



## **MILITARY AIR TRAFFIC CONTROLLER INITIAL TRAINING**

**Initial rating training composition document  
Approach Control Procedural (APP)**

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## **MILITARY AIR TRAFFIC CONTROLLER WORKING GROUP**

## DOCUMENT CHANGE RECORD

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**STATUS**

The Status of the document can take 3 values:

**Working Draft:** Working copy to develop the proposed version or revision of the document.

**Draft:** Version to be proposed to the ESMAB Policy by the MATCO Working Group

**Approved:** Final version approved\* by the ESMAB Policy for publication.

**EDITION**

The Edition value of document will have the following template: **Edition X.YY:**

The **value of X** will change after a **major** revision of the document.

The **value of Y** will change after a **minor** revision of the document.

\* It should be noted that the approval by ESMAB Policy is given with the clear understanding that the document is legally non-binding and its potential implementation remains fully a decision to be taken at national level.

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**COMPOSITION OF MILITARY ATCO INITIAL APP RATING TRAINING:**

For reference use: AMC1 ATCO.D.010(a)(2)(ii) Composition of initial APP rating training<sup>1</sup>

All the following content comes from EASA AMC and includes the amendments coming from the Commission Implementing Regulation (EU) 2023/893 of 21 April 2023 amending Commission Regulation (EU) 2015/340 which was published in the Official Journal of the EU on 4 May 2023.

These amendments are drafted according to the EASA regulatory convention for the introduction of changes compared to applicable provisions, i.e.:

~~Red strikethrough~~ = text deleted

**Light blue background** = new text inserted

Number represents the level of taxonomy as for [AMC1 ATCO.D.010\(a\) \(a\)\(2\)\(i\) Composition of initial training](#).

The term “National” when used in the composition document should be understood as meaning both civil and military.

Mandatory content should be understood as training content provided in all Member States.

Optional content should be understood as content that might be omitted in Member States where this is not applicable.

Military ATCO Initial Approach Control Procedural Rating training should contain the following subjects, topics, subtopics and training objectives using as baseline the subjects, topics and subtopics contained in Appendix 5 to Annex I of amended Commission Regulation (EU) 2015/340 — Aerodrome Approach Control Procedural Rating training. This might indeed facilitate the potential latter conversion of Military ATCO licences into Civil Student ATCO licences.

The taxonomy of some of the training objectives identified in AMC1 ATCO.D.010(a)(2)(ii) to Commission Regulation (EU) 2015/340 have been highlighted in **bright green** where they required to be adapted to the working requirements and needs of Military ATCOs.

Additional topics, subtopics and training objectives have also been identified and included **in bright yellow** in the Initial APP Rating Training content to take into account the specific training requirements of Military ATCOs.

The composition of the Military ATCO Initial APP Rating Training as presented in this document are the minimum requirements recommended to be implemented by interested military ATCO training organisations. Any Member State might decide to train its military ATCOs giving one or several of the training objectives a higher level of importance hence a higher taxonomy level.

Despite the fact that this document is legally non-binding, in order to achieve standardisation in the initial training of Military ATCOs, Member States which decide to implement it should apply its content as proposed.

<sup>1</sup> Page 502 of Easy Access Rules dated March 2024

## 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				
<b>Subtopic INTR 1.1 — Course introduction</b>				
APP INTR 1.1.1	Explain the aims and main objectives of the course.	2		ALL
<b>Subtopic INTR 1.2 — Course administration</b>				
APP INTR 1.2.1	State how the course is administered.	1		ALL
<b>Subtopic INTR 1.3 — Study material and training documentation</b>				
APP INTR 1.3.1	Use appropriate documents and their sources for course studies.	3	<i>Optional content: training documentation, library, CBT library, web, learning management server</i>	ALL
APP INTR 1.3.2	Integrate appropriate information into course studies.	4	<b>Training documentation</b> <i>Optional content: supplementary information, library</i>	ALL

TOPIC INTR 2 — INTRODUCTION TO THE ATC TRAINING COURSE				
<b>Subtopic INTR 2.1 — Course content and organisation</b>				
APP INTR 2.1.1	State the different training methods used during the course.	1	<b>Theoretical training, practical training, self-study, types of training events</b>	ALL
APP INTR 2.1.2	State the subjects covered by the course and their purpose.	1		ALL
APP INTR 2.1.3	Describe the organisation of theoretical training.	2	<i>Optional content: course programme</i>	ALL
APP INTR 2.1.4	Describe the organisation of practical training.	2	<i>Optional content: PTP, simulation, briefing, debriefing, course programme</i>	ALL
<b>Subtopic INTR 2.2 — Training ethos</b>				
APP INTR 2.2.1	Recognise the feedback mechanisms available.	1	<b>Training progress, assessment, briefing, debriefing, learner–instructor feedback, instructor–instructor feedback</b>	ALL
<b>Subtopic INTR 2.3 — Assessment process</b>				
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 and 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	Regulation (EU) 2015/340 <sup>2</sup> <del>on ATCO Licensing</del> <i>Optional content: national documents</i>	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 an ATCO licence.	2	Regulation (EU) 2015/340 <del>on ATCO Licensing</del> , <b>military regulations and directives</b>	ALL

### TOPIC LAW 2 — RULES AND REGULATIONS

Subtopic LAW 2.1 — Reports				
<del>APP LAW 2.1.1</del>	<del>List the standard forms for reports.</del>	1	<del>Air traffic incident report</del> <i>Optional content: routine air reports, breach of regulations, watchbook/logbook, records</i>	<del>ALL</del>
APP LAW 2.1.21	Describe the functions of, and processes for, reporting.	2	Reporting culture, forms for mandatory and voluntary occurrence reporting <del>air traffic incident report</del> , Regulation (EU) No 376/2014 <sup>3</sup> , Regulation (EU) 2015/1018 <sup>4</sup> <i>Optional content: breach of regulations, watchbook/logbook, records, voluntary reporting, <b>military specific reports.</b></i>	ALL
APP LAW 2.1.32	Use forms for reporting.	3	Regulation (EU) No 376/2014, forms for mandatory and voluntary occurrence reporting <del>air traffic incident reporting form(s)</del> <i>Optional content: routine air-reports, breach of regulations, watchbook/logbook, records, <b>military specific reports.</b></i>	ALL

<sup>2</sup> Commission Regulation (EU) 2015/340 of 20 February 2015 laying down technical requirements and administrative procedures relating to air traffic controllers' licences and certificates pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 923/2012 and repealing Commission Regulation (EU) No 805/2011 (OJ L 63, 6.3.2015, p. 1).

<sup>3</sup> Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007 (OJ L 122, 24.4.2014, p. 18).

<sup>4</sup> Commission Implementing Regulation (EU) 2015/1018 of 29 June 2015 laying down a list classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014 of the European Parliament and of the Council (OJ L 163, 30.6.2015, p. 1).

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TOPIC LAW 2 — RULES AND REGULATIONS				
Subtopic LAW 2.2 — Airspace				
APP LAW 2.2.1	Appreciate airspace classes and structure and their relevance to operations using the Approach Control Procedural rating.	3		APP
APP LAW 2.2.2	Provide planning, coordination and control actions appropriate to the classification and structure of given airspace.	4	Military requirements, areas of responsibility <i>Optional content: Regulation (EU) No 923/2012<sup>5</sup>, international requirements, civil requirements, military requirements, areas of responsibility, sectorisation, national requirements</i>	ALL
APP LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL

TOPIC LAW 3 — <span style="color: cyan;">ATS</span> <span style="color: red;">ATC</span> SAFETY MANAGEMENT				
Subtopic LAW 3.1 — Feedback process				
APP LAW 3.1.1	State the importance of controller contribution to the feedback process.	1	<i>Optional content: voluntary reporting</i>	ALL
APP LAW 3.1.2	Describe how reported occurrences are analysed.	2	<i>Optional content: ESARR 2, Regulation (EU) No 376/2014, local procedures</i>	ALL
APP LAW 3.1.3	Name the means used to disseminate recommendations.	1	<i>Optional content: safety letters, safety boards, web pages</i>	ALL
APP LAW 3.1.4	Appreciate the just culture <del>'Just Culture'</del> concept.	3	Benefits, prerequisites, constraints <i>Optional content:</i> <a href="https://www.skybrary.aero">https://www.skybrary.aero</a>	ALL
Subtopic LAW 3.2 — Safety Investigation				
APP LAW 3.2.1	Describe the role and objectives mission of safety investigation in the improvement of safety.	2		ALL
<del>APP LAW 3.2.2</del>	<del>Define working methods of Safety Investigation.</del>	<del>1</del>		<del>ALL</del>

<sup>5</sup> Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, p. 1).

## 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				
<b>Subtopic ATM 1.1 — Air traffic control (ATC) service</b>				
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	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 7030, ICAO Doc 4444, Regulation (EU) 2017/373 <sup>6</sup> , operating procedures for the simulated/training environment operation manuals	APP APS
<b>Subtopic ATM 1.2 — Flight information service (FIS)</b>				
APP ATM 1.2.1	Provide FIS.	4	ICAO Doc 4444, Regulation (EU) No 923/2012, Regulation (EU) 2017/373 <i>Optional content: national documents, military regulations and directives</i>	ALL
APP ATM 1.2.2	Issue appropriate information concerning the position of conflicting traffic.	3	ICAO Doc 4444, Regulation (EU) No 923/2012, Regulation (EU) 2017/373, traffic information, essential traffic information <i>Optional content: military regulations and directives</i>	APP ACP APS ACS
APP ATM 1.2.3	Appreciate the use of ATIS in the provision of FIS flight information service.	3	Regulation (EU) No 923/2012	ALL
<b>Subtopic ATM 1.3 — Alerting service (ALRS)</b>				
APP ATM 1.3.1	Provide ALRS.	4	ICAO Doc 4444, Regulation (EU) 2017/373, Regulation (EU) No 923/2012 <i>Optional content: national documents</i>	ALL
APP ATM 1.3.2	Respond to distress and urgency messages and signals.	3	Regulation (EU) No 923/2012, ICAO Annex 10, ICAO Doc 4444 <i>Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ICAO Doc 4444, national documents</i>	ALL
<b>Subtopic ATM 1.4 — ATS system capacity and air traffic flow management (ATFM)</b>				
APP ATM 1.4.1	Appreciate the impact of the ATS system capacity and air traffic flow management on the controller.	3	<i>Optional content: EUROCONTROL ATFCM Users Manual, FABs, FUA, free route airspace, local implementation of ATFCM principles, military operational principles, etc.</i>	APP ACP APS ACS

<sup>6</sup> Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1).

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TOPIC ATM 1 — PROVISION OF SERVICES				
APP ATM 1.4.2	Take account of Apply flow management procedures in the provision of ATC.	3 2	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, transfer of communications, en-route, off-route	APP ACP APS ACS
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 the supervisor of local factors affecting the ATS system capacity and air traffic flow management.	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 impact of ASM on the controller.	3	Optional content: FABs, EUROCONTROL Specification for the application of FUA, TSAs, CDRs, CBAs, free route airspace	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	List the means of communication between controllers.	1	Optional content: electronic, written, verbal and non-verbal communication	ALL
APP ATM 2.1.2	Select the most suitable means of communication given the situation.	5		ALL
APP ATM 2.1.13	Use approved phraseology.	3	Regulation (EU) No 923/2012, Doc 4444 Optional content: published national/local language phraseology, NATO STANAGS	ALL
APP ATM 2.1.24	Ensure effective communication.	4	Use of plain language when required, communication within the sector/working position, between the sectors/WPs/ATC units Communication techniques, readback/verification of readback	ALL
APP ATM 2.1.5	Analyse examples of pilot and controller communication for effectiveness.	4	Optional content: real-life recordings, situation in the simulator	ALL

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TOPIC ATM 3 — ATC CLEARANCES AND ATC INSTRUCTIONS				
<b>Subtopic ATM 3.1 — ATC clearances</b>				
APP ATM 3.1.1	Issue appropriate ATC clearances.	3	Regulation (EU) No 923/2012, Regulation (EU) 2017/373, ICAO Doc 4444  <i>Optional content: ICAO Doc 4444, national documents</i>	ALL
APP ATM 3.1.2	Integrate appropriate ATC clearances into the control service.	4		ALL
APP ATM 3.1.3	Ensure that the agreed course of action is carried out.	4		ALL
<b>Subtopic ATM 3.2 — ATC instructions</b>				
APP ATM 3.2.1	Issue appropriate ATC instructions.	3	Regulation (EU) No 923/2012, ICAO Doc 4444, Regulation (EU) 2017/373 <i>Optional content: ICAO Doc 4444, national documents</i>	ALL
APP ATM 3.2.2	Integrate appropriate ATC instructions into the control service.	4		ALL
APP ATM 3.2.3	Ensure that the agreed course of action is carried out.	4		ALL
TOPIC ATM 4 — COORDINATION				
<b>Subtopic ATM 4.1 — Necessity for coordination</b>				
APP ATM 4.1.1	Identify the need for coordination.	3		ALL
<b>Subtopic ATM 4.2 — Tools and methods for coordination</b>				
APP ATM 4.2.1	Use the available tools and methods for coordination.	3	<i>Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination, specific military tools, silent coordination</i>	ALL
<b>Subtopic ATM 4.3 — Coordination procedures</b>				
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 Regulation (EU) 2017/373 <i>Optional content: release point</i>	ALL
APP ATM 4.3.2	Analyse the effect of coordination requested by an adjacent position/unit.	4	<i>Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.</i>	ALL
APP ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5		ALL
APP ATM 4.3.4	Ensure that the agreed course of action is carried out.	4		ALL

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TOPIC ATM 4 — COORDINATION				
APP ATM 4.3.5	Coordinate when providing FIS.	4	ICAO Doc 4444, Regulation (EU) 2017/373 <i>Optional content: ICAO Doc 4444</i>	ALL
APP ATM 4.3.6	Coordinate when providing ALRS.	4	ICAO Doc 4444, Regulation (EU) 2017/373 <i>Optional content: ICAO Doc 4444</i>	ALL

TOPIC ATM 5 — ALTIMETRY AND LEVEL ALLOCATION				
<b>Subtopic ATM 5.1 — Altimetry</b>				
APP ATM 5.1.1	Allocate levels according to altimetry data.	4	Regulation (EU) No 923/2012	ALL
APP ATM 5.1.2	Ensure separation according to altimetry data.	4	<i>Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries</i>	ALL
<b>Subtopic ATM 5.2 — Terrain clearance</b>				
APP ATM 5.2.1	Provide planning, coordination and control actions appropriate to the rules for minimum <b>safe usable</b> levels and terrain clearance.	4	<i>Optional content: terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude</i>	APP ACP

TOPIC ATM 6 — SEPARATIONS				
<b>Subtopic ATM 6.1 — Vertical separation</b>				
APP ATM 6.1.1	Provide standard vertical separation.	4	ICAO Doc 4444, Regulation (EU) No 923/2012, level allocation, during climb/descent, rate of climb/descent, holding pattern, <b>military regulations and directives</b> <i>Optional content: EUROCONTROL EUROAT document</i>	APP APS
APP ATM 6.1.2	Provide increased vertical separation.	4	ICAO Doc 4444, Regulation (EU) No 923/2012, <b>military regulations and directives</b> <i>Optional content: level allocation, during climb/descent, rate of climb/descent, degraded aircraft performance, non-RVSM aircraft, reported severe turbulence, EUROCONTROL EUROAT document</i>	APP ACP APS ACS
APP ATM 6.1.3	Appreciate the application of emergency vertical separation.	3	Regulation (EU) No 923/2012, ICAO Doc 4444, ICAO Doc 7030	APP ACP APS ACS
<b>Subtopic ATM 6.2 — Horizontal separation</b>				
APP ATM 6.2.1	Provide longitudinal separation.	4	Regulation (EU) 2017/373, <b>based on time, based on distance (DME/TACAN and/or GNSS, RNAV), military regulations and directives</b>	APP
APP ATM 6.2.2	Provide lateral separation.	4	Regulation (EU) 2017/373, <del>ICAO Doc 4444, ICAO Doc 7030</del> , holding, <b>military regulations and directives</b>	APP ACP

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TOPIC ATM 6 — SEPARATION <del>S</del>				
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
<b>Subtopic ATM 6.3 — Delegation of separation</b>				
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	Regulation (EU) 2017/373 <del>ICAO Doc 4444</del>	APP APS

TOPIC ATM 7 — AIRBORNE <del>COLLISION AVOIDANCE SYSTEMS</del> AND GROUND-BASED SAFETY NETS				
<b>Subtopic ATM 7.1 — Airborne <del>safety nets</del> <del>collision avoidance systems</del></b>				
APP ATM 7.1.1	Recognise the independence of ACAS thresholds from ATC separation standards.	1	ICAO Doc 9863 <del>Optional content: Skybrary Safety Nets</del>	ALL
<del>APP ATM 7.1.1</del>	<del>Differentiate between ACAS advisory thresholds and separation standards applicable in the approach control environment.</del>	2	<del>ICAO Doc 9863 Optional content: EUROCONTROL TCAS web page</del>	<del>APP APS</del>
APP ATM 7.1.2	Describe the controller responsibility during and following an ACAS RA reported by the pilot.	2	<del>ICAO Doc 4444</del> Regulation (EU) No 923/2012 Optional content: ICAO Doc 4444, ICAO Doc 9863, Skybrary Safety Nets	ALL
APP ATM 7.1.3	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, <del>TAWS</del> Optional content: <del>EUROCONTROL ACAS web page</del> <del>TAWS</del> , Skybrary Safety Nets	ALL APP APS ACP ACS

TOPIC ATM 8 — DATA DISPLAY				
<b>Subtopic ATM 8.1 — Data management</b>				
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, <del>FPL</del> , supplementary information Optional content: <del>FPL</del> , <del>RPL</del> , AFIL, etc.	ALL

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TOPIC ATM 8 — DATA DISPLAY				
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	<i>Optional content: local/simulator operation manuals, briefing, notices, local orders, current flight plan data/information displays, pilot reports, coordination, verification of information</i>	ALL
APP ATM 9.1.2	Ensure the integrity of the operational environment.	4	<i>Optional content: integrity of displays, verification of the information provided by displays, etc.</i>	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	<i>Optional content: briefing, letters of agreement (LoAs), NOTAMs, AICs</i>	ALL
APP ATM 9.2.2	Manage traffic in accordance with a change to operational procedures.	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
APP ATM 9.3.3	List possible actions to provide a safe position handover–takeover.	1	<i>Optional content: rigour, preparation, overlap time</i>	ALL
APP ATM 9.3.4	Explain the consequences of a missed position handover–takeover process.	2		ALL

TOPIC ATM 10 — PROVISION OF CONTROL SERVICE

**Subtopic ATM 10.1 — Responsibility for the provision of control service and the processing of information**

APP ATM 10.1.1	Describe the division of responsibility among air traffic control units.	2	<i>ICAO Doc 4444 Regulation (EU) 2017/373 Optional content: ICAO Doc 4444</i>	ALL
APP ATM 10.1.2	Describe the responsibility of civil ATCOs in regard to military traffic.	2	<i>ICAO Doc 4444 Optional content: ICAO Doc 9554</i>	ALL
APP ATMMIL 10.1.2.1	Describe the responsibility of military ATCOs in regard to civil traffic.	2	<i>ICAO Doc 4444 Optional content: ICAO Doc 9554, national regulations or directives</i>	ALL

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TOPIC ATM 10 — PROVISION OF CONTROL SERVICE				
APP ATM 10.1.3	Describe the responsibility in regard to unmanned free balloons.	2	Regulation (EU) No 923/2012	APP ACP APS ACS ALL
APP ATM <del>10.1.4</del>	<del>Obtain operational information.</del>	3	<del>ICAO Doc 4444, local operation manuals</del>	APP ACP APS ACS
APP ATM 10.1.54	Interpret operational information.	5		APP ACP APS ACS
APP ATM 10.1.65	Organise forwarding of operational information.	4	Optional content: including the use of backup procedures	APP ACP APS ACS
APP ATM 10.1.76	Integrate operational information into control decisions.	4		APP ACP APS ACS
APP ATM 10.1.87	Appreciate the influence of operational requirements.	3	Specific Military flying requirements 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	<del>ICAO Doc 4444</del> , Regulation (EU) 2017/373 <del>ICAO Annex 11</del> , Regulation (EU) No 923/2012 <del>local operation manuals</del> Optional content: local/simulator operation manuals	APP
APP ATM 10.2.2	Provide planning, coordination and control actions appropriate to VFR, SVFR and IFR traffic in VMC and IMC.	4	Regulation (EU) No 923/2012, Regulation (EU) 2017/373, <del>ICAO Annex 11</del> , ICAO Doc 4444, military regulations and directives	APP ACP APS ACS
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 ALL

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TOPIC ATM 10 — PROVISION OF CONTROL SERVICE				
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 <b>an</b> the adequate prioritisation of actions.	4		ALL
APP ATM 10.3.7	Execute <b>the</b> selected plan in a timely manner.	3		APP ACP APS ACS ALL
APP ATM 10.3.8	Ensure <b>that</b> 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	Optional content: simulator operation procedures, Military procedures	APP ACP APS ACS
APP ATM 10.4.2	Balance the workload against personal capacity.	5	Optional content: rerouting, replanning, 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, Regulation (EU) No 923/2012, Regulation (EU) 2017/373 Optional content: <a href="https://www.skybrary.aero">https://www.skybrary.aero</a>	APP APS
APP ATM 10.4.5	Integrate aircraft on missed approach into the traffic situation.	4		APP APS
APP ATMMIL 10.4.5	Apply military procedures	3	Optional content: formation flights, join-up split up, fuel jettison, SFO	APS ADC APP ACS

TOPIC ATM 11 — HOLDING				
Subtopic ATM 11.1 — General holding procedures				
APP ATM 11.1.1	Apply holding procedures.	3	ICAO Doc 4444, Regulation (EU) No 923/2012, Regulation (EU) 2017/373, 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, weather phenomena, turbulence, aircraft type, aircraft configuration	APP ACP APS ACS

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TOPIC ATM 11 — HOLDING				
Subtopic ATM 11.2 — Approaching aircraft				
APP ATM 11.2.1	Issue Expected Approach Times (EATs).	3		APP APS
APP ATM 11.2.2	Organise the traffic landing sequence in a holding pattern.	4	<i>Optional content: company preference, aircraft performance, aircraft approach capability, ILS categories, flow control management, military procedures and specificities</i>	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 on aircraft.	3	Thunderstorms, icing, clear-air turbulence (CAT), turbulence, microburst, wind shear, severe mountain waves, squall lines, volcanic ash	APP APS
APP MET 1.1.2	Integrate data about meteorological phenomena into the provision of ATS.	4	Clearances, instructions, and transmitted information <i>Optional content: relevant meteorological phenomena</i>	ALL
APP MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Rerouting, 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 <i>Optional content: AIREP/special AIREP, pilot reports</i>	APP ACP APS ACS
APP MET 2.1.2	Decode information from meteorological data displays.	3		ALL
APP MET 2.1.23	Relay meteorological information.	3	ICAO Doc 4444, Regulation (EU) No 923/2012 <i>Optional content: flight information centre, adjacent ATS unit</i>	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 & STAR charts, aerodrome charts, military maps and charts <i>Optional content: visual approach charts, military maps and charts</i>	ADC+ APP APS
APP NAV 1.1.2	Use relevant maps and charts.	3		APP ACP APS ACS ALL

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	<i>Optional content: limitations, availability and status of ground-based and satellite-based systems</i>	APP ACP APS ACS
APP NAV 2.1.2	Appreciate the effect of a change in the operational status of navigational systems.	3	<i>Optional content: precision, limitations, status, degraded procedures</i>	ALL
Subtopic NAV 2.2 — Stabilised approach				
APP NAV 2.2.1	Describe the concept of stabilised approach.	2	<i>Optional content:</i> <a href="https://www.skybrary.aero">https://www.skybrary.aero</a>	ADV ADC+ 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	Cockpit workload <i>Optional content: impact on vertical profile (CDO), FMS management, crew procedure briefing, missed approach, loss of situational awareness, etc.</i>	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	Describe relevant SIDs and STARs.	2		AD+ APP APS
APP NAV 2.3.2	Describe the types and phases of instrument approach procedures.	2	Regulation (EU) 2017/373, ICAO Annex 6, <i>Optional content: military procedures (e.g. formation flights)</i>	APP APS
APP NAV 2.3.3	Describe the relevant minima applicable for a precision/non-precision and visual approach.	2	<i>Optional content: Type A/B operations, CAT I/II/III criteria, LNAV, LNAV/VNAV, LPV, RNP AR APCH minima, TACAN procedures, GCA/PAR/SRA(PPI).</i>	ADC+ APP APS

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TOPIC NAV 2 — INSTRUMENT NAVIGATION				
<b>Subtopic NAV 2.4 — Navigational assistance</b>				
APP NAV 2.4.1	Evaluate the necessary information to be provided to pilots in need of navigational assistance.	5	<i>Optional content: nearest most suitable aerodrome, track, heading, distance, aerodrome information, any other navigational assistance relevant at the time</i>	APP ACP APS ACS
<b>Subtopic NAV 2.5 — Satellite-based systems</b>				
APP NAV 2.5.1	State the different applications of satellite-based systems relevant for approach operations.	1	RNP APCH, RNP AR APCH, SBAS, GBAS <i>Optional content: LNAV, LNAV/VNAV, LPV, RNP minima, precision approach</i>	APP APS
<b>Subtopic NAV 2.6 — PBN applications</b>				
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 RNP 1 with RF, rotorcraft option RNP 0.3 <i>Optional content: ICAO Doc 9613, Regulation (EU) No 716/2014<sup>7</sup>, Regulation (EU) 2018/1048<sup>8</sup></i>	APP APS
APP NAV 2.6.2	Explain the principles and designation of navigation specifications in use.	2	Performance, functionality, sensors <i>Optional content: aircrew and controller requirements, accuracy requirements, integrity and continuity</i>	APP ACP APS ACS
APP NAV 2.6.3	Describe the differences in turn performance.	2	<i>Optional content: fly-by, fly-over, RF, ICAO Doc 4444</i>	APP APS
APP NAV 2.6.34	State future PBN developments.	1	A-RNP, RNP (AR) DEP <i>Optional content: RNP 3D, VNAV, 4D, TBO</i>	ALL ADI APP APS ACP ACS

<sup>7</sup> Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan (OJ L 190, 28.6.2014, p. 19).

<sup>8</sup> Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation (OJ L 189, 26.7.2018, p. 3).

## 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 into the provision of ATS.	4	<i>Optional content: aircraft radar information</i>	ALL
APP ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	<i>Optional content: radios (number of), emergency radios</i>	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 succeeding aircraft.	2		ALL
APP ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence to succeeding aircraft.	3		ALL
Subtopic ACFT 2.2 — Application of the ICAO approach categories				
APP ACFT 2.2.1	Describe the use of the ICAO approach categories.	2	<i>ICAO Doc 8168</i>	ADC+ APP APS
APP ACFT 2.2.2	Appreciate the effect of the ICAO approach categories on the traffic organisation-of-traffic.	3		ADC+ 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	<i>Optional content: speed, mass, air density, cabin pressurisation, wind and temperature, aircraft configuration</i>	APP ACP APS ACS
APP ACFT 3.1.2	Describe the influence of factors affecting departing aircraft.	3	<i>Optional content: runway conditions, runway slope, aerodrome elevation, wind, temperature, aircraft configuration, airframe contamination and aircraft mass</i>	APP APS
Subtopic ACFT 3.2 — Cruise factors				
APP ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	<i>Optional content: level, cruising speed, wind, mass, cabin pressurisation, aircraft configuration</i>	APP APS
Subtopic ACFT 3.3 — Descent and initial approach factors				
APP ACFT 3.3.1	Integrate the influence of factors affecting aircraft during descent.	4	<i>Optional content: wind, speed, rate of descent, aircraft configuration, cabin pressurisation</i>	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	<i>Optional content: wind, aircraft configuration, mass, meteorological conditions, runway conditions, runway</i>	APP APS

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TOPIC ACFT 3 — FACTORS AFFECTING AIRCRAFT PERFORMANCE				
			<i>slope, aerodrome elevation, speed (e.g. for arresting systems), specific military procedures</i>	
Subtopic ACFT 3.5 — Economic factors				
APP ACFT 3.5.1	Integrate consideration of economic factors affecting aircraft.	4	<i>Optional content: routing, level, speed, rate of climb and rate of descent, approach profile</i>	APP APS
APP ACFT 3.5.2	Use continuous climb techniques where applicable.	3		APP ACP
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 considerations.	3	<i>Optional content: fuel-dumping, noise-abatement procedures, minimum flight levels, bird strike hazard, continuous descent operations, jettison area, use of chaffs.</i>	APP APS
Subtopic ACFTMIL 3.7 – Operational factors				
APP ACFTMIL 3.7.1	Appreciate the performance restrictions due to operational factors.	3	<i>Optional content: use of chaffs, Supersonic, FCAS, formation flights, etc.</i>	ALL
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 control service.	4	<i>Performance data under a representative variety of circumstances</i>	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 — INFORMATION PROCESSING PSYCHOLOGICAL FACTORS				
<b>Subtopic HUM 1.1 — Cognitive and factors influencing it</b>				
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	<i>Optional content: workload, stress, interpersonal relations, distraction, confidence</i>	ALL
<b>Subtopic HUM 1.2 — Situational awareness</b>				
APP HUM 1.2.1	Appreciate the effect of human information-processing factors on situational awareness.	3	<i>Optional content: workload, knowledge, interpersonal relations, distraction, confidence, experience, fatigue, stress</i>	ALL
<b>Subtopic HUM 1.3 — Decision-making</b>				
APP HUM 1.3.1	Appreciate the effect of human information-processing factors on decision-making.	3	<i>Optional content: workload, stress, interpersonal relations, distraction, confidence</i>	ALL
TOPIC HUM 2 — MEDICAL AND PHYSIOLOGICAL FACTORS AFFECTING HEALTH AND WELL-BEING				
<b>Subtopic HUM 2.1 — Fatigue</b>				
APP HUM 2.1.1	State factors that cause fatigue.	1	Shift work <i>Optional content: night shifts and rosters, Regulation (EU) 2017/373<sup>9</sup>, ICAO/IFATCA/CANSO's Fatigue Management Guide for Air Traffic Service Providers</i>	ALL
APP HUM 2.1.2	Describe the onset of fatigue.	2	Regulation (EU) 2017/373 <i>Optional content: lack of concentration, listlessness, irritability, frustration, Skybrary Human Behaviour: EUROCONTROL Fatigue and sleep management ICAO/IFATCA/CANSO's Fatigue Management Guide for Air Traffic Service Providers</i>	ALL
APP HUM 2.1.3	Recognise the onset of fatigue in self and in others.	1	<i>Optional content: ICAO/IFATCA/CANSO's Fatigue Management Guide for Air Traffic Service Providers Skybrary Human Behaviour: EUROCONTROL Fatigue and sleep management</i>	ALL
APP HUM 2.1.4	Recognise the onset of fatigue in others.	1		ALL

<sup>9</sup>— Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1).

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TOPIC HUM 2 — MEDICAL AND PHYSIOLOGICAL FACTORS AFFECTING HEALTH AND WELL-BEING				
APP HUM 2.1.53	Describe the appropriate action when recognising fatigue.	2	Optional content: Skybrary Human Behaviour: EUROCONTROL Fatigue and sleep management	ALL
<b>Subtopic HUM 2.2 — Fitness</b>				
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
<b>Subtopic HUM 2.2 — Stress</b>				
APP HUM 2.2.1	Recognise the effects of stress on human performance.	1	Stress and its symptoms in self and in others Optional content: Regulation (EU) 2017/373	ALL
APP HUM 2.2.2	Describe the appropriate action when recognising stress.	2		ALL
APP HUM 2.2.3	Act to reduce stress.	3		ALL
APP HUM 2.2.4	Respond to stressful situations by offering, asking for or accepting assistance.	3		ALL
APP HUM 2.2.5	Recognise the effect of stressful events.	1	Self and others, abnormal situations	ALL

TOPIC HUM 3 — THREAT AND ERROR MANAGEMENT				
<b>Subtopic HUM 3.1 — Threat and error management framework</b>				
APP HUM 3.1.1	Explain the importance of threat and error management.	2	Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practices	ALL
APP HUM 3.1.2	Explain the threat and error management framework.	2	Threats, errors, undesired states, countermeasures Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL
APP HUM 3.1.3	Differentiate between the different types of threats in ATC.	2	Internal, external, airborne, environmental Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL
APP HUM 3.1.4	Differentiate between the different types of errors in ATC.	2	Equipment, procedural, communication Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences	ALL
APP HUM 3.1.5	Differentiate between the different types of undesired states.	2	On the ground, airborne Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL

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TOPIC HUM 3 — THREAT AND ERROR MANAGEMENT				
APP HUM 3.1.6	Analyse examples of threat and error management in ATC.	4	Case studies <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>	ALL
<b>Subtopic HUM 3.2 — Application of threat and error management</b>				
APP HUM 3.2.1	Manage threats.	4	Detect and respond <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>	ALL
APP HUM 3.2.2	Manage errors.	4	Detect and respond <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>	ALL
APP HUM 3.2.3	Manage undesired states.	4	Detect and respond <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>	ALL

TOPIC HUM 3 — SOCIAL AND ORGANISATIONAL FACTORS				
<b>Subtopic HUM 3.1 — Team resource management (TRM)</b>				
APP HUM 3.1.1	State the relevance of TRM.	1	<i>Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training</i>	ALL
APP HUM 3.1.2	State the content of the TRM concept.	1	<i>Optional content: teamwork, human error, team roles, stress, decision-making, communication, situational awareness</i>	ALL
<b>Subtopic HUM 3.2 — Teamwork and team roles</b>				
APP HUM 3.2.1	Identify reasons for conflict.	3		ALL
APP HUM 3.2.2	Describe actions to prevent human conflicts.	2	<i>Optional content: TRM team roles</i>	ALL
APP HUM 3.2.3	Describe strategies to cope with human conflicts.	2	<i>Optional content: in your team, in the simulator</i>	ALL
<b>Subtopic HUM 3.3 — Responsible behaviour</b>				
APP HUM 3.3.1	Consider the factors which influence responsible behaviour.	2	<i>Optional content: situation, team, personal situation and judgement, instance of justification, moral motivation, personality</i>	ALL
APP HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	ALL

TOPIC HUM 4 — TEAMWORK STRESS				
<b>Subtopic HUM 4.1 — Benefits of teamwork Stress</b>				
APP HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others <i>Optional content: Regulation (EU) 2017/373</i>	ALL

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TOPIC HUM 4 — TEAMWORK STRESS				
APP HUM 4.1.1	State the benefits of teamwork.	1	Increased safety, efficiency and capacity	ALL
APP HUM 4.1.2	List the controller's human performance elements affected by teamwork.	1	Situational awareness, communication, decision-making, threat and error management, workload management	ALL
Subtopic HUM 4.2 — Stress Conflict 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 situations 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, Critical Incident Stress Management (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 to be used following an incident/accident.	2	Optional content: CISM, counselling, human element	ALL
APP HUM 4.2.1	Identify the reasons for conflict.	3		ALL
APP HUM 4.2.2	Describe strategies to cope with human conflicts.	2	Optional content: in your team, in the simulator	ALL
APP HUM 4.2.3	Describe actions to prevent human conflicts.	2		ALL

TOPIC HUM 5 — SYSTEMS				
Subtopic HUM 5.1 — Concept of systems in ATM/ANS				
APP HUM 5.1.1	Explain the concept of systems.	2	People; procedures; equipment; ATM in system terms: simple, complicated, and complex systems; system thinking	ALL
APP HUM 5.1.2	Describe how changes in one part of a system may impact the other parts.	2		ALL
APP HUM 5.1.3	Describe the role of the human in the system.	2		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	ALL

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TOPIC HUM 5 — HUMAN ERROR			
			<i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>
APP HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>
APP HUM 5.1.3	Describe error-prone conditions.	2	<i>Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences</i>
APP HUM 5.1.4	Collect examples of different error types, their causes and consequences for ATC.	3	<i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>
APP HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>
APP HUM 5.1.6	Execute corrective actions.	3	Error compensation <i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>
APP HUM 5.1.7	Explain the importance of error management.	2	<i>Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practices</i>
APP HUM 5.1.8	Describe the impact on an ATCO's performance following an occurrence/incident.	2	<i>Optional content: reporting, SMS, investigation, CISM</i>
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	<i>Optional content: ICAO Circular 314 — AN/178 Threat and Error Management (TEM) in Air Traffic Control</i>
TOPIC HUM 6 — COMMUNICATION COLLABORATIVE WORK			
Subtopic HUM 6.1 — Effective Communication			
APP HUM 6.1.1	Use communication effectively in ATC.	3	
APP HUM 6.1.1	Explain effective communication in ATC operations.	2	ICAO Doc 9868
APP HUM 6.1.2	Analyse examples of pilot-controller communication for effectiveness.	4	
APP HUM 6.1.2	Explain key strategies used to enable open communication.	2	<i>Optional content: active listening, active speaking, assertiveness, honesty, relevance, facts, neutrality</i>
APP HUM 6.1.3	Describe the parameters affecting the controller's competence to communicate effectively.	2	Workload, mutual knowledge, controller versus pilot mental picture, distractions, sound, human conflicts

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TOPIC HUM 6 — COMMUNICATION COLLABORATIVE WORK				
			<i>Optional content: communication between and within the team(s), in the simulator, with the pilots, instructors, coordination partners</i>	
<b>Subtopic HUM 6.2 — Effective feedback</b>				
APP HUM 6.2.1	Define feedback.	1		ALL
APP HUM 6.2.2	Explain the purpose of receiving and giving feedback, and its effect on performance.	2		ALL
APP HUM 6.2.3	Consider the impact of communication styles on feedback and on conflict resolution.	2		ALL
APP HUM 6.2.4	Integrate feedback into performance.	4		ALL
<b>Subtopic HUM 6.2 — Collaborative work within the same area of responsibility</b>				
APP HUM 6.2.1	List communication means between controllers in charge of the same area of responsibility (sector or tower).	1	<i>Optional content: electronic, written, verbal and non-verbal communication</i>	ALL
APP HUM 6.2.2	Explain consequences of the use of communication means on effectiveness.	2	<i>Optional content: strip legibility and encoding, label designation, feedback</i>	ALL
APP HUM 6.2.3	List possible actions to provide a safe position handover.	1	<i>Optional content: rigour, preparation, overlap time</i>	ALL
APP HUM 6.2.4	Explain consequences of a missed position handover process.	2		ALL
<b>Subtopic HUM 6.3 — Collaborative work between different areas of responsibility</b>				
APP HUM 6.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	<i>Optional content: other sectors' constraints, electronic coordination tools</i>	ALL
<b>Subtopic HUM 6.4 — Controller-pilot cooperation</b>				
APP HUM 6.4.1	Describe parameters affecting controller-pilot cooperation.	2	<i>Optional content: workload, mutual knowledge, controller versus pilot mental picture</i>	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 <i>Optional content: frequency selection, standby equipment</i>	ALL
APP EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	<i>Optional content: indicator lights, serviceability displays, selector/frequency displays</i>	ALL
APP EQPS 1.1.3	Consider radio range.	2	<i>Optional content: transfer to another frequency, apparent radio failure, failure to establish radio contact, frequency protection range</i>	APP ACP APS ACS
Subtopic EQPS 1.2 — Other voice communications				
APP EQPS 1.2.1	Operate landline communications.	3	<i>Optional content: telephone, interphone and intercom equipment</i>	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	<i>Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.</i>	ALL
Subtopic EQPS 2.2 — Automatic data interchange				
APP EQPS 2.2.1	Use automatic data transfer equipment where available.	3	<i>Optional content: automated information and coordination, OLDI</i>	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	<i>Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, strip-printer, clock, information systems, UDF/VDF</i>	ALL
APP EQPS 3.1.3	Operate the 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 the availability of information.	3		ALL

## MILITARY AIR TRAFFIC CONTROLLER INITIAL RATING TRAINING - APP COMPOSITION

TOPIC EQPS 3 — CONTROLLER WORKING POSITION				
APP EQPS 3.2.3	Obtain information from equipment.	3		APP ACP APS ACS
<b>Subtopic EQPS 3.3 — Flight data systems</b>				
APP EQPS 3.3.1	Use the flight data information at the controller working position.	3		ALL
TOPIC EQPS 4 — FUTURE EQUIPMENT				
<b>Subtopic EQPS 4.1 — New developments</b>				
APP EQPS 4.1.1	Recognise future developments.	1	New advanced systems Optional content: European ATM Master Plan, European Plan for Aviation Safety	ALL
TOPIC EQPS 5 — EQUIPMENT AND SYSTEMS' LIMITATIONS AND DEGRADATION				
<b>Subtopic EQPS 5.1 — Reaction to limitations</b>				
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
<b>Subtopic EQPS 5.2 — Communication equipment degradation</b>				
APP EQPS 5.2.1	Identify that communication equipment has degraded.	3	Optional content: ground–air and landline communications	ADC APP ACP APS ACS
APP EQPS 5.2.2	Apply contingency procedures in the event of communication equipment degradation.	3	Optional content: procedures for total or partial degradation of ground–air and landline communications, alternative methods of transferring data	APP ACP APS ACS ALL
<b>Subtopic EQPS 5.3 — Navigational equipment degradation</b>				
APP EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	Optional content: <del>VOR</del> , navigational aids, 'European GNSS Contingency/Reversion Handbook for PBN Operations'	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 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 an approach control unit

APP PEN 1.1.1	Appreciate the functions and provision of operational approach control service.	3	Study visit to an approach control unit	APP APS
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### TOPIC PEN 2 — AIRSPACE USERS

#### Subtopic PEN 2.1 — Contributors to civil ATS operations

APP PEN 2.1.1	Characterise civil ATS activities in an approach control unit.	2	<del>Study visit to an approach control unit</del> Optional content: familiarisation visits to <del>APPunit</del> , TWR, ACC, AIM/AIS <del>Unit</del> , RCC	APP APS
APP PEN 2.1.2	Characterise other parties interfacing with civil ATS operations.	2	Optional content: familiarisation visits to engineering services, firefighting 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 Military TWR, APP <del>Units</del> , ACC, AIM/AIS <del>Unit</del> , RCC, Air Defence <del>Units</del> ,	ALL
APP PENMIL 2.2.2	Characterise other parties interfacing with ATS operations.	2	Optional content: familiarisation visits to engineering services, firefighting and emergency services, Wing operation center	ALL

### TOPIC PEN 3 — CUSTOMER RELATIONS

#### Subtopic PEN 3.1 — Provision of services and user requirements

APP PEN 3.1.1	Appreciate <del>Identify</del> the role of an air navigation <del>ATC as a</del> service provider.	3	Regulation (EU) 2018/1139	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 <del>Doc 10013 Circular 303</del> — Operational opportunities to reduce <del>minimise</del> fuel burn use and reduce emissions, hot cargo parking	ADV ADC APP APS
APP PEN 4.1.2	Explain the use of the Collaborative Environmental Management (CEM) process at aerodromes.	2	Optional content: European ATM Master Plan, EUROCONTROL CEM Specification	ADV ADC APP APS
APP 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, noise preferential routes, flight efficiency	ADC APP APS

## SUBJECT 10: ABNORMAL AND EMERGENCY SITUATIONS

The subject objective is:

Learners shall develop a professional attitude 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	Military abnormal and emergency situations (e.g. use of aircraft arresting systems, flame out procedures) <i>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, GNSS failure</i>	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	ICAO Doc 4444, Military procedures <i>Optional content: ICAO Doc 4444</i>	APP ACP APS ACS
APP ABES 1.1.4	Take into account that procedures do not exist for all abnormal and emergency situations.	2	<i>Optional content: real-life examples</i>	ALL
APP ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	2	<i>Optional content: separation, information, coordination</i>	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, radio silence instruction, military procedures	ALL
APP ABES 2.1.2	Apply change of radiotelephony call sign.	3	Regulation (EU) No 923/2012, ICAO Doc 4444 <i>Optional content: ICAO Doc 4444</i>	ALL
Subtopic ABES 2.2 — Avoidance of mental overload				
APP ABES 2.2.1	Describe actions to keep the situation under control.	2	<i>Optional content: sector-splitting, holding, flow management, task delegation</i>	ALL
APP ABES 2.2.2	Organise priority of actions.	4		ALL
APP ABES 2.2.3	Ensure the effective dissemination of information.	4	<i>Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP, and TWR and Air Defence Units, with ground staff, etc.</i>	ALL

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TOPIC ABES 2 — SKILLS IMPROVEMENT				
APP ABES 2.2.4	Consider asking for help.	2		ALL
<b>Subtopic ABES 2.3 — Air-ground cooperation</b>				
APP ABES 2.3.1	Collect appropriate information relevant to the situation.	3		ALL
APP ABES 2.3.2	Assist the pilot.	3	<b>Pilot workload</b> <i>Optional content: instructions, information, support, human factors, etc.</i>	ALL
TOPIC ABES 3 — PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS (ABES)				
<b>Subtopic ABES 3.1 — Application of procedures for ABES</b>				
APP ABES 3.1.1	Apply the procedures for given abnormal and emergency situations.	3	<b>Military abnormal and emergency situations (e.g. use of aircraft arresting systems, flame out procedures)</b> <i>Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, ground-based safety nets alerts, airframe failure</i>	ALL
<b>Subtopic ABES 3.2 — Radio failure</b>				
APP ABES 3.2.1	Describe the procedures to be followed by a pilot when <b>experiencing that pilot experiences</b> complete or partial radio failure.	2	<b>ICAO Doc 4444, military procedures</b> <b>Regulation (EU) No 923/2012</b> <i>Optional content: ICAO Doc 4444, military procedures, simulator operation procedures</i>	ALL
APP ABES 3.2.2	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	<b>Regulation (EU) No 923/2012, military procedures</b> <i>Optional content: prolonged loss of communication</i>	ALL
<b>Subtopic ABES 3.3 — Unlawful interference and aircraft bomb threat</b>				
APP ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	<b>Regulation (EU) No 923/2012,</b> <i>Optional content: simulator operation procedures, Military procedures</i>	ALL
<b>Subtopic ABES 3.4 — Strayed or unidentified aircraft</b>				
APP ABES 3.4.1	Apply the procedures <b>for in the case of</b> strayed aircraft.	3	<b>Regulation (EU) No 923/2012, military procedures</b> <i>Optional content: inside controlled airspace, outside controlled airspace</i>	ALL
APP ABES 3.4.2	Apply the procedures <b>for in the case of</b> unidentified aircraft.	3	<b>Regulation (EU) No 923/2012, military procedures</b>	ALL
<b>Subtopic ABES 3.5 — Diversions</b>				
APP ABES 3.5.1	Provide navigational assistance to aircraft diverting in emergency.	4	<b>Track/heading, distance, other navigational assistance</b> <i>Optional content: nearest most suitable aerodrome</i>	APP ACP APS ACS
<b>Subtopic ABES 3.6 — Interception of civil aircraft</b>				
APP ABES 3.6.1	Explain the procedures for interception of civil aircraft.	2	<b>Regulation (EU) No 923/2012, military procedures</b>	ALL

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TOPIC ABES 3 — PROCEDURES FOR ABNORMAL AND EMERGENCY SITUATIONS (ABES)

**ABESMIL 3.7 – QRA procedures**

APP ABESMIL 3.7.1	Apply the procedures in the event of interception of any aircraft.	3	Military procedures	ALL
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## 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				
<b>Subtopic AGA 1.1 — Definitions</b>				
APP AGA 1.1.1	Define aerodrome data.	1	Regulation (EU) No 139/2014 <sup>10</sup> , ICAO Annex 14, Military regulations and directives <i>Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hotspot</i> <del>hot-spot</del>	<del>ADV</del> ADC APP APS
<b>Subtopic AGA 1.2 — Coordination</b>				
APP AGA 1.2.1	Identify the information that has to be exchanged between <del>Air Traffic Services (ATS)</del> and the aerodrome authority.	3	Aerodrome conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, Regulation (EU) No 139/2014, ICAO Annex 14, Military regulations and directives	<del>ADV</del> ADC APP APS

TOPIC AGA 2 — MOVEMENT AREA				
<b>Subtopic AGA 2.1 — Movement area</b>				
APP AGA 2.1.1	Describe <del>the</del> movement area.	2	Regulation (EU) No 139/2014, ICAO Annex 14, arming areas	<del>ADV</del> ADC APP APS
APP AGA 2.1.2	Describe the marking of obstacles and unusable or unserviceable areas.	2	Flags, signs on pavement, lights <i>Optional content: military regulations and directives</i>	<del>ADV</del> ADC APP APS
APP AGA 2.1.3	Identify the information on conditions of the movement area that has to be passed on to aircraft.	3	Essential information on aerodrome conditions <i>Optional content: military regulations and directives</i>	<del>ADV</del> ADC APP APS
<b>Subtopic AGA 2.2 — Manoeuvring area</b>				
APP AGA 2.2.1	Describe <del>the</del> manoeuvring area.	2	Regulation (EU) No 139/2014, ICAO Annex 14 <i>Optional content: Military regulations and directives</i>	<del>ADV</del> ADC APP APS
APP AGA 2.2.2	Describe <del>the</del> taxiway.	2	<i>Optional content: military regulations and directives</i>	<del>ADV</del> ADC APP APS
APP AGA 2.2.3	Describe <del>the</del> daylight marking on taxiways.	2	<i>Optional content: military regulations and directives</i>	<del>ADV</del> ADC APP APS

<sup>10</sup> Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 44, 14.2.2014, p. 1).

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TOPIC AGA 2 — MOVEMENT AREA				
APP AGA 2.2.4	Describe taxiway lighting.	2	<i>Optional content: military regulations and directives</i>	ADV ADC↓ APP APS
<b>Subtopic AGA 2.3 — Runways</b>				
APP AGA 2.3.1	Describe <b>the</b> runway.	2	Runway, runway surface, runway strip, shoulder, runway-end safety areas, clearways, stopways, military marking requirements <i>Optional content: military regulations and directives</i>	ADV ADC↓ APP APS
APP AGA 2.3.2	Describe <b>the</b> instrument runway.	2	Regulation (EU) No 139/2014, ICAO Annex 14 <i>Optional content: military regulations and directives</i>	ADC↓ APP APS
APP AGA 2.3.3	Describe <b>the</b> non-instrument runway.	2	Regulation (EU) No 139/2014, ICAO Annex 14 <i>Optional content: military regulations and directives</i>	ADV ADC↓ APP APS
APP AGA 2.3.4	Explain declared distances.	2	TORA, TODA, ASDA, LDA <i>Optional content: military regulations and directives</i>	ADV ADC↓ APP APS
APP AGA 2.3.5	Explain the differences between ACN and PCN.	2	Strength of pavements <i>Optional content: ACR and PCR</i>	ADV ADC↓ APP APS
APP AGA 2.3.6	Describe the daylight markings on runways.	2	<i>Optional content: runway designator, centre line, threshold, aiming point, fixed distance, touchdown zone, side strip, colour, military regulations and directives</i>	ADV ADC↓ APP APS
APP AGA 2.3.7	Describe runway lights.	2	<i>Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barrettes, military regulations and directives</i>	ADV ADC↓ APP APS
APP AGA 2.3.8	Explain the functions of visual landing aids.	2	<i>Optional content : AVASI, VASI, PAPI</i>	ADV ADC↓ APP APS
APP AGA 2.3.9	Describe the approach lighting systems.	2	Centre line, cross bars, stroboscopic lights, colours, intensity and brightness <i>Optional content: military regulations and directives</i>	ADV ADC↓ APP APS
APP AGA 2.3.10	Characterise the effect of water/ice on runways.	2		ADV ADC↓ APP APS
APP AGA 2.3.11	Explain braking <b>action performance and methods of reporting it.</b>	2	<b>Braking action coefficient</b>	ADV ADC↓ APP APS

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TOPIC AGA 2 — MOVEMENT AREA				
APP AGA 2.3.12	Explain the effect of runway visual range on aerodrome operations.	2		ADV ADC APP APS
<b>Subtopic AGAMIL 2.4 — Aircraft arresting systems</b>				
APP AGAMIL 2.4.1	Describe the available aircraft arresting systems and related markings	2		ALL
TOPIC AGA 3 — OBSTACLES				
<b>Subtopic AGA 3.1 — Obstacle-free airspace around aerodromes</b>				
APP AGA 3.1.1	Explain the necessity for establishing and maintaining <del>airspace around aerodromes obstacle free</del> <del>an obstacle-free airspace around aerodromes</del> .	2		ADV ADC APP APS
TOPIC AGA 4 — MISCELLANEOUS EQUIPMENT				
<b>Subtopic AGA 4.1 — Location</b>				
APP AGA 4.1.1	Explain the location of <del>different</del> miscellaneous aerodrome ground equipment.	2	<i>Optional content: LOC, GP, VDF, radio communication or ATS surveillance systems sensors, stopbars, AVASI, VASI, PAPI, specific military equipment (e.g. TACAN, GCA Antennas, arresting systems)</i>	ADV ADC APP APS