc 4444, ICAO Doc 9432 RTF manual — standard words and phrases, ICAO Annex 10, Vol. 2
BASIC ATMB 3.1.3	Perform communication effectively.	3	Communication techniques, read back/ verification of read back

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	CT-RA
BASIC ATMB 4.1.2	Describe the contents of an ATC clearance.	2	CT-RA , ICAO Doc 4444

BASIC ATMB 4.1.3	Issue appropriate ATC clearances.	3	ICAO Doc 4444 *Optional content: national documents*
Subtopic ATMB 4.2 — ATC instructions			
BASIC ATMB 4.2.1	Define ATC Instructions.	1	CT-RA
BASIC ATMB 4.2.2	Describe the contents of an ATC instruction.	2	ICAO Doc 4444, CT-ATS
BASIC ATMB 4.2.3	Issue appropriate ATC instructions.	3	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	ICAO Doc 4444, CT-ATS *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	*Optional content: ICAO Doc 4444, local procedures, letters of agreements*
BASIC ATMB 5.2.2	Differentiate between transfer of control and transfer of communication procedures.	2	

Subtopic ATMB 5.3 — Means of coordination

BASIC ATMB 5.3.1	Describe the means of coordination	2	*Optional content: data link, telephone, intercom, voice, etc.*
BASIC ATMB 5.3.2	Use the available means for coordination.	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	*Optional content: ICAO Doc 8585, ICAO Doc 8643, ICAO Doc 7910*

BASIC ATMB 6.1.2	Extract pertinent data from relevant sources to produce a flight progress display.	3	Pilot reports, coordination, data exchange Optional content: flight plan
BASIC ATMB 6.1.3	Encode and decode flight plans (including supplementary information).	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	*Optional content: strip marking symbols, strip movement procedures, electronic data, label*

TOPIC ATMB 7 — SEPARATIONS

Subtopic ATMB 7.1 — Vertical separation and procedures

BASIC ATMB 7.1.1	State the vertical separation standards.	1	ICAO Doc 4444
BASIC ATMB 7.1.2	Explain the vertical separation procedures.	2	ICAO Doc 4444

Subtopic ATMB 7.2 — Horizontal separation and procedures

BASIC ATMB 7.2.1	State the longitudinal separation standards and procedures based on time and distance.	1	ICAO Doc 4444
BASIC ATMB 7.2.2	State the lateral separation standards and procedures.	1	ICAO Doc 4444

Subtopic ATMB 7.3 — Visual separation

BASIC ATMB 7.3.1	State the occasions when clearance to fly by maintaining own separation while in VMC can be used.	1	

Subtopic ATMB 7.4 — Aerodrome separation and procedures

BASIC ATMB 7.4.1	State the aerodrome separation standards.	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	ICAO Doc 4444
BASIC ATMB 7.4.3	Define essential local traffic.	1	ICAO Doc 4444

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	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	ICAO Doc 4444

Subtopic ATMB 7.6 — Wake turbulence separation

BASIC ATMB 7.6.1	Explain the wake turbulence separations.	2	ICAO Doc 4444

TOPIC ATMB 8 — AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUNDBASED SAFETY NETS

Subtopic ATMB 8.1 — Airborne collision avoidance systems

BASIC ATMB 8.1.1	State the Moldavian requirement for carriage of airborne collision avoidance system.	1	Technical requirements applicable for airborne collision avoidance – ACAS II, version 7.1 (further on CT-ACAS II)
BASIC ATMB 8.1.2	Explain the main characteristics of airborne warning systems and their relevance to ATC operations.	2	ACAS, TAWS Optional content: TCAS, EGPWS, wind shear alerts
BASIC ATMB 8.1.3	Explain the function of ACAS Traffic Alerts and Resolution Advisories.	2	CT-ACAS II, ICAO Doc 8168
BASIC ATMB 8.1.4	List the actions of the pilot in case of TA and RA.	1	CT-ACAS II, ICAO Doc 8168
BASIC ATMB 8.1.5	List the ACAS limitations.	1	ICAO Doc 9863

Subtopic ATMB 8.2 — Ground-based safety nets

BASIC ATMB 8.2.1	Explain the main characteristics of groundbased safety nets and their relevance to ATC operations.	2	*Optional content: STCA, MSAW, APW, APM*

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	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	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	
BASIC ATMB 9.2.2	Operate the available working position equipment.	3	
BASIC ATMB 9.2.3	Maintain situational awareness by monitoring traffic.	3	Information gathering, scanning, planning
BASIC ATMB 9.2.4	Appreciate priority of actions.	3	
BASIC ATMB 9.2.5	Execute selected plan.	3	
BASIC ATMB 9.2.6	Apply the prescribed procedures for the area of responsibility.	3	*Optional content: LOPs, transfer of control and communication, level allocation, inbound and outbound procedures*
BASIC ATMB 9.2.7	Appreciate relative velocity between aircraft.	3	
BASIC ATMB 9.2.8	Identify separation problems.	3	
BASIC ATMB 9.2.9	Choose the appropriate separation methods.	3	
BASIC ATMB 9.2.10	Apply separation.	3	*Optional content: vertical, longitudinal, lateral, aerodrome, based on ATS surveillance systems, distances from airspace boundaries*

Subtopic ATMB 9.3 — Basic practical skills applicable to aerodrome

BASIC ATMB 9.3.1	Perform the basic functions of aerodrome control.	3	
BASIC ATMB 9.3.2	Perform the control of aerodrome traffic.	3	Single runway operations including VFR and IFR traffic

Subtopic ATMB 9.4 — Basic practical skills applicable to surveillance

BASIC ATMB 9.4.1	Explain the methods and procedures of establishing identification.	2	ICAO Doc 4444
BASIC ATMB 9.4.2	Apply the procedures for establishing identification.	3	Any of the ATS surveillance systems identification methods
BASIC ATMB 9.4.3	Estimate the heading for a new track and the distance to the next waypoint.	3	
BASIC ATMB 9.4.4	Apply vectoring techniques.	3	
BASIC ATMB 9.4.5	Conduct level changes.	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	

Subtopic METB 1.2 — Aviation and meteorology

BASIC METB 1.2.1	Explain the relevance of meteorology in aviation.	2	
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	CT-MET, CT-ATS
BASIC METB 1.2.3	State the meteorological hazards to aviation.	1	Turbulence, thunderstorms, icing, micro bursts, squall, macro burst, wind shear

Subtopic METB 1.3 — Organisation of meteorological service

BASIC METB 1.3.1	Name the basic duties, organisation and working methods of meteorological offices.	1	*Optional content: WAFS, WAFC, MWO, VAAC, TCAC, SADIS*

BASIC METB 1.3.2	State the International and National standards for coordination between ATS and MET services.	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	Gases, layers
BASIC METB 2.1.2	Describe the basic characteristics of the atmospheric parameters measured.	2	Temperature, pressure, wind, humidity, density
BASIC METB 2.1.3	List the tools used for the collection of meteorological data.	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	Temperature, pressure, density
BASIC METB 2.2.2	State the reasons why the ISA has been defined.	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	Radiation, convection, advection, conduction, water cycle
BASIC METB 2.3.2	Describe how temperature varies.	2	Adiabatic processes, lapse rates, stability, instability
BASIC METB 2.3.3	State the influencing factors on surface temperature.	1	

Subtopic METB 2.4 — Water in the atmosphere

BASIC METB 2.4.1	Differentiate between the different processes related to atmospheric moisture.	2	Condensation, evaporation, sublimation, saturation
BASIC METB 2.4.2	Characterise relative humidity, dew point and latent heat.	2	

Subtopic METB 2.5 — Air pressure

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

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	*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	Describe the origin and movement of typical air masses and their general effect on European weather.	2	Polar, arctic, tropical, equatorial (maritime and continental)
BASIC METB 3.2.2	Describe the main isobaric features.	2	Cyclones, anticyclones, ridge, trough
BASIC METB 3.2.3	Describe the difference between various fronts and the associated weather.	2	Warm front, cold front, occluded front

Subtopic METB 3.3 — Mesoscale systems

BASIC METB 3.3.1	Describe the main phenomena caused by mesoscale systems.	2	Mountain waves, Föhn, slope and valley winds, thunderstorm, squall line Optional content: land/sea breezes, tornadoes, land spouts, waterspouts
BASIC METB 3.3.2	Explain the relevance of mesoscale systems to aviation.	2	

Subtopic METB 3.4 — Wind

BASIC METB 3.4.1	Explain the significance of wind phenomena and types.	2	Optional content: veering, backing, gusting, jet streams, land/sea breezes, Föhn, surface, upper
BASIC METB 3.4.2	State how wind is measured.	1	
BASIC METB 3.4.3	Explain effect of forces which influence wind.	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	
BASIC METB 4.1.2	Recognise different cloud types.	1	
BASIC METB 4.1.3	State the cloud types main characteristics.	1	
BASIC METB 4.1.4	State how the cloud base and the amount of cloud are measured and/or observed.	1	
BASIC METB 4.1.5	Define cloud base and ceiling.	1	
BASIC METB 4.1.6	Differentiate between cloud base and ceiling.	2	

Subtopic METB 4.2 — Types of precipitation

BASIC METB 4.2.1	Explain the significance of precipitation in aviation.	2	
BASIC METB 4.2.2	Describe types of precipitation and their corresponding cloud families.	2	*Optional content: rain, snow, snow grains, hail, ice pellets, ice crystals, drizzle*

Subtopic METB 4.3 — Visibility

BASIC METB 4.3.1	Explain the causes of atmospheric obscurity.	2	
BASIC METB 4.3.2	Differentiate between different types of visibility.	2	Horizontal visibility, slant visibility, prevailing visibility, RVR
BASIC METB 4.3.3	State how visibility is measured.	1	
BASIC METB 4.3.4	Explain the significance of visibility in aviation.	2	

Subtopic METB 4.4 — Meteorological hazards

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

Subtopic NAVB 1.2 — Purpose and use of navigation

BASIC NAVB 1.2.1	Explain the need for navigation in aviation.	2	
BASIC NAVB 1.2.2	Characterise navigation methods.	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	*Optional content: form, size, rotation, revolution in space, seasons, day, night, twilight, units of time, time zones, UTC*

Subtopic NAVB 2.2 — System of coordinates, direction and distance

BASIC NAVB 2.2.1	Characterise the general principles of a grid system	2	*Optional content: degrees, minutes, seconds, WGS-84, latitude/longitude*
BASIC NAVB 2.2.2	Explain direction and distance on a globe.	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	*Optional content: latitude/longitude*
BASIC NAVB 2.2.4	Estimate distance and direction between two points.	3	

Subtopic NAVB 2.3 — Magnetism

BASIC NAVB 2.3.1	Explain the general principles of the Earth's magnetism	2	True north, magnetic north, variation, deviation, inclination
BASIC NAVB 2.3.2	Calculate conversions between the three north designations.	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	Types of projection

BASIC NAVB 3.1.2	Describe the properties of a map.	2	Projection, scale
BASIC NAVB 3.1.3	Describe the properties of an ideal map.	2	Optional content: conformality, constant scale, true azimuth, rhumb lines and great circles
BASIC NAVB 3.1.4	State the properties and use of different projections.	1	*Optional content: Lambert, Mercator, stereographic*

Subtopic NAVB 3.2 — Maps and charts used in aviation

BASIC NAVB 3.2.1	Differentiate between the various maps and charts.	2	
BASIC NAVB 3.2.2	State the specific use of various maps and charts.	1	
BASIC NAVB 3.2.3	Decode symbols and information displayed on maps and charts.	3	*Optional content: topographical features, NAV aids, fixes etc*

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	Heading, track, drift, wind vector

Subtopic NAVB 4.2 — Speed

BASIC NAVB 4.2.1	Explain the relationship between various speeds used in aviation.	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	

Subtopic NAVB 4.3 — Visual navigation

BASIC NAVB 4.3.1	Differentiate between the methods of visual navigation.	2	Map reading, visual reference *Optional content: dead-reckoning*

Subtopic NAVB 4.4 — Navigational aspects of flight planning

BASIC NAVB 4.4.1	Describe the navigational aspects affecting flight planning.	2	*Optional content: fuel/time calculations, min altitudes, alternative routes*

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	VDF, NDB, VOR, DME, ILS *Optional content: TACAN, MLS*
BASIC NAVB 5.1.2	State the use of ground-based systems.	1	VDF, NDB, VOR, DME, ILS *Optional content: TACAN, MLS*
BASIC NAVB 5.1.3	Characterise the main radio navigation techniques based on ground-based systems.	2	*Optional content: homing, inbound/ outbound tracking, instrument approach procedures, holding, drift assessment*
BASIC NAVB 5.1.4	Explain the effects of precision and limitations of ground-based systems on the flight.	2	VDF, NDB, VOR, DME, ILS *Optional content: TACAN, MLS*

Subtopic NAVB 5.2 — Inertial navigation systems

BASIC NAVB 5.2.1	Explain the basic working principles, precision and limitations of on-board systems.	2	*Optional content: INS/IRS*
BASIC NAVB 5.2.2	State the use of on-board systems.	1	

Subtopic NAVB 5.3 — Satellite-based systems

BASIC NAVB 5.3.1	Explain the basic working principles of positioning systems.	2	*Optional content: GPS, GLONASS, Galileo*
BASIC NAVB 5.3.2	State the basic principles of GNSS concept.	1	Basic, ABAS, SBAS, GBAS
BASIC NAVB 5.3.3	Explain the effects of precision and limitations of satellite-based systems.	2	*Optional content: RAIM, GPS NOTAMs*

Subtopic NAVB 5.4 — Instrument approach procedures

BASIC NAVB 5.4.1	Recognise various types of instrument approach using aeronautical charts.	1	

BASIC NAVB 5.4.2	Differentiate between precision approach and non-precision approach procedures.	2	
BASIC NAVB 5.4.3	Recognise the different minima used during an instrument approach.	1	
BASIC NAVB 5.4.4	Define the terms obstacle clearance altitude/height and minimum descent altitude/height.	1	
BASIC NAVB 5.4.5	List the instrumental approach fixes.	1	IAF, IF, FAF, FAP, MAPt

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	*Optional content: ICAO Doc 9613*
BASIC NAVB 6.1.2	State the benefits of area navigation.	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	TSE, PDE, NSE, FTE *Optional content: ICAO Doc 9613*
BASIC NAVB 6.1.4	Characterise the main aircraft and avionics functionalities used in area navigation.	2	*Optional content: waypoints transitions (FRT) and path terminators (including RF), fly over and fly by a waypoint, parallel offset*
BASIC NAVB 6.1.5	Characterise the navigational functions of FMS	2	*Optional content: VNAV, LNAV*

Subtopic NAVB 6.2 — Introduction to PBN

BASIC NAVB 6.2.1	State the general concept of PBN.	1	*Optional content: ICAO Doc 9613*
BASIC NAVB 6.2.2	Differentiate between RNAV and RNP.	2	On board performance monitoring and alerting
BASIC NAVB 6.2.3	State the navigation infrastructure that may be used in PBN	1	VOR, DME, GNSS *Optional content: functionality IRS/INS*

BASIC NAVB 6.2.4	State the benefits of PBN concept.	1	*Optional content: global interoperability, limited number of navigation specifications*
Subtopic NAVB 6.3 — PBN applications			
BASIC NAVB 6.3.1	List the navigation applications in use in Europe. 1	1	En route, terminal/approach Optional content: RNAV-5 (B-RNAV), RNAV-1 (P-RNAV)

TOPIC NAVB 7 — DEVELOPMENTS IN NAVIGATION

Subtopic NAVB 7.1 — Future developments

BASIC NAVB 7.1.1	State future developments in navigation.	1

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	

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	

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	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	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	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	*Optional content: rudder, aileron, elevator, throttle, rotary wing controls*
BASIC ACFTB 2.2.3	Explain the factors affecting aircraft stability.	1	

Subtopic ACFTB 2.3 — Flight envelope

BASIC ACFTB 2.3.1	Characterise the critical factors which affect aircraft performance.	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	*Optional content: fixed wing, rotary wing, balloon, glider*

Subtopic ACFTB 3.2 — Wake turbulence categories

BASIC ACFTB 3.2.1	List the wake turbulence categories.	1	ICAO wake turbulence categories

Subtopic ACFTB 3.3 — ICAO approach categories

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

Subtopic ACFTB 3.4 — Environmental categories

BASIC ACFTB 3.4.1	List ICAO noise classification.	1	ICAO Annex 16

TOPIC ACFTB 4 — AIRCRAFT DATA

Subtopic ACFTB 4.1 — Recognition

BASIC ACFTB 4.1.1	Recognise the most commonly used aircraft.	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	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	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	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	

BASIC ACFTB 5.2.2	List the different types of jet engines	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	

Subtopic ACFTB 5.4 — Aviation fuels

BASIC ACFTB 5.4.1	List the most common aviation fuels.	1	

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	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	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	*Optional content: ADF, VOR (TACAN), DME, ILS, MLS, 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	Optional content: oil pressure and temperature, engine temperature, rpm, fuel state and flow

Subtopic ACFTB 6.4 — Aircraft systems

BASIC ACFTB 6.4.1	Explain the use of the most common aircraft systems.	2	SSR transponder, GPWS, EFIS, flight director, autopilot, FMS, ice protection systems *Optional content: ADS capability, headup display, wind shear indicator, weather radar, hydraulic system, electrical system, environmental system*
BASIC ACFTB 6.4.2	Explain the impact of degradation/failure of the most common aircraft systems on aircraft operations.	2	Engine failure *Optional content: hydraulic failure, electrical failure, environmental system failure, degradation of aircraft position source data*

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	Runway conditions, runway slope, wind, temperature, aerodrome elevation, aircraft mass

Subtopic ACFTB 7.2 — Climb factors

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

Subtopic ACFTB 7.3 — Cruise factors

BASIC ACFTB 7.3.1	Explain the factors affecting aircraft during cruise.	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	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	Speed, level, turbulence, icing

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	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	Routing, flight level, speed, rates of climb or descent

Subtopic ACFTB 7.7 — Environmental factors

BASIC ACFTB 7.7.1	Explain performance restrictions due to environmental constraints.	2	Optional content: continuous descent operation (CDO), 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 FACTORS

Subtopic HUMB 1.1 — Learning techniques

BASIC HUMB 1.1.1	Appreciate appropriate learning techniques.	3	How the influence of interactive techniques can lead to improved learning

Subtopic HUMB 1.2 — Relevance of human factors for ATC

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

Subtopic HUMB 1.3 — Human factors and ATC

BASIC HUMB 1.3.1	Define human factors.	1	*Optional content: ICAO Human Factors Training Manual*
BASIC HUMB 1.3.2	Explain the relationship between human factors and the aviation environment.	2	Optional content: ICAO Human Factors Training Manual, visits to the simulator and operational room, SHELL model, PEAR model
BASIC HUMB 1.3.3	Explain the concept of systems.	2	People, procedures, equipment
BASIC HUMB 1.3.4	Explain ATM in systems terms.	2	
BASIC HUMB 1.3.5	Explain the consequences of a systems failure in ATS.	2	
BASIC HUMB 1.3.6	Explain the need for matching human and equipment.	2	*Optional content: ICAO Human Factors Training Manual*
BASIC HUMB 1.3.7	Explain the information requirement of ATC.	2	Relevant, timely, accurate
BASIC HUMB 1.3.8	Describe the role of the human in the evolution of ATC.	2	*Optional content: history of ATC, airspace, communications, radar, advanced ATS systems, the future of ATC*
BASIC HUMB 1.3.9	Explain the importance of situational awareness for decision making.	2	

TOPIC HUMB 2 — HUMAN PERFORMANCE

Subtopic HUMB 2.1 — Individual behaviour

BASIC HUMB 2.1.1	Explain the differences and commonalities that exist among people.	2	*Optional content: attitudes, cultural, language*
BASIC HUMB 2.1.2	Explain the dangers of boredom.	2	
BASIC HUMB 2.1.3	Explain the dangers of overconfidence and complacency.	2	
BASIC HUMB 2.1.4	Explain the dangers of fatigue.	2	Sleep disturbance, heavy workload

Subtopic HUMB 2.2 — Safety culture and professional conduct

BASIC HUMB 2.2.1	Characterise the role of air traffic controller for positive safety culture.	2	
BASIC HUMB 2.2.2	Describe the need for professional standards in ATC.	2	*Optional content: adherence to rules and regulations etc.*
BASIC HUMB 2.2.3	Appreciate the needed basic professional attitudes appropriate to a high level of safety.	3	*Optional content: punctuality, rigour, adherence to rules, teamwork attitude*
BASIC HUMB 2.2.4	Describe the impact of responsibility on controllers action(s).	2	Responsibility as a guidance for appropriate action
BASIC HUMB 2.2.5	Recognise the different responsibilities of a controller.	1	Prospective and retrospective responsibility, guilt and obligation, types of responsibility (moral, welfare, legal, task, role responsibility, etc.)

Subtopic HUMB 2.3 — Health and well-being

BASIC HUMB 2.3.1	Consider the effect of health on performance.	2	*Optional content: fitness, diet, drugs, alcohol*

Subtopic HUMB 2.4 — Teamwork

BASIC HUMB 2.4.1	Describe the differences between social human relations and professional interactions.	2	
BASIC HUMB 2.4.2	Describe the different types and characters in a team.	2	*Optional content: leader, follower*

BASIC HUMB 2.4.3	Appreciate the principles of teamwork.	3	*Optional content:* *team membership, group dynamics, advantages/disadvantages of teamwork, conflicts and their solutions*
BASIC HUMB 2.4.4	Describe leader style and group interaction.	3	
Subtopic HUMB 2.5 — Basic needs of people at work			
BASIC HUMB 2.5.1	List basic needs of people at work.	1	*Optional content: balance between individual ability and workload, working time and rest periods; adequate physical working conditions, positive working environment*
BASIC HUMB 2.5.2	Characterise the factors of work satisfaction.	2	*Optional content: money, achievement, recognition, advancement, challenge*
Subtopic HUMB 2.6 — Stress			
BASIC HUMB 2.6.1	Define stress.	1	Stress definition *Optional content: EATCHIP Human Factors Module — Stress*
BASIC HUMB 2.6.2	Describe stress symptoms and sources.	2	Behavioural changes, lifestyle changes, physical symptoms, crisis events, main causes of stress *Optional content: EATCHIP Human Factors Module — Stress*
BASIC HUMB 2.6.3	Describe the stages of stress.	2	Stress performance curve *Optional content: EATCHIP Human Factors Module — Stress*
BASIC HUMB 2.6.4	Appreciate techniques for stress management.	3	*Optional content: relaxation techniques, diet and lifestyle, exercise, EATCHIP Human Factors Module — Stress*

TOPIC HUMB 3 — HUMAN ERROR

Subtopic HUMB 3.1 — Dangers of error			
BASIC HUMB 3.1.1	Recognise the dangers of error in ATC.	1	*Optional content: Air Traffic Control — Human Performance Factors (Anne Isaac, 1999), Human Factors in Air Traffic Control (V. David Hopkin, 1995)*
Subtopic HUMB 3.2 — Definition of human error			
BASIC HUMB 3.2.1	Define human error.	1	

BASIC HUMB 3.2.2	Describe the factors which contribute to cause error.	2	Fatigue, lack of skill, misunderstanding, multitasking, lack of information, distraction, lack of work satisfaction
Subtopic HUMB 3.3 — Classification of human error			
BASIC HUMB 3.3.1	State the types of errors.	1	*Optional content: slips, lapses, mistakes*
BASIC HUMB 3.3.2	Define violations.	1	
BASIC HUMB 3.3.3	Differentiate between errors and violations of rules.	2	
BASIC HUMB 3.3.4	Describe the three levels of performance according to the Rasmussen model.	2	Skill-based, knowledge-based, rule-based
Subtopic HUMB 3.4 — Risk analysis and risk management			
BASIC HUMB 3.4.1	Describe risk analysis and risk management of human systems and error.	2	Active failures and latent conditions Optional content: Reason model, HFACS (Human Factors Analysis & Classification System) model, Heinrich Theory
BASIC HUMB 3.4.2	Apply one risk analysis model on error during a case study.	3	

TOPIC HUMB 4 — COMMUNICATION

Subtopic HUMB 4.1 — Importance of good communications in ATC			
BASIC HUMB 4.1.1	Appreciate the importance of good communications in ATC.	3	
Subtopic HUMB 4.2 — Communication process			
BASIC HUMB 4.2.1	Define communication.	1	
BASIC HUMB 4.2.2	Define the communication process.	1	*Optional content: sender, encoder, transmitter, signal, interference, reception, decoder, receiver, feedback*
Subtopic HUMB 4.3 — Communication modes			
BASIC HUMB 4.3.1	Describe the factors which affect verbal communication.	2	*Optional content: word choice, intonation, speed, tone, distortion, load, expectation, noise, interruption, language knowledge (i.e. accent, dialect, vocabulary)*

BASIC HUMB 4.3.2	Describe the factors which affect non-verbal communication.	2	*Optional content: touch, choice, expectation, noise, interruption*
BASIC HUMB 4.3.3	Apply good communication practices.	3	Speaking and listening

TOPIC HUMB 5 — THE WORK ENVIRONMENT

Subtopic HUMB 5.1 — Ergonomics and the need for good design

BASIC HUMB 5.1.1	Define ergonomics.	1	
BASIC HUMB 5.1.2	Recognise the need for good building design.	1	*Optional content: light, insulation, decor, space, facilities*
BASIC HUMB 5.1.3	Explain the need for good work position design.	2	*Optional content: anthropometry (seating, work station design, input device, etc.)*

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	The physical environment, visual displays, suites, input devices, communications equipment, console profile and layout
BASIC HUMB 5.3.1	Explain the reasons for automation.	2	
BASIC HUMB 5.3.2	Describe the advantages and constraints of automation.	2	

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall explain the basic working principles of equipment that is in general use 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	CWP, Communication equipment, ATS surveillance systems

TOPIC EQPSB 2 — RADIO

Subtopic EQPSB 2.1 — Radio theory

BASIC EQPSB 2.1.1	State the principles of radio waves.	1	
BASIC EQPSB 2.1.2	Describe the characteristics of radio waves.	2	Propagation, limitations
BASIC EQPSB 2.1.3	State the use, characteristics and limitations of frequency bands.	1	Use in ATC, navigation and communications, use and application in the Aeronautical Mobile Service, HF, VHF, UHF
BASIC EQPSB 2.1.4	State the different uses of radio wave spectrum.	1	

Subtopic EQPSB 2.2 — Direction finding

BASIC EQPSB 2.2.1	State the principles and use of VDF/UDF.	1	VDF/UDF, QDM, QDR, QTF
BASIC EQPSB 2.2.2	State the precision of VDF/UDF used in the State system.	1	

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	
BASIC EQPSB 3.1.2	Describe the working principles of a transmitting and receiving system.	2	

BASIC EQPSB 3.1.3	Explain the effect of antenna shadowing on RTF communications.	2	

Subtopic EQPSB 3.2 — Voice communication between ATS units/positions

BASIC EQPSB 3.2.1	Describe the use of other voice communications in ATC.	2	Optional content: telephone, interphone, intercom

Subtopic EQPSB 3.3 — Data link communications

BASIC EQPSB 3.3.1	Explain the use and benefits of Controller Pilot Data Link Communications (CPDLC).	2	

Subtopic EQPSB 3.4 — Airline communications

BASIC EQPSB 3.4.1	State the use of SELCAL.	1	
BASIC EQPSB 3.4.2	Explain the use and benefits of Aircraft Communications Addressing and Reporting System (ACARS).	2	

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	

TOPIC EQPSB 5 — RADAR

Subtopic EQPSB 5.1 — Principles of radar

BASIC EQPSB 5.1.1	State the principles of radar.	1	
BASIC EQPSB 5.1.2	Recognise the characteristics of radar wavelengths.	1	
BASIC EQPSB 5.1.3	Recognise the use, characteristics and limitations of different radar types.	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	

Subtopic EQPSB 5.3 — Secondary radar

BASIC EQPSB 5.3.1	Explain the working principles of SSR.	2	Mode A, Mode C
BASIC EQPSB 5.3.2	Explain SSR code management	2	Discrete, non-discrete codes, special codes
BASIC EQPSB 5.3.3	Explain the effect of antenna shadowing on SSR operation.		

Subtopic EQPSB 5.4 — Use of radars

BASIC EQPSB 5.4.1	Explain the use of PSR/SSR in ATC.	2	Area, approach, aerodrome, surface movement radar, DFTI
BASIC EQPSB 5.4.2	Explain the advantages and disadvantages of PSR/SSR.	2	

Subtopic EQPSB 5.5 — Mode S

BASIC EQPSB 5.5.1	Explain the principles of Mode S.	2	
BASIC EQPSB 5.5.2	Explain the use of Mode S in ATC systems.	2	

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	ADS-B, ADS-C
BASIC EQPSB 6.1.2	Explain the working principles of ADS.	2	

Subtopic EQPSB 6.2 — Use of automatic dependent surveillance

BASIC EQPSB 6.2.1	Describe the use of ADS in ATC.	2	Area, approach, aerodrome, ICAO Doc 4444
BASIC EQPSB 6.2.2	Explain the limitations of ADS.	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	*Optional content: ATC, environmental management, airport operations, LAM, WAM*
BASIC EQPSB 7.1.2	Explain the working principles of MLAT.	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	Area, approach, aerodrome
BASIC EQPSB 7.2.2	Explain the limitations of MLAT.	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	Data quality, coverage, refresh rate, reliability, redundancy, cost-effectiveness
BASIC EQPSB 8.1.2	Describe the implementation of Surveillance Data Networks.	2	*Optional content: different technologies/sensors, network*

Subtopic EQPSB 8.2 — Working principles of surveillance data networking

BASIC EQPSB 8.2.1	Explain the working principles of surveillance data processing.	2	Track fusion process, surveillance information presented on CWP
BASIC EQPSB 8.2.2	State other use of processed surveillance data.	1	*Optional content: safety nets, airport operations, environmental management*

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	

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 data links in ATS.	2	

Subtopic EQPSB 10.2 — Aeronautical fixed telecommunication network (AFTN)

BASIC EQPSB 10.2.1	Describe the principles of AFTN.	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	Accuracy, speed and safety, non-verbal communications
BASIC EQPSB 10.3.2	Describe the limitations of automatic exchange of ATS data in coordination.	2	Non-recognition of a system's 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	Optional content: ATIS, VOLMET
BASIC EQPSB 10.4.2	Explain the use of ATIS and VOLMET in ATS.	2	

TOPIC EQPSB 11 — WORKING POSITIONS

Subtopic EQPSB 11.1 — Working position equipment

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

Subtopic EQPSB 11.2 — Aerodrome control

BASIC EQPSB 11.2.1	Recognise equipment to be found specifically in a TWR.	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	*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	

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	*Optional content:* *TWR, APP, ACC, AIS, RCC, Air Defence Unit*
BASIC PENB 1.1.2	Recognise airport facilities and local operators.	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	*Optional content:* *commercial flying, recreational flying, gliders, balloons, calibration flights, aerial photography, parachute dropping, UASs*

Subtopic PENB 2.2 — Military

BASIC PENB 2.2.1	Describe airspace usage by the military.	2	Airspace reservations, training, interception, in-flight refuelling, UASs *Optional content:* *low-level flying, test flights, special military operations*

Subtopic PENB 2.3 — Expectations and requirements of pilots

BASIC PENB 2.3.1	Recognise the expectations and requirements of pilots.	1
BASIC PENB 2.3.2	State the use of Standard Operating Procedures (SOPs) by aircraft operators.	1

TOPIC PENB 3 — CUSTOMER RELATIONS

Subtopic PENB 3.1 — Customer relations

BASIC PENB 3.1.1	State the role of ATC as a service provider.	1
BASIC PENB 3.1.2	Recognise the means by which ATC is funded.	1

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	Noise, air quality, climate change, third-party risks
BASIC PENB 4.1.2	Explain the role of ATC in the concept of sustainable development.	2	*Optional content: ICAO Annex 16*
BASIC PENB 4.1.3	State how to measure, monitor and mitigate the impact aviation has on the environment.	1	*Optional content: EU ETS, SES initiative, EUROCONTROL role, continuous descent operations (CDOs), collaborative environmental management (CEM)*

AMC1 ATCO.D.010(a)(2)(i) Composition of initial training

AERODROME CONTROL VISUAL RATING (ADV) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).
(b) ATCO rating training Aerodrome Control Visual Rating (ADV) should contain the following subject objectives and training objectives that are associated with the subjects, topics and subtopics contained in Appendix 3 to CT-ATCO — Aerodrome Control Visual Rating (ADV).
(c) Subjects, topics and subtopics from Appendix 3 to CT-ATCO 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 learn how to obtain the appropriate information.

TOPIC INTR 1 - COURSE MANAGEMENT

Subtopic INTR 1.1 - Course introduction

ADV INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL

Subtopic INTR 1.2 - Course administration

ADV INTR 1.2.1	State course administration.	1		ALL

Subtopic INTR 1.3 - Study material and training documentation

ADV INTR 1.3.1	Use appropriate documentation and their sources for course studies.	3	*Optional content: training documentation, library, CBT library, web, learning management server*	ALL
ADV INTR 1.3.2	Integrate appropriate information into course studies.	4	Training documentation *Optional content: supplementary information, library*	ALL

TOPIC INTR 2 - INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTR 2.1 - Course content and organisation

ADV INTR 2.1.1	State the different training methods applied in the course.	1	Theoretical training, practical training, self-study, types of training events	ALL
ADV INTR 2.1.2	State the subjects of the course and their purpose.	1		ALL

ADV INTR 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*	ALL
ADV INTR 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*	ALL
Subtopic INTR 2.2 - Training ethos				
ADV INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	ALL
Subtopic INTR 2.3 - Assessment process				
ADV INTR 2.3.1	Describe the assessment process.	2		ALL

SUBJECT 2: AVIATION LAW

The subject objective is:

Learners shall know, understand and apply the Rules of the Air and the Regulations regarding reporting, airspace and appreciate the Licensing and Competence principles.

TOPIC LAW 1 - ATCO LICENSING/CERTIFICATE OF COMPETENCE

Subtopic LAW 1.1 - Privileges and conditions

ADV LAW 1.1.1	Appreciate the conditions which shall be met to issue an Aerodrome Control Visual rating.	3	GD no.134/2019 and CT-ATCO *Optional content: National documents*	ADV
ADV LAW 1.1.2	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
ADV LAW 1.1.3	Explain the conditions for suspension/revocation of ATCO licence.	2	GD no.134/2019 and CT- ATCO	ALL

TOPIC LAW 2 - RULES AND REGULATIONS

Subtopic LAW 2.1 - Reports

ADV LAW 2.1.1	List the standard forms for reports.	1	Air traffic incident report *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL
ADV LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	Reporting culture, air traffic incident report *Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2*	ALL
ADV LAW 2.1.3	Use forms for reporting.	3	National regulations related to occurrences in civil aviation, air traffic incident reporting form(s) *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL

Subtopic LAW 2.2 - Airspace

ADV LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Aerodrome Control Visual rating operations.	3		ALL
ADV LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	*Optional content: CT-RA, CT-ATS, international requirements, civil requirements, military*	ALL

			requirements, areas of responsibility, sectorization.	
ADV LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 - ATC SAFETY MANAGEMENT

Subtopic LAW 3.1 - Feedback process

ADV LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	*Optional content: voluntary reporting*	ALL
ADV LAW 3.1.2	Describe how reported occurrences are analysed.	2	*Optional content: ESARR 2, local procedures*	ALL
ADV LAW 3.1.3	Name the means used to disseminate recommendations.	1	*Optional content: safety letters, safety boards web pages*	ALL
ADV LAW 3.1.4	Appreciate the 'Just Culture' concept.	3	Benefits, prerequisites, constraints *Optional content: EAM 2 GUI 6, GAIN Report*	ALL

Subtopic LAW 3.2 - Safety Investigation

ADV LAW 3.2.1	Describe role and mission of Safety Investigation in the improvement of safety.	2		ALL
ADV LAW 3.2.2	Define working methods of Safety Investigation.	1		ALL

SUBJECT 3: AIR TRAFFIC MANAGEMENT

The subject objective is:

Learners shall manage air traffic to ensure safe, orderly and expeditious services.

TOPIC ATM 1 - PROVISION OF SERVICES

Subtopic ATM 1.1 - Aerodrome control service

ADV ATM 1.1.1	Appreciate areas of responsibility.	3	Control zone, traffic circuit, manoeuvring area, movement area, vicinity *Optional content: ATZ ADV*	ADI
ADV ATM 1.1.2	Provide aerodrome control service.	4	CT-RA, CT-ATS , ICAO Doc 7030, ICAO Doc 4444, operation manuals	ADV ADI
Subtopic ATM 1.2 - Flight information service (FIS)				
ADV ATM 1.2.1	Describe the information that shall be passed to aircraft by an aerodrome controller.	2	ICAO Doc 4444	ADV ADI
ADV ATM 1.2.2	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ADV ATM 1.2.3	Issue appropriate information.	3	ICAO Doc 4444, essential local traffic, traffic information	ADV ADI
ADV ATM 1.2.4	Appreciate the use of ATIS for the provision of flight information service by aerodrome controller.	3		ADV ADI
Subtopic ATM 1.3 - Alerting service (ALRS)				
ADV ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ADV ATM 1.3.2	Respond to distress and urgency messages and signals.	3	CT-RA, ICAO Annex 10, ICAO Doc 4444 *Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/ Emergency Situations*	ALL
Subtopic ATM 1.4 - ATS system capacity and air traffic flow management				
ADV ATM 1.4.1	Appreciate principles of ATS system capacity and air traffic flow management.	3	*Optional content: EUROCONTROL ATFCM Users Manual, Slot management, Slot allocation procedures*	ADV ADI

ADV ATM 1.4.2	Organise traffic to take account of flow management.	4	*Optional content: departure sequence*	ADV ADI
ADV ATM 1.4.3	Inform appropriate authority.	3	*Optional content: abnormal situations, decrease in sector capacity, limitations on systems and equipment, changes in workload/capacity, unusual meteorological conditions, relevant information: reported ground-based incidents, forest fire, smoke, oil pollution*	ADV ADI

TOPIC ATM 2 - COMMUNICATION

Subtopic ATM 2.1 - Effective communication

ADV ATM 2.1.1	Use approved phraseology.	3	ICAO Doc 4444 Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2	ALL
ADV ATM 2.1.2	Ensure effective communication.	4	Communication techniques, readback/verification of readback	ALL

TOPIC ATM 3 - ATC CLEARANCES AND ATC INSTRUCTIONS

Subtopic ATM 3.1 - ATC clearances

ADV ATM 3.1.1	Issue appropriate ATC clearances.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
ADV ATM 3.1.2	Integrate appropriate ATC clearances in control service.	4		ALL
ADV ATM 3.1.3	Ensure the agreed course of action is carried out.	4		ALL

Subtopic ATM 3.2 - ATC instructions

ADV ATM 3.2.1	Issue appropriate ATC instructions.	3	ICAO Doc 4444 Optional content: national documents	ALL
ADV ATM 3.2.2	Integrate appropriate ATC instructions in control service.	4		ALL

ADV ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL

TOPIC ATM 4 - COORDINATION

Subtopic ATM 4.1 - Necessity for coordination

ADV ATM 4.1.1	Identify the need for coordination.	3		ALL

Subtopic ATM 4.2 - Tools and methods for coordination

ADV ATM 4.2.1	Use the available tools for coordination.	3	*Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination*	ALL

Subtopic ATM 4.3 - Coordination procedures

ADV ATM 4.3.1	Initiate appropriate coordination.	3	Delegation/transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444 *Optional content: release point*	ALL
ADV ATM 4.3.2	Analyse effect of coordination requested by an adjacent position/unit.	4	*Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.*	ALL
ADV ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL
ADV ATM 4.3.4	Ensure the agreed course of action is carried out.	4		ALL
ADV ATM 4.3.5	Coordinate in the provision of FIS. 4 ICAO Doc 4444	4		ALL
ADV ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	ALL

TOPIC ATM 5 - ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATM 5.1 - Altimetry

ADV ATM 5.1.1	Allocate levels according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL
ADV ATM 5.1.2	Ensure separation according to altimetry data.	4	Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries	ALL

TOPIC ATM 6 – SEPARATIONS

Subtopic ATM 6.1 - Separation between departing aircraft

ADV ATM 6.1.1	Provide separation between departing aircraft.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 6.2 - Separation of landing aircraft and preceding landing or departing aircraft

ADV ATM 6.2.1	Provide separation of landing aircraft and preceding landing or departing aircraft.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 6.3 - Time-based wake turbulence longitudinal separation

ADV ATM 6.3.1	Provide time-based wake turbulence longitudinal separation.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 6.4 - Reduced separation minima

ADV ATM 6.4.1	Provide reduced separation minima.	4	ICAO Doc 4444	ADV ADI

TOPIC ATM 7 - AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUNDBASED SAFETY NETS

Subtopic ATM 7.1 - Airborne collision avoidance systems

ADV ATM 7.1.1	Differentiate between ACAS advisory thresholds and aerodrome separation standards.	2	ICAO Doc 9863	ADV ADI
ADV ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL

ADV ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS Optional content: EUROCONTROL ACAS web page	ALL

Subtopic ATM 7.2 - Ground-based safety nets

ADV ATM 7.2.1	Respond to available ground-based safety nets warnings.	3	*Optional content: anti-incursion*	ADV ADI

TOPIC ATM 8 - DATA DISPLAY

Subtopic ATM 8.1 - Data management

ADV ATM 8.1.1	Update the data display to accurately reflect the traffic situation.	3	*Optional content: information displayed, strip marking procedures, electronic information data displays, actions based on traffic display information, calculation of EETs*	ALL
ADV ATM 8.1.2	Analyse pertinent data on data displays.	4		ALL
ADV ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
ADV ATM 8.1.4	Obtain flight plan information.	3	CPL, FPL, supplementary information *Optional content: RPL, AFIL, etc.*	ALL
ADV ATM 8.1.5	Use flight plan information.	3		ALL

TOPIC ATM 9 - OPERATIONAL ENVIRONMENT (SIMULATED)

Subtopic ATM 9.1 - Integrity of the operational environment

ADV ATM 9.1.1	Obtain information concerning the operational environment.	3	*Optional content: briefing, notices, local orders, verification of information*	ALL
ADV ATM 9.1.2	Ensure the integrity of the operational environment.	4	*Optional content: frequency, VOLMET, ATIS, SIGMET, systems set-up, integrity of displays*	ADV ADI

Subtopic ATM 9.2 - Verification of the currency of operational procedures

ADV ATM 9.2.1	Check all relevant documentation before managing traffic.	3	*Optional content: briefing, LOAs, NOTAM, AICs*	ALL
Subtopic ATM 9.3 - Handover-takeover				
ADV ATM 9.3.1	Transfer information to the relieving controller.	3		ALL
ADV ATM 9.3.2	Obtain information from the controller handing over.	3		ALL
Subtopic ATM 10.1 - Responsibility for the provision				
ADV ATM 10.1.1	Explain the responsibility for the provision of an aerodrome control service.	2	ICAO Doc 4444, CT-ATS	ADV ADI
ADV ATM 10.1.2	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ADV ATM 10.1.3	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 *Optional content: ICAO Doc 9554*	ALL
ADV ATM 10.1.4	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	ADV ADI
ADV ATM 10.1.5	Appreciate the influence of operational requirements.	3	*Optional content: military flying, calibration flights, aerial photography*	ALL
Subtopic ATM 10.2 - Functions of aerodrome control tower				
ADV ATM 10.2.1	Manage the general functions of aerodrome control.	4	ICAO Doc 4444	ADV ADI
ADV ATM 10.2.2	Manage the suspension of VFR operations.	4	ICAO Doc 4444	ADV ADI
Subtopic ATM 10.3 - Traffic management process				
ADV ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, observation, traffic projection	ADV ADI
ADV ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL

ADV ATM 10.3.3	Identify potential solutions to achieve a safe and effective flow of aerodrome traffic.	3		ADV ADI
ADV ATM 10.3.4	Evaluate possible outcomes of different control actions.	5		ADV ADI
ADV ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective flow of aerodrome traffic.	5		ADV ADI
ADV ATM 10.3.6	Ensure an adequate priority of actions.	4		ALL
ADV ATM 10.3.7	Execute plan in a timely manner.	3		ADV ADI
ADV ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL

Subtopic ATM 10.4 - Aeronautical ground lights

ADV ATM 10.4.1	Select appropriate aeronautical ground lights.	5	ICAO Doc 4444	ADV ADI

Subtopic ATM 10.5 - Information to aircraft by aerodrome control tower

ADV ATM 10.5.1	Provide information related to the operation of aircraft.	4	ICAO Doc 4444	ADV ADI
ADV ATM 10.5.2	Provide information on aerodrome conditions.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 10.6 - Control of aerodrome traffic

ADV ATM 10.6.1	Predict positions of aircraft in the aerodrome traffic and taxi circuits.	4	ICAO Doc 4444	ADV ADI
ADV ATM 10.6.2	Manage traffic on the maneuvering area.	4	ICAO Doc 4444, aircraft, vehicles *Optional content: runway inspection*	ADV ADI

ADV ATM 10.6.3	Manage traffic in accordance with procedural changes.	4	*Optional content: taxiway closure*	ADV ADI
ADV ATM 10.6.4	Balance the workload against personal capacity.	5	*Optional content: re-planning, prioritising solutions, denying requests, delaying traffic*	ADV ADI
Subtopic ATM 10.7 - Control of traffic in the traffic circuit				
ADV ATM 10.7.1	Manage traffic in the traffic circuit.	4	ICAO Doc 4444, meteorological phenomena, geographical knowledge, environmental factors	ADV ADI
ADV ATM 10.7.2	Manage arriving and departing traffic.	4	ICAO Doc 4444, allocation of the order of priority, meteorological phenomena, wake turbulence, environmental factors	ADV ADI
ADV ATM 10.7.3	Integrate the serviceability of radio aids in the management of aerodrome traffic.	4	*Optional content: UDF, VDF, MLS, ILS, NDB, VOR, DME*	ADV ADI
ADV ATM 10.7.4	Integrate surface conditions into the control of aerodrome traffic.	4	*Optional content: damp, wet, water patches, flooding, snow, slush, ice, braking action*	ADV ADI
ADV ATM 10.7.5	Integrate information about meteorological phenomena into the control of aerodrome traffic.	4	*Optional content: clouds, precipitation, visibility, wind, meteorological hazards*	ADV ADI
ADV ATM 10.7.6	Integrate the information provided by situation displays.	4	Use, advantages, disadvantages	ADV ADI
ADV ATM 10.7.7	Initiate missed approach.	3	*Optional content: obstructed runway*	ADV ADI
Subtopic ATM 10.8 - Runway in use				
ADV ATM 10.8.1	Select the runway in use.	5	ICAO Doc 4444	ADV ADI
ADV ATM 10.8.2	Coordinate runway in use.	4	*Optional content: approach control, area control, runway selection, change of runway*	ADV ADI
ADV ATM 10.8.3	Manage traffic in the event of runway-in use change.	4		ADV ADI

SUBJECT 4: METEOROLOGY

The subject objective is:

Learners shall acquire, decode and make proper use of meteorological information relevant to the provision of ATS.

TOPIC MET 1 - METEOROLOGICAL PHENOMENA

Subtopic MET 1.1 - Meteorological phenomena

ADV MET 1.1.1	Appreciate the impact of different cloud types.	3	Cumulus, cumulonimbus *Optional content: stratus, nimbostratus, etc.*	ADV ADI
ADV MET 1.1.2	Appreciate the impact of precipitation.	3	Precipitation and microphysics *Optional content: rain, snow, sleet, hail*	ADV ADI
ADV MET 1.1.3	Appreciate the impact of atmospheric obscurity.	3	*Optional content: advection fog, radiation fog, mixing, evaporation, mist, drizzle ADV ADI*	ADV ADI
ADV MET 1.1.4	Appreciate the effect and impact of wind.	3	Gusting, veering, backing *Optional content: land breezes, sea breezes, Föhn*	ADV ADI
ADV MET 1.1.5	Appreciate the effect and danger of hazardous meteorological phenomena.	3	Wind shear, turbulence, thunderstorms, icing, microbursts ADV ADI	
ADV MET 1.1.6	Appreciate the effect of a frontal system on aerodrome operations.	3		ADV ADI
ADV MET 1.1.7	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information *Optional content: relevant meteorological phenomena*	ALL

TOPIC MET 2 - SOURCES OF METEOROLOGICAL DATA

Subtopic MET 2.1 - Meteorological instruments

ADV MET 2.1.1	Extract information from meteorological instruments.	3	*Optional content: anemometer, RVR indicator, cloud base indicator, ceilometer, barometer*	ADV ADI

Subtopic MET 2.2 - Other sources of meteorological data

ADV MET 2.2.1	Decode information from meteorological data displays.	3		ADV ADI
ADV MET 2.2.2	Use appropriate communication tools and networks to obtain meteorological data.	3		ADV ADI
ADV MET 2.2.3	Relay meteorological information.	3	ICAO Doc 4444 *Optional content: flight information centre, adjacent ATS unit*	ALL

SUBJECT 5: NAVIGATION

The subject objective is:

Learners shall analyse all navigational aspects in order to organise the traffic.

TOPIC NAV 1 - MAPS AND AERONAUTICAL CHARTS

Subtopic NAV 1.1 - Maps and charts

ADV NAV 1.1.1	Decode symbols and information displayed on aeronautical maps and charts.	3	Visual approach/departure charts, aerodrome charts *Optional content: military maps and charts*	ADV
ADV NAV 1.1.2	Use relevant maps and charts.	3	Visual approach/departure charts, aerodrome charts *Optional content: Military maps and charts*	ADV

TOPIC NAV 2 - INSTRUMENT NAVIGATION

Subtopic NAV 2.1 - Navigational systems

ADV NAV 2.1.1	Describe the possible operational status of navigational systems.	2	*Optional content: NDB, VOR, DME*	ADV
ADV NAV 2.1.2	Decode operational status displays of navigational systems.	3	*Optional content: NDB, VOR, DME*	ADV
ADV NAV 2.1.3	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	3	*Optional content: limitations, status, degraded procedures*	ALL

Subtopic NAV 2.2 - Stabilised approach

ADV NAV 2.2.1	Describe the concept of stabilised approach.	2	ICAO Doc 8168 *Optional content: Government decision no.831/2018 on approval of the Regulation related to administrative requirement for flight operations and its implementing documents (further on GD no.831/2018 and its implementing documents)*	ADV ADI APP APS
ADV NAV 2.2.2	Appreciate the effect of late change of runway-in-use for landing aircraft.	3		ADV ADI

SUBJECT 6: AIRCRAFT

The subject objective is:

Learners shall assess and integrate aircraft performance in the provision of ATS.

TOPIC ACFT 1 - AIRCRAFT INSTRUMENTS

Subtopic ACFT 1.1 - Aircraft instruments

ADV ACFT 1.1.1	Integrate information from aircraft instruments provided by the pilot in the provision of ATS.	4		ALL
ADV ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios	ALL

TOPIC ACFT 2 - AIRCRAFT CATEGORIES

Subtopic ACFT 2.1 - Wake turbulence

ADV ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL
ADV ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL

TOPIC ACFT 3 - FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFT 3.1 - Take-off factors

ADV ACFT 3.1.1	Integrate the influence of factors affecting aircraft on take-off.	4	*Optional content: runway conditions, runway slope, aerodrome elevation, wind, temperature, aircraft configuration, airframe contamination and aircraft mass*	ADV ADI

Subtopic ACFT 3.2 - Climb factors

ADV ACFT 3.2.1	Appreciate the influence of factors affecting aircraft during climb.	3	*Optional content: speed, mass, air density, wind and temperature*	ADV ADI

Subtopic ACFT 3.3 - Final approach and landing factors

ADV ACFT 3.3.1	Integrate the influence of factors affecting aircraft during final approach and landing.	4	*Optional content: wind, aircraft configuration, mass, runway conditions, runway slope, aerodrome elevation*	ADV ADI

Subtopic ACFT 3.4 - Economic factors

ADV ACFT 3.4.1	Integrate consideration of economic factors affecting aircraft.	4	*Optional content: starting-up, taxying, routing, departure sequence*	ADV ADI

Subtopic ACFT 3.5 - Environmental factors

ADV ACFT 3.5.1	Appreciate the performance restrictions due to environmental constraints.		*Optional content: noise abatement procedures, minimum flight altitudes, bird hazard*	ADV ADI

TOPIC ACFT 4 - AIRCRAFT DATA

Subtopic ACFT 4.1 - Recognition of aircraft types

ADV ACFT 4.1.1	Characterise a representative sample of aircraft which will be encountered in the operational/working environment.	2	Recognition, ICAO type designators, wake turbulence categories	ADV

Subtopic ACFT 4.2 - Performance data

ADV ACFT 4.2.1	Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the provision of a control service.	4	Performance data under a representative variety of circumstances	ADV ADI

SUBJECT 7: HUMAN FACTORS

The subject objective is:

Learners shall recognise the necessity to constantly extend their knowledge and analyse factors which affect personal and team performance.

TOPIC HUM 1 - PSYCHOLOGICAL FACTORS

Subtopic HUM 1.1 - Cognitive

ADV HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL
ADV HUM 1.1.2	Describe the factors which influence human information processing.	2	Confidence, stress, learning, knowledge, experience, fatigue, alcohol/drugs, distraction, interpersonal relations	ALL
ADV HUM 1.1.3	Monitor the effect of human information processing factors on decision making.	3	*Optional content: workload, stress, interpersonal relations, distraction, confidence*	ALL

TOPIC HUM 2 - MEDICAL AND PHYSIOLOGICAL FACTORS

Subtopic HUM 2.1 - Fatigue

ADV HUM 2.1.1	State factors that cause fatigue.	1	Shift work Optional content: night shifts and rosters	ALL
ADV HUM 2.1.2	Describe the onset of fatigue.	2	*Optional content: lack of concentration, listlessness, irritability, frustration, ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
ADV HUM 2.1.3	Recognise the onset of fatigue in self.	1	*Optional content: ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
ADV HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL
ADV HUM 2.1.5	Describe appropriate action when recognising fatigue.	2		ALL

Subtopic HUM 2.2 - Fitness

ADV HUM 2.2.1	Recognise signs of lack of personal fitness.	1		ALL
ADV HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		ALL

TOPIC HUM 3 - SOCIAL AND ORGANISATIONAL FACTORS

Subtopic HUM 3.1 - Team resource management (TRM)

ADV HUM 3.1.1	State the relevance of TRM.	1	*Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training*	ALL
ADV HUM 3.1.2	State the content of the TRM concept.	1	Optional content: team work, human error, team roles, stress, decision making, communication, situational awareness	ALL

Subtopic HUM 3.2 - Teamwork and team roles

ADV HUM 3.2.1	Identify reasons for conflict.	3		ALL
ADV HUM 3.2.2	Describe actions to prevent human conflicts.	2	*Optional content: TRM team roles*	ALL
ADV HUM 3.2.3	Describe strategies to cope with human conflicts.	2	*Optional content: in your team, in the simulator*	ALL

Subtopic HUM 3.3 - Responsible behaviour

ADV HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*	ALL
ADV HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 - STRESS

Subtopic HUM 4.1 - Stress

ADV HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL

Subtopic HUM 4.2 - Stress management

ADV HUM 4.2.1	Act to reduce stress.	3	The effect of personality in coping with stress, the benefits of active stress management	ALL
ADV HUM 4.2.2	Respond to stressful situation by offering, asking or accepting assistance.	3	*Optional content: the benefits of offering, accepting and asking for help in stressful situations*	ALL

ADV HUM 4.2.3	Recognise the effect of shocking and stressful events.	1	Self and others, abnormal situations, CISM	ALL
ADV HUM 4.2.4	Consider the benefits of Critical Incident Stress Management (CISM).	2		ALL
ADV HUM 4.2.5	Explain procedures used following an incident/accident.	2	Optional content: CISM, counselling, human element	ALL

TOPIC HUM 5 - HUMAN ERROR

Subtopic HUM 5.1 - Human error

ADV HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, proactive versus reactive approach to discovery of error Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL
ADV HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes *Optional content: Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADV HUM 5.1.3	Describe error-prone conditions.	2	*Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences*	ALL
ADV HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	3	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADV HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADV HUM 5.1.6	Execute corrective actions.	3	Error compensation Optional content: ICAO Circular 314 – AN/178 Threat and Error	ALL

			Management (TEM) in Air Traffic Control	
ADV HUM 5.1.7	Explain the importance of error management.	2	*Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises*	ALL
ADV HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	*Optional content: reporting, SMS, investigation, CISM ALL*	ALL
Subtopic HUM 5.2 - Violation of rules				
ADV HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	2	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL

TOPIC HUM 6 - COLLABORATIVE WORK

Subtopic HUM 6.1 - Communication				
ADV HUM 6.1.1	Use communication effectively in ATC.	3		ALL
ADV HUM 6.1.2	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
Subtopic HUM 6.2 - Collaborative work within the same area of responsibility				
ADV HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	*Optional content: electronic, written, verbal and non-verbal communication*	ALL
ADV HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	*Optional content: strips legibility and encoding, labels designation, feedback*	ALL
ADV HUM 6.2.3	List possible actions to provide a safe position handover.	1	*Optional content: rigour, preparation, overlap time*	ALL
ADV HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL
Subtopic HUM 6.3 - Collaborative work between different areas of responsibility				
ADV HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	*Optional content: other sectors constraints, electronic coordination tools*	ALL
Subtopic HUM 6.4 - Controller/pilot cooperation				

ADV HUM 6.4.1	Describe parameters affecting controller/pilot cooperation.	2	*Optional content: workload, mutual knowledge, controller vs pilot mental picture*	ALL

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall integrate knowledge and understanding of the basic working principles of equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

TOPIC EQPS 1 - VOICE COMMUNICATIONS

Subtopic EQPS 1.1 - Radio communications

ADV EQPS 1.1.1	Operate two-way communication equipment.	3	Transmit/receive switches, procedures *Optional content: frequency selection, standby equipment*	ALL
ADV EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	*Optional content: indicator lights, serviceability displays, selector/frequency displays*	ALL

Subtopic EQPS 1.2 - Other voice communications

ADV EQPS 1.2.1	Operate landline communications.	3	*Optional content: telephone, interphone and intercom equipment*	ALL

TOPIC EQPS 2 - AUTOMATION IN ATS

Subtopic EQPS 2.1 - Aeronautical fixed telecommunication network (AFTN)

ADV EQPS 2.1.1	Decode AFTN messages.	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	ALL

Subtopic EQPS 2.2 - Automatic data interchange

ADV EQPS 2.2.1	Use automatic data transfer equipment where available.	3	*Optional content: sequencing systems, automated information and coordination, OLDI*	ADV ADI APS ACS
ADV EQPS 2.2.2	Explain operational application of CPDLC for departure clearance (DCL) delivery and D-ATIS.	2	ICAO Doc 9694	ADV ADI

TOPIC EQPS 3 - CONTROLLER WORKING POSITION

Subtopic EQPS 3.1 - Operation and monitoring of equipment

ADV EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALL

ADV EQPS 3.1.2	Operate the equipment of the controller working position.	3	*Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, stripprinter, clock, information systems, UDF/VDF*	ALL
ADV EQPS 3.1.3	Operate available equipment in abnormal and emergency situations.	3		ALL
Subtopic EQPS 3.2 - Situation displays and information systems				
ADV EQPS 3.2.1	Use situation displays.	3		ALL
ADV EQPS 3.2.2	Check availability of information material.	3		ALL
ADV EQPS 3.2.3	Obtain information from equipment.	3	Optional content: information from wind direction indicator	ADV ADI
Subtopic EQPS 3.3 - Flight data systems				
ADV EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL

TOPIC EQPS 4 - FUTURE EQUIPMENT

Subtopic EQPS 4.1 - New developments

ADV EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL

TOPIC EQPS 5 - EQUIPMENT AND SYSTEMS LIMITATIONS AND DEGRADATION

Subtopic EQPS 5.1 - Reaction to limitations

ADV EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALL
ADV EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL
Subtopic EQPS 5.2 - Communication equipment degradation				
ADV EQPS 5.2.1	Identify that communication equipment has degraded.	3	*Optional content: ground-air, ground-ground and landline communications*	ADV ADI

ADV EQPS 5.2.2	Integrate contingency procedures in the event of communication equipment degradation.	4	*Optional content: total or partial degradation of ground-air, ground-ground and landline communications; alternative methods of transferring data*	ADV ADI

Subtopic EQPS 5.3 - Navigational equipment degradation

ADV EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	*Optional content: VOR, navigational aids*	ALL

SUBJECT 9: PROFESSIONAL ENVIRONMENT

The subject objective is:

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

TOPIC PEN 1 - FAMILIARISATION

Subtopic PEN 1.1 - Study visit to aerodrome

ADV PEN 1.1.1	Appreciate the functions and provision of an operational aerodrome control service.	3	Study visit to TWR	ADV ADI

TOPIC PEN 2 - AIRSPACE USERS

Subtopic PEN 2.1 - Contributors to civil ATS operations

ADV PEN 2.1.1	Characterise civil ATS activities at aerodrome.	2	Study visit to TWR *Optional content: familiarisation visits to APP, ACC, AIS, RCC*	ADV ADI
ADV PEN 2.1.2	Characterise other parties interfacing with ATS operations.	2	*Optional content: familiarisation visits to engineering services, fire and emergency services, airline operations offices*	ALL

Subtopic PEN 2.2 - Contributors to military ATS operations

ADV PEN 2.2.1	Characterise military ATS activities.	2	*Optional content: familiarisation visits to TWR, APP, ACC, AIS, RCC, Air Defence Units*	ALL

TOPIC PEN 3 - CUSTOMER RELATIONS

Subtopic PEN 3.1 - Provision of services and user requirements

ADV PEN 3.1.1	Identify the role of ATC as a service provider.	3		ALL
ADV PEN 3.1.2	Appreciate ATS users requirements.	3		ALL

TOPIC PEN 4 - ENVIRONMENTAL PROTECTION

Subtopic PEN 4.1 - Environmental protection

ADV PEN 4.1.1	Describe the environmental constraints on aerodrome operations.	2	*Optional content: ICAO Doc.10013 –Operational opportunities to reduce fuel burn and emissions*	ADV ADI APP APS

ADV PEN 4.1.2	Explain the use of Collaborative Environmental Management (CEM) process at airports.	2		ADV ADI APP APS
ADV PEN 4.1.3	Appreciate the mitigation techniques used at aerodromes to minimise aviation's impact on the environment.	3	*Optional content: noise abatement procedures, flight efficiency*	ADV ADI

SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is:

Learners shall develop professional attitudes to manage traffic in abnormal and emergency situations.

TOPIC ABES 1 - ABNORMAL AND EMERGENCY SITUATIONS (ABES)

Subtopic ABES 1.1 - Overview of ABES

ADV ABES 1.1.1	List common abnormal and emergency situations.	1	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/ Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion*	ALL
ADV ABES 1.1.2	Identify potential or actual abnormal and emergency situations.	3		ALL
ADV ABES 1.1.3	Take into account the procedures for given abnormal and emergency situations.	2	Bird strike, aborted take-off *Optional content: ICAO Doc 4444*	ADV ADI
ADV ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	*Optional content: real life examples*	ALL
ADV ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	*Optional content: separation, information, coordination*	ALL

TOPIC ABES 2 - SKILLS IMPROVEMENT

Subtopic ABES 2.1 - Communication effectiveness

ADV ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
ADV ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL

Subtopic ABES 2.2 - Avoidance of mental overload

ADV ABES 2.2.1	Describe actions to keep control of the situation.	2	*Optional content: sector splitting, holding, flow management, task delegation*	ALL
ADV ABES 2.2.2	Organise priority of actions.	4		ALL

ADV ABES 2.2.3	Ensure effective circulation of information.	4	*Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and TWR , with ground staff, etc.*	
ADV ABES 2.2.4	Consider asking for help.	2		ALL
Subtopic ABES 2.3 - Air / ground cooperation				
ADV ABES 2.3.1	Collect appropriate information relevant to the situation.	3		ALL
ADV ABES 2.3.2	Assist the pilot.	3	Pilot workload *Optional content: instructions, information, support, human factors, etc.*	ALL

TOPIC ABES 3 - PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS

Subtopic ABES 3.1 - Application of procedures for ABES

ADV ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure*	ALL

Subtopic ABES 3.2 - Radio failure

ADV ABES 3.2.1	Describe the procedures followed by a pilot when he/she experiences complete or partial radio failure	2	ICAO Doc 7030 *Optional content: military procedures*	ALL
ADV ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	*Optional content: prolonged loss of communication*	ALL

Subtopic ABES 3.3 - Unlawful interference and aircraft bomb threat

ADV ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL

Subtopic ABES 3.4 - Strayed or unidentified aircraft

ADV ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	ICAO Doc 4444	ALL

			Optional content: inside controlled airspace, outside controlled airspace	
ADV ABES 3.4.2	Apply the procedures in the case of unidentified aircraft.	3	ICAO Doc 4444	ALL
ADV ABES 3.4.3	Provide navigational assistance to aircraft.	4	*Optional content: diverted aircraft, aircraft lost or unsure of position, information derived locally or from radar service or from other pilots, nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other relevant navigational assistance, ICAO Doc 4444, etc.*	ADV ADI
Subtopic ABES 3.5 - Runway incursion				
ADV ABES 3.5.1	Apply ATC procedures associated with runway incursion.	3	ICAO Doc 4444	ADV ADI

SUBJECT 11: AERODROMES

The subject objective is: Learners shall recognise and understand the design and layout of aerodromes.

TOPIC AGA 1 - AERODROME DATA, LAYOUT AND COORDINATION

Subtopic AGA 1.1 - Definitions

ADV AGA 1.1.1	Define aerodrome data.	1	GD no.653/2018 and its implementing documents *Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot*	ADV ADI APP APS

Subtopic AGA 1.2 – Coordination

ADV AGA 1.2.1	Identify the information that has to be passed between Air Traffic Services (ATS) and the airport authority.	3	Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, GD no.653/2018 and its implementing documents	APP APS ADV ADI

TOPIC AGA 2 - MOVEMENT AREA

Subtopic AGA 2.1 - Movement area

ADV AGA 2.1.1	Describe movement area.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
ADV AGA 2.1.2	Describe the marking of obstacles and unusable or unserviceable areas.	2	Flags, signs on pavement, lights	ADV ADI APP APS
ADV AGA 2.1.3	Identify the information on conditions of the movement area that have to be passed to aircraft.	3	Essential information on aerodrome conditions	ADV ADI APP APS

Subtopic AGA 2.2 - Manoeuvring area

ADV AGA 2.2.1	Describe manoeuvring area.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS

ADV AGA 2.2.2	Describe taxiway.	2		ADV ADI APP APS
ADV AGA 2.2.3	Describe the daylight marking on taxiways.	2		ADV ADI APP APS
ADV AGA 2.2.4	Describe taxiway lighting.	2		ADV ADI APP APS

Subtopic AGA 2.3 - Runways

ADV AGA 2.3.1	Describe runway.	2	Runway, runway surface, runway strip, shoulder, runway end safety areas, clearways, stopways	ADV ADI APP APS
ADV AGA 2.3.2	Describe non-instrument runway.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
ADV AGA 2.3.3	Explain declared distances.	2	TORA, TODA, ASDA, LDA	ADV ADI APP APS
ADV AGA 2.3.4	Explain the differences between ACN and PCN.	2	Strength of pavements	ADV ADI APP APS
ADV AGA 2.3.5	Describe the daylight markings on runways.	2	*Optional content: runway designator, centre line, threshold, aiming point, fixed distance, touchdown zone, side strip, colour*	ADV ADI APP APS
ADV AGA 2.3.6	Describe runway lights.	2	*Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barettes*	ADV ADI APP APS
ADV AGA 2.3.7	Explain the functions of visual landing aids.	2	*Optional content: AVASI, VASI, PAPI*	ADV ADI APP APS

ADV AGA 2.3.8	Describe the approach lighting systems.	2	Centre line, cross bars, stroboscopic lights, colours, intensity and brightness	ADV ADI APP APS
ADV AGA 2.3.9	Characterise the effect of water/ice on runways.	2		ADV ADI APP APS
ADV AGA 2.3.10	Explain braking action.	2	Braking action coefficient	ADV ADI APP APS
ADV AGA 2.3.11	Explain the effect of runway visual range on aerodrome operation	2		ADV ADI APP APS

TOPIC AGA 3 - OBSTACLES

Subtopic AGA 3.1 - Obstacle-free airspace around aerodromes

ADV AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free airspace around aerodromes.	2		ADV ADI APP APS

TOPIC AGA 4 - MISCELLANEOUS EQUIPMENT

Subtopic AGA 4.1 - Location

ADV AGA 4.1.1	Explain the location of different aerodrome ground equipment.	2	Optional content: LLZ, GP, VDF, radio communication or ATS surveillance systems sensors, stopbars, AVASI, VASI, PAPI	ADV ADI APP APS

AMC1 ATCO.D.010(a)(2)(ii) Composition of initial training

AERODROME CONTROL INSTRUMENT RATING FOR TOWER ADI (TWR) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).

(b) ATCO rating training Aerodrome Control Instrument Rating for Tower ADI (TWR) should contain the following subject objectives and training objectives that are associated with the subjects, topics and subtopics contained Appendix 4 to CT-ATCO — Aerodrome Control Instrument Rating for Tower ADI (TWR).

(c) Subjects, topics and subtopics from Appendix 4 to CT-ATCO 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 learn how to obtain the appropriate information.

TOPIC INTR 1 - COURSE MANAGEMENT

Subtopic INTR 1.1 - Course introduction

ADI INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL

Subtopic INTR 1.2 - Course administration

ADI INTR 1.2.1	State course administration.	1		ALL

Subtopic INTR 1.3 - Study material and training documentation

ADI INTR 1.3.1	Use appropriate documentation and their sources for course studies.	3	*Optional content: training documentation, library, CBT library, web, learning management server*	ALL
ADI INTR 1.3.2	Integrate appropriate information into course studies.		Training documentation *Optional content: supplementary information, library*	ALL

TOPIC INTR 2 - INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTR 2.1 - Course content and organisation

ADI INTR 2.1.1	State the different training methods applied in the course.	1	Theoretical training, practical training, self-study, types of training events	ALL
ADI INTR 2.1.2	State the subjects of the course and their purpose.	1		ALL
ADI INTR 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*	ALL
ADI INTR 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*	ALL

Subtopic INTR 2.2 - Training ethos

ADI INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	ALL

Subtopic INTR 2.3 - Assessment process

ADI INTR 2.3.1	Describe the assessment process.	2		ALL

SUBJECT 2: AVIATION LAW

The subject objective is:

Learners shall know, understand and apply the Rules of the Air and the Regulations regarding reporting, airspace and appreciate the Licensing and Competence principles.

TOPIC LAW 1 - ATCO LICENSING/CERTIFICATE OF COMPETENCE

Subtopic LAW 1.1 - Privileges and conditions

ADI LAW 1.1.1	Appreciate the conditions which shall be met to issue an Aerodrome Control Instrument rating with Tower Control endorsement.	3	GD no.134/2019 and CT- ATCO *Optional content: national documents ADI*	ALL
ADI LAW 1.1.2	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
ADI LAW 1.1.3	Explain the conditions for suspension/revocation of ATCO licence.	2	GD no.134/2019 and CT-ATCO	

TOPIC LAW 2 - RULES AND REGULATIONS

Subtopic LAW 2.1 - Reports

ADI LAW 2.1.1	List the standard forms for reports.	1	Air traffic incident report *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL
ADI LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	Reporting culture, air traffic incident report *Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2*	ALL
ADI LAW 2.1.3	Use forms for reporting.	3	National regulations related to occurrences in civil aviation, air traffic incident reporting form(s) *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL

Subtopic LAW 2.2 - Airspace

ADI LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Aerodrome Control Instrument rating with Tower Control endorsement operations.	3		ADI
ADI LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	*Optional content: CT-RA, CT-ATS, international requirements, civil requirements, military requirements, areas of responsibility, sectorization*	ALL
ADI LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 - ATC SAFETY MANAGEMENT

Subtopic LAW 3.1 - Feedback process

ADI LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	*Optional content: voluntary reporting*	ALL
ADI LAW 3.1.2	Describe how reported occurrences are analysed.	2	*Optional content: ESARR 2, local procedures*	ALL
ADI LAW 3.1.3	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety-boards web pages	ALL

ADI LAW 3.1.4	Appreciate the 'Just Culture' concept.	3	Benefits, prerequisites, constraints *Optional content: EAM 2 GUI 6, GAIN Report*	ALL
Subtopic LAW 3.2 - Safety Investigation				
ADI LAW 3.2.1	Describe role and mission of Safety Investigation in the improvement of safety.	2		ALL
ADI LAW 3.2.2	Define working methods of Safety Investigation.	1		ALL

SUBJECT 3: AIR TRAFFIC MANAGEMENT

The subject objective is:

Learners shall manage air traffic to ensure safe, orderly and expeditious services.

TOPIC ATM 1 - PROVISION OF SERVICES

Subtopic ATM 1.1 - Aerodrome control service				
ADI ATM 1.1.1	Appreciate areas of responsibility.	3	Control zone, traffic circuit, manoeuvring area, movement area, vicinity *Optional content: ATZ*	ADV ADI
ADI ATM 1.1.2	Provide aerodrome control service.	4	CT-RA, CT-ATS, ICAO Doc 7030, ICAO Doc 4444, operation manuals	ADV ADI
Subtopic ATM 1.2 - Flight information service (FIS)				
ADI ATM 1.2.1	Describe the information that shall be passed to aircraft by an aerodrome controller.	2	ICAO Doc 4444	ADV ADI
ADI ATM 1.2.2	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ADI ATM 1.2.3	Issue appropriate information.	3	ICAO Doc 4444, essential local traffic, traffic information	ADV ADI

ADI ATM 1.2.4	Appreciate the use of ATIS for the provision of flight information service by aerodrome controller.	3		ADV ADI

Subtopic ATM 1.3 - Alerting service (ALRS)

ADI ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ADI ATM 1.3.2	Respond to distress and urgency messages and signals.	3	CT-RA, CT-ATS, ICAO Annex 10, ICAO Doc 4444 *Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations*	ALL

Subtopic ATM 1.4 - ATS system capacity and air traffic flow management

ADI ATM 1.4.1	Appreciate principles of ATS system capacity and air traffic flow management.	3	*Optional content: EUROCONTROL ATFCM Users Manual, Slot management, Slot allocation procedures*	ADV ADI
ADI ATM 1.4.2	Organise traffic to take account of flow management.	4	*Optional content: departure sequence*	ADV ADI
ADI ATM 1.4.3	Inform appropriate authority.	3	*Optional content: abnormal situations, decrease in sector capacity, limitations on systems and equipment, changes in workload/capacity, unusual meteorological conditions, relevant information: reported ground-based incidents, forest fire, smoke, oil pollution*	ADV ADI

TOPIC ATM 2 - COMMUNICATION

Subtopic ATM 2.1 - Effective communication

ADI ATM 2.1.1	Use approved phraseology.	3	ICAO Doc 4444 *Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2*	ALL
ADI ATM 2.1.2	Ensure effective communication	4	Communication techniques, readback/verification of readback	ALL

Subtopic ATM 3.2 - ATC instructions

ADI ATM 3.2.1	Issue appropriate ATC instructions.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
ADI ATM 3.2.2	Integrate appropriate ATC instructions in control service.	4		ALL
ADI ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL

TOPIC ATM 4 - COORDINATION

Subtopic ATM 4.1 - Necessity for coordination

ADI ATM 4.1.1	Identify the need for coordination.	3		ALL

Subtopic ATM 4.2 - Tools and methods for coordination

ADI ATM 4.2.1	Use the available tools for coordination.	3	*Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination*	ALL

Subtopic ATM 4.3 - Coordination procedures

ADI ATM 4.3.1	Initiate appropriate coordination.	3	Delegation/transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444 *Optional content: release point*	ALL
ADI ATM 4.3.2	Analyse effect of coordination requested by an adjacent position/unit.	4	*Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.*	ALL
ADI ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL

ADI ATM 4.3.4	Ensure the agreed course of action is carried out.	4		ALL
ADI ATM 4.3.5	Coordinate in the provision of FIS.	4	ICAO Doc 4444	ALL
ADI ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	ALL

TOPIC ATM 5 - ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATM 5.1 - Altimetry

ADI ATM 5.1.1	Allocate levels according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL
ADI ATM 5.1.2	Ensure separation according to altimetry data.	4	*Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries*	ALL

Subtopic ATM 5.2 - Terrain clearance

ADI ATM 5.2.1	Provide planning, coordination and control actions appropriate to the rules for minimum safe height and terrain clearance.	4	*Optional content: terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude*	ADI

TOPIC ATM 6 - SEPARATIONS

Subtopic ATM 6.1 - Separation between departing aircraft

ADI ATM 6.1.1	Provide separation between departing aircraft.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 6.2 - Separation of departing aircraft from arriving aircraft

ADI ATM 6.2.1	Provide separation of departing aircraft from arriving aircraft.	4	ICAO Doc 4444	ADI

Subtopic ATM 6.3 - Separation of landing aircraft and preceding landing or departing aircraft

ADI ATM 6.3.1	Provide separation of landing aircraft and preceding landing or departing aircraft.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 6.4 - Time-based wake turbulence longitudinal separation

ADI ATM 6.4.1	Provide time-based wake turbulence longitudinal separation.	4	ICAO Doc 4444	ADI ADV

Subtopic ATM 6.5 - Reduced separation minima

ADI ATM 6.5.1	Provide reduced separation minima.	4	ICAO Doc 4444	ADI ADV

TOPIC ATM 7 - AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED SAFETY NETS

Subtopic ATM 7.1 - Airborne collision avoidance systems

ADI ATM 7.1.1	Differentiate between ACAS advisory thresholds and aerodrome separation standards.	2	ICAO Doc 9863	ADV ADI
ADI ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL
ADI ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS *Optional content: EUROCONTROL ACAS web page*	ALL

Subtopic ATM 7.2 - Ground-based safety nets

ADI ATM 7.2.1	Respond to available ground-based safety nets warnings.	3	*Optional content: anti-incursion*	ADV ADI

TOPIC ATM 8 - DATA DISPLAY

Subtopic ATM 8.1 - Data management

ADI ATM 8.1.1	Update the data display to accurately reflect the traffic situation.	3	*Optional content: information displayed, strip marking procedures, electronic information data displays, actions based on traffic display information, calculation of EETs*	ALL
ADI ATM 8.1.2	Analyse pertinent data on data displays.	4		ALL

ADI ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
ADI ATM 8.1.4	Obtain flight plan information.	3	CPL, FPL, supplementary information *Optional content: RPL, AFIL, etc.*	ALL
ADI ATM 8.1.5	Use flight plan information.	3		ALL

TOPIC ATM 9 - OPERATIONAL ENVIRONMENT (SIMULATED)

Subtopic ATM 9.1 - Integrity of the operational environment

ADI ATM 9.1.1	Obtain information concerning the operational environment.	3	*Optional content: briefing, notices, local orders, verification of information*	ALL
ADI ATM 9.1.2	Ensure the integrity of the operational environment.	4	*Optional content: frequency, VOLMET, ATIS, SIGMET, systems set-up, integrity of displays*	ADV ADI

Subtopic ATM 9.2 - Verification of the currency of operational procedures

ADI ATM 9.2.1	Check all relevant documentation before managing traffic.	3	*Optional content: briefing, LOAs, NOTAM, AICs*	ALL

Subtopic ATM 9.3 - Handover-takeover

ADI ATM 9.3.1	Transfer information to the relieving controller.	3		ALL
ADI ATM 9.3.2	Obtain information from the controller handing over.	3		ALL

TOPIC ATM 10 - PROVISION OF AN AERODROME CONTROL SERVICE

Subtopic ATM 10.1 - Responsibility for the provision

ADI ATM 10.1.1	Explain the responsibility for the provision of an aerodrome control service.	2	ICAO Doc 4444, CT-ATS	ADV ADI

ADI ATM 10.1.2	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ADI ATM 10.1.3	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 *Optional content: ICAO Doc 9554*	ALL
ADI ATM 10.1.4	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	ADV ADI
ADI ATM 10.1.5	Appreciate the influence of operational requirements.	3	Optional content: military flying, calibration flights, aerial photography	ALL

Subtopic ATM 10.2 - Functions of aerodrome control tower

ADI ATM 10.2.1	Manage the general functions of aerodrome control.	4	ICAO Doc 4444	ADV ADI
ADI ATM 10.2.2	Manage the suspension of VFR operations.	4	ICAO Doc 4444	ADV ADI

Subtopic ATM 10.3 - Traffic management process

ADI ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, observation, traffic projection	ADV ADI
ADI ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL
ADI ATM 10.3.3	Identify potential solutions to achieve a safe and effective flow of aerodrome traffic.	3		ADV ADI
ADI ATM 10.3.4	Evaluate possible outcomes of different control actions.	5		ADV ADI
ADI ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective flow of aerodrome traffic.	5		ADV ADI

ADI ATM 10.3.6	Ensure an adequate priority of actions.	4		ALL
ADI ATM 10.3.7	Execute plan in a timely manner.	3		ADV ADI
ADI ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL
Subtopic ATM 10.4 - Aeronautical ground lights				
ADI ATM 10.4.1	Select appropriate aeronautical ground lights.	5	ICAO Doc 4444	ADV ADI
Subtopic ATM 10.5 - Information to aircraft by aerodrome control tower				
ADI ATM 10.5.1	Provide information related to the operation of aircraft.	4	ICAO Doc 4444	ADV ADI
ADI ATM 10.5.2	Provide information on aerodrome conditions.	4	ICAO Doc 4444	ADV ADI
Subtopic ATM 10.6 - Control of aerodrome traffic				
ADI ATM 10.6.1	Predict positions of aircraft in the aerodrome traffic and taxi circuits.	4	ICAO Doc 4444	ADV ADI
ADI ATM 10.6.2	Manage traffic on the manoeuvring area.	4	ICAO Doc 4444, aircraft, vehicles *Optional content: runway inspection*	ADV ADI
ADI ATM 10.6.3	Manage traffic in accordance with procedural changes.	4	*Optional content: taxiway closure*	ADV ADI
ADI ATM 10.6.4	Balance the workload against personal capacity.	5	*Optional content: re-planning, prioritising solutions, denying requests, delaying traffic*	ADV ADI
Subtopic ATM 10.7 - Control of traffic in the traffic circuit				
ADI ATM 10.7.1	Manage traffic in the traffic circuit.	4	ICAO Doc 4444, meteorological phenomena, geographical knowledge, environmental factors	ADV ADI
ADI ATM 10.7.2	Manage arriving and departing traffic.	4	ICAO Doc 4444, allocation of the order of priority, meteorological phenomena, wake turbulence, environmental factors	ADV ADI

ADI ATM 10.7.3	Integrate the serviceability of radio aids in the management of aerodrome traffic.	4	*Optional content: UDF, VDF, MLS, ILS, NDB, VOR, DME*	ADV ADI
ADI ATM 10.7.4	Integrate surface conditions into the control of aerodrome traffic.	4	*Optional content: damp, wet, water patches, flooding, snow, slush, ice, braking action*	ADV ADI
ADI ATM 10.7.5	Integrate information about meteorological phenomena into the control of aerodrome traffic.	4	*Optional content: clouds, precipitation, visibility, wind, meteorological hazards*	ADV ADI
ADI ATM 10.7.6	Integrate the information provided by situation displays.	4	Use, advantages, disadvantages	ADV ADI
ADI ATM 10.7.7	Initiate missed approach.	3	*Optional content: obstructed runway*	ADV ADI

Subtopic ATM 10.8 - Runway in use

ADI ATM 10.8.1	Select the runway in use.	5	ICAO Doc 4444	ADV ADI
ADI ATM 10.8.2	Coordinate runway in use.	4	*Optional content: approach control, area control, runway selection, change of runway*	ADV ADI
ADI ATM 10.8.3	Manage traffic in the event of runway-in use change.	4		ADV ADI

TOPIC ATM 11 - PROVISION OF AERODROME CONTROL – INSTRUMENT

Subtopic ATM 11.1 - Low visibility operations and special VFR

ADI ATM 11.1.1	Manage SVFR traffic.	4	ICAO Doc 4444	ADI
ADI ATM 11.1.2	Describe the Procedures for Low Visibility Operations.	2	ICAO Doc 4444	ADI

Subtopic ATM 11.2 - Departing traffic

ADI ATM 11.2.1	Manage control of departing aircraft.	4	ICAO Doc 4444, use of situation displays, wake turbulence, appropriate departure clearances, SIDs	ADI

ADI ATM 11.2.2	Integrate departure sequence into the control of aerodrome traffic.	4	ICAO Doc 4444	ADI
ADI ATM 11.2.3	Provide appropriate information to departing traffic.	4	ICAO Doc 4444, use of situation displays, wake turbulence	ADI
Subtopic ATM 11.3 - Arriving traffic				
ADI ATM 11.3.1	Manage control of arriving aircraft.	4	ICAO Doc 4444, wake turbulence	ADI
ADI ATM 11.3.2	Integrate the approach sequence into the control of aerodrome traffic.	4	ICAO Doc 4444	ADI
ADI ATM 11.3.3	Integrate aircraft on visual approach into the aerodrome traffic.	4	ICAO Doc 4444	ADI
ADI ATM 11.3.4	Integrate aircraft on missed approach into the aerodrome traffic.	4	ICAO Doc 4444, use of air traffic monitors	ADI
ADI ATM 11.3.5	Integrate aircraft performing circling approach into the aerodrome traffic.	4	ICAO Doc 8168	ADI
ADI ATM 11.3.6	Provide appropriate information to arriving aircraft.	4	ICAO Doc 4444	ADI
Subtopic ATM 11.4 - Aerodrome control service with advanced system support				
ADI ATM 11.4.1	Appreciate the impact of advanced systems on the provision of aerodrome control service.	3	*Optional content: surface manager (SMAN), departure manager (DMAN), automated conflicts/incursions tools, alarms and resolution advisory tools, automated assistance for surface movement planning and routing, enhanced vision technology in low visibility for controllers*	ADI

SUBJECT 4: METEOROLOGY

The subject objective is:

Learners shall acquire, decode and make proper use of meteorological information relevant to the provision of ATS.

TOPIC MET 1 - METEOROLOGICAL PHENOMENA

Subtopic MET 1.1 - Meteorological phenomena

ADI MET 1.1.1	Appreciate the impact of different cloud types.	3	Cumulus, cumulonimbus *Optional content: stratus, nimbostratus, etc.*	ADV ADI
ADI MET 1.1.2	Appreciate the impact of precipitation.	3	Precipitation and microphysics *Optional content: rain, snow, sleet, hail*	ADV ADI
ADI MET 1.1.3	Appreciate the impact of atmospheric obscurity.	3	*Optional content: advection fog, radiation fog, mixing, evaporation, mist, drizzle*	ADV ADI
ADI MET 1.1.4	Appreciate the effect and impact of wind.	3	Gusting, veering, backing *Optional content: land breezes, sea breezes, Föhn*	ADV ADI
ADI MET 1.1.5	Appreciate the effect and danger of hazardous meteorological phenomena.	3	Wind shear, turbulence, thunderstorms, icing, microbursts	ADV ADI
ADI MET 1.1.6	Appreciate the effect of a frontal system on aerodrome operations.	3		ADV ADI
ADI MET 1.1.7	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information *Optional content: relevant meteorological phenomena*	ALL

TOPIC MET 2 - SOURCES OF METEOROLOGICAL DATA

Subtopic MET 2.1 - Meteorological instruments

ADI MET 2.1.1	Extract information from meteorological instruments.	3	*Optional content: anemometer, RVR indicator, cloud base indicator, ceilometer, barometer*	ADV ADI
Subtopic MET 2.2 - Other sources of meteorological data				
ADI MET 2.2.1	Decode information from meteorological data displays.	3		ADV ADI
ADI MET 2.2.2	Use appropriate communication tools and networks to obtain meteorological data.	3		ADV ADI
ADI MET 2.2.3	Relay meteorological information.	3	ICAO Doc 4444 *Optional content: flight information centre, adjacent ATS unit*	ALL

SUBJECT 5: NAVIGATION

The subject objective is: Learners shall analyse all navigational aspects in order to organise the traffic.

TOPIC NAV 1 - MAPS AND AERONAUTICAL CHARTS

Subtopic NAV 1.1 - Maps and charts

ADI NAV 1.1.1	Decode symbols and information displayed on aeronautical maps and charts.	3	Instrument approach charts, SID charts, aerodrome charts, visual approach charts *Optional content: military maps and charts*	ADI APP APS
ADI NAV 1.1.2	Use relevant maps and charts.	3	Instrument approach charts, SID charts, aerodrome charts, visual approach charts *Optional content: military maps and charts*	ADI

TOPIC NAV 2 - INSTRUMENT NAVIGATION

Subtopic NAV 2.1 - Navigational systems

ADI NAV 2.1.1	Describe the possible operational status of navigational systems.	2	*Optional content: NDB, VOR, DME, ILS, MLS, ABAS, SBAS, GBAS, RNP*	ADI
ADI NAV 2.1.2	Decode operational status displays of navigational systems.	3	*Optional content: NDB, VOR, DME, ILS, MLS, D-GPS, RNAV, P-RNAV*	ADI
ADI NAV 2.1.3	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	3	*Optional content: limitations, status, degraded procedures*	ALL
ADI NAV 2.1.4	Manage traffic in case of change in the operational status of navigational systems.	4	*Optional content: limitations, status of ground-based systems*	ALL

Subtopic NAV 2.2 - Stabilised approach

ADI NAV 2.2.1	Describe the concept of stabilised approach.	2	ICAO Doc 8168 *Optional content: GD no.831/2018 and its implementing documents*	ADV ADI APP APS
ADI NAV 2.2.2	Appreciate the effect of late change of runway-in-use for landing aircraft.	3		ADV ADI

Subtopic NAV 2.3 - Instrument departures and arrivals

ADI NAV 2.3.1	Characterise SIDs.	2		ADI APP APS
ADI NAV 2.3.2	Describe the phases of an instrument approach procedure.	2		ADI
ADI NAV 2.3.3	Describe the relevant minima applicable for a precision/ non-precision and visual approach.	2		ADI APP APS

Subtopic NAV 2.4 - Satellite-based systems

ADI NAV 2.4.1	State the different applications of satellitebased systems relevant for aerodrome operations.	1	*Optional content: NPA, APV-baro VNAV, APV, LPV, precision approach, ICAO Doc 8168 Vol.2*	ADI

Subtopic NAV 2.5 - PBN applications

ADI NAV 2.5.1	State future PBN developments.	1	A-RNP, APV *Optional content: RNP 3D, RNP 4D*	ADI APP ACP APS ACS

SUBJECT 6: AIRCRAFT

The subject objective is: Learners shall assess and integrate aircraft performance in the provision of ATS.

TOPIC ACFT 1 - AIRCRAFT INSTRUMENTS

Subtopic ACFT 1.1 - Aircraft instruments

ADI ACFT 1.1.1	Integrate information from aircraft instruments provided by the pilot in the provision of ATS.	4		ALL
ADI ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	*Optional content: radios (number of), emergency radios*	ALL
ADI ACFT 1.1.3	Explain the operation of on-board surveillance equipment.	2	Transponders: equipment Mode A, Mode C, Mode S, ADS capability	ADI APS ACS

TOPIC ACFT 2 - AIRCRAFT CATEGORIES

Subtopic ACFT 2.1 - Wake turbulence

ADI ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL
ADI ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL

Subtopic ACFT 2.2 - Application of ICAO approach categories

ADI ACFT 2.2.1	Describe the use of ICAO approach categories.	2	ICAO Doc 8168	ADI APP APS

ADI ACFT 2.2.2	Appreciate the effect of ICAO approach categories on the traffic organisation.	3		ADI APP APS

TOPIC ACFT 3 - FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFT 3.1 - Take-off factors

ADI ACFT 3.1.1	Integrate the influence of factors affecting aircraft on take-off.	4	*Optional content: runway conditions, runway slope, aerodrome elevation, wind, temperature, aircraft configuration, airframe contamination and aircraft mass*	ADV ADI

Subtopic ACFT 3.2 - Climb factors

ADI ACFT 3.2.1	Appreciate the influence of factors affecting aircraft during climb.	3	*Optional content: speed, mass, air density, wind and temperature*	ADV ADI

Subtopic ACFT 3.3 - Final approach and landing factors

ADI ACFT 3.3.1	Integrate the influence of factors affecting aircraft during final approach and landing.	4	*Optional content: wind, aircraft configuration, mass, runway conditions, runway slope, aerodrome elevation*	ADV ADI

Subtopic ACFT 3.4 - Economic factors

ADI ACFT 3.4.1	Integrate consideration of economic factors affecting aircraft.	4	*Optional content: starting-up, taxiing, routing, departure sequence*	ADV ADI

Subtopic ACFT 3.5 - Environmental factors

ADI ACFT 3.5.1	Appreciate the performance restrictions due to environmental constraints.	3	*Optional content: noise abatement procedures, minimum flight altitudes, bird hazard*	ADV ADI

TOPIC ACFT 4 - AIRCRAFT DATA

Subtopic ACFT 4.1 - Recognition of aircraft types

ADI ACFT 4.1.1	Characterise a representative sample of aircraft which will be encountered in the operational/working environment.	2	Recognition, ICAO type designators, wake turbulence categories *Optional content: ICAO approach categories*	ADI

Subtopic ACFT 4.2 - Performance data

ADI ACFT 4.2.1	Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the provision of a control service.	4	Performance data under a representative variety of circumstances	ADV ADI

SUBJECT 7: HUMAN FACTORS

The subject objective is:

Learners shall recognise the necessity to constantly extend their knowledge and analyse factors which affect personal and team performance.

TOPIC HUM 1 - PSYCHOLOGICAL FACTORS

Subtopic HUM 1.1 - Cognitive

ADI HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL
ADI HUM 1.1.2	Describe the factors which influence human information processing.	2	Confidence, stress, learning, knowledge, experience, fatigue, alcohol/drugs, distraction, interpersonal relations	ALL
ADI HUM 1.1.3	Monitor the effect of human information processing factors on decision making.	3	*Optional content: workload, stress, interpersonal relations, distraction, confidence*	ALL

TOPIC HUM 2 - MEDICAL AND PHYSIOLOGICAL FACTORS

Subtopic HUM 2.1 - Fatigue

ADI HUM 2.1.1	State factors that cause fatigue.	1	Shift work Optional content: night shifts and rosters	ALL
ADI HUM 2.1.2	Describe the onset of fatigue.	1	*Optional content: lack of concentration, listlessness, irritability, frustration, ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL

ADI HUM 2.1.3	Recognise the onset of fatigue in self.	1	*Optional content: ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
ADI HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL
ADI HUM 2.1.5	Describe appropriate action when recognising fatigue.	2		ALL
Subtopic HUM 2.2 - Fitness				
ADI HUM 2.2.1	Recognise signs of lack of personal fitness.	1		ALL
ADI HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		ALL

TOPIC HUM 3 - SOCIAL AND ORGANISATIONAL FACTORS

Subtopic HUM 3.1 - Team resource management (TRM)

ADI HUM 3.1.1	State the relevance of TRM.	1	*Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training*	ALL
ADI HUM 3.1.2	State the content of the TRM concept.	1	*Optional content: team work, human error, team roles, stress, decision making, communication, situational awareness*	ALL
Subtopic HUM 3.2 - Teamwork and team roles				
ADI HUM 3.2.1	Identify reasons for conflict.	3		ALL
ADI HUM 3.2.2	Describe actions to prevent human conflicts.	2	*Optional content: TRM team roles*	ALL
ADI HUM 3.2.3	Describe strategies to cope with human conflicts.	2	*Optional content: in your team, in the simulator*	ALL
Subtopic HUM 3.3 - Responsible behaviour				
ADI HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*	ALL

ADI HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 - STRESS

Subtopic HUM 4.1 - Stress

ADI HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL

Subtopic HUM 4.2 - Stress management

ADI HUM 4.2.1	Act to reduce stress.	3	The effect of personality in coping with stress, the benefits of active stress management	ALL
ADI HUM 4.2.2	Respond to stressful situation by offering, asking or accepting assistance.	3	*Optional content: the benefits of offering, accepting and asking for help in stressful situations*	ALL
ADI HUM 4.2.3	Recognise the effect of shocking and stressful events.	1	Self and others, abnormal situations, CISM	ALL
ADI HUM 4.2.4	Consider the benefits of Critical Incident Stress Management (CISM).	2		ALL
ADI HUM 4.2.5	Explain procedures used following an incident/accident.	2	*Optional content: CISM, counselling, human element*	ALL

TOPIC HUM 5 - HUMAN ERROR

Subtopic HUM 5.1 - Human error

ADI HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, proactive versus reactive approach to discovery of error *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADI HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes *Optional content: Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADI HUM 5.1.3	Describe error-prone conditions.	2	*Optional content: increase in traffic, changes in procedures,*	ALL

			complexities of systems or traffic, weather, unusual occurrences	
ADI HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	3	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADI HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ADI HUM 5.1.6	Execute corrective actions.	3	Error compensation *Optional content: ICAO Circular 314 – AN/178*	ALL
ADI HUM 5.1.7	Explain the importance of error management.	2	*Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises*	ALL
ADI HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	Optional content: reporting, SMS, investigation, CISM	ALL
Subtopic HUM 5.2 - Violation of rules				
ADI HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	2	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL

TOPIC HUM 6 - COLLABORATIVE WORK

Subtopic HUM 6.1 - Communication

ADI HUM 6.1.1	Use communication effectively in ATC.	3		ALL
ADI HUM 6.1.2	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
Subtopic HUM 6.2 - Collaborative work within the same area of responsibility				
ADI HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	*Optional content: electronic, written, verbal and non-verbal communication*	ALL
ADI HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	*Optional content: strips legibility and encoding, labels designation, feedback*	ALL

ADI HUM 6.2.3	List possible actions to provide a safe position handover.	1	*Optional content: rigour, preparation, overlap time*	ALL
ADI HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL

Subtopic HUM 6.3 - Collaborative work between different areas of responsibility

ADI HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	*Optional content: other sectors constraints, electronic coordination tools*	ALL

Subtopic HUM 6.4 - Controller/pilot cooperation

ADI HUM 6.4.1	Describe parameters affecting controller/pilot cooperation.	2	*Optional content: workload, mutual knowledge, controller vs pilot mental picture*	ALL

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall integrate knowledge and understanding of the basic working principles of equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

TOPIC EQPS 1 - VOICE COMMUNICATIONS

Subtopic EQPS 1.1 - Radio communications

ADI EQPS 1.1.1	Operate two-way communication equipment.	3	Transmit/receive switches, procedures *Optional content: frequency selection, standby equipment*	ALL
ADI EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	*Optional content: indicator lights, serviceability displays, selector/frequency displays*	ALL

Subtopic EQPS 1.2 - Other voice communications

ADI EQPS 1.2.1	Operate landline communications.		*Optional content: telephone, interphone and intercom equipment*	ALL

TOPIC EQPS 2 - AUTOMATION IN ATS

Subtopic EQPS 2.1 - Aeronautical fixed telecommunication network (AFTN)

ADI EQPS 2.1.1	Decode AFTN messages.	3	*Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.*	ALL

Subtopic EQPS 2.2 - Automatic data interchange

ADI EQPS 2.2.1	Use automatic data transfer equipment where available.	3	*Optional content: sequencing systems, automated information and coordination, OLDI*	ADV ADI APS ACS
ADI EQPS 2.2.2	Explain operational application of CPDLC for departure clearance (DCL) delivery and D-ATIS.	2	ICAO Doc 9694	ADV ADI

TOPIC EQPS 3 - CONTROLLER WORKING POSITION

Subtopic EQPS 3.1 - Operation and monitoring of equipment

ADI EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALL
ADI EQPS 3.1.2	Operate the equipment of the controller working position.	3	*Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, stripprinter, clock, information systems, UDF/VDF*	ALL
ADI EQPS 3.1.3	Operate available equipment in abnormal and emergency situations.	3		ALL

Subtopic EQPS 3.2 - Situation displays and information systems

ADI EQPS 3.2.1	Use situation displays.	3		ALL
ADI EQPS 3.2.2	Check availability of information material.	3		ALL
ADI EQPS 3.2.3	Obtain information from equipment.	3	*Optional content: information from wind direction indicator*	ADV ADI
ADI EQPS 3.2.4	Take account of anti-incursion equipment.	2		ADI
ADI EQPS 3.2.5	Explain the use of ASMGCS.	2		ADI

Subtopic EQPS 3.3 - Flight data systems

ADI EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL

TOPIC EQPS 4 - FUTURE EQUIPMENT

Subtopic EQPS 4.1 - New developments

ADI EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL

TOPIC EQPS 5 - EQUIPMENT AND SYSTEMS LIMITATIONS AND DEGRADATION

Subtopic EQPS 5.1 - Reaction to limitations

ADI EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALL
ADI EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL

Subtopic EQPS 5.2 - Communication equipment degradation

ADI EQPS 5.2.1	Identify that communication equipment has degraded.		*Optional content: ground-air, ground-ground and landline communications*	ADV ADI
ADI EQPS 5.2.2	Integrate contingency procedures in the event of communication equipment degradation.	4	*Optional content: total or partial degradation of ground-air, ground-ground and landline communications; alternative methods of transferring data*	ADV ADI

Subtopic EQPS 5.3 - Navigational equipment degradation

ADI EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	*Optional content: VOR, navigational aids*	ALL
ADI EQPS 5.3.2	Apply contingency procedures in the event of a navigational equipment degradation.	3	*Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units*	ADI APP ACP APS ACS

SUBJECT 9: PROFESSIONAL ENVIRONMENT

The subject objective is:

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

TOPIC PEN 1 - FAMILIARISATION

Subtopic PEN 1.1 - Study visit to aerodrome

ADI PEN 1.1.1	Appreciate the functions and provision of an operational aerodrome control service.	3	Study visit to TWR	ADV ADI

TOPIC PEN 2 - AIRSPACE USERS

Subtopic PEN 2.1 - Contributors to civil ATS operations

ADI PEN 2.1.1	Characterise civil ATS activities at aerodrome.	2	Study visit to TWR Optional content: familiarisation visits to APP, ACC, AIS, RCC	ADV ADI
ADI PEN 2.1.2	Characterise other parties interfacing with ATS operations.	2	*Optional content: familiarisation visits to engineering services, fire and emergency services, airline operations offices*	ALL

Subtopic PEN 2.2 - Contributors to military ATS operations

ADI PEN 2.2.1	Characterise military ATS activities.	2	Optional content: familiarisation visits to TWR, APP, ACC, AIS, RCC, Air Defence Units	ALL

TOPIC PEN 3 - CUSTOMER RELATIONS

Subtopic PEN 3.1 - Provision of services and user requirements

ADI PEN 3.1.1	Identify the role of ATC as a service provider.	3		ALL
ADI PEN 3.1.2	Appreciate ATS users requirements.	3		ALL

TOPIC PEN 4 - ENVIRONMENTAL PROTECTION

Subtopic PEN 4.1 - Environmental protection

ADI PEN 4.1.1	Describe the environmental constraints on aerodrome operations.	2	*Optional content: ICAO Doc.10013 – Operational opportunities to reduce fuel burn and emissions*	ADV ADI APP APS
ADI PEN 4.1.2	Explain the use of Collaborative Environmental Management (CEM) process at airports.	2		ADV ADI APP APS
ADI PEN 4.1.3	Appreciate the mitigation techniques used at aerodromes to minimise aviation's impact on the environment.	3	*Optional content: noise abatement procedures, flight efficiency*	ADV ADI

SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is:

Learners shall develop professional attitudes to manage traffic in abnormal and emergency situations.

TOPIC ABES 1 - ABNORMAL AND EMERGENCY SITUATIONS (ABES)

Subtopic ABES 1.1 - Overview of ABES

ADI ABES 1.1.1	List common abnormal and emergency situations.	1	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion*	ALL
ADI ABES 1.1.2	Identify potential or actual abnormal and emergency situations.	3		ALL
ADI ABES 1.1.3	Take into account the procedures for given abnormal and emergency situations.	2	Bird strike, aborted take-off *Optional content: ICAO Doc 4444*	ADV ADI
ADI ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	*Optional content: real life examples*	ALL
ADI ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	*Optional content: separation, information, coordination*	ALL

TOPIC ABES 2 - SKILLS IMPROVEMENT

Subtopic ABES 2.1 - Communication effectiveness

ADI ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
ADI ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL

Subtopic ABES 2.2 - Avoidance of mental overload

ADI ABES 2.2.1	Describe actions to keep control of the situation.	2	*Optional content: sector splitting, holding, flow management, task delegation*	ALL
ADI ABES 2.2.2	Organise priority of actions.	4		ALL
ADI ABES 2.2.3	Ensure effective circulation of information.	4	*Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and TWR , with ground staff, etc.*	ALL
ADI ABES 2.2.4	Consider asking for help.	2		ALL

Subtopic ABES 2.3 - Air / ground cooperation

ADI ABES 2.3.1	Collect appropriate information relevant to the situation.	3		
ADI ABES 2.3.2	Assist the pilot.	3	Pilot workload *Optional content: instructions, information, support, human factors, etc*.	

TOPIC ABES 3 - PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS

Subtopic ABES 3.1 - Application of procedures for ABES

ADI ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure*	ALL

Subtopic ABES 3.2 - Radio failure

ADI ABES 3.2.1	Describe the procedures followed by a pilot when he/she experiences complete or partial radio failure.	2	*Optional content: military procedures*	ALL
ADI ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	*Optional content: prolonged loss of communication*	ALL
Subtopic ABES 3.3 - Unlawful interference and aircraft bomb threat				
ADI ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL
Subtopic ABES 3.4 - Strayed or unidentified aircraft				
ADI ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	ICAO Doc 4444 *Optional content: inside controlled airspace, outside controlled airspace*	ALL
ADI ABES 3.4.2	Apply the procedures in the case of unidentified aircraft.	3	ICAO Doc 4444	ALL
ADI ABES 3.4.3	Provide navigational assistance to aircraft.	4	*Optional content: diverted aircraft, aircraft lost or unsure of position, information derived locally or from radar service or from other pilots, nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other relevant navigational assistance, ICAO Doc 4444, etc.*	ADV ADI
Subtopic ABES 3.5 - Runway incursion				
ADI ABES 3.5.1	Apply ATC procedures associated with runway incursion.	3	ICAO Doc 4444	ADV ADI

SUBJECT 11: AERODROMES

The subject objective is:

Learners shall recognise and understand the design and layout of aerodromes.

TOPIC AGA 1 - AERODROME DATA, LAYOUT AND COORDINATION

Subtopic AGA 1.1 - Definitions

ADI AGA 1.1.1	Define aerodrome data.	1	GD no.653/2018 and its implementing documents *Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot*	ADV ADI APP APS

Subtopic AGA 1.2 - Coordination

ADI AGA 1.2.1	Identify the information that has to be passed between Air Traffic Services (ATS) and the airport authority.	3	Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, GD no.653/2018 and its implementing documents	ADV ADI APP APS

TOPIC AGA 2 - MOVEMENT AREA

Subtopic AGA 2.1 - Movement area

ADI AGA 2.1.1	Describe movement area.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS

ADI AGA 2.1.2	Describe the marking of obstacles and unusable or unserviceable areas.	2	Flags, signs on pavement, lights	ADV ADI APP APS
ADI AGA 2.1.3	Identify the information on conditions of the movement area that have to be passed to aircraft.	3	Essential information on aerodrome conditions	ADV ADI APP APS
Subtopic AGA 2.2 - Manoeuvring area				
ADI AGA 2.2.1	Describe manoeuvring area.	3	GD no.653/2018 and its implementing documents	ADV ADI APP APS
ADI AGA 2.2.2	Describe taxiway.	2		ADV ADI APP APS
ADI AGA 2.2.3	Describe the daylight marking on taxiways.	2		ADV ADI APP APS
ADI AGA 2.2.4	Describe taxiway lighting.	2		ADV ADI APP APS
Subtopic AGA 2.3 - Runways				
ADI AGA 2.3.1	Describe runway.	2	Runway, runway surface, runway strip, shoulder, runway end safety areas, clearways, stopways	ADV ADI APP APS
ADI AGA 2.3.2	Describe instrument runway.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
ADI AGA 2.3.3	Describe non-instrument runway.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
ADI AGA 2.3.4	Explain declared distances.	2	TORA, TODA, ASDA, LDA	ADV ADI APP APS
ADI AGA 2.3.5	Explain the differences between ACN and PCN.	2	Strength of pavements	ADV ADI APP APS

ADI AGA 2.3.6	Describe the daylight markings on runways.	2	*Optional content: runway designator, centre line, threshold, aiming point, fixed distance, touchdown zone, side strip, colour*	ADV ADI APP APS
ADI AGA 2.3.7	Describe runway lights.	2	*Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barettes*	ADV ADI APP APS
ADI AGA 2.3.8	Explain the functions of visual landing aids.	2	*Optional content: AVASI, VASI, PAPI*	ADV ADI APP APS
ADI AGA 2.3.9	Describe the approach lighting systems.	2	Centre line, cross bars, stroboscopic lights, colours, intensity and brightness	ADV ADI APP APS
ADI AGA 2.3.10	Characterise the effect of water/ice on runways.	2		ADV ADI APP APS
ADI AGA 2.3.11	Explain braking action.	2	Braking action coefficient	ADV ADI APP APS
ADI AGA 2.3.12	Explain the effect of runway visual range on aerodrome operation.	2		ADV ADI APP APS

TOPIC AGA 3 - OBSTACLES

Subtopic AGA 3.1 - Obstacle-free airspace around aerodromes

ADI AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free airspace around aerodromes.	2		ADV ADI APP APS

TOPIC AGA 4 - MISCELLANEOUS EQUIPMENT

Subtopic AGA 4.1 - Location

ADI AGA 4.1.1	Explain the location of different aerodrome ground equipment.	2	*Optional content: LLZ, GP, VDF, radio communication or ATS surveillance systems sensors, stopbars, AVASI, VASI, PAPI*	ADV ADI APP APS

AMC1 ATCO.D.010(a)(2)(iii) Composition of initial training

APPROACH CONTROL PROCEDURAL RATING (APP) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).
(b) ATCO rating training Approach Control Procedural Rating (APP) should contain the following subject objectives and training objectives that are associated with the subjects, topics and subtopics contained in Appendix 5 to CT-ATCO — Approach Control Procedural Rating (APP).
(c) Subjects, topics and subtopics from Appendix 5 to CT-ATCO 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 learn how to obtain the appropriate information.

TOPIC INTR 1 - COURSE MANAGEMENT

Subtopic INTR 1.1 - Course introduction

APP INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL

Subtopic INTR 1.2 - Course administration

APP INTR 1.2.1	State course administration.	1		ALL

Subtopic INTR 1.3 - Study material and training documentation

APP INTR 1.3.1	Use appropriate documentation and their sources for course studies.	3	*Optional content: training documentation, library, CBT library, web, learning management server*	ALL
APP INTR 1.3.2	Integrate appropriate information into course studies.	4	Training documentation *Optional content: supplementary information, library*	ALL

TOPIC INTR 2 - INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTR 2.1 - Course content and organisation

APP INTR 2.1.1	State the different training methods applied in the course.	1	Theoretical training, practical training, self-study, types of training events	ALL
APP INTR 2.1.2	State the subjects of the course and their purpose.	1		ALL

APP INTR 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*	ALL
APP INTR 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*	ALL
Subtopic INTR 2.2 - Training ethos				
APP INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	ALL
Subtopic INTR 2.3 - Assessment process				
APP INTR 2.3.1	Describe the assessment process.	2		ALL

SUBJECT 2: AVIATION LAW

The subject objective is:

Learners shall know, understand and apply the Rules of the Air and the Regulations regarding reporting, airspace and appreciate the Licensing and Competence principles.

TOPIC LAW 1 - ATCO LICENSING/CERTIFICATE OF COMPETENCE

Subtopic LAW 1.1 - Privileges and conditions

APP LAW 1.1.1	Appreciate the conditions which shall be met to issue an Approach Control Procedural rating	3	GD no.134/2019 and CT-ATCO *Optional content: National documents*	APP
APP LAW 1.1.2	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
APP LAW 1.1.3	Explain the conditions for suspension/revocation of ATCO licence.	2	GD no.134/2018 and CT-ATCO	ALL

TOPIC LAW 2 - RULES AND REGULATIONS

Subtopic LAW 2.1 - Reports

APP LAW 2.1.1	List the standard forms for reports.	1	Air traffic incident report Optional content: routine air reports, breach of regulations, watch/log book, records	ALL
APP LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	Reporting culture, air traffic incident report *Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR*	ALL
APP LAW 2.1.3	Use forms for reporting.	3	National regulations related to occurrences in civil aviation, air traffic incident reporting form(s) *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL

Subtopic LAW 2.2 - Airspace

APP LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Approach Control Procedural rating operations.	3		APP
APP LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	*Optional content: CT-RA, CT-ATS, international requirements, civil requirements, military requirements, areas of responsibility, sectorization*	ALL

APP LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 - ATC SAFETY MANAGEMENT

Subtopic LAW 3.1 - Feedback process

APP LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	*Optional content: voluntary reporting*	ALL
APP LAW 3.1.2	Describe how reported occurrences are analysed.	2	*Optional content: ESARR 2, local procedures*	ALL
APP LAW 3.1.3	Name the means used to disseminate recommendations.	1	*Optional content: safety letters, safety boards web pages*	ALL
APP LAW 3.1.4	Appreciate the 'Just Culture' concept.	3	Benefits, prerequisites, constraints *Optional content: EAM 2 GUI 6, GAIN Report*	ALL

Subtopic LAW 3.2 - Safety Investigation

APP LAW 3.2.1	Describe role and mission of Safety Investigation in the improvement of safety.	2		ALL
APP LAW 3.2.2	Define working methods of Safety Investigation.	1		ALL

SUBJECT 3: AIR TRAFFIC MANAGEMENT

The subject objective is:

Learners shall manage air traffic to ensure safe, orderly and expeditious services.

TOPIC ATM 1 - PROVISION OF SERVICES

Subtopic ATM 1.1 - Air traffic control (ATC) service

APP ATM 1.1.1	Appreciate own area of responsibility.	3		APP ACP

				APS ACS
APP ATM 1.1.2	Provide approach control service.	4	CT-RA, CT-ATS, ICAO Doc 7030, ICAO Doc 4444, operation manuals	APP APS
Subtopic ATM 1.2 - Flight information service (FIS)				
APP ATM 1.2.1	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
APP ATM 1.2.2	Issue appropriate information concerning the location of conflicting traffic.	3	ICAO Doc 4444, traffic information, essential traffic information	APP ACP APS ACS
APP ATM 1.2.3	Appreciate the use of ATIS for the provision of flight information service by approach controller.	3		APP APS
Subtopic ATM 1.3 - Alerting service (ALRS)				
APP ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
APP ATM 1.3.2	Respond to distress and urgency messages and signals.	3	CT-RA, CT-ATS, ICAO Annex 10, ICAO Doc 4444 *Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations*	ALL
Subtopic ATM 1.4 - ATS system capacity and air traffic flow management				
APP ATM 1.4.1	Appreciate principles of ATS system capacity and air traffic flow management.	3	*Optional content: EUROCONTROL ATFCM Users Manual, FABs, FUA, free flight, etc.*	APP ACP APS ACS
APP ATM 1.4.2	Apply flow management procedures in the provision of ATC.	3	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
APP ATM 1.4.3	Organise traffic flows and patterns to take account of airspace boundaries.	4	*Optional content: civil and military, controlled, uncontrolled, advisory, restricted, danger, prohibited, special rules, sector boundaries, national boundaries, FIR boundaries, delegated airspace, transfer of control,*	APP ACP APS ACS

			transfer of communications, en-route, off-route	
APP ATM 1.4.4	Organise traffic flows and patterns to take account of areas of responsibility.	4	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
APP ATM 1.4.5	Inform supervisor of situation.	3	*Optional content: abnormal situations, decrease in sector capacity, limitations on systems and equipment, changes in workload/capacity, unusual meteorological conditions, relevant information like: reported ground-based incidents, forest fire, smoke, oil pollution*	APP ACP APS ACS
Subtopic ATM 1.5 - Airspace management (ASM)				
APP ATM 1.5.1	Appreciate the principles and means of ASM.	3	National regulations related to the organisation and use of the airspace in the single European sky and rules for the flexible use of airspace. *Optional content: FABs, EUROCONTROL Specification for the application of FUA, TSAs, CDRs, CBAs*	APP ACP APS ACS
APP ATM 1.5.2	Organise traffic to take account of ASM.	4	Optional content: CDR, TSA, TRA, CBA, real-time activation, deactivation or reallocation of airspace	APP ACP

TOPIC ATM 2 - COMMUNICATION

Subtopic ATM 2.1 - Effective communication

APP ATM 2.1.1	Use approved phraseology.	3	ICAO Doc 4444 *Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2*	ALL
APP ATM 2.1.2	Ensure effective communication.	4	Communication techniques, readback/verification of readback	ALL

TOPIC ATM 3 - ATC CLEARANCES AND ATC INSTRUCTIONS

Subtopic ATM 3.1 - ATC clearances

APP ATM 3.1.1	Issue appropriate ATC clearances.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
APP ATM 3.1.2	Integrate appropriate ATC clearances in control service.	4		ALL
APP ATM 3.1.3	Ensure the agreed course of action is carried out.	4		ALL
Subtopic ATM 3.2 - ATC instructions				
APP ATM 3.2.1	Issue appropriate ATC instructions.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
APP ATM 3.2.2	Integrate appropriate ATC instructions in control service.	4		ALL
APP ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL

TOPIC ATM 4 - COORDINATION

Subtopic ATM 4.1 - Necessity for coordination				
APP ATM 4.1.1	Identify the need for coordination.	3		ALL
Subtopic ATM 4.2 - Tools and methods for coordination				
APP ATM 4.2.1	Use the available tools for coordination.	3	*Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination*	ALL
Subtopic ATM 4.3 - Coordination procedures				
APP ATM 4.3.1	Initiate appropriate coordination.	3	Delegation / transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444 *Optional content: release point*	ALL

APP ATM 4.3.2	Analyse effect of coordination requested by an adjacent position/unit.	4	*Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.*	ALL
APP ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL
APP ATM 4.3.4	Ensure the agreed course of action is carried out.	4		ALL
APP ATM 4.3.5	Coordinate in the provision of FIS.	4	ICAO Doc 4444	ALL
APP ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	ALL

TOPIC ATM 5 - ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATM 5.1 - Altimetry

APP ATM 5.1.1	Allocate levels according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL
APP ATM 5.1.2	Ensure separation according to altimetry data.	4	*Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries*	ALL

Subtopic ATM 5.2 - Terrain clearance

APP ATM 5.2.1	Provide planning, coordination and control actions appropriate to the rules for minimum safe levels and terrain clearance.	4	*Optional content: terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude*	APP ACP

TOPIC ATM 6 - SEPARATIONS

Subtopic ATM 6.1 - Vertical separation

APP ATM 6.1.1	Provide standard vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030, level allocation, during climb/descent, rate of climb/descent, holding pattern	APP APS

APP ATM 6.1.2	Provide increased vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030 *Optional content: level allocation, during climb/descent, rate of climb/descent*	APP ACP APS ACS
APP ATM 6.1.3	Appreciate the application of vertical emergency separation.	3	ICAO Doc 4444, ICAO Doc 7030	APP ACP APS ACS
Subtopic ATM 6.2 - Horizontal separation				
APP ATM 6.2.1	Provide longitudinal separation.	4	Based on time, based on distance (DME and/or GNSS, RNAV)	APP
APP ATM 6.2.2	Provide lateral separation.	4	ICAO Doc 4444, ICAO Doc 7030, holding	APP ACP
APP ATM 6.2.3	Provide track separation.	4		ACP APP
APP ATM 6.2.4	Provide geographical separation.	4	Visual, using navigation aids, area navigation	ACP APP
Subtopic ATM 6.3 - Delegation of separation				
APP ATM 6.3.1	Delegate separation to pilots in the case of aircraft executing successive visual approaches.	4		APP APS
APP ATM 6.3.2	Appreciate the conditions which must be met when delegating separation to pilots to fly maintaining own separation while in VMC.	3	ICAO Doc 4444	APP APS

TOPIC ATM 7 - AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED SAFETY NETS

Subtopic ATM 7.1 - Airborne collision avoidance systems

APP ATM 7.1.1	Differentiate between ACAS advisory thresholds and separation standards applicable in the approach control environment.	2	ICAO Doc 9863 Optional content: EUROCONTROL TCAS web page	APP APS
APP ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL

APP ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS *Optional content: EUROCONTROL ACAS web page*	ALL

TOPIC ATM 8 - DATA DISPLAY

Subtopic ATM 8.1 - Data management

APP ATM 8.1.1	Update the data display to accurately reflect the traffic situation.	3	*Optional content: information displayed, strip marking procedures, electronic information data displays, actions based on traffic display information, calculation of EETs*	ALL
APP ATM 8.1.2	Analyse pertinent data on data displays.	4		ALL
APP ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
APP ATM 8.1.4	Obtain flight plan information.	3	CPL, FPL, supplementary information *Optional content: RPL, AFIL, etc.*	ALL
APP ATM 8.1.5	Use flight plan information.	3		ALL

TOPIC ATM 9 - OPERATIONAL ENVIRONMENT (SIMULATED)

Subtopic ATM 9.1 - Integrity of the operational environment

APP ATM 9.1.1	Obtain information concerning the operational environment.	3	*Optional content: briefing, notices, local orders, verification of information*	ALL
APP ATM 9.1.2	Ensure the integrity of the operational environment.	4	Optional content: integrity of displays, verification of the information provided by displays, etc.	APP ACP APS ACS

Subtopic ATM 9.2 - Verification of the currency of operational procedures

APP ATM 9.2.1	Check all relevant documentation before managing traffic.	3	*Optional content: briefing, LOAs, NOTAM, AICs*	ALL
APP ATM 9.2.2	Manage traffic in accordance with procedural changes.	4		APP ACP

				APS ACS

Subtopic ATM 9.3 - Handover-takeover

APP ATM 9.3.1	Transfer information to the relieving controller.	3		ALL
APP ATM 9.3.2	Obtain information from the controller handing over.	3		ALL

TOPIC ATM 10 - PROVISION OF CONTROL SERVICE

Subtopic ATM 10.1 - Responsibility and processing of information

APP ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
APP ATM 10.1.2	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 *Optional content: ICAO Doc 9554*	ALL
APP ATM 10.1.3	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	APP ACP APS ACS
APP ATM 10.1.4	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APP ACP APS ACS
APP ATM 10.1.5	Interpret operational information.	5		APP ACP APS ACS
APP ATM 10.1.6	Organise forwarding of operational information.	4	*Optional content: including the use of backup procedures*	APP ACP APS ACS
APP ATM 10.1.7	Integrate operational information into control decisions.	4		APP ACP APS ACS
APP ATM 10.1.8	Appreciate the influence of operational requirements.	3	*Optional content: military flying, calibration flights, aerial photography*	ALL

Subtopic ATM 10.2 - Approach control

APP ATM 10.2.1	Explain the responsibility for the provision of an approach procedural control service.	2	ICAO Doc 4444, CT-ATS, local operation manuals	APP
APP ATM 10.2.2	Provide planning, coordination and control actions appropriate to the VFR, SVFR and IFR in VMC and IMC.	4	CT-RA, CT-ATS, ICAO Doc 4444	APP APS

Subtopic ATM 10.3 - Traffic management process

APP ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, traffic projection	APP ACP
APP ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL
APP ATM 10.3.3	Identify potential solutions to achieve a safe and effective traffic flow.	3		APP ACP APS ACS
APP ATM 10.3.4	Evaluate possible outcomes of different planning and control actions.	5		APP ACP APS ACS
APP ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective traffic flow.	5		APP ACP APS ACS
APP ATM 10.3.6	Ensure an adequate priority of actions.	4		ALL
APP ATM 10.3.7	Execute selected plan in a timely manner.	3		APP ACP APS ACS
APP ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL

Subtopic ATM 10.4 - Handling traffic

APP ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP

				APS ACS
APP ATM 10.4.2	Balance the workload against personal capacity.	5	*Optional content: re-routing, re-planning, prioritising solutions, denying requests, delegating responsibility for separation*	APP ACP APS ACS
APP ATM 10.4.3	Manage traffic on different types of approaches.	4	Precision, non-precision, visual	APP APS
APP ATM 10.4.4	Initiate missed approach.	3	ICAO Doc 4444	APP APS
APP ATM 10.4.5	Integrate aircraft on missed approach into the traffic situation.	4		APP APS

TOPIC ATM 11 - HOLDING

Subtopic ATM 11.1 - General holding procedures

APP ATM 11.1.1	Apply holding procedures.	3	ICAO Doc 4444, holding instructions, allocation of holding levels, onward clearance times	APP ACP APS ACS
APP ATM 11.1.2	Appreciate the factors affecting holding patterns.	3	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS

Subtopic ATM 11.2 - Approaching aircraft

APP ATM 11.2.1	Calculate Expected Approach Times (EATs) and Expected Onward Clearance times.	3		APP APS
APP ATM 11.2.2	Organise the traffic landing sequence in a holding pattern.	4	*Optional content: company preference, aircraft performance, aircraft approach capability, ILS categories, flow control management*	APP APS

SUBJECT 4: METEOROLOGY

The subject objective is: Learners shall acquire, decode and make proper use of meteorological information relevant to the provision of ATS.

TOPIC MET 1 - METEOROLOGICAL PHENOMENA

Subtopic MET 1.1 - Meteorological phenomena

APP MET 1.1.1	Appreciate the impact of adverse weather.	3	Thunderstorms, icing, clear air turbulence (CAT), turbulence, microburst, wind shear, severe	APP APS

			mountain waves, line squalls, volcanic ash	
APP MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information *Optional content: relevant meteorological phenomena*	ALL
APP MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Re-routing, level change, etc.	APP ACP APS ACS

TOPIC MET 2 - SOURCES OF METEOROLOGICAL DATA

Subtopic MET 2.1 - Sources of meteorological information

APP MET 2.1.1	Obtain meteorological information	3	METAR, TAF, SIGMET, AIRMET *Optional content: AIREP/AIREP Special*	APP ACP APS ACS
APP MET 2.1.2	Relay meteorological information.	3	ICAO Doc 4444 *Optional content: flight information centre, adjacent ATS unit*	ALL

SUBJECT 5: NAVIGATION

The subject objective is:

Learners shall analyse all navigational aspects in order to organise the traffic.

TOPIC NAV 1 - MAPS AND AERONAUTICAL CHARTS

Subtopic NAV 1.1 - Maps and charts

APP NAV 1.1.1	Decode symbols and information displayed on aeronautical maps and charts.	3	Instrument approach charts, SID charts, aerodrome charts, visual approach charts *Optional content: military maps and charts*	ADI APP APS
APP NAV 1.1.2	Use relevant maps and charts.	3		APP ACP APS ACS

TOPIC NAV 2 - INSTRUMENT NAVIGATION

Subtopic NAV 2.1 - Navigational systems

APP NAV 2.1.1	Manage traffic in case of change in the operational status of navigational systems.	4	*Optional content: limitations, status of ground-based and satellite-based systems*	APP ACP APS ACS
APP NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	3	*Optional content: limitations, status, degraded procedures*	ALL
Subtopic NAV 2.2 - Stabilised approach				
APP NAV 2.2.1	Describe the concept of stabilised approach.	2	ICAO Doc 8168 *Optional content: GD no.831/2018 and its implementing documents*	ADV ADI APP APS
APP NAV 2.2.2	Appreciate the effect of late change of runway-in-use or type of approach for landing aircraft.	3		APP APS
APP NAV 2.2.3	Appreciate controller actions that may contribute to unstabilised approach.	3	Delayed descent	APP
Subtopic NAV 2.3 - Instrument departures and arrivals				
APP NAV 2.3.1	Characterise SIDs.	2		ADI APP APS
APP NAV 2.3.2	Describe the types and phases of instrument approach procedures.	2		APP APS
APP NAV 2.3.3	Describe the relevant minima applicable for a precision/ non-precision and visual approach.	2		ADI APP APS
Subtopic NAV 2.4 - Navigational assistance				
APP NAV 2.4.1	Evaluate the necessary information to be provided to pilots in need of navigational assistance.	5	*Optional content: nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other navigational assistance relevant at the time*	APP ACP APS ACS
Subtopic NAV 2.5 - Satellite-based systems				
APP NAV 2.5.1	State the different applications of satellitebased systems relevant for approach operations.	1	*Optional content: NPA, APV-baro VNAV, APV, LPV, precision approach, ICAO Doc 8168 Vol.2*	APP APS
Subtopic NAV 2.6 - PBN applications				

APP NAV 2.6.1	State the navigation applications used in approach and terminal environments.	1	Approach-RNP APCH/ RNP AR APCH; Terminal-RNAV-1 (≈P-RNAV) *Optional content: A-RNP, EU PBN Implementing Rule, ICAO Doc 9613*	APP APS
APP NAV 2.6.2	Explain the principles and designation of navigation specifications in use.	2	*Optional content: performance, functionality, sensors, aircrew and controller requirements*	APP ACP APS ACS
APP NAV 2.6.3	State future PBN developments.	1	A-RNP, APV *Optional content: RNP 3D, RNP 4D*	ADI APP ACP APS ACS

SUBJECT 6: AIRCRAFT

The subject objective is:

Learners shall assess and integrate aircraft performance in the provision of ATS.

TOPIC ACFT 1 - AIRCRAFT INSTRUMENTS

Subtopic ACFT 1.1 - Aircraft instruments

APP ACFT 1.1.1	Integrate information from aircraft instruments provided by the pilot in the provision of ATS.	4		ALL
APP ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	*Optional content: radios (number of), emergency radios*	ALL

TOPIC ACFT 2 - AIRCRAFT CATEGORIES

Subtopic ACFT 2.1 - Wake turbulence

APP ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL

APP ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL

Subtopic ACFT 2.2 - Application of ICAO approach categories

APP ACFT 2.2.1	Describe the use of ICAO approach categories.	2	ICAO Doc 8168	ADI APP APS
APP ACFT 2.2.2	Appreciate the effect of ICAO approach categories on the traffic organisation.	3		ADI APP APS

TOPIC ACFT 3 - FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFT 3.1 - Climb factors

APP ACFT 3.1.1	Integrate the influence of factors affecting aircraft during climb.	4	*Optional content: speed, mass, air density, cabin pressurisation, wind and temperature*	APP ACP APS ACS
APP ACFT 3.1.2	Appreciate the influence of factors affecting aircraft on take-off.	3	*Optional content: runway conditions, runway slope, aerodrome elevation, wind, temperature, aircraft configuration, airframe contamination and aircraft mass*	APP APS

Subtopic ACFT 3.2 - Cruise factors

APP ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	Level, cruising speed, wind, mass, cabin pressurisation	APP ACP APS ACS

Subtopic ACFT 3.3 - Descent and initial approach factors

APP ACFT 3.3.1	Integrate the influence of factors affecting aircraft during descent.	4	*Optional content: wind, speed, rate of descent, aircraft configuration, cabin pressurisation*	APP APS

Subtopic ACFT 3.4 - Final approach and landing factors

APP ACFT 3.4.1	Integrate the influence of factors affecting aircraft during final approach and landing.	4	*Optional content: wind, aircraft configuration, mass, meteorological conditions, runway conditions, runway slope, aerodrome elevation*	APP APS

Subtopic ACFT 3.5 - Economic factors

APP ACFT 3.5.1	Integrate consideration of economic factors affecting aircraft.	4	*Optional content: routing, level, speed, rate of climb and rate of descent, approach profile*	APP APS
APP ACFT 3.5.2	Use continuous climb techniques where applicable.	3		APP ACP APS ACS
APP ACFT 3.5.3	Use direct routing where applicable.	3		APP ACP APS ACS

Subtopic ACFT 3.6 - Environmental factors

APP ACFT 3.6.1	Appreciate the performance restrictions due to environmental constraints.	3	*Optional content: fuel dumping, noise abatement procedures, minimum flight levels, bird hazard, continuous descent operations*	APP APS

TOPIC ACFT 4 - AIRCRAFT DATA

Subtopic ACFT 4.1 - Performance data

APP ACFT 4.1.1	Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the provision of a control service.	4	Performance data under a representative variety of circumstances	APP ACP APS ACS

SUBJECT 7: HUMAN FACTORS

The subject objective is:

Learners shall recognise the necessity to constantly extend their knowledge and analyse factors which affect personal and team performance.

TOPIC HUM 1 - PSYCHOLOGICAL FACTORS

Subtopic HUM 1.1 - Cognitive

APP HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL
APP HUM 1.1.2	Describe the factors which influence human information processing.	2	Confidence, stress, learning, knowledge, experience, fatigue, alcohol/drugs, distraction, interpersonal relations	ALL
APP HUM 1.1.3	Monitor the effect of human information processing factors on decision making.	3	*Optional content: workload, stress, interpersonal relations, distraction, confidence*	ALL

TOPIC HUM 2 - MEDICAL AND PHYSIOLOGICAL FACTORS

Subtopic HUM 2.1 - Fatigue

APP HUM 2.1.1	State factors that cause fatigue.	1	Shift work Optional content: night shifts and rosters	ALL
APP HUM 2.1.2	Describe the onset of fatigue.	2	*Optional content: lack of concentration, listlessness, irritability, frustration, ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
APP HUM 2.1.3	Recognise the onset of fatigue in self.	1	*Optional content: ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
APP HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL
APP HUM 2.1.5	Describe appropriate action when recognising fatigue.	2		ALL

Subtopic HUM 2.2 - Fitness

APP HUM 2.2.1	Recognise signs of lack of personal fitness.	1		ALL

APP HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		ALL

TOPIC HUM 3 - SOCIAL AND ORGANISATIONAL FACTORS

Subtopic HUM 3.1 - Team resource management (TRM)

APP HUM 3.1.1	State the relevance of TRM.	1	*Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training*	ALL
APP HUM 3.1.2	State the content of the TRM concept.	1	Optional content: team work, human error, team roles, stress, decision making, communication, situational awareness	ALL

Subtopic HUM 3.2 - Teamwork and team roles

APP HUM 3.2.1	Identify reasons for conflict.	3		ALL
APP HUM 3.2.2	Describe actions to prevent human conflicts.	2	*Optional content: TRM team roles*	ALL
APP HUM 3.2.3	Describe strategies to cope with human conflicts.	2	*Optional content: in your team, in the simulator*	ALL

Subtopic HUM 3.3 - Responsible behaviour

APP HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*	ALL
APP HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 - STRESS

Subtopic HUM 4.1 - Stress

APP HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL

Subtopic HUM 4.2 - Stress management

APP HUM 4.2.1	Act to reduce stress.	3	The effect of personality in coping with stress, the benefits of active stress management	ALL

APP HUM 4.2.2	Respond to stressful situation by offering, asking or accepting assistance.	3	*Optional content: the benefits of offering, accepting and asking for help in stressful situations*	ALL
APP HUM 4.2.3	Recognise the effect of shocking and stressful events.	1	Self and others, abnormal situations, CISM	ALL
APP HUM 4.2.4	Consider the benefits of Critical Incident Stress Management (CISM).	2		ALL
APP HUM 4.2.5	Explain procedures used following an incident/accident.	2	*Optional content: CISM, counselling, human element*	ALL

TOPIC HUM 5 - HUMAN ERROR

Subtopic HUM 5.1 - Human error

APP HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, proactive versus reactive approach to discovery of error Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL
APP HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes *Optional content: Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
APP HUM 5.1.3	Describe error-prone conditions.	2	*Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences*	ALL
APP HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	3	*Optional content: ICAO Circular 314 – AN/178*	ALL
APP HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy *Optional content: ICAO Circular 314 – AN/178*	ALL
APP HUM 5.1.6	Execute corrective actions.	3	Error compensation *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL

APP HUM 5.1.7	Explain the importance of error management.	2	*Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises*	ALL
APP HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	*Optional content: reporting, SMS, investigation, CISM ALL*	ALL

Subtopic HUM 5.2 - Violation of rules

APP HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	2	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL

TOPIC HUM 6 - COLLABORATIVE WORK

Subtopic HUM 6.1 - Communication

APP HUM 6.1.1	Use communication effectively in ATC.	3		ALL
APP HUM 6.1.2	Analyse examples of pilot and controller communication for effectiveness.	4		ALL

Subtopic HUM 6.2 - Collaborative work within the same area of responsibility

APP HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	*Optional content: electronic, written, verbal and non-verbal communication*	ALL
APP HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	*Optional content: strips legibility and encoding, labels designation, feedback*	ALL
APP HUM 6.2.3	List possible actions to provide a safe position handover.	1	*Optional content: rigour, preparation, overlap time*	ALL
APP HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL

Subtopic HUM 6.3 - Collaborative work between different areas of responsibility

APP HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	*Optional content: other sectors constraints, electronic coordination tools*	ALL

Subtopic HUM 6.4 - Controller/pilot cooperation

APP HUM 6.4.1	Describe parameters affecting controller/pilot cooperation.	2	*Optional content: workload, mutual knowledge, controller vs pilot mental picture*	ALL

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall integrate knowledge and understanding of the basic working principles of equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

TOPIC EQPS 1 - VOICE COMMUNICATIONS

Subtopic EQPS 1.1 - Radio communications

APP EQPS 1.1.1	Operate two-way communication equipment.	3	Transmit/receive switches, procedures *Optional content: frequency selection, standby equipment*	ALL
APP EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	*Optional content: indicator lights, serviceability displays, selector/frequency displays*	ALL
APP EQPS 1.1.3	Consider radio range.	2	*Optional content: transfer to another frequency, apparent radio failure, failure to establish radio contact, frequency protection range*	APP ACP APS ACS

Subtopic EQPS 1.2 - Other voice communications

APP EQPS 1.2.1	Operate landline communications.	3	*Optional content: telephone, interphone and intercom equipment*	ALL

TOPIC EQPS 2 - AUTOMATION IN ATS

Subtopic EQPS 2.1 - Aeronautical fixed telecommunication network (AFTN)

APP EQPS 2.1.1	Decode AFTN messages.	3	*Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.*	ALL

Subtopic EQPS 2.2 - Automatic data interchange

APP EQPS 2.2.1	Use automatic data transfer equipment where available.	3	*Optional content: automated information and coordination, OLDI*	APP ACP

TOPIC EQPS 3 - CONTROLLER WORKING POSITION

Subtopic EQPS 3.1 - Operation and monitoring of equipment

APP EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALL

APP EQPS 3.1.2	Operate the equipment of the controller working position.	3	*Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, stripprinter, clock, information systems, UDF/VDF*	ALL
APP EQPS 3.1.3	Operate available equipment in abnormal and emergency situations.	3		ALL
Subtopic EQPS 3.2 - Situation displays and information systems				
APP EQPS 3.2.1	Use situation displays.	3		ALL
APP EQPS 3.2.2	Check availability of information material.	3		ALL
APP EQPS 3.2.3	Obtain information from equipment.	3		APP ACP APS ACS
Subtopic EQPS 3.3 - Flight data systems				
APP EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL

TOPIC EQPS 4 - FUTURE EQUIPMENT

Subtopic EQPS 4.1 - New developments				
APP EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL

TOPIC EQPS 5 - EQUIPMENT AND SYSTEMS LIMITATIONS AND DEGRADATION

Subtopic EQPS 5.1 - Reaction to limitations				
APP EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALL
APP EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL
Subtopic EQPS 5.2 - Communication equipment degradation				
APP EQPS 5.2.1	Identify that communication equipment has degraded.	3	*Optional content: ground-air and landline communications*	APP ACP

APP EQPS 5.2.2	Apply contingency procedures in the event of communication equipment degradation.	3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APS ACS APP ACP APS ACS
Subtopic EQPS 5.3 - Navigational equipment degradation				
APP EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	*Optional content: VOR, navigational aids*	ALL
APP EQPS 5.3.2	Apply contingency procedures in the event of a navigational equipment degradation.	3	*Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units*	ADI APP ACP APS ACS

SUBJECT 9: PROFESSIONAL ENVIRONMENT

The subject objective is: Learners shall identify the need for close cooperation with other parties concerning ATM operations and appreciate aspects of environmental protection.

TOPIC PEN 1 - FAMILIARISATION

Subtopic PEN 1.1 - Study visit to approach control unit

APP PEN 1.1.1	Appreciate the functions and provision of an operational approach control service.	3	Study visit to an approach control unit	APP APS

TOPIC PEN 2 - AIRSPACE USERS

Subtopic PEN 2.1 - Contributors to civil ATS operations

APP PEN 2.1.1	Characterise civil ATS activities in approach control unit.	2	Study visit to an approach control unit *Optional content: familiarisation visits to TWR, ACC, AIS, RCC*	APP APS
APP PEN 2.1.2	Characterise other parties interfacing with ATS operations.	2	*Optional content: familiarisation visits to engineering services, fire and emergency services, airline operations offices*	ALL

Subtopic PEN 2.2 - Contributors to military ATS operations

APP PEN 2.2.1	Characterise military ATS activities.	2	*Optional content: familiarisation visits to TWR, APP, ACC, AIS, RCC, Air Defence Units*	ALL

TOPIC PEN 3 - CUSTOMER RELATIONS

Subtopic PEN 3.1 - Provision of services and user requirements

APP PEN 3.1.1	Identify the role of ATC as a service provider.	3		ALL
APP PEN 3.1.2	Appreciate ATS users requirements.	3		ALL

TOPIC PEN 4 - ENVIRONMENTAL PROTECTION

Subtopic PEN 4.1 - Environmental protection

APP PEN 4.1.1	Describe the environmental constraints on aerodrome operations.	2	*Optional content: ICAO Doc.10013 – Operational opportunities to reduce fuel burn and emissions*	APP APS

APP PEN 4.1.2	Explain the use of Collaborative Environmental Management (CEM) process at airports.	2		ADV ADI APP APS
APP PEN 4.1.3	Appreciate the mitigation techniques used to minimise aviation's impact on the environment.	3	*Optional content: continuous descent operations (CDO), noise abatement procedures, noise preferential routes, flight efficiency*	APP APS

SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is: Learners shall develop professional attitudes to manage traffic in abnormal and emergency situations.

TOPIC ABES 1 - ABNORMAL AND EMERGENCY SITUATIONS (ABES)

Subtopic ABES 1.1 - Overview of ABES

APP ABES 1.1.1	List common abnormal and emergency situations.	1	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion*	ALL
APP ABES 1.1.2	Identify potential or actual abnormal and emergency situations.	3		ALL
APP ABES 1.1.3	Take into account the procedures for given abnormal and emergency situations.	2	*Optional content: ICAO Doc 4444*	APP ACP APS ACS
APP ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	*Optional content: real life examples*	ALL
APP ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	*Optional content: separation, information, coordination*	ALL

TOPIC ABES 2 - SKILLS IMPROVEMENT

Subtopic ABES 2.1 - Communication effectiveness

APP ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
APP ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL

Subtopic ABES 2.2 - Avoidance of mental overload

APP ABES 2.2.1	Describe actions to keep control of the situation.	2	*Optional content: sector splitting, holding, flow management, task delegation*	ALL
APP ABES 2.2.2	Organise priority of actions.	4		ALL

APP ABES 2.2.3	Ensure effective circulation of information.	4	*Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and TWR , with ground staff, etc.*	ALL
APP ABES 2.2.4	2Consider asking for help.	2		ALL
Subtopic ABES 2.3 - Air / ground cooperation				
APP ABES 2.3.1	Collect appropriate information relevant to the situation.	3		ALL
APP ABES 2.3.2	Assist the pilot.	3	Pilot workload *Optional content: instructions, information, support, human factors, etc.*	ALL

TOPIC ABES 3 - PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS

Subtopic ABES 3.1 - Application of procedures for ABES				
APP ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure*	ALL
Subtopic ABES 3.2 - Radio failure				
APP ABES 3.2.1	Describe the procedures followed by a pilot when he/she experiences complete or partial radio failure.	2	ICAO Doc 7030 *Optional content: military procedures*	ALL
APP ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	*Optional content: prolonged loss of communication*	ALL
Subtopic ABES 3.3 - Unlawful interference and aircraft bomb threat				
APP ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL
Subtopic ABES 3.4 - Strayed or unidentified aircraft				
APP ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	ICAO Doc 4444 *Optional content: inside controlled airspace, outside controlled airspace*	ALL

APP ABES 3.4.2	Apply the procedures in the case of 3 unidentified aircraft.	ICAO Doc 4444	ALL

Subtopic ABES 3.5 – Diversions

APP ABES 3.5.1	Provide navigational assistance to 4 diverting emergency aircraft.	Track/heading, distance, other navigational assistance *Optional content: nearest most suitable aerodrome*	APP ACP APS ACS

SUBJECT 11: AERODROMES

The subject objective is:

Learners shall recognise and understand the design and layout of aerodromes.

TOPIC AGA 1 - AERODROME DATA, LAYOUT AND COORDINATION

Subtopic AGA 1.1 - Definitions

APP AGA 1.1.1	Define aerodrome data.	1	GD no.653/2018 and its implementing documents *Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot*	ADV ADI APP APS

Subtopic AGA 1.2 - Coordination

APP AGA 1.2.1	Identify the information that has to be passed between Air Traffic Services (ATS) and the airport authority.	3	Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, GD no.653/2018 and its implementing documents	ADV ADI APP APS

TOPIC AGA 2 - MOVEMENT AREA

Subtopic AGA 2.1 - Movement area

APP AGA 2.1.1	Describe movement area.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
APP AGA 2.1.2	Describe the marking of obstacles and unusable or unserviceable areas.	2	Flags, signs on pavement, lights	ADV ADI APP APS
APP AGA 2.1.3	Identify the information on conditions of the movement area that have to be passed to aircraft.	3	Essential information on aerodrome conditions	ADV ADI APP APS

Subtopic AGA 2.2 - Manoeuvring area

APP AGA 2.2.1	Describe manoeuvring area.	3	GD no.653/2018 and its implementing documents	ADV ADI APP APS

APP AGA 2.2.2	Describe taxiway.	2		ADV ADI APP APS
APP AGA 2.2.3	Describe the daylight marking on taxiways.	2		ADV ADI APP APS
APP AGA 2.2.4	Describe taxiway lighting.	2		ADV ADI APP APS
Subtopic AGA 2.3 - Runways				
APP AGA 2.3.1	Describe runway.	2	Runway, runway surface, runway strip, shoulder, runway end safety areas, clearways, stopways	ADV ADI APP APS
APP AGA 2.3.2	Describe instrument runway.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
APP AGA 2.3.3	Describe non-instrument runway.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
APP AGA 2.3.4	Explain declared distances.	2	TORA, TODA, ASDA, LDA	ADV ADI APP APS
APP AGA 2.3.5	Explain the differences between ACN and PCN.	2	Strength of pavements	ADV ADI APP APS
APP AGA 2.3.6	Describe the daylight markings on runways.	2	*Optional content: runway designator, centre line, threshold, aiming point, fixed distance, touchdown zone, side strip, colour*	ADV ADI APP APS
APP AGA 2.3.7	Describe runway lights.	2	*Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barettes*	ADV ADI APP APS
APP AGA 2.3.8	Explain the functions of visual landing aids.	2	*Optional content: AVASI, VASI, PAPI*	ADV ADI APP APS

APP AGA 2.3.9	Describe the approach lighting systems.	2	Centre line, cross bars, stroboscopic lights, colours, intensity and brightness	ADV ADI APP APS
APP AGA 2.3.10	Characterise the effect of water/ice on runways.	2		ADV ADI APP APS
APP AGA 2.3.11	Explain braking action.	2	Braking action coefficient	ADV ADI APP APS
APP AGA 2.3.12	Explain the effect of runway visual range on aerodrome operation.	2		ADV ADI APP APS

TOPIC AGA 3 - OBSTACLES

Subtopic AGA 3.1 - Obstacle-free airspace around aerodromes

APP AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free airspace around aerodromes.	2		ADV ADI APP APS

TOPIC AGA 4 - MISCELLANEOUS EQUIPMENT

Subtopic AGA 4.1 - Location

APP AGA 4.1.1	Explain the location of different aerodrome ground equipment.	2	*Optional content: LLZ, GP, VDF, radio communication or ATS surveillance systems sensors, stopbars, AVASI, VASI, PAPI*	ADV ADI APP APS

AMC1 ATCO.D.010(a)(2)(iv) Composition of initial training

AREA CONTROL PROCEDURAL RATING (ACP) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).

(b) ATCO Rating training Area Control Procedural Rating (ACP) should contain the following subject objectives and training objectives that are associated with the subjects, topics and subtopics contained in Appendix 6 to CT-ATCO— Area Control Procedural Rating (ACP).

(c) Subjects, topics and subtopics from Appendix 6 to CT-ATCO 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 learn how to obtain the appropriate information.

TOPIC INTR 1 - COURSE MANAGEMENT

Subtopic INTR 1.1 - Course introduction

ACP INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL

Subtopic INTR 1.2 - Course administration

ACP INTR 1.2.1	State course administration.	1		ALL

Subtopic INTR 1.3 - Study material and training documentation

ACP INTR 1.3.1	Use appropriate documentation and their sources for course studies.	3	*Optional content: training documentation, library, CBT library, web, learning management server*	ALL
ACP INTR 1.3.2	Integrate appropriate information into course studies.	4	Training documentation *Optional content: supplementary information, library*	ALL

TOPIC INTR 2 - INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTR 2.1 - Course content and organisation

ACP INTR 2.1.1	State the different training methods applied in the course.	1	Theoretical training, practical training, self-study, types of training events	ALL
ACP INTR 2.1.2	State the subjects of the course and their purpose.	1		ALL
ACP INTR 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*	ALL
ACP INTR 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*	ALL

Subtopic INTR 2.2 - Training ethos

ACP INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	ALL

Subtopic INTR 2.3 - Assessment process

ACP INTR 2.3.1	Describe the assessment process.	2		ALL

SUBJECT 2: AVIATION LAW

The subject objective is:

Learners shall know, understand and apply the Rules of the Air and the Regulations regarding reporting, airspace and appreciate the Licensing and Competence principles.

TOPIC LAW 1 - ATCO LICENSING/CERTIFICATE OF COMPETENCE

Subtopic LAW 1.1 - Privileges and conditions

ACP LAW 1.1.1	Appreciate the conditions which shall be met to issue an Approach Control Procedural rating	3	GD no.134/2019 and CT-ATCO *Optional content: National documents*	ACP
ACP LAW 1.1.2	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
ACP LAW 1.1.3	Explain the conditions for suspension/revocation of ATCO licence.	2	GD no.134/2019 and CT-ATCO	ALL

TOPIC LAW 2 - RULES AND REGULATIONS

Subtopic LAW 2.1 - Reports

ACP LAW 2.1.1	List the standard forms for reports.	1	Air traffic incident report Optional content: routine air reports, breach of regulations, watch/log book, records	ALL
ACP LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	Reporting culture, air traffic incident report *Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR*	ALL
ACP LAW 2.1.3	Use forms for reporting.	3	National regulations related to occurrences in civil aviation, Air traffic incident reporting form(s) *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL
Subtopic LAW 2.2 - Airspace				
ACP LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Approach Control Procedural rating operations.	3		ACP
ACP LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	*Optional content: CT-RA, CT-ATS, international requirements, civil requirements, military requirements, areas of responsibility, sectorization*	ALL
ACP LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 - ATC SAFETY MANAGEMENT

Subtopic LAW 3.1 - Feedback process

ACP LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	*Optional content: voluntary reporting*	ALL
ACP LAW 3.1.2	Describe how reported occurrences are analysed.	2	*Optional content: ESARR 2, local procedures*	ALL
ACP LAW 3.1.3	Name the means used to disseminate recommendations.	1	*Optional content: safety letters, safety boards web pages*	ALL

ACP LAW 3.1.4	Appreciate the 'Just Culture' concept.	3	Benefits, prerequisites, constraints *Optional content: EAM 2 GUI 6, GAIN Report*	ALL
Subtopic LAW 3.2 - Safety Investigation				
ACP LAW 3.2.1	Describe role and mission of Safety Investigation in the improvement of safety.	2		ALL
ACP LAW 3.2.2	Define working methods of Safety Investigation.	1		ALL

SUBJECT 3: AIR TRAFFIC MANAGEMENT

The subject objective is:

Learners shall manage air traffic to ensure safe, orderly and expeditious services.

TOPIC ATM 1 - PROVISION OF SERVICES

Subtopic ATM 1.1 - Air traffic control (ATC) service				
ACP ATM 1.1.1	Appreciate own area of responsibility.	3		APP ACP APS ACS
ACP ATM 1.1.2	Provide approach control service.	4	CT-RA, CT-ATS, , ICAO Doc 7030, ICAO Doc 4444, operation manuals	APP APS
Subtopic ATM 1.2 - Flight information service (FIS)				
ACP ATM 1.2.1	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ACP ATM 1.2.2	Issue appropriate information concerning the location of conflicting traffic.	3	ICAO Doc 4444, traffic information, essential traffic information	APP ACP APS ACS
Subtopic ATM 1.3 - Alerting service (ALRS)				
ACP ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ACP ATM 1.3.2	Respond to distress and urgency messages and signals.	3	CT-RA, ICAO Annex 10, ICAO Doc 4444	ALL

			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	

Subtopic ATM 1.4 - ATS system capacity and air traffic flow management

ACP ATM 1.4.1	Appreciate principles of ATS system capacity and air traffic flow management.	3	*Optional content: EUROCONTROL ATFCM Users Manual, FABs, FUA, free flight, etc.*	APP ACP APS ACS
ACP ATM 1.4.2	Apply flow management procedures in the provision of ATC.	3	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
ACP ATM 1.4.3	Organise traffic flows and patterns to take account of airspace boundaries.	4	*Optional content: civil and military, controlled, uncontrolled, advisory, restricted, danger, prohibited, special rules, sector boundaries, national boundaries, FIR boundaries, delegated airspace, transfer of control, transfer of communications, en-route, off-route*	APP ACP APS ACS
ACP ATM 1.4.4	Organise traffic flows and patterns to take account of areas of responsibility.	4	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
ACP ATM 1.4.5	Inform supervisor of situation.	3	*Optional content: abnormal situations, decrease in sector capacity, limitations on systems and equipment, changes in workload/capacity, unusual meteorological conditions, relevant information like: reported ground-based incidents, forest fire, smoke, oil pollution*	APP ACP APS ACS

Subtopic ATM 1.5 - Airspace management (ASM)

ACP ATM 1.5.1	Appreciate the principles and means of ASM.	3	National regulations related to the organisation and use of the airspace in the single European sky and rules for the flexible use of airspace. *Optional content: FABs, EUROCONTROL Specification for the application of FUA, TSAs, CDRs, CBAs*	APP ACP APS ACS

ACP ATM 1.5.2	Organise traffic to take account of ASM.	4	Optional content: CDR, TSA, TRA, CBA, real-time activation, deactivation or reallocation of airspace	APP ACP

TOPIC ATM 2 - COMMUNICATION

Subtopic ATM 2.1 - Effective communication

ACP ATM 2.1.1	Use approved phraseology.	3	ICAO Doc 4444 *Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2*	ALL
ACP ATM 2.1.2	Ensure effective communication.	4	Communication techniques, readback/verification of readback	ALL

TOPIC ATM 3 - ATC CLEARANCES AND ATC INSTRUCTIONS

Subtopic ATM 3.1 - ATC clearances

ACP ATM 3.1.1	Issue appropriate ATC clearances.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
ACP ATM 3.1.2	Integrate appropriate ATC clearances in control service.	4		ALL
ACP ATM 3.1.3	Ensure the agreed course of action is carried out.	4		ALL

Subtopic ATM 3.2 - ATC instructions

ACP ATM 3.2.1	Issue appropriate ATC instructions.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
ACP ATM 3.2.2	Integrate appropriate ATC instructions in control service.	4		ALL
ACP ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL

TOPIC ATM 4 - COORDINATION

Subtopic ATM 4.1 - Necessity for coordination

ACP ATM 4.1.1	Identify the need for coordination.	3		ALL

Subtopic ATM 4.2 - Tools and methods for coordination

ACP ATM 4.2.1	Use the available tools for coordination.	3	*Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination*	ALL

Subtopic ATM 4.3 - Coordination procedures

ACP ATM 4.3.1	Initiate appropriate coordination.	3	Delegation / transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444 *Optional content: release point*	ALL
ACP ATM 4.3.2	Analyse effect of coordination requested by an adjacent position/unit.	4	*Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.*	ALL
ACP ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL
ACP ATM 4.3.4	Ensure the agreed course of action is carried out.	4		ALL
ACP ATM 4.3.5	Coordinate in the provision of FIS.	4	ICAO Doc 4444	ALL
ACP ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	ALL

TOPIC ATM 5 - ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATM 5.1 - Altimetry

ACP ATM 5.1.1	Allocate levels according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL
ACP ATM 5.1.2	Ensure separation according to altimetry data.	4	*Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries*	ALL

Subtopic ATM 5.2 - Terrain clearance

ACP ATM 5.2.1	Provide planning, coordination and control actions appropriate to the rules for minimum safe levels and terrain clearance.	4	*Optional content: terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude*	APP ACP

TOPIC ATM 6 - SEPARATIONS

Subtopic ATM 6.1 - Vertical separation

ACP ATM 6.1.1	Provide standard vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030, level allocation, during climb/descent, rate of climb/descent, holding pattern	APP APS
ACP ATM 6.1.2	Provide increased vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030 *Optional content: level allocation, during climb/descent, rate of climb/descent*	APP ACP APS ACS
ACP ATM 6.1.3	Appreciate the application of vertical emergency separation.	3	ICAO Doc 4444, ICAO Doc 7030	APP ACP APS ACS

Subtopic ATM 6.2 - Horizontal separation

ACP ATM 6.2.1	Provide longitudinal separation.	4	Based on time, based on distance (DME and/or GNSS, RNAV)	ACP
ACP ATM 6.2.2	Provide lateral separation.	4	ICAO Doc 4444, ICAO Doc 7030, holding	APP ACP
ACP ATM 6.2.3	Provide track separation.	4		ACP APP
ACP ATM 6.2.4	Provide geographical separation.	4	Visual, using navigation aids, area navigation	ACP APP

Subtopic ATM 6.3 - Delegation of separation

ACP ATM 6.3.1	Delegate separation to pilots in the case of aircraft executing successive visual approaches.	4		APP APS
ACP ATM 6.3.2	Appreciate the conditions which must be met when delegating separation to pilots to fly maintaining own separation while in VMC.	3	ICAO Doc 4444	APP APS

TOPIC ATM 7 - AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED SAFETY NETS

Subtopic ATM 7.1 - Airborne collision avoidance systems

ACP ATM 7.1.1	Differentiate between ACAS advisory thresholds and separation standards applicable in the approach control environment.	2	ICAO Doc 9863 *Optional content: EUROCONTROL TCAS web page*	APP APS
ACP ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL
ACP ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS *Optional content: EUROCONTROL ACAS web page*	ALL

TOPIC ATM 8 - DATA DISPLAY

Subtopic ATM 8.1 - Data management

ACP ATM 8.1.1	Update the data display to accurately reflect the traffic situation.	3	*Optional content: information displayed, strip marking procedures, electronic information data displays, actions based on traffic display information, calculation of EETs*	ALL
ACP ATM 8.1.2	Analyse pertinent data on data displays.	4		ALL
ACP ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
ACP ATM 8.1.4	Obtain flight plan information.	3	CPL, FPL, supplementary information *Optional content: RPL, AFIL, etc.*	ALL

ACP ATM 8.1.5	Use flight plan information.	3		ALL

TOPIC ATM 9 - OPERATIONAL ENVIRONMENT (SIMULATED)

Subtopic ATM 9.1 - Integrity of the operational environment

ACP ATM 9.1.1	Obtain information concerning the operational environment.	3	*Optional content: briefing, notices, local orders, verification of information*	ALL
ACP ATM 9.1.2	Ensure the integrity of the operational environment.	4	Optional content: integrity of displays, verification of the information provided by displays, etc.	APP ACP APS ACS

Subtopic ATM 9.2 - Verification of the currency of operational procedures

ACP ATM 9.2.1	Check all relevant documentation before managing traffic.	3	*Optional content: briefing, LOAs, NOTAM, AICs*	ALL
ACP ATM 9.2.2	Manage traffic in accordance with procedural changes.	4		APP ACP APS ACS

Subtopic ATM 9.3 - Handover-takeover

ACP ATM 9.3.1	Transfer information to the relieving controller.	3		ALL
ACP ATM 9.3.2	Obtain information from the controller handing over.	3		ALL

TOPIC ATM 10 - PROVISION OF CONTROL SERVICE

Subtopic ATM 10.1 - Responsibility and processing of information

ACP ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ACP ATM 10.1.2	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 *Optional content: ICAO Doc 9554*	ALL
ACP ATM 10.1.3	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	APP ACP APS ACS

ACP ATM 10.1.4	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APP ACP APS ACS
ACP ATM 10.1.5	Interpret operational information.	5		APP ACP APS ACS
ACP ATM 10.1.6	Organise forwarding of operational information.	4	*Optional content: including the use of backup procedures*	APP ACP APS ACS
ACP ATM 10.1.7	Integrate operational information into control decisions.	4		APP ACP APS ACS
ACP ATM 10.1.8	Appreciate the influence of operational requirements.	3	*Optional content: military flying, calibration flights, aerial photography*	ALL

Subtopic ATM 10.2 - Approach control

ACP ATM 10.2.1	Explain the responsibility for the provision of an approach procedural control service.	2	ICAO Doc 4444, CT-ATS, local operation manuals	ACP
ACP ATM 10.2.2	Provide planning, coordination and control actions appropriate to the VFR, SVFR and IFR in VMC and IMC.	4	CT-RA, CT-ATS, ICAO Doc 4444	APP APS

Subtopic ATM 10.3 - Traffic management process

ACP ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, traffic projection	APP ACP
ACP ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL
ACP ATM 10.3.3	Identify potential solutions to achieve a safe and effective traffic flow.	3		APP ACP APS ACS
ACP ATM 10.3.4	Evaluate possible outcomes of different planning and control actions.	5		APP ACP APS ACS

ACP ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective traffic flow.	5		APP ACP APS ACS
ACP ATM 10.3.6	Ensure an adequate priority of actions.	4		ALL
ACP ATM 10.3.7	Execute selected plan in a timely manner.	3		APP ACP APS ACS
ACP ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL
Subtopic ATM 10.4 - Handling traffic				
ACP ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP APS ACS
ACP ATM 10.4.2	Balance the workload against personal capacity.	5	*Optional content: re-routing, re-planning, prioritising solutions, denying requests, delegating responsibility for separation*	APP ACP APS ACS

TOPIC ATM 11 - HOLDING

Subtopic ATM 11.1 - General holding procedures

ACP ATM 11.1.1	Apply holding procedures.	3	ICAO Doc 4444, holding instructions, allocation of holding levels, onward clearance times	APP ACP APS ACS
ACP ATM 11.1.2	Appreciate the factors affecting holding patterns.	3	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS
Subtopic ATM 11.2 - Holding aircraft				
ACP ATM 11.2.1	Calculate expected onward clearance times.	3		ACP ACS

SUBJECT 4: METEOROLOGY

The subject objective is: Learners shall acquire, decode and make proper use of meteorological information relevant to the provision of ATS.

TOPIC MET 1 - METEOROLOGICAL PHENOMENA

Subtopic MET 1.1 - Meteorological phenomena

ACP MET 1.1.1	Appreciate the impact of adverse weather.	3	Thunderstorms, icing, clear air turbulence (CAT), turbulence, microburst, wind shear, severe mountain waves, line squalls, volcanic ash *Optional content: solar radiation*	ACP ACS
ACP MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information *Optional content: relevant meteorological phenomena*	ALL
ACP MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Re-routing, level change, etc.	APP ACP APS ACS

TOPIC MET 2 - SOURCES OF METEOROLOGICAL DATA

Subtopic MET 2.1 - Sources of meteorological information

ACP MET 2.1.1	Obtain meteorological information	3	METAR, TAF, SIGMET, AIRMET *Optional content: AIREP/AIREP Special*	APP ACP APS ACS
ACP MET 2.1.2	Relay meteorological information.	3	ICAO Doc 4444 *Optional content: flight information centre, adjacent ATS unit*	ALL

SUBJECT 5: NAVIGATION

The subject objective is:

Learners shall analyse all navigational aspects in order to organise the traffic.

TOPIC NAV 1 - MAPS AND AERONAUTICAL CHARTS

Subtopic NAV 1.1 - Maps and charts

ACP NAV 1.1.1	Use relevant maps and charts.	3		APP ACP APS ACS

TOPIC NAV 2 - INSTRUMENT NAVIGATION

Subtopic NAV 2.1 - Navigational systems

ACP NAV 2.1.1	Manage traffic in case of change in the operational status of navigational systems.	4	*Optional content: limitations, status of ground-based and satellite-based systems*	APP ACP APS ACS
ACP NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	3	*Optional content: limitations, status, degraded procedures*	ALL

Subtopic NAV 2.2 - Navigational assistance

ACP NAV 2.2.1	Evaluate the necessary information to be provided to pilots in need of navigational assistance.	5	*Optional content: nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other navigational assistance relevant at the time*	APP ACP APS ACS

Subtopic NAV 2.3 - PBN applications

ACP NAV 2.3.1	State the navigation applications used in terminal and en-route environments.	1	Terminal-RNAV-1 (≈P-RNAV); En-routeRNAV-5 (B-RNAV) *Optional content: A-RNP, EC PBN Implementing Rule, ICAO Doc 9613*	APP ACP APS ACS

ACP NAV 2.3.2	Explain the principles and designation of navigation specifications in use..	2	*Optional content: performance, functionality, sensors, aircrew and controller requirements*	APP ACP APS ACS
ACP NAV 2.3.3	State future PBN developments.	1	A-RNP, APV Optional content: RNP 3D, RNP 4D	ADI APP ACP APS ACS

SUBJECT 6: AIRCRAFT

The subject objective is:

Learners shall assess and integrate aircraft performance in the provision of ATS.

TOPIC ACFT 1 - AIRCRAFT INSTRUMENTS

Subtopic ACFT 1.1 - Aircraft instruments

ACP ACFT 1.1.1	Integrate information from aircraft instruments provided by the pilot in the provision of ATS.	4		ALL
ACP ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	*Optional content: radios (number of), emergency radios*	ALL

TOPIC ACFT 2 - AIRCRAFT CATEGORIES

Subtopic ACFT 2.1 - Wake turbulence

ACP ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL
ACP ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL

TOPIC ACFT 3 - FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFT 3.1 - Climb factors

ACP ACFT 3.1.1	Integrate the influence of factors affecting aircraft during climb.	4	*Optional content: speed, mass, air density, cabin pressurisation, wind and temperature*	APP ACP APS ACS

Subtopic ACFT 3.2 - Cruise factors

ACP ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	Level, cruising speed, wind, mass, cabin pressurisation	APP ACP APS ACS

Subtopic ACFT 3.3 - Descent factors

ACP ACFT 3.3.1	Integrate the influence of factors affecting aircraft during descent.	4	*Optional content: wind, speed, rate of descent, aircraft configuration, cabin pressurisation*	ACP ACS

Subtopic ACFT 3.4 – Economic factors

ACP ACFT 3.4.1	Integrate the influence of factors affecting aircraft during descent.	4	*Optional content: routing, level, speed, rate of climb and rate of descent, approach profile, top of descent.*	ACP ACS

Subtopic ACFT 3.5 - Environmental factors

ACP ACFT 3.5.1	Appreciate the performance restrictions due to environmental constraints.	3	*Optional content: fuel dumping, minimum flight levels, bird hazard, continuous descent operations*	ACP ACS

TOPIC ACFT 4 - AIRCRAFT DATA

Subtopic ACFT 4.1 - Performance data

ACP ACFT 4.1.1	Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the provision of a control service.	4	Performance data under a representative variety of circumstances	APP ACP APS ACS

SUBJECT 7: HUMAN FACTORS

The subject objective is:

Learners shall recognise the necessity to constantly extend their knowledge and analyse factors which affect personal and team performance.

TOPIC HUM 1 - PSYCHOLOGICAL FACTORS

Subtopic HUM 1.1 - Cognitive

ACP HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL
ACP HUM 1.1.2	Describe the factors which influence human information processing.	2	Confidence, stress, learning, knowledge, experience, fatigue, alcohol/drugs, distraction, interpersonal relations	ALL
ACP HUM 1.1.3	Monitor the effect of human information processing factors on decision making.	3	*Optional content: workload, stress, interpersonal relations, distraction, confidence*	ALL

TOPIC HUM 2 - MEDICAL AND PHYSIOLOGICAL FACTORS

Subtopic HUM 2.1 - Fatigue

ACP HUM 2.1.1	State factors that cause fatigue.	1	Shift work Optional content: night shifts and rosters	ALL
ACP HUM 2.1.2	Describe the onset of fatigue.	2	*Optional content: lack of concentration, listlessness, irritability, frustration, ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
ACP HUM 2.1.3	Recognise the onset of fatigue in self.	1	*Optional content: ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
ACP HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL

ACP HUM 2.1.5	Describe appropriate action when recognising fatigue.	2		ALL

Subtopic HUM 2.2 - Fitness

ACP HUM 2.2.1	Recognise signs of lack of personal fitness.	1		ALL
ACP HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		ALL

TOPIC HUM 3 - SOCIAL AND ORGANISATIONAL FACTORS

Subtopic HUM 3.1 - Team resource management (TRM)

ACP HUM 3.1.1	State the relevance of TRM.	1	*Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training*	ALL
ACP HUM 3.1.2	State the content of the TRM concept.	1	Optional content: team work, human error, team roles, stress, decision making, communication, situational awareness	ALL

Subtopic HUM 3.2 - Teamwork and team roles

ACP HUM 3.2.1	Identify reasons for conflict.	3		ALL
ACP HUM 3.2.2	Describe actions to prevent human conflicts.	2	*Optional content: TRM team roles*	ALL
ACP HUM 3.2.3	Describe strategies to cope with human conflicts.	2	*Optional content: in your team, in the simulator*	ALL

Subtopic HUM 3.3 - Responsible behaviour

ACP HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*	ALL
ACP HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 - STRESS

Subtopic HUM 4.1 - Stress

ACP HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL

Subtopic HUM 4.2 - Stress management

ACP HUM 4.2.1	Act to reduce stress.	3	The effect of personality in coping with stress, the benefits of active stress management	ALL
ACP HUM 4.2.2	Respond to stressful situation by offering, asking or accepting assistance.	3	*Optional content: the benefits of offering, accepting and asking for help in stressful situations*	ALL
ACP HUM 4.2.3	Recognise the effect of shocking and stressful events.	1	Self and others, abnormal situations, CISM	ALL
ACP HUM 4.2.4	Consider the benefits of Critical Incident Stress Management (CISM).	2		ALL
ACP HUM 4.2.5	Explain procedures used following an incident/accident.	2	*Optional content: CISM, counselling, human element*	ALL

TOPIC HUM 5 - HUMAN ERROR

Subtopic HUM 5.1 - Human error

ACP HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, proactive versus reactive approach to discovery of error *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ACP HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes *Optional content: Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ACP HUM 5.1.3	Describe error-prone conditions.	2	*Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences*	ALL
ACP HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	3	*Optional content: ICAO Circular 314 – AN/178*	ALL

ACP HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy *Optional content: ICAO Circular 314 – AN/178*	ALL
ACP HUM 5.1.6	Execute corrective actions.	3	Error compensation *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ACP HUM 5.1.7	Explain the importance of error management.	2	*Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises*	ALL
ACP HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	*Optional content: reporting, SMS, investigation, CISM ALL*	ALL
Subtopic HUM 5.2 - Violation of rules				
ACP HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	2	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL

TOPIC HUM 6 - COLLABORATIVE WORK

Subtopic HUM 6.1 - Communication

ACP HUM 6.1.1	Use communication effectively in ATC.	3		ALL
ACP HUM 6.1.2	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
Subtopic HUM 6.2 - Collaborative work within the same area of responsibility				
ACP HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	*Optional content: electronic, written, verbal and non-verbal communication*	ALL
ACP HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	*Optional content: strips legibility and encoding, labels designation, feedback*	ALL
ACP HUM 6.2.3	List possible actions to provide a safe position handover.	1	*Optional content: rigour, preparation, overlap time*	ALL
ACP HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL

Subtopic HUM 6.3 - Collaborative work between different areas of responsibility

ACP HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	*Optional content: other sectors constraints, electronic coordination tools*	ALL

Subtopic HUM 6.4 - Controller/pilot cooperation

ACP HUM 6.4.1	Describe parameters affecting controller/pilot cooperation.	2	*Optional content: workload, mutual knowledge, controller vs pilot mental picture*	ALL

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall integrate knowledge and understanding of the basic working principles of equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

TOPIC EQPS 1 - VOICE COMMUNICATIONS

Subtopic EQPS 1.1 - Radio communications

ACP EQPS 1.1.1	Operate two-way communication equipment.	3	Transmit/receive switches, procedures *Optional content: frequency selection, standby equipment*	ALL
ACP EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	*Optional content: indicator lights, serviceability displays, selector/frequency displays*	ALL
ACP EQPS 1.1.3	Consider radio range.	2	*Optional content: transfer to another frequency, apparent radio failure, failure to establish radio contact, frequency protection range*	APP ACP APS ACS

Subtopic EQPS 1.2 - Other voice communications

ACP EQPS 1.2.1	Operate landline communications.	3	*Optional content: telephone, interphone and intercom equipment*	ALL

TOPIC EQPS 2 - AUTOMATION IN ATS

Subtopic EQPS 2.1 - Aeronautical fixed telecommunication network (AFTN)

ACP EQPS 2.1.1	Decode AFTN messages.	3	*Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.*	ALL

Subtopic EQPS 2.2 - Automatic data interchange

ACP EQPS 2.2.1	Use automatic data transfer equipment where available.	3	*Optional content: automated information and coordination, OLDI*	APP ACP

TOPIC EQPS 3 - CONTROLLER WORKING POSITION

Subtopic EQPS 3.1 - Operation and monitoring of equipment

ACP EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALL
ACP EQPS 3.1.2	Operate the equipment of the controller working position.	3	*Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, stripprinter, clock, information systems, UDF/VDF*	ALL
ACP EQPS 3.1.3	Operate available equipment in abnormal and emergency situations.	3		ALL

Subtopic EQPS 3.2 - Situation displays and information systems

ACP EQPS 3.2.1	Use situation displays.	3		ALL
ACP EQPS 3.2.2	Check availability of information material.	3		ALL
ACP EQPS 3.2.3	Obtain information from equipment.	3		APP ACP APS ACS

Subtopic EQPS 3.3 - Flight data systems

ACP EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL

TOPIC EQPS 4 - FUTURE EQUIPMENT

Subtopic EQPS 4.1 - New developments

ACP EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL

TOPIC EQPS 5 - EQUIPMENT AND SYSTEMS LIMITATIONS AND DEGRADATION

Subtopic EQPS 5.1 - Reaction to limitations

ACP EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALL
ACP EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL

Subtopic EQPS 5.2 - Communication equipment degradation

ACP EQPS 5.2.1	Identify that communication equipment has degraded.	3	*Optional content: ground-air and landline communications*	APP ACP APS ACS
ACP EQPS 5.2.2	Apply contingency procedures in the event of communication equipment degradation.	3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APP ACP APS ACS

Subtopic EQPS 5.3 - Navigational equipment degradation

ACP EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	*Optional content: VOR, navigational aids*	ALL
ACP EQPS 5.3.2	Apply contingency procedures in the event of a navigational equipment degradation.	3	*Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units*	ADI APP ACP APS ACS

SUBJECT 9: PROFESSIONAL ENVIRONMENT

The subject objective is: Learners shall identify the need for close cooperation with other parties concerning ATM operations and appreciate aspects of environmental protection.

TOPIC PEN 1 - FAMILIARISATION

Subtopic PEN 1.1 - Study visit to approach control unit

ACP PEN 1.1.1	Appreciate the functions and provision of an operational approach control service.	3	Study visit to area control centre	ACP ACS

TOPIC PEN 2 - AIRSPACE USERS

Subtopic PEN 2.1 - Contributors to civil ATS operations

ACP PEN 2.1.1	Characterise civil ATS activities in approach control unit.	2	Study visit to area control centre *Optional content: familiarisation visits to TWR, ACC, AIS, RCC*	ACP ACS
ACP PEN 2.1.2	Characterise other parties interfacing with ATS operations.	2	*Optional content: familiarisation visits to engineering services, fire and emergency services, airline operations offices*	ALL

Subtopic PEN 2.2 - Contributors to military ATS operations

ACP PEN 2.2.1	Characterise military ATS activities.	2	*Optional content: familiarisation visits to TWR, APP, ACC, AIS, RCC, Air Defence Units*	ALL

TOPIC PEN 3 - CUSTOMER RELATIONS

Subtopic PEN 3.1 - Provision of services and user requirements

ACP PEN 3.1.1	Identify the role of ATC as a service provider.	3		ALL
ACP PEN 3.1.2	Appreciate ATS users requirements.	3		ALL

TOPIC PEN 4 - ENVIRONMENTAL PROTECTION

Subtopic PEN 4.1 - Environmental protection

ACP PEN 4.1.1	Appreciate the mitigation techniques used en-route to minimise the aviation's impact on the environment.	2	*Optional content: free route airspace (FRA), night/weekend routes, ICAO Doc.10013 – Operational opportunities to reduce fuel burn and emissions*	ACP ACS

SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is: Learners shall develop professional attitudes to manage traffic in abnormal and emergency situations.

TOPIC ABES 1 - ABNORMAL AND EMERGENCY SITUATIONS (ABES)

Subtopic ABES 1.1 - Overview of ABES

ACP ABES 1.1.1	List common abnormal and emergency situations.	1	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion*	ALL
ACP ABES 1.1.2	Identify potential or actual abnormal and emergency situations.	3		ALL
ACP ABES 1.1.3	Take into account the procedures for given abnormal and emergency situations.	2	*Optional content: ICAO Doc 4444*	APP ACP APS ACS
ACP ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	*Optional content: real life examples*	ALL
ACP ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	*Optional content: separation, information, coordination*	ALL

TOPIC ABES 2 - SKILLS IMPROVEMENT

Subtopic ABES 2.1 - Communication effectiveness

ACP ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
ACP ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL

Subtopic ABES 2.2 - Avoidance of mental overload

ACP ABES 2.2.1	Describe actions to keep control of the situation.	2	*Optional content: sector splitting, holding, flow management, task delegation*	ALL
ACP ABES 2.2.2	Organise priority of actions.	4		ALL
ACP ABES 2.2.3	Ensure effective circulation of information.	4	*Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and TWR , with ground staff, etc.*	ALL
ACP ABES 2.2.4	Consider asking for help.	2		ALL

Subtopic ABES 2.3 - Air / ground cooperation

ACP ABES 2.3.1	Collect appropriate information relevant to the situation.	3		ALL
ACP ABES 2.3.2	Assist the pilot.	3	Pilot workload *Optional content: instructions, information, support, human factors, etc.*	ALL

TOPIC ABES 3 - PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS

Subtopic ABES 3.1 - Application of procedures for ABES

ACP ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure*	ALL

Subtopic ABES 3.2 - Radio failure

ACP ABES 3.2.1	Describe the procedures followed by a pilot when he/she experiences complete or partial radio failure.	2	ICAO Doc 7030 *Optional content: military procedures*	ALL
ACP ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	*Optional content: prolonged loss of communication*	ALL

Subtopic ABES 3.3 - Unlawful interference and aircraft bomb threat

ACP ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL
Subtopic ABES 3.4 - Strayed or unidentified aircraft				
ACP ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	ICAO Doc 4444 *Optional content: inside controlled airspace, outside controlled airspace*	ALL
ACP ABES 3.4.2	Apply the procedures in the case of unidentified aircraft.	3	ICAO Doc 4444	ALL
Subtopic ABES 3.5 – Diversions				
ACP ABES 3.5.1	Provide navigational assistance to diverting emergency aircraft.	4	Track/heading, distance, other navigational assistance *Optional content: nearest most suitable aerodrome*	APP ACP APS ACS

AMC1 ATCO.D.010(a)(2)(v) Composition of initial training

APPROACH CONTROL SURVEILLANCE RATING (APS) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).

(b) ATCO Rating training Approach Control Surveillance Rating (APS) should contain the following subject objectives and training objectives that are associated with the subjects, topics and subtopics contained in Appendix 7 to CT-ATCO — Approach Control Surveillance Rating (APS).

(c) Subjects, topics and subtopics from Appendix 7 to CT-ATCO 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 learn how to obtain the appropriate information.

TOPIC INTR 1 - COURSE MANAGEMENT

Subtopic INTR 1.1 - Course introduction

APS INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL

Subtopic INTR 1.2 - Course administration

APS INTR 1.2.1	State course administration.	1		ALL

Subtopic INTR 1.3 - Study material and training documentation

APS INTR 1.3.1	Use appropriate documentation and their sources for course studies.	3	*Optional content: training documentation, library, CBT library, web, learning management server*	ALL
APS INTR 1.3.2	Integrate appropriate information into course studies.	4	Training documentation *Optional content: supplementary information, library*	ALL

TOPIC INTR 2 - INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTR 2.1 - Course content and organisation

APS INTR 2.1.1	State the different training methods applied in the course.	1	Theoretical training, practical training, self-study, types of training events	ALL

APS INTR 2.1.2	State the subjects of the course and their purpose.	1		ALL
APS INTR 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*	ALL
APS INTR 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*	ALL
Subtopic INTR 2.2 - Training ethos				
APS INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	ALL
Subtopic INTR 2.3 - Assessment process				
APS INTR 2.3.1	Describe the assessment process.	2		ALL

SUBJECT 2: AVIATION LAW

The subject objective is:

Learners shall know, understand and apply the Rules of the Air and the Regulations regarding reporting, airspace and appreciate the Licensing and Competence principles.

TOPIC LAW 1 - ATCO LICENSING/CERTIFICATE OF COMPETENCE

Subtopic LAW 1.1 - Privileges and conditions

APS LAW 1.1.1	Appreciate the conditions which shall be met to issue an Approach Control Surveillance rating	3	GD no.134/2019 and CT-ATCO *Optional content: National documents*	APS
APS LAW 1.1.2	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
APS LAW 1.1.3	Explain the conditions for suspension/revocation of ATCO licence.	2	GD no.134/2019 and CT-ATCO	ALL

TOPIC LAW 2 - RULES AND REGULATIONS

Subtopic LAW 2.1 - Reports

APS LAW 2.1.1	List the standard forms for reports.	1	Air traffic incident report Optional content: routine air reports, breach of regulations, watch/log book, records	ALL
APS LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	Reporting culture, air traffic incident report *Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR*	ALL
APS LAW 2.1.3	Use forms for reporting.	3	Air traffic incident reporting form(s) *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL

Subtopic LAW 2.2 - Airspace

APS LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Approach Control Surveillance rating operations.	3		APS
APS LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	*Optional content: CT-RA, CT-ATS, international requirements, civil requirements, military requirements, areas of responsibility, sectorization*	ALL
APS LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 - ATC SAFETY MANAGEMENT

Subtopic LAW 3.1 - Feedback process

APS LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	*Optional content: voluntary reporting*	ALL
APS LAW 3.1.2	Describe how reported occurrences are analysed.	2	*Optional content: ESARR 2, local procedures*	ALL
APS LAW 3.1.3	Name the means used to disseminate recommendations.	1	*Optional content: safety letters, safety boards web pages*	ALL
APS LAW 3.1.4	Appreciate the 'Just Culture' concept.	3	Benefits, prerequisites, constraints *Optional content: EAM 2 GUI 6, GAIN Report*	ALL

Subtopic LAW 3.2 - Safety Investigation

APS LAW 3.2.1	Describe role and mission of Safety Investigation in the improvement of safety.	2		ALL
APS LAW 3.2.2	Define working methods of Safety Investigation.	1		ALL

SUBJECT 3: AIR TRAFFIC MANAGEMENT

The subject objective is:

Learners shall manage air traffic to ensure safe, orderly and expeditious services.

TOPIC ATM 1 - PROVISION OF SERVICES

Subtopic ATM 1.1 - Air traffic control (ATC) service

APS ATM 1.1.1	Appreciate own area of responsibility.	3		APP ACP APS ACS
APS ATM 1.1.2	Provide approach control service.	4	CT-RA, CT-ATS, ICAO Doc 7030, ICAO Doc 4444, operation manuals	APP APS

Subtopic ATM 1.2 - Flight information service (FIS)

APS ATM 1.2.1	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
APS ATM 1.2.2	Use ATS surveillance system for the provision of FIS..	3	ICAO Doc 4444, information to identified aircraft concerning: traffic, navigation *Optional content: weather*	APS ACS
APS ATM 1.2.3	Issue appropriate information concerning the location of conflicting traffic	3	ICAO Doc 4444, traffic information, essential traffic information	APS ACS APP ACP
APS ATM 1.2.4	Appreciate the use of ATIS for the provision of flight information service by approach controller.	3		APS APP

Subtopic ATM 1.3 - Alerting service (ALRS)

APS ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
APS ATM 1.3.2	Respond to distress and urgency messages and signals.	3	CT-RA , ICAO Annex 10, ICAO Doc 4444 *Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations*	ALL
APS ATM 1.3.3	Use ATS surveillance system for the provision of ALRS.	3		APS ACS

Subtopic ATM 1.4 - ATS system capacity and air traffic flow management

APS ATM 1.4.1	Appreciate principles of ATS system capacity and air traffic flow management.	3	*Optional content: EUROCONTROL ATFCM Users Manual, FABs, FUA, free flight, etc.*	APP ACP APS ACS
APS ATM 1.4.2	Apply flow management procedures in the provision of ATC.	3	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
APS ATM 1.4.3	Organise traffic flows and patterns to take account of airspace boundaries.	4	*Optional content: civil and military, controlled, uncontrolled, advisory, restricted, danger, prohibited, special rules, sector boundaries, national boundaries, FIR boundaries, delegated airspace, transfer of control, transfer of communications, en-route, off-route*	APP ACP APS ACS
APS ATM 1.4.4	Organise traffic flows and patterns to take account of areas of responsibility.	4	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
APS ATM 1.4.5	Inform supervisor of situation.	3	*Optional content: abnormal situations, decrease in sector capacity, limitations on systems and equipment, changes in workload/capacity, unusual meteorological conditions, relevant information like: reported ground-based incidents, forest fire, smoke, oil pollution*	APP ACP APS ACS
APS ATM 1.4.6	Organise traffic flows and patterns to take account of ATS surveillance system capability.	4		APS ACS
Subtopic ATM 1.5 - Airspace management (ASM)				
APS ATM 1.5.1	Appreciate the principles and means of ASM.	3	National regulations related to the organisation and use of the airspace in the single European sky and rules for the flexible use of airspace. *Optional content: FABs, EUROCONTROL Specification for the application of FUA, TSAs, CDRs, CBAs*	APP ACP APS ACS
APS ATM 1.5.2	Organise traffic to take account of ASM.	4	Real-time activation, deactivation or reallocation of airspace *Optional content: CDR, TSA, TRA, CBA*	APS ACS

TOPIC ATM 2 - COMMUNICATION

Subtopic ATM 2.1 - Effective communication

APS ATM 2.1.1	Use approved phraseology.	3	ICAO Doc 4444 *Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2*	ALL
APS ATM 2.1.2	Ensure effective communication.	4	Communication techniques, readback/verification of readback	ALL

TOPIC ATM 3 - ATC CLEARANCES AND ATC INSTRUCTIONS

Subtopic ATM 3.1 - ATC clearances

APS ATM 3.1.1	Issue appropriate ATC clearances.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
APS ATM 3.1.2	Integrate appropriate ATC clearances in control service.	4		ALL
APS ATM 3.1.3	Ensure the agreed course of action is carried out.	4		ALL

Subtopic ATM 3.2 - ATC instructions

APS ATM 3.2.1	Issue appropriate ATC instructions.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
APS ATM 3.2.2	Integrate appropriate ATC instructions in control service.	4		ALL
APS ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL

TOPIC ATM 4 - COORDINATION

Subtopic ATM 4.1 - Necessity for coordination

APS ATM 4.1.1	Identify the need for coordination.	3		ALL

Subtopic ATM 4.2 - Tools and methods for coordination

APS ATM 4.2.1	Use the available tools for coordination.	3	*Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination*	ALL
Subtopic ATM 4.3 - Coordination procedures				
APS ATM 4.3.1	Initiate appropriate coordination.	3	Delegation / transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444 *Optional content: release point*	ALL
APS ATM 4.3.2	Analyse effect of coordination requested by an adjacent position/unit.	4	*Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.*	ALL
APS ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL
APS ATM 4.3.4	Ensure the agreed course of action is carried out.	4		ALL
APS ATM 4.3.5	Coordinate in the provision of FIS.	4	ICAO Doc 4444	ALL
APS ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	ALL

TOPIC ATM 5 - ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATM 5.1 - Altimetry

APS ATM 5.1.1	Allocate levels according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL

APS ATM 5.1.2	Ensure separation according to altimetry data.	4	*Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries*	ALL

Subtopic ATM 5.2 - Terrain clearance

APS ATM 5.2.1	Provide planning, coordination and control actions appropriate to the rules for minimum safe levels and terrain clearance.	4	*Optional content: terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude*	APS ACS

TOPIC ATM 6 - SEPARATIONS

Subtopic ATM 6.1 - Vertical separation

APS ATM 6.1.1	Provide standard vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030, level allocation, during climb/descent, rate of climb/descent, holding pattern	APP APS
APS ATM 6.1.2	Provide increased vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030 *Optional content: level allocation, during climb/descent, rate of climb/descent*	APP ACP APS ACS
APS ATM 6.1.3	Appreciate the application of vertical emergency separation.	3	ICAO Doc 4444, ICAO Doc 7030	APP ACP APS ACS
APS ATM 6.1.4	Provide vertical separation in a surveillance environment	4	Pressure altitude-derived information, pilot level reports *Optional content: into/out of ATS*	APS ACS

Subtopic ATM 6.2 - Longitudinal separation in a surveillance environment

APS ATM 6.2.1	Provide longitudinal separation in a surveillance environment.	4	Successive departures, successive arrivals, overflights, speed control, silent transfer, ICAO Doc 4444	APS

Subtopic ATM 6.3 - Delegation of separation

APS ATM 6.3.1	Delegate separation to pilots in the case of aircraft executing successive visual approaches.	4		APP APS
APS ATM 6.3.2	Appreciate the conditions which must be met when delegating separation to pilots to fly maintaining own separation while in VMC.	3	ICAO Doc 4444	APP APS

Subtopic ATM 6.4 - Wake turbulence distance-based separation

APS ATM 6.4.1	Provide distance-based wake turbulence separation.	4	ICAO Doc 4444 Optional content: national documents	APS ACS

Subtopic ATM 6.5 - Separation based on ATS surveillance systems

APS ATM 6.5.1	Describe how separation based on ATS surveillance systems is applied.	2	ICAO Doc 4444	APS ACS
APS ATM 6.5.2	Provide horizontal separation.	4	ICAO Doc 4444, ICAO Doc 7030, local operation manuals, holding	APS ACS
APS ATM 6.5.3	Provide horizontal separation by vectoring in a variety of situations.	4	*Optional content: transit, meteorological phenomena, vectoring for approach, departure vs transit vs arrival*	APS ACS
APS ATM 6.5.4	Ensure horizontal or vertical separation from airspace boundaries.	4	Adjacent sectors, PRD, TSAs.	APS ACS

TOPIC ATM 7 - AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED SAFETY NETS

Subtopic ATM 7.1 - Airborne collision avoidance systems

APS ATM 7.1.1	Differentiate between ACAS advisory thresholds and separation standards applicable in the approach control environment.	2	ICAO Doc 9863 *Optional content: EUROCONTROL TCAS web page*	APP APS
APS ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL
APS ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS *Optional content: EUROCONTROL ACAS web page*	ALL

Subtopic ATM 7.2 - Ground-based safety nets

APS ATM 7.2.1	Describe the controller responsibility during and following safety net warnings.	2	ICAO Doc 4444 Optional content: STCA, MSAW, APW, APM	APS ACS
APS ATM 7.2.2	Respond to ground-based safety net warnings.	3	*Optional content: STCA, MSAW, APW, APM*	APS ACS

TOPIC ATM 8 - DATA DISPLAY

Subtopic ATM 8.1 - Data management

APS ATM 8.1.1	Update the data display to accurately reflect the traffic situation.	3	*Optional content: information displayed, strip marking procedures, electronic information data displays, actions based on traffic display information, calculation of EETs*	ALL
APS ATM 8.1.2	Analyse pertinent data on data displays.	4		ALL
APS ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
APS ATM 8.1.4	Obtain flight plan information.	3	CPL, FPL, supplementary information *Optional content: RPL, AFIL, etc.*	ALL
APS ATM 8.1.5	Use flight plan information.	3		ALL

TOPIC ATM 9 - OPERATIONAL ENVIRONMENT (SIMULATED)

Subtopic ATM 9.1 - Integrity of the operational environment

APS ATM 9.1.1	Obtain information concerning the operational environment.	3	*Optional content: briefing, notices, local orders, verification of information*	ALL
APS ATM 9.1.2	Ensure the integrity of the operational environment.	4	*Optional content: integrity of displays, verification of the information provided by displays, etc.*	APP ACP APS ACS

Subtopic ATM 9.2 - Verification of the currency of operational procedures

APS ATM 9.2.1	Check all relevant documentation before managing traffic.	3	*Optional content: briefing, LOAs, NOTAM, AICs*	ALL
APS ATM 9.2.2	Manage traffic in accordance with procedural changes.	4		APP ACP APS ACS

Subtopic ATM 9.3 - Handover-takeover

APS ATM 9.3.1	Transfer information to the relieving controller.	3		ALL

APS ATM 9.3.2	Obtain information from the controller handing over.	3		ALL

TOPIC ATM 10 - PROVISION OF CONTROL SERVICE

Subtopic ATM 10.1 - Responsibility and processing of information

APS ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
APS ATM 10.1.2	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 *Optional content: ICAO Doc 9554*	ALL
APS ATM 10.1.3	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	APP ACP APS ACS
APS ATM 10.1.4	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APP ACP APS ACS
APS ATM 10.1.5	Interpret operational information.	5		APP ACP APS ACS
APS ATM 10.1.6	Organise forwarding of operational information.	4	*Optional content: including the use of backup procedures*	APP ACP APS ACS
APS ATM 10.1.7	Integrate operational information into control decisions.	4		APP ACP APS ACS
APS ATM 10.1.8	Appreciate the influence of operational requirements.	3	*Optional content: military flying, calibration flights, aerial photography*	ALL

Subtopic ATM 10.2 - ATS surveillance service

APS ATM 10.2.1	Explain the responsibility for the provision of an ATS surveillance service appropriate to APS rating.	2	ICAO Doc 4444, CT-ATS, local operation manuals	APS
APS ATM 10.2.2	Explain the functions that may be performed with the use of ATS surveillance systems derived information presented on a situation display.	4	ICAO Doc 4444	APS ACS

APS ATM 10.2.3	Provide planning, coordination and control actions appropriate to the VFR, SVFR and IFR in VMC and IMC.	4	CT-RA, CT-ATS, ICAO Doc 4444	APS APP
APS ATM 10.2.4	Apply the procedures for termination of ATS surveillance service.	3	ICAO Doc 4444 *Optional content: transfer of control, termination or interruption of ATS surveillance service*	APS ACS

Subtopic ATM 10.3 - Traffic management process

APS ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, traffic projection	APS ACS
APS ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL
APS ATM 10.3.3	Identify potential solutions to achieve a safe and effective traffic flow.	3		APP ACP APS ACS
APS ATM 10.3.4	Evaluate possible outcomes of different planning and control actions.	5		APP ACP APS ACS
APS ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective traffic flow.	5		APP ACP APS ACS
APS ATM 10.3.6	Ensure an adequate priority of actions.	4		ALL
APS ATM 10.3.7	Execute selected plan in a timely manner.	3		APP ACP APS ACS
APS ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL

Subtopic ATM 10.4 - Handling traffic

APS ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP APS ACS

APS ATM 10.4.2	Balance the workload against personal capacity.	5	*Optional content: re-routing, re-planning, prioritising solutions, denying requests, delegating responsibility for separation*	APP ACP APS ACS
APS ATM 10.4.3	Define flight path monitoring and vectoring	1	ICAO Doc 4444	APS ACS
APS ATM 10.4.4	Explain the requirements for vectoring and termination of vectoring.	2	ICAO Doc 4444	APS ACS
APS ATM 10.4.5	Provide vectoring.	4	ICAO Doc 4444 *Optional content: separation, expediting arrivals, departures and/or climb to cruising levels, aircraft leaving the hold, navigation assistance, uncontrolled airspace, etc*	APS ACS
APS ATM 10.4.6	Apply the procedures for termination of vectoring.	3	ICAO Doc 4444	APS ACS
APS ATM 10.4.7	Manage traffic on different types of approaches.	4	Precision, non-precision, visual	APP APS
APS ATM 10.4.8	Initiate missed approach.	3	ICAO Doc 4444	APP APS
APS ATM 10.4.9	Integrate aircraft on missed approach into the traffic situation.	4		APP APS
Subtopic ATM 10.5 - Control service with advanced system support				
APS ATM 10.5.1	Appreciate the impact of advanced systems on the provision of approach control service.	3	*Optional content: sequencing systems, arrival management, departure management, automated holding lists, vertical traffic displays, conflict detection and decision making tools, automated information and coordination tools*	APS

TOPIC ATM 11 - HOLDING

Subtopic ATM 11.1 - General holding procedures

APS ATM 11.1.1	Apply holding procedures.	3	ICAO Doc 4444, holding instructions, allocation of holding levels, onward clearance times	APP ACP APS ACS
APS ATM 11.1.2	Appreciate the factors affecting holding patterns.	3	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS
Subtopic ATM 11.2 - Approaching aircraft				
APS ATM 11.2.1	Calculate Expected Approach Times (EATs) and Expected Onward Clearance times..	3		APP APS
APS ATM 11.2.2	Organise the traffic landing sequence in a holding pattern.	4	Optional content: company preference, aircraft performance, aircraft approach capability, ILS categories, flow control management	APP APS

TOPIC ATM 12 - IDENTIFICATION

Subtopic ATM 12.1 - Establishment of identification				
APS ATM 12.1.1	Appreciate the precautions when establishing identification.	3		APS ACS
APS ATM 12.1.2	Identify aircraft.	3	*Optional content: PSR, SSR or ADS identification method APS ACS*	APS ACS
APS ATM 12.1.3	Apply procedures in the case of misidentification.	3		APS ACS
Subtopic ATM 12.2 - Maintenance of identification				
APS ATM 12.2.1	Appreciate the necessity to maintain identification.	3		APS ACS
Subtopic ATM 12.3 - Loss of identity				
APS ATM 12.3.1	Appreciate when an aircraft identification is lost or in doubt.	3	*Optional content: out of ATS surveillance system coverage, failure of ATS surveillance system, weather clutter, other clutter, garbling, holding, etc.*	APS ACS
APS ATM 12.3.2	Apply methods to re-establish identification.	3		APS ACS

APS ATM 12.3.3	Respond to loss/doubt concerning identification.	3	*Optional content: procedural separation APS ACS*	APS ACS
Subtopic ATM 12.4 - Position Information				
APS ATM 12.4.1	Appreciate the circumstances when position information should be passed to the aircraft.	3		APS ACS
APS ATM 12.4.2	State the format in which position information can be passed to aircraft.	1	ICAO Doc 4444	APS ACS
Subtopic ATM 12.5 - Transfer of identity				
APS ATM 12.5.1	Apply the methods of transfer of identification.	3		APS ACS
APS ATM 12.5.2	Appreciate the precautions when transferring identification.	3		

SUBJECT 4: METEOROLOGY

The subject objective is:

Learners shall acquire, decode and make proper use of meteorological information relevant to the provision of ATS.

TOPIC MET 1 - METEOROLOGICAL PHENOMENA

Subtopic MET 1.1 - Meteorological phenomena

APS MET 1.1.1	Appreciate the impact of adverse weather.	3	Thunderstorms, icing, clear air turbulence (CAT), turbulence, microburst, wind shear, severe mountain waves, line squalls, volcanic ash	APP APS

APS MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information *Optional content: relevant meteorological phenomena*	ALL
APS MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Re-routing, level change, etc.	APP ACP APS ACS

TOPIC MET 2 - SOURCES OF METEOROLOGICAL DATA

Subtopic MET 2.1 - Sources of meteorological information

APS MET 2.1.1	Obtain meteorological information	3	METAR, TAF, SIGMET, AIRMET *Optional content: AIREP/AIREP Special*	APP ACP APS ACS
APS MET 2.1.2	Relay meteorological information.	3	ICAO Doc 4444 *Optional content: flight information centre, adjacent ATS unit*	ALL

SUBJECT 5: NAVIGATION

The subject objective is:

Learners shall analyse all navigational aspects in order to organise the traffic.

TOPIC NAV 1 - MAPS AND AERONAUTICAL CHARTS

Subtopic NAV 1.1 - Maps and charts

APS NAV 1.1.1	Decode symbols and information displayed on aeronautical maps and charts	3	Instrument approach charts, SID charts, aerodrome charts, visual approach charts Optional content: military maps and charts	ADI APP APS

APS NAV 1.1.2	Use relevant maps and charts.	3		APP ACP APS ACS

TOPIC NAV 2 - INSTRUMENT NAVIGATION

Subtopic NAV 2.1 - Navigational systems

APS NAV 2.1.1	Manage traffic in case of change in the operational status of navigational systems.	4	*Optional content: limitations, status of ground-based and satellite-based systems*	APP ACP APS ACS
APS NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	3	*Optional content: limitations, status, degraded procedures*	ALL

Subtopic NAV 2.2 - Stabilised approach

APS NAV 2.2.1	Describe the concept of stabilised approach.	5	ICAO Doc 8168 *Optional content: GD no.831/2019 and its implementing documents*	ADV ADI APP APS
APS NAV 2.2.2	Appreciate the effect of late change of runway-in-use or type of approach for landing aircraft.	3		APP APS
APS NAV 2.2.3	Appreciate controller actions that may contribute to unstabilised approach.	3	Inappropriate speed control, vectoring for short final, vectoring for approach with significant tailwind, glide path interception from above, lack or incorrect distance to touchdown information, delayed descent	APS

Subtopic APS NAV 2.3 - Instrument departures and arrivals

APS NAV 2.3.1	Characterise SIDs.	2		ADI APP APS
APS NAV 2.3.2	Describe the types and phases of instrument approach procedures.	2	*Optional content: performance, functionality, sensors, aircrew and controller requirements*	APP APS
APS NAV 2.3.3	Describe the relevant minima applicable for a precision/ non-precision and visual approach.	2		ADI APP APS

Subtopic NAV 2.4 - Navigational assistance

APS NAV 2.4.1	Evaluate the necessary information to be provided to pilots in need of navigational assistance.	5	*Optional content: nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other*	APP ACP APS ACS

			navigational assistance relevant at the time	
APS NAV 2.4.2	Assist aircraft in navigation when required.	3	Aircraft observed to be deviating from its known intended route, on request	APS ACS
Subtopic NAV 2.5 - Satellite-based systems				
APS NAV 2.5.1	State the different applications of satellitebased systems relevant for approach operations.	1	*Optional content: NPA, APV-baro VNAV, APV, LPV, precision approach, ICAO Doc 8168 Vol.2*	APP APS
Subtopic NAV 2.6 - PBN applications				
APS NAV 2.6.1	State the navigation applications used in approach and terminal environments.	1	Approach-RNP APCH/ RNP AR APCH; Terminal-RNAV-1 (≈P-RNAV) *Optional content: A-RNP, EU PBN Implementing Rule, ICAO Doc 9613*	APP APS
APS NAV 2.6.2	Explain the principles and designation of navigation specifications in use.	2	*Optional content: performance, functionality, sensors, aircrew and controller requirements*	APP ACP APS ACS
APS NAV 2.6.3	State future PBN developments.	1	A-RNP, APV Optional content: RNP 3D, RNP 4D	ADI APP ACP APS ACS

SUBJECT 6: AIRCRAFT

The subject objective is:

Learners shall assess and integrate aircraft performance in the provision of ATS.

TOPIC ACFT 1 - AIRCRAFT INSTRUMENTS

Subtopic ACFT 1.1 - Aircraft instruments				
APS ACFT 1.1.1	Integrate information from aircraft instruments provided by the pilot in the provision of ATS.	4		ALL

APS ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	*Optional content: radios (number of), emergency radios*	ALL
APS ACFT 1.1.3	Explain the operation of on-board surveillance equipment.	2	Transponders: equipment Mode A, Mode C, Mode S, ADS capability	ADI APS ACS

TOPIC ACFT 2 - AIRCRAFT CATEGORIES

Subtopic ACFT 2.1 - Wake turbulence

APS ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL
APS ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL

TOPIC ACFT 3 - FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFT 3.1 - Climb factors

APS ACFT 3.1.1	Integrate the influence of factors affecting aircraft during climb.	4	*Optional content: speed, mass, air density, cabin pressurisation, wind and temperature*	APP ACP APS ACS
APS ACFT 3.1.2	Appreciate the influence of factors affecting aircraft on take-off.	3	*Optional content: runway conditions, runway slope, aerodrome elevation, wind, temperature, aircraft configuration, airframe contamination and aircraft mass*	APP APS

Subtopic ACFT 3.2 - Cruise factors

APS ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	Level, cruising speed, wind, mass, cabin pressurisation	APP ACP APS ACS

Subtopic ACFT 3.3 - Descent factors and initial approach factors

APS ACFT 3.3.1	Integrate the influence of factors affecting aircraft during descent.	4	*Optional content: wind, speed, rate of descent, aircraft configuration, cabin pressurisation*	APP APS

Subtopic ACFT 3.4 - Final approach and landing factors

APS ACFT 3.4.1	Integrate the influence of factors affecting aircraft during final approach and landing	4	*Optional content: wind, speed, rate of descent, aircraft configuration, cabin pressurisation*	APP APS

Subtopic ACFT 3.5 – Economic factors

APS ACFT 3.5.1	Integrate consideration of economic factors affecting aircraft.	4	*Optional content: routing, level, speed, rate of climb and rate of descent, approach profile*	APP APS
APS ACFT 3.5.2	Use continuous climb techniques where applicable	3		APP ACP APS ACS
APS ACFT 3.5.3	Use direct routing where applicable.	3		APP ACP APS ACS

Subtopic ACFT 3.6 - Environmental factors

APS ACFT 3.6.1	Appreciate the performance restrictions due to environmental constraints.	3	*Optional content: fuel dumping, minimum flight levels, bird hazard, continuous descent operations*	APP APS

TOPIC ACFT 4 - AIRCRAFT DATA

Subtopic ACFT 4.1 - Performance data

APS ACFT 4.1.1	Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the provision of a control service.	4	Performance data under a representative variety of circumstances	APP ACP APS ACS

SUBJECT 7: HUMAN FACTORS

The subject objective is:

Learners shall recognise the necessity to constantly extend their knowledge and analyse factors which affect personal and team performance.

TOPIC HUM 1 - PSYCHOLOGICAL FACTORS

Subtopic HUM 1.1 - Cognitive

APS HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL

APS HUM 1.1.2	Describe the factors which influence human information processing.	2	Confidence, stress, learning, knowledge, experience, fatigue, alcohol/drugs, distraction, interpersonal relations	ALL
APS HUM 1.1.3	Monitor the effect of human information processing factors on decision making.	3	*Optional content: workload, stress, interpersonal relations, distraction, confidence*	ALL

TOPIC HUM 2 - MEDICAL AND PHYSIOLOGICAL FACTORS

Subtopic HUM 2.1 - Fatigue

APS HUM 2.1.1	State factors that cause fatigue.	1	Shift work *Optional content: night shifts and rosters*	ALL
APS HUM 2.1.2	Describe the onset of fatigue.	2	*Optional content: lack of concentration, listlessness, irritability, frustration, ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
APS HUM 2.1.3	Recognise the onset of fatigue in self.	1	*Optional content: ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
APS HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL
APS HUM 2.1.5	Describe appropriate action when recognising fatigue.	2		ALL

Subtopic HUM 2.2 - Fitness

APS HUM 2.2.1	Recognise signs of lack of personal fitness.	1		ALL
APS HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		ALL

TOPIC HUM 3 - SOCIAL AND ORGANISATIONAL FACTORS

Subtopic HUM 3.1 - Team resource management (TRM)

APS HUM 3.1.1	State the relevance of TRM.	1	*Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training*	ALL

APS HUM 3.1.2	State the content of the TRM concept.	1	*Optional content: team work, human error, team roles, stress, decision making, communication, situational awareness*	ALL
Subtopic HUM 3.2 - Teamwork and team roles				
APS HUM 3.2.1	Identify reasons for conflict.	3		ALL
APS HUM 3.2.2	Describe actions to prevent human conflicts.	2	*Optional content: TRM team roles*	ALL
APS HUM 3.2.3	Describe strategies to cope with human conflicts.	2	*Optional content: in your team, in the simulator*	ALL
Subtopic HUM 3.3 - Responsible behaviour				
APS HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*	ALL
APS HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 - STRESS

Subtopic HUM 4.1 - Stress				
APS HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL
Subtopic HUM 4.2 - Stress management				
APS HUM 4.2.1	Act to reduce stress.	3	The effect of personality in coping with stress, the benefits of active stress management	ALL
APS HUM 4.2.2	Respond to stressful situation by offering, asking or accepting assistance.	3	*Optional content: the benefits of offering, accepting and asking for help in stressful situations*	ALL
APS HUM 4.2.3	Recognise the effect of shocking and stressful events.	1	Self and others, abnormal situations, CISM	ALL
APS HUM 4.2.4	Consider the benefits of Critical Incident Stress Management (CISM).	2		ALL

APS HUM 4.2.5	Explain procedures used following an incident/accident.	2	*Optional content: CISM, counselling, human element*	ALL

TOPIC HUM 5 - HUMAN ERROR

Subtopic HUM 5.1 - Human error

APS HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, proactive versus reactive approach to discovery of error *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
APS HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes *Optional content: Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
APS HUM 5.1.3	Describe error-prone conditions.	2	*Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences*	ALL
APS HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	3	*Optional content: ICAO Circular 314 – AN/178*	ALL
APS HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy *Optional content: ICAO Circular 314 – AN/178*	ALL
APS HUM 5.1.6	Execute corrective actions.	3	Error compensation *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
APS HUM 5.1.7	Explain the importance of error management.	2	*Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises*	ALL
APS HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	*Optional content: reporting, SMS, investigation, CISM ALL*	ALL

Subtopic HUM 5.2 - Violation of rules

APS HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	2	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL

TOPIC HUM 6 - COLLABORATIVE WORK

Subtopic HUM 6.1 - Communication

APS HUM 6.1.1	Use communication effectively in ATC.	3		ALL
APS HUM 6.1.2	Analyse examples of pilot and controller communication for effectiveness.	4		ALL

Subtopic HUM 6.2 - Collaborative work within the same area of responsibility

APS HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	*Optional content: electronic, written, verbal and non-verbal communication*	ALL
APS HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	*Optional content: strips legibility and encoding, labels designation, feedback*	ALL
APS HUM 6.2.3	List possible actions to provide a safe position handover.	1	*Optional content: rigour, preparation, overlap time*	ALL
APS HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL

Subtopic HUM 6.3 - Collaborative work between different areas of responsibility

APS HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	*Optional content: other sectors constraints, electronic coordination tools*	ALL

Subtopic HUM 6.4 - Controller/pilot cooperation

APS HUM 6.4.1	Describe parameters affecting controller/pilot cooperation.	2	*Optional content: workload, mutual knowledge, controller vs pilot mental picture*	ALL

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall integrate knowledge and understanding of the basic working principles of equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

TOPIC EQPS 1 - VOICE COMMUNICATIONS

Subtopic EQPS 1.1 - Radio communications

APS EQPS 1.1.1	Operate two-way communication equipment.	3	Transmit/receive switches, procedures *Optional content: frequency selection, standby equipment*	ALL
APS EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	*Optional content: indicator lights, serviceability displays, selector/frequency displays*	ALL
APS EQPS 1.1.3	Consider radio range.	2	*Optional content: transfer to another frequency, apparent radio failure, failure to establish radio contact, frequency protection range*	APP ACP APS ACS

Subtopic EQPS 1.2 - Other voice communications

APS EQPS 1.2.1	Operate landline communications.	3	*Optional content: telephone, interphone and intercom equipment*	ALL

TOPIC EQPS 2 - AUTOMATION IN ATS

Subtopic EQPS 2.1 - Aeronautical fixed telecommunication network (AFTN)

APS EQPS 2.1.1	Decode AFTN messages.	3	*Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.*	ALL

Subtopic EQPS 2.2 - Automatic data interchange

APS EQPS 2.2.1	Use automatic data transfer equipment where available.	3	*Optional content: automated information and coordination, OLDI*	ADV ADI APS ACS

TOPIC EQPS 3 - CONTROLLER WORKING POSITION

Subtopic EQPS 3.1 - Operation and monitoring of equipment

APS EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALL

APS EQPS 3.1.2	Operate the equipment of the controller working position.	3	*Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, stripprinter, clock, information systems, UDF/VDF*	ALL
APS EQPS 3.1.3	Operate available equipment in abnormal and emergency situations.	3		ALL
Subtopic EQPS 3.2 - Situation displays and information systems				
APS EQPS 3.2.1	Use situation displays.	3		ALL
APS EQPS 3.2.2	Check availability of information material.	3		ALL
APS EQPS 3.2.3	Obtain information from equipment.	3		APP ACP APS ACS
Subtopic EQPS 3.3 - Flight data systems				
APS EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL
Subtopic EQPS 3.4 - Use of ATS surveillance system				
APS EQPS 3.4.1	Use the ATS surveillance system functions.	3		APS ACS
APS EQPS 3.4.2	Analyse the information provided by the ATS surveillance system.	4		APS ACS
APS EQPS 3.4.3	Assign codes.	4		APS ACS
APS EQPS 3.4.4	Appreciate the use of advanced surveillance technology.	3	*Optional content: Mode S, ADS-B, MLAT*	APS ACS
Subtopic EQPS 3.5 - Advanced systems				
APS EQPS 3.5.1	Appreciate the use of controller pilot datalink communications when available.	3		APS ACS

APS EQPS 3.5.2	Appreciate the use of information provided by advanced systems.	3	*Optional content: trajectory-based information, MTCD, MONA, etc.*	APS ACS

TOPIC EQPS 4 - FUTURE EQUIPMENT

Subtopic EQPS 4.1 - New developments

APS EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL

TOPIC EQPS 5 - EQUIPMENT AND SYSTEMS LIMITATIONS AND DEGRADATION

Subtopic EQPS 5.1 - Reaction to limitations

APS EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALL
APS EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL

Subtopic EQPS 5.2 - Communication equipment degradation

APS EQPS 5.2.1	Identify that communication equipment has degraded.	3	*Optional content: ground-air and landline communications*	APP ACP APS ACS
APS EQPS 5.2.2	Apply contingency procedures in the event of communication equipment degradation.	3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APP ACP APS ACS

Subtopic EQPS 5.3 - Navigational equipment degradation

APS EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	*Optional content: VOR, navigational aids*	ALL
APS EQPS 5.3.2	Apply contingency procedures in the event of a navigational equipment degradation.	3	*Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units*	ADI APP ACP APS ACS

Subtopic EQPS 5.4 - Surveillance equipment degradation

APS EQPS 5.4.1	Identify that surveillance equipment has degraded.	3	Partial power failure, loss of certain facilities, total failure	APS ACS

APS EQPS 5.4.2	Apply contingency procedures in the event of surveillance equipment degradation.	3	*Optional content: inform adjacent sectors, inform aircraft, apply vertical separation (emergency), increased horizontal separation, reduce the number of aircraft entering area of responsibility, transfer aircraft to another unit*	APS ACS
Subtopic EQPS 5.5 - ATC processing system degradation				
APS EQPS 5.5.1	Identify a processing system degradation.	3	*Optional content: FDPS, SDPS, software processing of situation display*	APS ACS
APS EQPS 5.5.2	Apply contingency procedures in the event of a processing system degradation.	3		APS ACS

SUBJECT 9: PROFESSIONAL ENVIRONMENT

The subject objective is: Learners shall identify the need for close cooperation with other parties concerning ATM operations and appreciate aspects of environmental protection.

TOPIC PEN 1 - FAMILIARISATION

Subtopic PEN 1.1 - Study visit to approach control unit

APS PEN 1.1.1	Appreciate the functions and provision of an operational approach control service.	3	Study visit to an approach control unit	APP APS

TOPIC PEN 2 - AIRSPACE USERS

Subtopic PEN 2.1 - Contributors to civil ATS operations

APS PEN 2.1.1	Characterise civil ATS activities in approach control unit.	2	Study visit to an approach control unit *Optional content: familiarisation visits to TWR, ACC, AIS, RCC*	APP APS
APS PEN 2.1.2	Characterise other parties interfacing with ATS operations.	2	*Optional content: familiarisation visits to engineering services, fire and emergency services, airline operations offices*	ALL

Subtopic PEN 2.2 - Contributors to military ATS operations

APS PEN 2.2.1	Characterise military ATS activities.	2	*Optional content: familiarisation visits to TWR, APP, ACC, AIS, RCC, Air Defence Units*	ALL

TOPIC PEN 3 - CUSTOMER RELATIONS

Subtopic PEN 3.1 - Provision of services and user requirements

APS PEN 3.1.1	Identify the role of ATC as a service provider.	3		ALL
APS PEN 3.1.2	Appreciate ATS users requirements.	3		ALL

TOPIC PEN 4 - ENVIRONMENTAL PROTECTION

Subtopic PEN 4.1 - Environmental protection

APS PEN 4.1.1	Describe the environmental constraints on aerodrome operations.	2	*Optional content: ICAO Doc.10013 – Operational opportunities to reduce fuel burn and emissions*	ADV ADI APP APS

APS PEN 4.1.2	Explain the use of Collaborative Environmental Management (CEM) process at airports.	2		ADV ADI APP APS
APS PEN 4.1.3	Appreciate the mitigation techniques used en-route to minimise the aviation's impact on the environment.	3	*Optional content: continuous descent operations (CDO), noise abatement procedures, noise preferential routes, flight efficiency*	APP APS

SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is: Learners shall develop professional attitudes to manage traffic in abnormal and emergency situations.

TOPIC ABES 1 - ABNORMAL AND EMERGENCY SITUATIONS (ABES)

Subtopic ABES 1.1 - Overview of ABES

APS ABES 1.1.1	List common abnormal and emergency situations.	1	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion*	ALL
APS ABES 1.1.2	Identify potential or actual abnormal and emergency situations.	3		ALL
APS ABES 1.1.3	Take into account the procedures for given abnormal and emergency situations.	2	*Optional content: ICAO Doc 4444*	APP ACP APS ACS
APS ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	*Optional content: real life examples*	ALL
APS ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	*Optional content: separation, information, coordination*	ALL

TOPIC ABES 2 - SKILLS IMPROVEMENT

Subtopic ABES 2.1 - Communication effectiveness

APS ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
APS ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL

Subtopic ABES 2.2 - Avoidance of mental overload

APS ABES 2.2.1	Describe actions to keep control of the situation.	2	*Optional content: sector splitting, holding, flow management, task delegation*	ALL
APS ABES 2.2.2	Organise priority of actions.	4		ALL
APS ABES 2.2.3	Ensure effective circulation of information.	4	*Optional content: between executive and planner/coordinator, with the supervisor, between sectors,*	ALL

			between ACC, APP and TWR , with ground staff, etc.	
APS ABES 2.2.4	Consider asking for help.	2		ALL

Subtopic ABES 2.3 - Air / ground cooperation

APS ABES 2.3.1	Collect appropriate information relevant to the situation.	3		ALL
APS ABES 2.3.2	Assist the pilot.	3	Pilot workload *Optional content: instructions, information, support, human factors, etc.*	ALL

TOPIC ABES 3 - PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS

Subtopic ABES 3.1 - Application of procedures for ABES

APS ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure*	ALL

Subtopic ABES 3.2 - Radio failure

APS ABES 3.2.1	Describe the procedures followed by a pilot when he/she experiences complete or partial radio failure.	2	ICAO Doc 7030 *Optional content: military procedures*	ALL
APS ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	*Optional content: prolonged loss of communication*	ALL

Subtopic ABES 3.3 - Unlawful interference and aircraft bomb threat

APS ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL

Subtopic ABES 3.4 - Strayed or unidentified aircraft

APS ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	ICAO Doc 4444 *Optional content: inside controlled airspace, outside controlled airspace*	ALL
APS ABES 3.4.2	Apply the procedures in the case of unidentified aircraft.	3	ICAO Doc 4444	ALL

Subtopic ABES 3.5 – Diversions

APS ABES 3.5.1	Provide navigational assistance to 4 diverting emergency aircraft.	Track/heading, distance, other navigational assistance *Optional content: nearest most suitable aerodrome*	APP ACP APS ACS

SUBJECT 11: AERODROMES

The subject objective is:

Learners shall recognise and understand the design and layout of aerodromes.

TOPIC AGA 1 - AERODROME DATA, LAYOUT AND COORDINATION

Subtopic AGA 1.1 - Definitions

APS AGA 1.1.1	Define aerodrome data.	1	GD no.653/2018 and its implementing documents *Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot*	ADV ADI APP APS

Subtopic AGA 1.2 - Coordination

APS AGA 1.2.1	Identify the information that has to be passed between Air Traffic Services (ATS) and the airport authority.	3	Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, GD no.653/2018 and its implementing documents	APP APS ADV ADI

TOPIC AGA 2 - MOVEMENT AREA

Subtopic AGA 2.1 - Movement area

APS AGA 2.1.1	Describe movement area.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
APS AGA 2.1.2	Describe the marking of obstacles and unusable or unserviceable areas.	2	Flags, signs on pavement, lights	ADV ADI APP APS
APS AGA 2.1.3	Identify the information on conditions of the movement area that have to be passed to aircraft.	3	Essential information on aerodrome conditions	ADV ADI APP APS

Subtopic AGA 2.2 - Manoeuvring area

APS AGA 2.2.1	Describe manoeuvring area.	3	GD no.653/2018 and its implementing documents	ADV ADI APP APS
APS AGA 2.2.2	Describe taxiway.	2		ADV ADI APP APS
APS AGA 2.2.3	Describe the daylight marking on taxiways.	2		ADV ADI

APS AGA 2.2.4	Describe taxiway lighting.	2		APP APS ADV ADI APP APS

Subtopic AGA 2.3 - Runways

APS AGA 2.3.1	Describe runway.	2	Runway, runway surface, runway strip, shoulder, runway end safety areas, clearways, stopways	ADV ADI APP APS
APS AGA 2.3.2	Describe instrument runway.	2	GD no.653/2018 and its implementing documents	ADI APP APS
APS AGA 2.3.3	Describe non-instrument runway.	2	GD no.653/2018 and its implementing documents	ADV ADI APP APS
APS AGA 2.3.4	Explain declared distances.	2	TORA, TODA, ASDA, LDA	ADV ADI APP APS
APS AGA 2.3.5	Explain the differences between ACN and PCN.	2	Strength of pavements	ADV ADI APP APS
APS AGA 2.3.6	Describe the daylight markings on runways.	2	*Optional content: runway designator, centre line, threshold, aiming point, fixed distance, touchdown zone, side strip, colour*	ADV ADI APP APS
APS AGA 2.3.7	Describe runway lights.	2	*Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barettes*	ADV ADI APP APS
APS AGA 2.3.8	Explain the functions of visual landing aids.	2	*Optional content: AVASI, VASI, PAPI*	ADV ADI APP APS
APS AGA 2.3.9	Describe the approach lighting systems.	2	Centre line, cross bars, stroboscopic lights, colours, intensity and brightness	ADV ADI APP APS
APS AGA 2.3.10	Characterise the effect of water/ice on runways.	2		ADV ADI APP APS

APS AGA 2.3.11	Explain braking action.	2	Braking action coefficient	ADV ADI APP APS
APS AGA 2.3.12	Explain the effect of runway visual range on aerodrome operation.	2		ADV ADI APP APS

TOPIC AGA 3 - OBSTACLES

Subtopic AGA 3.1 - Obstacle-free airspace around aerodromes

APS AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free airspace around aerodromes.	2		ADV ADI APP APS

TOPIC AGA 4 - MISCELLANEOUS EQUIPMENT

Subtopic AGA 4.1 - Location

APS AGA 4.1.1	Explain the location of different aerodrome ground equipment.	2	*Optional content: LLZ, GP, VDF, radio communication or ATS surveillance systems sensors, stopbars, AVASI, VASI, PAPI*	ADV ADI APP APS

AMC1 ATCO.D.010(a)(2)(vi) Composition of initial training

AREA CONTROL SURVEILLANCE RATING (ACS) TRAINING — SUBJECT OBJECTIVES AND TRAINING OBJECTIVES

(a) The general principles that apply to this AMC are contained in AMC1 ATCO.D.010(a).

(b) ATCO Rating training Area Control Surveillance Rating (ACS) should contain the following subject objectives and training objectives that are associated with the subjects, topics and subtopics contained in Appendix 8 to CT-ATCO — Area Control Surveillance Rating (ACS).

(c) Subjects, topics and subtopics from Appendix 8 to CT-ATCO 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 learn how to obtain the appropriate information.

TOPIC INTR 1 - COURSE MANAGEMENT

Subtopic INTR 1.1 - Course introduction

ACS INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL

Subtopic INTR 1.2 - Course administration

ACS INTR 1.2.1	State course administration.	1		ALL

Subtopic INTR 1.3 - Study material and training documentation

ACS INTR 1.3.1	Use appropriate documentation and their sources for course studies.	3	*Optional content: training documentation, library, CBT library, web, learning management server*	ALL
ACS INTR 1.3.2	Integrate appropriate information into course studies.	4	Training documentation *Optional content: supplementary information, library*	ALL

TOPIC INTR 2 - INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTR 2.1 - Course content and organisation

ACS INTR 2.1.1	State the different training methods applied in the course.	1	Theoretical training, practical training, self-study, types of training events	ALL
ACS INTR 2.1.2	State the subjects of the course and their purpose.	1		ALL
ACS INTR 2.1.3	Describe the organisation of theoretical training.	2	*Optional content: course programme*	ALL
ACS INTR 2.1.4	Describe the organisation of practical training.	2	*Optional content: PTP, simulation, briefing, debriefing, course programme*	ALL

Subtopic INTR 2.2 - Training ethos

ACS INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	ALL

Subtopic INTR 2.3 - Assessment process

ACS INTR 2.3.1	Describe the assessment process.	2		ALL

SUBJECT 2: AVIATION LAW

The subject objective is:

Learners shall know, understand and apply the Rules of the Air and the Regulations regarding reporting, airspace and appreciate the Licensing and Competence principles.

TOPIC LAW 1 - ATCO LICENSING/CERTIFICATE OF COMPETENCE

Subtopic LAW 1.1 - Privileges and conditions

ACS LAW 1.1.1	Appreciate the conditions which shall be met to issue an Approach Control Procedural rating	3	GD no.134/2018 and CT-ATCO	ACS
ACS LAW 1.1.2	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
ACS LAW 1.1.3	Explain the conditions for suspension/revocation of ATCO licence.	2	GD no.134/2019 and CT-ATCO	ALL

TOPIC LAW 2 - RULES AND REGULATIONS

Subtopic LAW 2.1 - Reports

ACS LAW 2.1.1	List the standard forms for reports.	1	Air traffic incident report *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL
ACS LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	Reporting culture, air traffic incident report	ALL

			Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR	
ACS LAW 2.1.3	Use forms for reporting.	3	National regulations related to occurrences in civil aviation, Air traffic incident reporting form(s) *Optional content: routine air reports, breach of regulations, watch/log book, records*	ALL
Subtopic LAW 2.2 - Airspace				
ACS LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Area Control Surveillance rating operations.	3		ACS
ACS LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	*Optional content: CT-RA, CT-ATS, , international requirements, civil requirements, military requirements, areas of responsibility, sectorization*	ALL
ACS LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 - ATC SAFETY MANAGEMENT

Subtopic LAW 3.1 - Feedback process				
ACS LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	*Optional content: voluntary reporting*	ALL
ACS LAW 3.1.2	Describe how reported occurrences are analysed.	2	*Optional content: ESARR 2, local procedures*	ALL
ACS LAW 3.1.3	Name the means used to disseminate recommendations.	1	*Optional content: safety letters, safety boards web pages*	ALL
ACS LAW 3.1.4	Appreciate the 'Just Culture' concept.	3	Benefits, prerequisites, constraints *Optional content: EAM 2 GUI 6, GAIN Report*	ALL
Subtopic LAW 3.2 - Safety Investigation				
ACS LAW 3.2.1	Describe role and mission of Safety Investigation in the improvement of safety.	2		ALL

ACS LAW 3.2.2	Define working methods of Safety Investigation.	1		ALL

SUBJECT 3: AIR TRAFFIC MANAGEMENT

The subject objective is:

Learners shall manage air traffic to ensure safe, orderly and expeditious services.

TOPIC ATM 1 - PROVISION OF SERVICES

Subtopic ATM 1.1 - Air traffic control (ATC) service

ACS ATM 1.1.1	Appreciate own area of responsibility.	3		APP ACP APS ACS
ACS ATM 1.1.2	Provide approach control service.	4	CT-RA, CT-ATS, ICAO Doc 7030, ICAO Doc 4444, operation manuals	APP APS

Subtopic ATM 1.2 - Flight information service (FIS)

ACS ATM 1.2.1	Provide FIS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ACS ATM 1.2.2	Use ATS surveillance system for the provision of FIS.	3	ICAO Doc 4444, information to identified aircraft concerning: traffic, navigation *Optional content: weather*	APS ACS
ACS ATM 1.2.3	Issue appropriate information concerning the location of conflicting traffic.	3	ICAO Doc 4444, traffic information, essential traffic information	APP ACP APS ACS

Subtopic ATM 1.3 - Alerting service (ALRS)

ACS ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444 *Optional content: national documents*	ALL
ACS ATM 1.3.2	Respond to distress and urgency messages and signals.	3	CT-RA, , ICAO Annex 10, ICAO Doc 4444	ALL

			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	
ACS ATM 1.3.3	Use ATS surveillance system for the provision of ALRS.	3		APS ACS

Subtopic ATM 1.4 - ATS system capacity and air traffic flow management

ACS ATM 1.4.1	Appreciate principles of ATS system capacity and air traffic flow management.	3	*Optional content: EUROCONTROL ATFCM Users Manual, FABs, FUA, free flight, etc.*	APP ACP APS ACS
ACS ATM 1.4.2	Apply flow management procedures in the provision of ATC.	3	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
ACS ATM 1.4.3	Organise traffic flows and patterns to take account of airspace boundaries.	4	*Optional content: civil and military, controlled, uncontrolled, advisory, restricted, danger, prohibited, special rules, sector boundaries, national boundaries, FIR boundaries, delegated airspace, transfer of control, transfer of communications, en-route, off-route*	APP ACP APS ACS
ACS ATM 1.4.4	Organise traffic flows and patterns to take account of areas of responsibility.	4	*Optional content: EUROCONTROL ATFCM Users Manual*	APP ACP APS ACS
ACS ATM 1.4.5	Inform supervisor of situation.	3	*Optional content: abnormal situations, decrease in sector capacity, limitations on systems and equipment, changes in workload/capacity, unusual meteorological conditions, relevant information like: reported ground-based incidents, forest fire, smoke, oil pollution*	APP ACP APS ACS
ACS ATM 1.4.6	Organise traffic flows and patterns to take account of ATS surveillance system capability.	4		APS ACS

Subtopic ATM 1.5 - Airspace management (ASM)

ACS ATM 1.5.1	Appreciate the principles and means of ASM.	3	National regulations related to organisation and use of the airspace in the single European sky and rules for the flexible use of airspace. *Optional content: FABs, EUROCONTROL Specification for the application of FUA, TSAs, CDRs, CBAs*	APP ACP APS ACS
ACS ATM 1.5.2	Organise traffic to take account of ASM.	4	Real-time activation, deactivation or reallocation of airspace *Optional content: CDR, TSA, TRA, CBA*	APS ACS

TOPIC ATM 2 - COMMUNICATION

Subtopic ATM 2.1 - Effective communication

ACS ATM 2.1.1	Use approved phraseology.	3	ICAO Doc 4444 *Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2*	ALL
ACS ATM 2.1.2	Ensure effective communication.	4	Communication techniques, readback/verification of readback	ALL

TOPIC ATM 3 - ATC CLEARANCES AND ATC INSTRUCTIONS

Subtopic ATM 3.1 - ATC clearances

ACS ATM 3.1.1	Issue appropriate ATC clearances.	3	ICAO Doc 4444 *Optional content: national documents*	ALL

ACS ATM 3.1.2	Integrate appropriate ATC clearances in control service.	4		ALL
ACS ATM 3.1.3	Ensure the agreed course of action is carried out.	4		ALL
Subtopic ATM 3.2 - ATC instructions				
ACS ATM 3.2.1	Issue appropriate ATC instructions.	3	ICAO Doc 4444 *Optional content: national documents*	ALL
ACS ATM 3.2.2	Integrate appropriate ATC instructions in control service.	4		ALL
ACS ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL

TOPIC ATM 4 - COORDINATION

Subtopic ATM 4.1 - Necessity for coordination				
ACS ATM 4.1.1	Identify the need for coordination.	3		ALL
Subtopic ATM 4.2 - Tools and methods for coordination				
ACS ATM 4.2.1	Use the available tools for coordination.	3	*Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination*	ALL
Subtopic ATM 4.3 - Coordination procedures				
ACS ATM 4.3.1	Initiate appropriate coordination.	3	Delegation / transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444 *Optional content: release point*	ALL
ACS ATM 4.3.2	Analyse effect of coordination requested by an adjacent position/unit.	4	*Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.*	ALL

ACS ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL
ACS ATM 4.3.4	Ensure the agreed course of action is carried out.	4		ALL
ACS ATM 4.3.5	Coordinate in the provision of FIS.	4	ICAO Doc 4444	ALL
ACS ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	ALL

TOPIC ATM 5 - ALTIMETRY AND LEVEL ALLOCATION

Subtopic ATM 5.1 - Altimetry

ACS ATM 5.1.1	Allocate levels according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL
ACS ATM 5.1.2	Ensure separation according to altimetry data.	4	*Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries*	ALL

Subtopic ATM 5.2 - Terrain clearance

ACS ATM 5.2.1	Provide planning, coordination and control actions appropriate to the rules for minimum safe levels and terrain clearance.	4	*Optional content: terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude*	APS ACS

TOPIC ATM 6 - SEPARATIONS

Subtopic ATM 6.1 - Vertical separation

ACS ATM 6.1.1	Provide standard vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030, level allocation, during climb/descent, rate of climb/descent, RVSM, non-RVSM aircraft, holding pattern	ACP ACS
ACS ATM 6.1.2	Provide increased vertical separation.	4	ICAO Doc 4444, ICAO Doc 7030 *Optional content: level allocation, during climb/descent, rate of climb/descent*	APP ACP APS ACS

ACS ATM 6.1.3	Appreciate the application of vertical emergency separation.	3	ICAO Doc 4444, ICAO Doc 7030	APP ACP APS ACS
ACS ATM 6.1.4	Provide vertical separation in a surveillance environment.	4	Pressure altitude-derived information, pilot level reports Optional content: into/out of ATS surveillance system coverage	APS ACS

Subtopic ATM 6.2 - - Longitudinal separation in a surveillance environment

ACS ATM 6.2.1	Provide longitudinal separation in a surveillance environment.	4	Successive departures, successive arrivals, overflights, speed control, Mach number techniques, silent transfer, ICAO Doc 4444	ACS

Subtopic ATM 6.3 - Wake turbulence distance-based separation

ACS ATM 6.3.1	Provide distance-based wake turbulence separation	4	ICAO Doc 4444 *Optional content: national documents*	APS ACS

Subtopic ATM 6.4 - Separation based on ATS surveillance systems

ACS ATM 6.4.1	Describe how separation based on ATS surveillance systems is applied..	2	ICAO Doc 4444	APP APS
ACS ATM 6.4.2	Provide horizontal separation.	4	ICAO Doc 4444, ICAO Doc 7030, local operation manuals, holding	APS ACS
ACS ATM 6.4.3	Provide horizontal separation by vectoring in a variety of situations.	4	*Optional content: transit, meteorological phenomena, vectoring for approach, departure vs transit vs arrival*	APS ACS
ACS ATM 6.4.4	Ensure horizontal or vertical separation from airspace boundaries.	4	Adjacent sectors, PRD, TSAs.	APS ACS

TOPIC ATM 7 - AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED SAFETY NETS

Subtopic ATM 7.1 - Airborne collision avoidance systems

ACS ATM 7.1.1	Differentiate between ACAS advisory thresholds and separation standards applicable in the approach control environment.	2	ICAO Doc 9863 *Optional content: EUROCONTROL TCAS web page*	ACP ACS
ACS ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL

ACS ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS *Optional content: EUROCONTROL ACAS web page*	ALL

Subtopic ATM 7.2 - Ground-based safety nets

ACS ATM 7.2.1	Describe the controller responsibility during and following safety net warnings.	2	ICAO Doc 4444 *Optional content: STCA, MSAW, APW, APM*	APS ACS
ACS ATM 7.2.2	Respond to ground-based safety net warnings	3	*Optional content: STCA, MSAW, APW, APM*	APS ACS

TOPIC ATM 8 - DATA DISPLAY

Subtopic ATM 8.1 - Data management

ACS ATM 8.1.1	Update the data display to accurately reflect the traffic situation.	3	*Optional content: information displayed, strip marking procedures, electronic information data displays, actions based on traffic display information, calculation of EETs*	ALL
ACS ATM 8.1.2	Analyse pertinent data on data displays.	4		ALL
ACS ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
ACS ATM 8.1.4	Obtain flight plan information.	3	CPL, FPL, supplementary information *Optional content: RPL, AFIL, etc.*	ALL
ACS ATM 8.1.5	Use flight plan information.	3		ALL

TOPIC ATM 9 - OPERATIONAL ENVIRONMENT (SIMULATED)

Subtopic ATM 9.1 - Integrity of the operational environment

ACS ATM 9.1.1	Obtain information concerning the operational environment.	3	*Optional content: briefing, notices, local orders, verification of information*	ALL
ACS ATM 9.1.2	Ensure the integrity of the operational environment.	4	*Optional content: integrity of displays, verification of the information provided by displays, etc.*	APP ACP APS ACS

Subtopic ATM 9.2 - Verification of the currency of operational procedures

ACS ATM 9.2.1	Check all relevant documentation before managing traffic.	3	*Optional content: briefing, LOAs, NOTAM, AICs*	ALL
ACS ATM 9.2.2	Manage traffic in accordance with procedural changes.	4		APP ACP APS ACS

Subtopic ATM 9.3 - Handover-takeover

ACS ATM 9.3.1	Transfer information to the relieving controller.	3		ALL
ACS ATM 9.3.2	Obtain information from the controller handing over.	3		ALL

TOPIC ATM 10 - PROVISION OF CONTROL SERVICE

Subtopic ATM 10.1 - Responsibility and processing of information

ACS ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ACS ATM 10.1.2	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 *Optional content: ICAO Doc 9554*	ALL
ACS ATM 10.1.3	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	APP ACP APS ACS
ACS ATM 10.1.4	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APP ACP APS ACS
ACS ATM 10.1.5	Interpret operational information.	5		APP ACP APS ACS
ACS ATM 10.1.6	Organise forwarding of operational information.	4	*Optional content: including the use of backup procedures*	APP ACP APS ACS
ACS ATM 10.1.7	Integrate operational information into control decisions.	4		APP ACP

				APS ACS
ACS ATM 10.1.8	Appreciate the influence of operational requirements.	3	*Optional content: military flying, calibration flights, aerial photography*	ALL
Subtopic ATM 10.2 – ATS surveillance service				
ACS ATM 10.2.1	Explain the responsibility for the provision of ATS surveillance service appropriate to ACS rating.	2	ICAO Doc 4444, CT-ATS, local operation manuals	ACS
ACS ATM 10.2.2	Explain the functions that may be performed with the use of ATS surveillance systems derived information presented on a situation display.	2	ICAO Doc 4444	APS ACS
ACS ATM 10.2.3	Provide planning, coordination and control actions appropriate to the VFR and IFR in VMC and IMC.	4	CT-RA, CT-ATS, ICAO Doc 4444	ACS ACP
ACS ATM 10.2.4	Apply the procedures for termination of ATS surveillance service.	3	ICAO Doc 4444 *Optional content: transfer of control, termination or interruption of ATS surveillance service*	APS ACS
Subtopic ATM 10.3 - Traffic management process				
ACS ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, traffic projection	APP ACP
ACS ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL
ACS ATM 10.3.3	Identify potential solutions to achieve a safe and effective traffic flow.	3		APP ACP APS ACS
ACS ATM 10.3.4	Evaluate possible outcomes of different planning and control actions.	5		APP ACP APS ACS
ACS ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective traffic flow.	5		APP ACP APS ACS
ACS ATM 10.3.6	Ensure an adequate priority of actions.	4		ALL

ACS ATM 10.3.7	Execute selected plan in a timely manner.	3		APP ACP APS ACS
ACS ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL

Subtopic ATM 10.4 - Handling traffic

ACS ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP APS ACS
ACS ATM 10.4.2	Balance the workload against personal capacity.	5	*Optional content: re-routing, re-planning, prioritising solutions, denying requests, delegating responsibility for separation*	APP ACP APS ACS
ACS ATM 10.4.3	Define flight path monitoring and vectoring.	1	ICAO Doc 4444	APS ACS
ACS ATM 10.4.4	Explain the requirements for vectoring and termination of vectoring.	2	ICAO Doc 4444	APS ACS
ACS ATM 10.4.5	Provide vectoring.	4	ICAO Doc 4444 *Optional content: separation, expediting arrivals, departures and/or climb to cruising levels, aircraft leaving the hold, navigation assistance, uncontrolled airspace, etc*.	APS ACS
ACS ATM 10.4.6	Apply the procedures for termination of vectoring.	3	ICAO Doc 4444	APS ACS

Subtopic ATM 10.5 - Control service with advanced system support

ACS ATM 10.5.1	Appreciate the impact of advanced systems on the provision of area control service.	3	*Optional content: sequencing systems, automated holding lists, vertical traffic displays, conflict detection and decision making tools, automated information and coordination tools*	ACS

TOPIC ATM 11 - HOLDING

Subtopic ATM 11.1 - General holding procedures

ACS ATM 11.1.1	Apply holding procedures.	3	ICAO Doc 4444, holding instructions, allocation of holding levels, onward clearance times	APP ACP APS ACS
ACS ATM 11.1.2	Appreciate the factors affecting holding patterns.	3	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS
Subtopic ATM 11.2 - Holding aircraft				
ACS ATM 11.2.1	Calculate expected onward clearance times.	3		ACP ACS
Subtopic ATM 11.3 - Holding in a surveillance environment				
ACS ATM 11.3.1	Organise traffic to separate other aircraft from holding aircraft.	4		APS ACS
ACS ATM 11.3.2	Integrate system support, when available	4		APS ACS

TOPIC ATM 12 - IDENTIFICATION

Subtopic ATM 12.1 - Establishment of identification				
ACS ATM 12.1.1	Appreciate the precautions when establishing identification.	3		APS ACS
ACS ATM 12.1.2	Identify aircraft.	3	*Optional content: PSR, SSR or ADS identification method*	APS ACS
ACS ATM 12.1.3	Apply procedures in the case of misidentification.	3		APS ACS
Subtopic ATM 12.2 - Maintenance of identification				
ACS ATM 12.2.1	Appreciate the necessity to maintain identification.			APS ACS
Subtopic ATM 12.3 - Loss of identity				
ACS ATM 12.3.1	Appreciate when an aircraft identification is lost or in doubt.	3	*Optional content: out of ATS surveillance system coverage, failure of ATS surveillance*	APS ACS

			system, weather clutter, other clutter, garbling, holding, etc.	
ACS ATM 12.3.2	Apply methods to re-establish identification.	3		APS ACS
ACS ATM 12.3.3	Respond to loss/doubt concerning identification.	3	*Optional content: procedural separation*	APS ACS
Subtopic ATM 12.4 - Position Information				
ACS ATM 12.4.1	Appreciate the circumstances when position information should be passed to the aircraft.	3		APS ACS
ACS ATM 12.4.2	State the format in which position information can be passed to aircraft.	1	ICAO Doc 4444	APS ACS
Subtopic ATM 12.5 - Transfer of identity				
ACS ATM 12.5.1	Apply the methods of transfer of identification.	3		APS ACS
ACS ATM 12.5.2	Appreciate the precautions when transferring identification.	3		

SUBJECT 4: METEOROLOGY

The subject objective is: Learners shall acquire, decode and make proper use of meteorological information relevant to the provision of ATS.

TOPIC MET 1 - METEOROLOGICAL PHENOMENA

Subtopic MET 1.1 - Meteorological phenomena

ACS MET 1.1.1	Appreciate the impact of adverse weather.	3	Thunderstorms, icing, clear air turbulence (CAT), turbulence, microburst, wind shear, severe mountain waves, line squalls, volcanic ash *Optional content: solar radiation*	ACP ACS
ACS MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information *Optional content: relevant meteorological phenomena*	ALL
ACS MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Re-routing, level change, etc.	APP ACP APS ACS

TOPIC MET 2 - SOURCES OF METEOROLOGICAL DATA

Subtopic MET 2.1 - Sources of meteorological information

ACS MET 2.1.1	Obtain meteorological information	3	METAR, TAF, SIGMET, AIRMET *Optional content: AIREP/AIREP Special*	APP ACP APS ACS
ACS MET 2.1.2	Relay meteorological information.	3	ICAO Doc 4444 *Optional content: flight information centre, adjacent ATS unit*	ALL

SUBJECT 5: NAVIGATION

The subject objective is:

Learners shall analyse all navigational aspects in order to organise the traffic.

TOPIC NAV 1 - MAPS AND AERONAUTICAL CHARTS

Subtopic NAV 1.1 - Maps and charts

ACS NAV 1.1.1	Use relevant maps and charts.	3		APP ACP APS ACS

TOPIC NAV 2 - INSTRUMENT NAVIGATION

Subtopic NAV 2.1 - Navigational systems

ACS NAV 2.1.1	Manage traffic in case of change in the operational status of navigational systems.	4	*Optional content: limitations, status of ground-based and satellite-based systems*	APP ACP APS ACS
ACS NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	3	*Optional content: limitations, status, degraded procedures*	ALL

Subtopic NAV 2.2 - Navigational assistance

ACS NAV 2.2.1	Evaluate the necessary information to be provided to pilots in need of navigational assistance.	5	*Optional content: nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other navigational assistance relevant at the time*	APP ACP APS ACS
ACS NAV 2.2.2	Assist aircraft in navigation when required	3	Aircraft observed to be deviating from its known intended route, on request	APS ACS

Subtopic NAV 2.3 - PBN applications

ACS NAV 2.3.1	State the navigation applications used in terminal and en-route environments.	1	Terminal-RNAV-1 (≈P-RNAV); En-route RNAV-5 (B-RNAV) *Optional content: A-RNP, EC PBN Implementing Rule, ICAO Doc 9613*	ACP ACS
ACS NAV 2.3.2	Explain the principles and designation of navigation specifications in use..	2	*Optional content: performance, functionality, sensors, aircrew and controller requirements*	APP ACP APS ACS
ACS NAV 2.3.3	State future PBN developments.	1	A-RNP, APV Optional content: RNP 3D, RNP 4D	ADI APP ACP APS ACS

SUBJECT 6: AIRCRAFT

The subject objective is:

Learners shall assess and integrate aircraft performance in the provision of ATS.

TOPIC ACFT 1 - AIRCRAFT INSTRUMENTS

Subtopic ACFT 1.1 - Aircraft instruments

ACS ACFT 1.1.1	Integrate information from aircraft instruments provided by the pilot in the provision of ATS.	4		ALL
ACS ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	*Optional content: radios (number of), emergency radios*	ALL
ACS ACFT 1.1.3	Explain the operation of on-board surveillance equipment.	2	Transponders: equipment Mode A, Mode C, Mode S, ADS capability	ADI APS ACS

TOPIC ACFT 2 - AIRCRAFT CATEGORIES

Subtopic ACFT 2.1 - Wake turbulence

ACS ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL
ACS ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL

TOPIC ACFT 3 - FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFT 3.1 - Climb factors

ACS ACFT 3.1.1	Integrate the influence of factors affecting aircraft during climb.	4	*Optional content: speed, mass, air density, cabin pressurisation, wind and temperature*	APP ACP APS ACS

Subtopic ACFT 3.2 - Cruise factors

ACS ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	Level, cruising speed, wind, mass, cabin pressurisation	APP ACP APS ACS

Subtopic ACFT 3.3 - Descent factors

ACS ACFT 3.3.1	Integrate the influence of factors affecting aircraft during descent.	4	*Optional content: wind, speed, rate of descent, aircraft configuration, cabin pressurisation*	ACP ACS

Subtopic ACFT 3.4 – Economic factors

ACS ACFT 3.4.1	Integrate the influence of factors affecting aircraft during descent.	4	*Optional content: routing, level, speed, rate of climb and rate of descent, approach profile, top of descent.*	ACP ACS
ACS ACFT 3.4.2	Use continuous climb techniques where applicable.	3		APP ACP APS ACS
ACS ACFT 3.4.3	Use direct routing where applicable.	3		APP ACP APS ACS

Subtopic ACFT 3.5 - Environmental factors

ACS ACFT 3.5.1	Appreciate the performance restrictions due to environmental constraints.	3	*Optional content: fuel dumping, minimum flight levels, bird hazard, continuous descent operations*	ACP ACS

TOPIC ACFT 4 - AIRCRAFT DATA

Subtopic ACFT 4.1 - Performance data

ACS ACFT 4.1.1	Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the provision of a control service.	4	Performance data under a representative variety of circumstances	APP ACP APS ACS

SUBJECT 7: HUMAN FACTORS

The subject objective is:

Learners shall recognise the necessity to constantly extend their knowledge and analyse factors which affect personal and team performance.

TOPIC HUM 1 - PSYCHOLOGICAL FACTORS

Subtopic HUM 1.1 - Cognitive

ACS HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL
ACS HUM 1.1.2	Describe the factors which influence human information processing.	2	Confidence, stress, learning, knowledge, experience, fatigue, alcohol/drugs, distraction, interpersonal relations	ALL
ACS HUM 1.1.3	Monitor the effect of human information processing factors on decision making.	3	*Optional content: workload, stress, interpersonal relations, distraction, confidence*	ALL

TOPIC HUM 2 - MEDICAL AND PHYSIOLOGICAL FACTORS

Subtopic HUM 2.1 - Fatigue

ACS HUM 2.1.1	State factors that cause fatigue.	1	Shift work *Optional content: night shifts and rosters*	ALL
ACS HUM 2.1.2	Describe the onset of fatigue.	2	*Optional content: lack of concentration, listlessness, irritability, frustration, ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL
ACS HUM 2.1.3	Recognise the onset of fatigue in self.	1	*Optional content: ICAO Circular 241 – AN/145 Human factors in Air Traffic Control*	ALL

ACS HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL
ACS HUM 2.1.5	Describe appropriate action when recognising fatigue.	2		ALL
Subtopic HUM 2.2 - Fitness				
ACS HUM 2.2.1	Recognise signs of lack of personal fitness.	1		ALL
ACS HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		ALL

TOPIC HUM 3 - SOCIAL AND ORGANISATIONAL FACTORS

Subtopic HUM 3.1 - Team resource management (TRM)				
ACS HUM 3.1.1	State the relevance of TRM.	1	*Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training*	ALL
ACS HUM 3.1.2	State the content of the TRM concept.	1	*Optional content: team work, human error, team roles, stress, decision making, communication, situational awareness*	ALL
Subtopic HUM 3.2 - Teamwork and team roles				
ACS HUM 3.2.1	Identify reasons for conflict.	3		ALL
ACS HUM 3.2.2	Describe actions to prevent human conflicts.	2	*Optional content: TRM team roles*	ALL
ACS HUM 3.2.3	Describe strategies to cope with human conflicts.	2	*Optional content: in your team, in the simulator*	ALL
Subtopic HUM 3.3 - Responsible behaviour				
ACS HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	*Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality*	ALL
ACS HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 - STRESS

Subtopic HUM 4.1 - Stress

ACS HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL

Subtopic HUM 4.2 - Stress management

ACS HUM 4.2.1	Act to reduce stress.	3	The effect of personality in coping with stress, the benefits of active stress management	ALL
ACS HUM 4.2.2	Respond to stressful situation by offering, asking or accepting assistance.	3	*Optional content: the benefits of offering, accepting and asking for help in stressful situations*	ALL
ACS HUM 4.2.3	Recognise the effect of shocking and stressful events.	1	Self and others, abnormal situations, CISM	ALL
ACS HUM 4.2.4	Consider the benefits of Critical Incident Stress Management (CISM).	2		ALL
ACS HUM 4.2.5	Explain procedures used following an incident/accident.	2	*Optional content: CISM, counselling, human element*	ALL

TOPIC HUM 5 - HUMAN ERROR

Subtopic HUM 5.1 - Human error

ACS HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, proactive versus reactive approach to discovery of error *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ACS HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes *Optional content: Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ACS HUM 5.1.3	Describe error-prone conditions.	2	*Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences*	ALL

ACS HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	3	*Optional content: ICAO Circular 314 – AN/178*	ALL
ACS HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy *Optional content: ICAO Circular 314 – AN/178*	ALL
ACS HUM 5.1.6	Execute corrective actions.	3	Error compensation *Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL
ACS HUM 5.1.7	Explain the importance of error management.	2	*Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises*	ALL
ACS HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	*Optional content: reporting, SMS, investigation, CISM ALL*	ALL
Subtopic HUM 5.2 - Violation of rules				
ACS HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	2	*Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control*	ALL

TOPIC HUM 6 - COLLABORATIVE WORK

Subtopic HUM 6.1 - Communication

ACS HUM 6.1.1	Use communication effectively in ATC.	3		ALL
ACS HUM 6.1.2	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
Subtopic HUM 6.2 - Collaborative work within the same area of responsibility				
ACS HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	*Optional content: electronic, written, verbal and non-verbal communication*	ALL
ACS HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	*Optional content: strips legibility and encoding, labels designation, feedback*	ALL
ACS HUM 6.2.3	List possible actions to provide a safe position handover.	1	*Optional content: rigour, preparation, overlap time*	ALL

ACS HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL

Subtopic HUM 6.3 - Collaborative work between different areas of responsibility

ACS HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	*Optional content: other sectors constraints, electronic coordination tools*	ALL

Subtopic HUM 6.4 - Controller/pilot cooperation

ACS HUM 6.4.1	Describe parameters affecting controller/pilot cooperation.	2	*Optional content: workload, mutual knowledge, controller vs pilot mental picture*	ALL

SUBJECT 8: EQUIPMENT AND SYSTEMS

The subject objective is:

Learners shall integrate knowledge and understanding of the basic working principles of equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

TOPIC EQPS 1 - VOICE COMMUNICATIONS

Subtopic EQPS 1.1 - Radio communications

ACS EQPS 1.1.1	Operate two-way communication equipment.	3	Transmit/receive switches, procedures *Optional content: frequency selection, standby equipment*	ALL
ACS EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	*Optional content: indicator lights, serviceability displays, selector/frequency displays*	ALL
ACS EQPS 1.1.3	Consider radio range.	2	*Optional content: transfer to another frequency, apparent radio failure, failure to establish radio contact, frequency protection range*	APP ACP APS ACS

Subtopic EQPS 1.2 - Other voice communications

ACS EQPS 1.2.1	Operate landline communications.	3	*Optional content: telephone, interphone and intercom equipment*	ALL

TOPIC EQPS 2 - AUTOMATION IN ATS

Subtopic EQPS 2.1 - Aeronautical fixed telecommunication network (AFTN)

ACS EQPS 2.1.1	Decode AFTN messages.	3	*Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.*	ALL

Subtopic EQPS 2.2 - Automatic data interchange

ACS EQPS 2.2.1	Use automatic data transfer equipment where available.	3	*Optional content: automated information and coordination, OLDI*	ADV ADI APS ACS

TOPIC EQPS 3 - CONTROLLER WORKING POSITION

Subtopic EQPS 3.1 - Operation and monitoring of equipment

ACS EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALL
ACS EQPS 3.1.2	Operate the equipment of the controller working position.	3	*Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, strippprinter, clock, information systems, UDF/VDF*	ALL
ACS EQPS 3.1.3	Operate available equipment in abnormal and emergency situations.	3		ALL

Subtopic EQPS 3.2 - Situation displays and information systems

ACS EQPS 3.2.1	Use situation displays.	3		ALL
ACS EQPS 3.2.2	Check availability of information material.	3		ALL
ACS EQPS 3.2.3	Obtain information from equipment.	3		APP ACP APS ACS

Subtopic EQPS 3.3 - Flight data systems

ACS EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL

Subtopic EQPS 3.4 - Use of ATS surveillance system

ACS EQPS 3.4.1	Use the ATS surveillance system functions.	3		APS ACS
ACS EQPS 3.4.2	Analyse the information provided by the ATS surveillance system.	4		APS ACS

ACS EQPS 3.4.3	Assign codes.	4		APS ACS
ACS EQPS 3.4.4	Appreciate the use of advanced surveillance technology.	3	*Optional content: Mode S, ADS-B, MLAT*	APS ACS
Subtopic EQPS 3.5 - Advanced systems				
ACS EQPS 3.5.1	Appreciate the use of controller pilot datalink communications when available.	3		APS ACS
ACS EQPS 3.5.2	Appreciate the use of information provided by advanced systems.	3	*Optional content: trajectory-based information, MTCD, MONA, etc.*	APS ACS

TOPIC EQPS 4 - FUTURE EQUIPMENT

Subtopic EQPS 4.1 - New developments

ACS EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL

TOPIC EQPS 5 - EQUIPMENT AND SYSTEMS LIMITATIONS AND DEGRADATION

Subtopic EQPS 5.1 - Reaction to limitations

ACS EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALL
ACS EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL
Subtopic EQPS 5.2 - Communication equipment degradation				
ACS EQPS 5.2.1	Identify that communication equipment has degraded.	3	*Optional content: ground-air and landline communications*	APP ACP APS ACS
ACS EQPS 5.2.2	Apply contingency procedures in the event of communication equipment degradation.	3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APP ACP APS ACS
Subtopic EQPS 5.3 - Navigational equipment degradation				

ACS EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	*Optional content: VOR, navigational aids*	ALL
ACS EQPS 5.3.2	Apply contingency procedures in the event of a navigational equipment degradation.	3	*Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units*	ADI APP ACP APS ACS

Subtopic EQPS 5.4 - Surveillance equipment degradation

ACS EQPS 5.4.1	Identify that surveillance equipment has degraded.	3	Partial power failure, loss of certain facilities, total failure	APS ACS
ACS EQPS 5.4.2	Apply contingency procedures in the event of surveillance equipment degradation.	3	*Optional content: inform adjacent sectors, inform aircraft, apply vertical separation (emergency), increased horizontal separation, reduce the number of aircraft entering area of responsibility, transfer aircraft to another unit*	APS ACS

Subtopic EQPS 5.5 - ATC processing system degradation

ACS EQPS 5.5.1	Identify a processing system degradation.	3	*Optional content: FDPS, SDPS, software processing of situation display*	APS ACS
ACS EQPS 5.5.2	Apply contingency procedures in the event of a processing system degradation.	3		APS ACS

SUBJECT 9: PROFESSIONAL ENVIRONMENT

The subject objective is:

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

TOPIC PEN 1 - FAMILIARISATION

Subtopic PEN 1.1 - Study visit to approach control unit

ACS PEN 1.1.1	Appreciate the functions and provision of an operational approach control service.	3	Study visit to area control centre	ACP ACS

TOPIC PEN 2 - AIRSPACE USERS

Subtopic PEN 2.1 - Contributors to civil ATS operations

ACS PEN 2.1.1	Characterise civil ATS activities in approach control unit.	2	Study visit to area control centre *Optional content: familiarisation visits to TWR, ACC, AIS, RCC*	ACP ACS
ACS PEN 2.1.2	Characterise other parties interfacing with ATS operations.	2	*Optional content: familiarisation visits to engineering services, fire and emergency services, airline operations offices*	ALL

Subtopic PEN 2.2 - Contributors to military ATS operations

ACS PEN 2.2.1	Characterise military ATS activities.	2	*Optional content: familiarisation visits to TWR, APP, ACC, AIS, RCC, Air Defence Units*	ALL

TOPIC PEN 3 - CUSTOMER RELATIONS

Subtopic PEN 3.1 - Provision of services and user requirements

ACS PEN 3.1.1	Identify the role of ATC as a service provider.	3		ALL
ACS PEN 3.1.2	Appreciate ATS users requirements.	3		ALL

TOPIC PEN 4 - ENVIRONMENTAL PROTECTION

Subtopic PEN 4.1 - Environmental protection

ACS PEN 4.1.1	Appreciate the mitigation techniques used en-route to minimise the aviation's impact on the environment.	2	*Optional content: free route airspace (FRA), night/weekend routes, ICAO Doc. 10013 – Operational opportunities to reduce fuel burn and emissions*	ACP ACS

SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is:

Learners shall develop professional attitudes to manage traffic in abnormal and emergency situations.

TOPIC ABES 1 - ABNORMAL AND EMERGENCY SITUATIONS (ABES)

Subtopic ABES 1.1 - Overview of ABES

ACS ABES 1.1.1	List common abnormal and emergency situations.	1	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion*	ALL
ACS ABES 1.1.2	Identify potential or actual abnormal and emergency situations.	3		ALL
ACS ABES 1.1.3	Take into account the procedures for given abnormal and emergency situations.	2	*Optional content: ICAO Doc 4444*	APP ACP APS ACS
ACS ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	*Optional content: real life examples*	ALL
ACS ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	*Optional content: separation, information, coordination*	ALL

TOPIC ABES 2 - SKILLS IMPROVEMENT

Subtopic ABES 2.1 - Communication effectiveness

ACS ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
ACS ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL

Subtopic ABES 2.2 - Avoidance of mental overload

ACS ABES 2.2.1	Describe actions to keep control of the situation.	2	*Optional content: sector splitting, holding, flow management, task delegation*	ALL
ACS ABES 2.2.2	Organise priority of actions.	4		ALL
ACS ABES 2.2.3	Ensure effective circulation of information.	4	*Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and TWR , with ground staff, etc.*	ALL
ACS ABES 2.2.4	Consider asking for help.	2		ALL

Subtopic ABES 2.3 - Air / ground cooperation

ACS ABES 2.3.1	Collect appropriate information relevant to the situation.	3		ALL
ACS ABES 2.3.2	Assist the pilot.	3	Pilot workload *Optional content: instructions, information, support, human factors, etc.*	ALL

TOPIC ABES 3 - PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS

Subtopic ABES 3.1 - Application of procedures for ABES

ACS ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	*Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground based safety nets alerts, airframe failure*	ALL

Subtopic ABES 3.2 - Radio failure

ACS ABES 3.2.1	Describe the procedures followed by a pilot when he/she experiences complete or partial radio failure.	2	ICAO Doc 7030 *Optional content: military procedures*	ALL

ACS ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	*Optional content: prolonged loss of communication*	ALL
Subtopic ABES 3.3 - Unlawful interference and aircraft bomb threat				
ACS ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL
Subtopic ABES 3.4 - Strayed or unidentified aircraft				
ACS ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	ICAO Doc 4444 *Optional content: inside controlled airspace, outside controlled airspace*	ALL
ACS ABES 3.4.2	Apply the procedures in the case of unidentified aircraft.	3	ICAO Doc 4444	ALL
Subtopic ABES 3.5 – Diversions				
ACS ABES 3.5.1	Provide navigational assistance to diverting emergency aircraft.	4	Track/heading, distance, other navigational assistance *Optional content: nearest most suitable aerodrome*	APP ACP APS ACS
Subtopic ABES 3.6 - Transponder failure				
ACS ABES 3.6.1	Apply procedures in the event of an SSR transponder failure.	3	ICAO Doc 4444, ICAO Doc 7030 Optional content: total/partial failure, impact on ADS-B/Mode S capability	APS ACS

AMC1 ATCO.D.040 Rating training performance objectives

GENERAL

Training organisations should define the detailed performance objectives for each rating training course, as well as the training scenario.

AMC1 ATCO.D.045(c)(3) Composition of unit training

ABNORMAL AND EMERGENCY SITUATIONS

(a) Training for all identified abnormal and emergency situations should primarily take place on synthetic training devices.
(b) Training organisations should develop performance objectives for the abnormal and emergency situation training.
(c) Where a low safety risk for the ATC service provision has been identified and agreed by the CAA, training in abnormal and emergency situations may take place by means other than synthetic training devices.
(d) If the pre-on-the-job training phase is not provided, the abnormal and emergency situation training should be scenario-based and as realistic as possible while maintaining operational safety.
(e) Checklists for abnormal and emergency situations used in operations should be made available to the applicant and be available at all times during scenario training.

AMC1 ATCO.D.045(c)(4) Composition of unit training

HUMAN FACTORS

(a) Training organisations should train the applicant during on-the-job training in team resource management, fatigue management and stress management.
(b) Training organisations should develop performance objectives for team resource management training.
(c) The team resource management training may also make use of synthetic training devices.
(d) Training organisations should develop training objectives for fatigue management and stress management training.

AMC1 ATCO.D.055(b)(6) Unit training plan

DURATION OF UNIT ENDORSEMENT COURSES

(a) The on-the-job training instruction as part of the unit endorsement course should be at least as follows:
    1) *aerodrome control rating*: an aerodrome control service, for a period of not less than 90 hours or one month, whichever is greater, at the unit for which the rating is sought;
    2) *approach control procedural, approach control surveillance, area control procedural or area control surveillance rating*: the control service for which the rating is sought, for a period of not less than 180 hours or three months, whichever is greater, at the unit for which the rating is sought; and
    3) *approach precision radar control rating*: not less than 200 precision approaches of which not more than 100 shall have been carried out on a radar simulator approved for that purpose by the CAA . Not less than 50 of those precision approaches shall have been carried out at the unit and on the equipment for which the rating is sought; and
(b) The ratings named above, should be read in the context of GD no.134/2019 and CT-ATCO :
    (1) aerodrome control rating: ADV and ADI ratings;
    (2) approach control procedural rating: APP rating;
    (3) approach control surveillance rating: APS rating;
    (4) area control procedural rating: ACP rating;
    (5) area control surveillance rating: ACS rating.

(c) The approach precision radar control rating named above under (a) 3), should be read in the context of GD no.134/2019 and CT-ATCO as APS-PAR rating endorsement according to ATCO.B.015.

AMC1 ATCO.D.055(b)(14) Unit training plan

DESIRABLE BEHAVIOURS FOR ABNORMAL AND EMERGENCY SITUATIONS

(a) Training organisations should establish desirable behaviours for the identified abnormal and emergency situations and associate them with established procedures.
(b) Desirable behaviours of the applicants in case of abnormal or emergency situations may be of technical or non-technical nature.

AMC1 ATCO.D.080 Refresher training

EXAMINATIONS AND ASSESSMENTS

Refresher topics should be examined or assessed using the processes described in the unit competence scheme.

AMC1 ATCO.D.080(b)(1);(2) Refresher training

PHRASEOLOGY TRAINING

Training organisations should develop objectives for phraseology.

AMC2 ATCO.D.080(b)(2) Refresher training

ABNORMAL SITUATION AND EMERGENCY TRAINING

Abnormal situation and emergency training should be designed to expose air traffic controllers to circumstances and situations which they do not habitually or commonly experience. The essential difference from an emergency situation is that the element of danger or serious risk is not necessarily present in an abnormal situation.

AMC1 ATCO.D.080(b)(3) Refresher training

HUMAN FACTORS

(a) Training organisations should train air traffic controllers at least in team resource management, fatigue management and stress management.
(b) The team resource management training may also make use of STD and/or occurrence case studies.

AMC1 ATCO.D.090(a)(1) Training of practical instructors

SYNTHETIC TRAINING DEVICES USED FOR OJTI TRAINING

For the training of on-the-job training instructors, a part-task trainer or a simulator should be used. If the synthetic training environment does not correspond to the rating of the intended instructional environment, the applicant should practise the instructional skills in those procedures in which it is intended to provide instruction for at least one day before being assessed.

AMC2 ATCO.D.090(a)(1) Training of practical instructors

ASSESSMENT OF INSTRUCTIONAL TECHNIQUES FOR PRACTICAL INSTRUCTORS

A successful assessment of instructional techniques for practical instructors should establish competence at least in the following areas:

(a) regulatory impact on air traffic controller training;
(b) human factors impact on air traffic controller training;

(c) determination of the background and experience of the person undertaking training;
(d) determination of the current level of ability of the person undertaking training;
(e) conduct of a pre-session briefing;
(f) planning and conduct of the training session;
(g) demonstration and explanation of the tasks;
(h) monitoring of the training session;
(i) management of interventions correctly, including error correction;
(j) evaluation of the performance of the person undertaking training;
(k) debrief of the person undertaking training;
(l) furnishing of written reports on the performance of the person undertaking training;
(m) taking appropriate follow-up action towards resolving training problems;
(n) techniques of pausing clocks; and
(o) knowledge of technical facilities/environment.

AMC1 ATCO.D.090(a)(2) Training of practical instructors

REFRESHER TRAINING IN PRACTICAL INSTRUCTIONAL SKILLS

Refresher training in practical instructional skills should prevent knowledge and skills erosion, and, for the training of STDIs, it should be designed to maintain awareness of the current operational practices.

AMC1 ATCO.D.090(a)(3) Training of practical instructors

PRACTICAL INSTRUCTOR COMPETENCE ASSESSMENT

The practical instructor competence assessment for an OJTI may be undertaken either in live operations or on a synthetic training device. The practical instructor competence assessment for an STDI should be undertaken on a synthetic training device.

AMC1 ATCO.D.095(a)(1) Training of assessors

ASSESSOR TRAINING COURSE

A successful assessment for the purpose of the assessor training course should establish competence at least in the following areas of assessment knowledge and techniques:

(a) regulatory environment and legal obligations;
(b) types of assessment and their application;
(c) performance objectives constituting air traffic controller competence;
(d) conditions of assessments to create reliable results;
(e) processing of assessments and administrative procedures;
(f) giving verbal feedback and writing assessment reports;
(g) vested interests and code of conduct;
(h) accurately assessing competence against the performance objectives;
(i) developing a good questioning technique and designing questions appropriate to the assessment.

AMC2 ATCO.D.095(a)(1) Training of assessors

ASSESSMENT OF ASSESSOR COMPETENCE

The assessment of assessor competence should focus on the application of the skills of an assessor. The skills should represent at least a subset of the competences taught during the assessor training course.

AMC1 ATCO.D.095(a)(2) Training of assessors

REFRESHER TRAINING IN ASSESSMENT SKILLS

Refresher training in assessment skills should prevent knowledge and skills erosion and it should be designed to maintain skills in assessment techniques and awareness of the regulatory environment.