EU ATCO INITIAL TRAINING CONTENT — TRACK CHANGES MATRIX between Appendix to Annex I to Decision 2015/010/R and the EUROCONTROL Specification for ATCO CCC Initial Training Edition 1.0 of 21.10.2008 FOR INFORMATION PURPOSES ONLY

AMC1 to Appendix 2 of Annex I - PART-ATCO

Basic Training

- This document has been provided to help i gYfs make a comparison between the WbhYbh
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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

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Subject 1: INTRODUCTION TO THE COURSE

The general 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. and

2

1

- state the rules and regulations concerning employment and security.

TOPIC INTRB 1 COURSE MANAGEMENT

Subtopic INTRB 1.1 Course introduction

BASIC Explain the aims and main objectives of the INTRB course.

1.1.1

Subtopic INTRB 1.2 Course administration

BASIC State course administration.

INTRB

1.2.1

1.3.1

Subtopic INTRB 1.3 Study material and training documentation

BASIC Use appropriate documentation and their

INTRB sources for the course.

Optional content: training documentation, library, CBT library, web, learning management server

BASIC Integrate appropriate information into INTRB course studies.

1.3.2

Training documentation

4 Optional content: supplementary information, library

TOPIC INTRB 2 INTRODUCTION TO THE ATC TRAINING COURSE

Subtopic INTRB 2.1 Course content and organisation

BASIC State the different training methods applied INTRB in the course.

Theoretical training, practical training, self-study, types of training events

2.1.1

BASIC State the subjects of the course and their

INTRB purpose.

1

2.1.2

BASIC Describe the organisation of theoretical

INTRB training.

2

2.1.3

BASIC Describe the organisation of practical

INTRB training.

Optional content: PTP, simulation, briefing, debriefing, course programme

Optional content: course programme

2.1.4

Subtopic INTRB 2.2 Training ethos

BASIC Recognise the feedback mechanisms available. 2.2.1 BASIC Describe the positive effect of working and learning together with fellow course participants.	Optional content: instructor discussions, training progress, assessment, examinations, results, briefing, debriefing
2.2.1 BASIC Describe the positive effect of working and learning together with fellow course 2	assessment, examinations, results,
BASIC Describe the positive effect of working and INTRB learning together with fellow course	
INTRB learning together with fellow course 2	
participants	Team work in theoretical and practical
participants.	training
2.2.2	
Subtopic INTRB 2.3 The Assessment process	
BASIC Describe the assessment process.	
INTRB 2	
2.3.1	
TOPIC INTRB 3 INTRODUCTION TO THE ATCO'S F	UTURE
Subtopic INTRB 3.1 Job prospects	
BASIC Recognise an ATCO's working environment.	Area control unit, approach control
INTRB 1	unit, aerodrome control unit
3.1.1	
BASIC Recognise career developments.	Optional content: OJT instructor,
BASIC Recognise career developments. INTRB 1	Optional content: OJT instructor, supervisor, operational mathematical
	Optional content: OJT instructor, supervisor, operational managerial posts, non-operational posts
INTRB 1 3.1.2	supervisor, operational managerial
INTRB 1 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE	supervisor, operational managerial
INTRB 1 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment	supervisor, operational managerial
INTRB 1 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment INTRB rules and regulations that apply to a student:	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment INTRB rules and regulations that apply to a	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment INTRB rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO 2	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO 2	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee.	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee. BASIC State the licensing/certification system.	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee. BASIC State the licensing/certification system. INTRB 1	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee. BASIC State the licensing/certification system. INTRB 4.1.3	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee: BASIC State the licensing/certification system. INTRB 4.1.3 Subtopic INTRB 4.2 Negotiations and Policies	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee. BASIC State the licensing/certification system. INTRB 4.1.3 Subtopic INTRB 4.2 Negotiations and Policies BASIC Recognise the management/staff	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee: BASIC State the licensing/certification system. INTRB 4.1.3 Subtopic INTRB 4.2 Negotiations and Policies BASIC Recognise the management/staff negotiation and discussion procedures. 1	supervisor, operational managerial
INTRB 3.1.2 TOPIC INTRB 4 CONDITIONS OF SERVICE Subtopic INTRB 4.1 Current Conditions of Employment BASIC Take account of administrative employment rules and regulations that apply to a student. BASIC Take account of administrative employment rules and regulations that apply to an ATCO as an employee. BASIC State the licensing/certification system. INTRB 4.1.3 Subtopic INTRB 4.2 Negotiations and Policies BASIC Recognise the management/staff inegotiation and discussion procedures. 4.2.1	supervisor, operational managerial

Subtopic INTRB 5.1 Security

BASIC State the rules and regulations concerning INTRB the security at a facility and within ATC.

5.1.1

Subject 2 : AVIATION LAW

The general subject objective is:

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

TOPIC LAWB 1 INTRODUCTION TO AVIATION LAW

Subtopic LA	WB 1.1 Relevance of aviation law Natio	nal	and international organisations
BASIC LAWB	State the necessity for air law, the sources and development of aviation law.		Relevant EU legislation, ICAO Convention
1.1.1 1.1.3	and development of aviation law.	1	Optional content: ICAO Annex 2, national aviation law
BASIC LAWB 1.1.2 1.1.1	Name the key national and international aviation organisations.	1	Optional content: ICAO, ECAC, EASA, EUROCONTROL, national authority
BASIC LAWB 1.1.3 1.1.2	Describe the impact these organisations have on ATC and their interaction with each other.	2	Optional content: consistency between ESARRs and ICAO SARPs

TOPIC LAWB 2 INTERNATIONAL ORGANISATIONS

Subtopic LA	WB 2.1	ICAO		
BASIC	Explain t	the purpose and function	of ICAO.	
LAWB			2	
2.1.1				
BASIC	Describe	scribe the methods by which ICAO	CAO	SARPs, PANS, ICAO Annexes, ICAO
LAWB	notifies	and implements legislation	on. 2	Documents
2.1.2				Optional content: SARPS, PANS, ICAO Annexes, ICAO Documents, regional offices
Subtopic LA	WB 2.2	European and other a	gencies	
BASIC	Explain t	the purpose and function	s of	Network manager function
BASIC LAWB	Explain t		s of	Network manager function
				Network manager function
LAWB	EUROCC		2	Network manager function
LAWB 2.2.1	EUROCC	NTROL.	2	Network manager function
LAWB 2.2.1 BASIC	EUROCC	NTROL.	s of EASA.	Network manager function
LAWB 2.2.1 BASIC LAWB	Explain t	NTROL.	s of EASA.	Optional content: ECAC, EU, EASA ,
LAWB 2.2.1 BASIC LAWB 2.2.2	Explain to State the internation	the purpose and function e purpose and function of onal agencies and their	s of EASA. 2	Optional content: ECAC, EU, EASA , ITU, EUROCONTROL, SRC/SRU,
LAWB 2.2.1 BASIC LAWB 2.2.2 BASIC	Explain to State the internation	the purpose and function e purpose and function	s of EASA.	Optional content: ECAC, EU, EASA ,

Subtopic LAWB 2.3 Aviation associations

BASIC State the purpose of controller, pilot, airline

Optional content: IFATCA, IFALPA, IATA, AEA, IAOPA, IACA, military and airspace user associations and their **LAWB** services, JATMWG ETF, ATCEUC interaction with ATC. 2.3.1 LAWB 3 NATIONAL ORGANISATIONS TOPIC LAWB 3.1 General Purpose and function **Subtopic** BASIC Describe the purpose and function of Optional content: civil aviation administration agencies, government appropriate national agencies and their **LAWB** agencies relevance to air traffic operations. 3.1.1 **Subtopic LAWB 3.2** National legislative procedures ICAO Annex 15 BASIC Describe the means methods by which legislation is implemented, notified and **LAWB** Optional content: ICAO Annex 15, AIS, AIPs, AICs, AIRAC SUP, NOTAMS, updated. 3.2.1 integrated aeronautical information package, national legislation, letters of agreement, operations manual **BASIC** Recognise the information contained in the different parts of the AIP. **I AWB** 1 3.2.2 **Subtopic** LAWB 3.3 National Regulatory Body Competent authority Name the body competent authority responsible for licensing and enforcing **LAWB** 1 legislation and operational procedures. 3.3.1 BASIC Describe how the regulatory body competent authority carries out its safety **LAWB** regulation responsibilities. 3.3.2 LAWB 3.4 National aviation associations **Subtopic BASIC** State the purpose of national controller, pilot, airline and airspace user associations. **LAWB** and their interaction with ATC. 3.4.1 LAWB 4 ATS SAFETY MANAGEMENT TOPIC **Subtopic** LAWB 4.1 Safety Management and regulation BASIC Describe the need for safety regulation. ESARR 1 Regulation (EU) 216/2008 **LAWB** 2 Optional content: SRC policy document 3, Commission 4.1.1 Implementing Regulation (EU) No 1034/2011, national regulation 1.3.1 documention BASIC Describe the general principles of the safety Safety regulation organisation. **LAWB** Optional content: Regulation (EU) No 1035/2011, ESARR 3, national 4.1.2 regulation 1.3.3

BASIC LAWB 4.1.3 1.3.4	Explain the impact of safety regulation on the controller.	2	Optional content: ESARR 5, ESARR 3, EC Directive on a Community air traffic controller licence, national regulations, Regulation (EU) 2015/340 on ATCO Licences
Subtopic LA	WB 4.2 Safety management system		
BASIC LAWB	Explain how a safety management system complies with regulatory requirements.	2	ESARR 3
1.3.2			
BASIC LAWB 4.2.1 1.3.2	Explain the regulatory requirements of safety management systems in ATM.	2	Regulation (EU) No 1035/2011
BASIC	Explain the principles of the safety		Regulation (EU) No 1035/2011
4.2.2 1.3.2	management systems.	2	
BASIC LAWB 4.2.3	Describe the safety assessment methodology.	2	ESARR 4 Regulation (EU) No 1035/2011, Regulation (EU) No 1034/2011
1.3.5			Optional content: EATMP Air navigation system safety assessment methodology, national regulations
TOPIC LAW	B 5 RULES AND REGULATIONS		
Subtopic LA	WB 5.1 Units of measurement		
BASIC LAWB 5.1.1	Describe the units of measurement used in aviation.	2	ICAO Annex 5 COUNCIL DIRECTIVE of 20 December 1979 on units of measurement
4.7.1			
Subtopic LA	WB 5.2 ATCO licensing/certification		
BASIC LAWB 5.2.1 1.2.1	Explain the ATCO licensing/certification process.	2	Regulation (EU) 2015/340 on ATCO Licences, ESARR 5, Approved training courses, ATCO licence, ratings and endorsements
			Optional content: national processes documents, EC Directive on a Community air traffic controller licence,
BASIC LAWB	Explain the privileges and limitations of controller licences.	2	Regulation (EU) 2015/340 on ATCO Licences
5.2.2 1.2.2			Optional content: Qualification, validation, minimum experience, training and medical requirements, competence checks

Subtopic LA	WB 5.3 General Overview of ANS and A	TS	
BASIC LAWB 5.3.1 4.1.1	Differentiate between the Air Navigation Services.	2	ICAO Doc 9161 Regulation (EC) No 216/2008, Regulation (EC) No 549/2004
BASIC LAWB 5.3.2 4.1.2	Explain the considerations which determine the need for the ATS.	2	ICAO Annex 11
BASIC LAWB 5.3.3 4.1.3	Differentiate between the ATS.	2	ATCS, ADVS, FIS, ALRS
BASIC LAWB 5.3.4 4.1.4	Explain the objectives of ATS.	2	ICAO Annex 11 Regulation (EU) No 923/2012
Subtopic LA	WB 5.4 Rules of the air		
BASIC LAWB 5.4.1 4.3.1	Explain the Rules of the Air.	2	ICAO Annex 2 Regulation (EU) No 923/2012
BASIC LAWB 5.4.2 4.3.2	State any notified National differences with ICAO.	1	Regulation (EU) No 923/2012 Optional content: ICAO Doc 7030, Supplements to ICAO Annex 2 and ICAO Annex 11
BASIC LAWB 5.4.3 4.3.3	Appreciate the influence of relevant flight rules on ATC.	3	General flight rules, instrument flight rules, visual flight rules
BASIC LAWB 5.4.4 4.3.4	Appreciate the differences between flying in accordance with VFR and IFR, in VMC and IMC.	3	ICAO Annex 2 Regulation (EU) No 923/2012
Subtopic LA	WB 5.5 Airspace and ATS routes		
BASIC LAWB 5.5.1 4.2.1	Explain airspace classification.	2	ICAO Classes A-G, ICAO Annex 11 Regulation (EU) No 923/2012

BASIC LAWB 5.5.2 4.2.2	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 4.2.3	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 4.2.4	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 LA	WB 5.6 Flight plan		
BASIC LAWB 5.6.1 4.3.5	Explain the functions of a flight plan.	2	Regulation (EU) No 923/2012, ICAO Doc 4444
BASIC LAWB 5.6.2 4.3.6	Explain the different types of flight plans and associated update messages.	2	Regulation (EU) No 923/2012, ICAO Doc 4444
BASIC LAWB 5.6.3 4.3.7	Explain the pilot's responsibilities in relation to adherence to flight plan.	2	Inadvertent changes, intended changes, position reporting
BASIC LAWB 5.6.4 8.1.3 ATMB	Describe flight plan processing.	2	Optional content: AFTN, IFPS
Subtopic LA	WB 5.7 Aerodromes		
BASIC LAWB 5.7.1 4.4.1	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 4.4.2	Explain the numbering system and orientation of runways.	2	ICAO Annex 14 Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM

BASIC LAWB 5.7.3 4.4.3 BASIC LAWB	Differentiate between different types of aerodromes. Describe designated positions in the traffic circuit.	2	Controlled, uncontrolled Optional content: military, international, regional
5.7.4 4.4.4		_	
BASIC LAWB 5.7.5 4.4.5	List the factors affecting the selection of runway in use.	1	
Subtopic LA	WB 5.8 Holding procedures for IFR Fligh	nts	
BASIC LAWB 5.8.1 4.6.3	Describe the purpose of holding.	2	Traffic management, weather, pilot request, ICAO Doc 4444, ICAO Doc 8168
BASIC LAWB 5.8.2 4.6.1	Describe types of holding patterns.	2	Published, non-published, Extended
BASIC LAWB 5.8.3 4.6.4	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 4.6.2	Describe the use of factors affecting holding pattern.	2	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, etc.
Subtopic LA	WB 5.9 Holding procedures for VFR fligh	nts	
BASIC LAWB 5.9.1 4.5.1	Describe the purpose of VFR holding.	2	
BASIC LAWB 5.9.2 4.5.2	Describe the principles of VFR holding.	2	

Subject 3 : AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

TOPIC	ATMB	1	AIR TRAFFIC	MANAGEMENT
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Subtopic AT	MB 1.1 Application of units of measurer	ner	nt
BASIC ATMB 1.1.1	Apply the units of measurement appropriate to ATM.	3	
Subtopic AT	MB 1.2 Air traffic control (ATC) service		
BASIC ATMB 1.2.1	Define ATC service.	1	ICAO Annex 11 Regulation (EU) No 923/2012
BASIC ATMB	Explain the division of the ATC service.	2	Regulation (EC) No 549/2004, ICAO Annex 11
1.2.2			
BASIC ATMB 1.2.3	Explain the responsibility for the provision of the ATC service.	2	ICAO Annex 11
1.2.3			
BASIC ATMB 1.2.4	Differentiate between the different methods of providing ATC services.	2	Aerodrome, surveillance, procedural
Subtopic AT	MB 1.3 Flight information service (FIS)		
BASIC ATMB 1.3.1	Define FIS.	1	ICAO Annex 11 Regulation (EU) No 923/2012
BASIC ATMB 1.3.2	Describe the scope of the FIS.	2	ICAO Annex 11 Regulation (EU) No 923/2012
BASIC ATMB 1.3.3	Explain the responsibility for the provision of the FIS.	2	Regulation (EU) No 923/2012, 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	List the content of ATIS and VOLMET.	1	Regulation (EU) No 923/2012, ICAO Annex 3
1.3.5		1	Optional content: meteorological data obtained by data link
BASIC ATMB 1.3.6 1.3.5	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 AT	MB 1.4 Alerting service		
BASIC	Define ALRS.		Regulation (EU) No 923/2012 TCAO
ATMB		1	Doc 4444
1.4.1			
BASIC	Describe the scope of the ALRS.		Regulation (EU) No 923/2012, ICAO
ATMB	·	2	Annex 11
1.4.2			
BASIC	Explain the responsibility for the provision		ICAO Doc 4444
ATMB	of the ALRS.	2	
1.4.3			
BASIC	Differentiate between the phases of		Uncertainty, alert, distress
ATMB	emergency.	2	
1.4.4			
BASIC	Describe the organisation of an ALRS.		Responsibilities, local organisation
ATMB		2	
1.4.5			
BASIC	Describe the cooperation between units		
ATMB	providing the alerting services and the SAR	2	
1.4.6	units.		
BASIC	Differentiate between distress and urgency		Mayday, Pan Pan, Pan Pan Medical
ATMB	signals.	2	Optional content: Mayday, Pan, visual
1.4.7			signals, etc.
Subtopic AT	MB 1.5 Air traffic advisory service		
BASIC	Define Air Traffic Advisory Service.		Regulation (EU) No 923/2012, ICAO
ATMB		1	Annex 11
1.5.1			
1.7.1			
BASIC	Describe the scope of the Air Traffic		ICAO Doc 4444
ATMB	Advisory Service.	2	
1.5.2			
1.7.2			

BASIC	Explain the responsibility for the provision		ICAO Doc 4444
ATMB	of the Air Traffic Advisory Service.	2	
1.5.3			
1.7.3			
BASIC	State to which flights Air Traffic Advisory		ICAO Doc 4444
ATMB	Service shall be provided.	1	
1.5.4			
1.7.4			
		cc.	
_	MB 1.6 ATS system capacity and air tr	attıc	
BASIC	Define ATFM.		Regulation (EC) No 549/2004
ATMB		1	
1.6.1			
1.5.1			
BASIC	State the scope of capacity management.		Regulation (EU) No 255/2010, ICAO
ATMB	State the scope of capacity management.	1	Doc 4444 ICAO Annex 11
		1	200 1111 2010 1111101 22
1.6.2 1.5.2			
1.5.2			
BASIC	Describe the scope of ATFCM.		Regulation (EU) No 255/2010, ICAO
ATMB		2	Doc 4444, EUROCONTROL ATFCM
1.6.3			Users Manual
1.5.3			Optional content: EUROCONTROL ATFCM Users Manual
			All Ciri Osers Maridar
BASIC	Explain the responsibility for the provision		Regulation (EU) No 255/2010, ICAO
ATMB	of ATFCM.	2	Doc 4444, EUROCONTROL ATFCM
1.6.4			Users Manual
1.5.4			Optional content: EUROCONTROL ATFCM Users Manual
BASIC	Explain State the methods of providing		Regulation (EU) No 255/2010, ICAO
ATMB	ATFCM.	1->1	Doc 4444, EUROCONTROL ATFCM
1.6.5		1-/2	Users Manual
1.5.5			Optional content: EUROCONTROL
			ATFCM Users Manual
Subtopic AT	MB 1.7 Airspace management (ASM)		
BASIC	Define ASM.		Regulation (EC) No 549/2004
ATMB		1	Optional content: Commission
1.7.1			Regulation (EC) No 2150/2005, EUROCONTROL ASM HBK- Airspace
1.6.1			Management Handbook for the
			application of FUA
BASIC	Describe the scope of ASM.		Regulation (EC) No 2150/2005
ATMB	•	2	Optional content: FABs,
1.7.2			EUROCONTROL ASM HBK- Airspace
1.6.2			Management Handbook for the application of FUA EUROCONTROL
			Specification for the application of the
			FUA

BASIC ATMB 1.7.3 1.6.3 BASIC ATMB 1.7.4 1.6.4			Regulation (EC) No 2150/2005 Optional content: EUROCONTROL ASM HBK- Airspace Management Handbook for the application of FUA EUROCONTROL Specification for the application of the FUA Regulation (EC) No 2150/2005 Optional content: Flexible use of airspace, airspace design, CDRs, TSAs
		`	
BASIC ATMB 2.1.1 5.1.1	MB 2.1 Altimetry Appreciate the relationship between height, altitude and flight level.	3	QFE, QNH, standard pressure
Subtopic AT	MB 2.2 Transition level		
BASIC ATMB 2.2.1 5.2.1	Appreciate the relationship between transition level, transition altitude and transition layer.	3	ICAO Doc 4444, ICAO Doc 8168
BASIC ATMB 2.2.2 5.2.2	Calculate appropriate levels.	3	Optional content: transition level, transition layer, height, lowest useable flight level, vertical distance to airspace boundaries
Subtopic AT	MB 2.3 Level allocation		
BASIC ATMB 2.3.1 5.3.1	Describe the cruising level allocation system.	2	Regulation (EU) No 923/2012, ICAO Annex 2, tables of cruising levels
BASIC ATMB 2.3.2 5.3.2	Choose appropriate levels.	3	Flight levels, altitudes, heights
TOPIC ATM	B 3 RADIOTELEPHONY (RTF)		
Subtopic AT	MB 3.1 RTF general operating procedure	es	
BASIC ATMB 3.1.1 2.1.1	Explain the need for approved phraseology.	2	

BASIC ATMB 3.1.2 2.1.2	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 2.1.3	Perform communication effectively.	3	Communication techniques, readback/verification of readback

TOPIC ATMB 4 ATC CLEARANCES AND ATC INSTRUCTIONS			
Subtopic A7	MB 4.1 Type and content of ATC cleara	nces	5
BASIC ATMB 4.1.1	Define ATC clearance.	1	Regulation (EU) No 923/2012, ICAO Annex 2
3.1.1			
BASIC ATMB	Describe the contents of an ATC clearance.	2	Regulation (EU) No 923/2012, ICAO Doc 4444 , ICAO Annex 11
4.1.2 3.1.2			
BASIC	Issue appropriate ATC clearances.		ICAO Doc 4444
ATMB 4.1.3 3.1.3		3	Optional content: national documents
Subtopic A1	MB 4.2 ATC instructions		
BASIC ATMB	Define ATC Instructions.	1	Regulation (EU) No 923/2012, ICAO Doc 4444
4.2.1 3.2.1			
BASIC	Describe the contents of an ATC		ICAO Doc 4444, ICAO Annex 11
ATMB	instruction <mark>s</mark> .	2	
4.2.2 3.2.2			
BASIC	Issue appropriate ATC instructions.		ICAO Doc 4444
ATMB		3	Optional content: national documents
4.2.3			
3.2.3			

TOPIC ATMB 5 COORDINATION

Subtopic ATMB 5.1 Principles, types and content of coordination

BASIC Explain the principles, types and content of coordination. ATMB

ICAO Doc 4444, ICAO Annex 11

Optional content: notification, negotiation, agreement, transfer of flight data and local agreements, etc.

5.1.1 4.1.1

Subtopic ATMB 5.2 Necessity for coordination

Appreciate the need for coordination. BASIC

ATMB

5.2.1

4.2.1

Optional content: ICAO Doc 4444, local procedures, letters of agreements

Optional content: data link, telephone,

intercom, voice, etc.

BASIC Differentiate between transfer of control

and transfer of communication procedures. **ATMB**

5.2.2

Means of coordination Subtopic ATMB 5.3

BASIC Describe the means of coordination

ATMB

5.3.1

4.3.1

BASIC Use the available means for coordination.

ATMB

5.3.2 4.3.2

3

ATMB 6 DATA DISPLAY **TOPIC**

Subtopic ATMB 6.1 Data extraction

BASIC Encode and decode an appropriate selection of standard ICAO abbreviations. ATMB

2

3

Optional content: ICAO Doc 8585, ICAO Doc 8643, ICAO Doc 7910

6.1.1

8.1.1

BASIC Extract pertinent data from relevant

ATMB

6.1.2

sources to produce a flight progress display.

Pilot reports, coordination, data exchange

Optional content: flight plan

8.1.2

BASIC Describe flight plan processing.

ATMB

Optional content: AFTN, IFPS

8.1.3

8.1.3

5.6.4 LAWB

BASIC Encode and decode flight plans (including supplementary information). **ATMB**

ICAO format, AFTN format

6.1.3

Subtopic ATMB 6.2 Data management Update the data situation display to BASIC Optional content: strip marking symbols, strip movement procedures, accurately reflect the traffic situation. **ATMB** electronic data, radar label 6.2.1 8.2.1 **ATMB 7 SEPARATIONS TOPIC** ATMB 7.1 Vertical separation and procedures **Subtopic** State the vertical separation standards and ICAO Doc 4444 BASIC ATMB procedures. 1 7.1.1 6.1.1 ICAO Doc 4444 BASIC Explain the vertical separation procedures. **ATMB** 2 7.1.2 6.1.1 **Subtopic ATMB 7.2** Horizontal separation and procedures ICAO Doc 4444 BASIC State the longitudinal separation standards and procedures based on time and **ATMB** 1 distance. 7.2.1 6.2.1 ICAO Doc 4444 BASIC State the lateral separation standards and procedures. ATMB 1 7.2.2 6.2.2 **Subtopic ATMB 7.3** Visual separation BASIC State the occasions when clearance to fly maintaining own separation while in VMC **ATMB** 1 can be used. 7.3.1 6.3.1 **Subtopic ATMB 7.4** Aerodrome separation and procedures Separation on the manoeuvring area, BASIC State the aerodrome separation standards. and procedures. in the traffic circuit, for departing and ATMB arriving aircraft 7.4.1 6.4.1 ICAO Doc 4444 BASIC Explain the aerodrome separation ATMB procedures. 2 7.4.2

6.4.1

1

2

2

BASIC Define essential local traffic. ICAO Doc 4444

ATMB 7.4.3

Subtopic ATMB 7.5 Separation based on ATS surveillance systems

> Explain the use of ATS surveillance systems in ATS. ATMB

Separation, identification, monitoring, vectoring, expedition and assistance to traffic

7.5.1

Optional content: ICAO Doc 4444

BASIC Explain the ATS surveillance systems

separation standards and procedures.

ICAO Doc 4444

7.5.2

6.6.2

6.5.1

6.6.1

ATMB 7.6 Wake turbulence separation **Subtopic**

BASIC Explain the wake turbulence categories and separations.

ICAO Doc 4444

ATMB 7.6.1

Subtopic ATMB 7.7 Applied separation

BASIC Apply separation.

ATMB

Optional content: vertical, longitudinal, lateral, aerodrome, based on ATS surveillance systems, distances from airspace boundaries

6.7.1 9.2.10

AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED **TOPIC ATMB** 8 **SAFETY NETS**

Subtopic ATMB 8.1 Airborne collision avoidance systems

BASIC State the European requirement for Regulation (EU) No 1332/2011

ATMB carriage of airborne collision avoidance Optional content: Regulation (EU) No

system. 8.1.1

Explain State the main characteristics of BASIC

1332/2011

airborne warning systems and their **ATMB** relevance to ATC operations. 8.1.2

1->2 Optional content: ACAS GPWS, TCAS, EGPWS, Wind shear alerts

ACAS, TAWS

7.1.1

BASIC Explain State the function of ACAS Traffic

Regulation (EU) No 1332/2011, ICAO 1->2 Doc 8168

Alerts and Resolution Advisories. **ATMB**

8.1.3

BASIC List, in the correct order, the actions of the Regulation (EU) No 1332/2011 □CAO pilot following the in case of TA and RA. Doc 8168 generation of ACAS event. 8.1.4 7.1.3 ICAO Doc 4444 BASIC Describe the controller responsibility during and following an ACAS RA reported by pilot. 2 ATMB 7.1.4 7.1.4 7.1.2 R BASIC List the ACAS limitations. ICAO Doc 9863 **ATMB** 1 8.1.5 7.1.5 BASIC Differentiate between ACAS advisory ICAO Doc 9863 thresholds and ATC separation standards. ATMB 7.1.67.1.6 7.1.1 R **Subtopic** ATMB 8.2 Ground-based safety nets BASIC Explain State the main characteristics of Optional content: STCA, MSAW, APW, 1->2 APM ground-based safety nets and their relevance to ATC operations. 8.2.1 7.2.1 ATMB 9 BASIC PRACTICAL SKILLS **TOPIC Subtopic** ATMB 9.1 Traffic management process BASIC Consider human information processing in Situational awareness, conflict ATMB the provision of ATC. detection, planning, decision making, prioritisation, execution 9.1.1 BASIC Consider the need for verification that Monitoring ATMB actions are carried out. 2 9.1.2 **Subtopic** ATMB 9.2 Basic practical skills applicable to all ratings BASIC Verify that settings of the working position ATMB are appropriate. 3 9.2.1 BASIC Operate the available working position ATMB equipment. 3 9.2.2

BASIC	Maintain situational awareness by monitoring traffic.	_	Information gathering, scanning, planning		
ATMB 9.2.3	monitoring traine.	3	planning		
9.2.3					
BASIC	Appreciate priority of actions.				
ATMB		3			
9.2.4					
BASIC	Execute selected plan.				
ATMB		3			
9.2.5					
BASIC	Apply the prescribed procedures for the		Optional content: LOPs, transfer of		
ATMB	area of responsibility.	3	control and communication, level allocation, inbound and outbound		
9.2.6			procedures		
BASIC	Appreciate relative velocity between				
ATMB	aircraft.	3			
9.2.7					
BASIC	Identify separation problems.				
ATMB	identity separation problems.	3			
9.2.8		3			
BASIC	Choose appropriate separation methods.	_			
ATMB		3			
9.2.9					
BASIC	Apply separation.		Optional content: vertical, longitudinal,		
ATMB		3	lateral, aerodrome, based on ATS surveillance systems, distances from		
9.2.10			airspace boundaries		
6.7.1					
Subtopic A	TMB 9.3 Basic practical skills applicable	e to a	erodrome		
BASIC	Perform the basic functions of aerodrome				
ATMB	control.	3			
9.3.1					
BASIC	Perform the control of aerodrome traffic.		Single runway operations including VFR		
ATMB		3	and IFR traffic		
9.3.2					
Subtopic A	Subtopic ATMB 9.4 Basic practical skills applicable to surveillance				
BASIC	Explain the methods and procedures of		ICAO Doc 4444		
ATMB	establishing identification.	2			
9.4.1					
12.1.1 R					

BASIC ATMB 9.4.2 12.1.1 R		3	Any of the ATS surveillance systems identification methods ICAO Doc 4444, SSR Optional content: PSR
BASIC ATMB 9.4.3	Estimate heading for a new track and the distance to the next way point.	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 general 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.

3

2

2

METB 1 INTRODUCTION TO METEOROLOGY **TOPIC**

Subtopic METB 1.1 Application of units of measurement

BASIC Apply the units of measurement

METB appropriate to meteorology.

1.1.1

Subtopic METB 1.2 Aviation and meteorology

BASIC Explain the relevance of meteorology in

aviation. METB

1.2.1

BASIC Explain the requirements for the provision

METB of meteorological information available to operators, flight crew members, and to air

1.2.2 traffic services.

BASIC State the meteorological hazards to

aviation. METB

Turbulence, thunderstorms, icing, micro bursts, squall, macro burst, wind shear

ICAO Annex 3, ICAO Annex 11

4.4.1

1.2.3

METB 1.3 Organisation of meteorological service **Subtopic**

BASIC Name the basic duties, organisation and

working methods of meteorological offices. **METB**

Optional content: WAFS, WAFC, MWO, VAAC, TCAC, SADIS

1.3.1

State the International and National BASIC

standards for coordination between ATS **METB**

and MET services. 1.3.2

atmosphere.

1

METB 2 ATMOSPHERE TOPIC

Subtopic METB 2.1 Composition and structure

BASIC State the composition and structure of the

1

METB 2.1.1

BASIC Describe the basic characteristics of the

atmospheric parameters measured. METB

Temperature, pressure, wind, humidity, density

Gases, layers

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 MI	ETB 2.2 Standard atmosphere		
BASIC	Describe the elements of the ISA.		Temperature, pressure, density
METB		2	
2.2.1			
BASIC	State the reasons why the ISA has been		
METB	defined.	1	
2.2.2			
Subtopic MI	ETB 2.3 Heat and temperature		
BASIC	Define the processes by which heat is		Radiation, convection, advection,
METB	transferred and how the atmosphere is heated.	1	conduction, water cycle
2.3.1			
BASIC	Describe how temperature varies.		Adiabatic processes, lapse rates,
METB		2	stability, instability
2.3.2			
BASIC	State the influencing factors on surface		
METB	temperature.	1	
2.3.3			
Subtopic MI	ETB 2.4 Water in the atmosphere		
BASIC	Differentiate between the different		Condensation, evaporation,
METB	processes related to atmospheric moisture.	2	sublimation, saturation
2.4.1			
BASIC	Characterise relative humidity, dew point		
METB	and latent heat.	2	
2.4.2			
Subtopic MI	ETB 2.5 Air pressure		
BASIC	Describe the relationship between pressure,		
METB	temperature, density and height.	2	
2.5.1			
BASIC	Explain the relationship between pressure		QFE, QNH, standard pressure
METB	settings.	2	
2.5.2			

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 METI	B 3 ATMOSPHERIC CIRCULATION		
Subtopic ME	TB 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 ME	ETB 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 ME	ETB 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 State the relevance of mesoscale systems to aviation.	1->2	2
Subtopic ME	TB 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 Explain effect of forces which influence METB wind. 2 3.4.3 METB 4 METEOROLOGICAL PHENOMENA TOPIC **Subtopic METB 4.1** Clouds BASIC Explain the different conditions for the formation of clouds. 2 4.1.1 Recognise different cloud types. BASIC **METB** 1 4.1.2 BASIC State the cloud types main characteristics. **METB** 1 4.1.3 State how the cloud base and the amount BASIC of cloud are measured and/or observed. METB 1 4.1.4 BASIC Define cloud base and ceiling. **METB** 1 4.1.5 BASIC Differentiate between cloud base and ceiling. **METB** 2 4.1.6 **Subtopic METB 4.2** Types of precipitation **BASIC** Explain the significance of precipitation in aviation. METB 2 4.2.1 BASIC Describe types of precipitation and their Optional content: rain, snow, snow grains, hail, ice pellets, ice crystals, drizzle corresponding cloud families. **METB** 4.2.2 **Subtopic METB** 4.3 Visibility BASIC Explain the causes of atmospheric METB obscurity. 2 4.3.1 BASIC Differentiate between different types of Horizontal visibility, slant visibility, visibility. prevailing visibility, RVR METB 4.3.2

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 ME	ETB 4.4 Meteorological hazards		
BASIC METB 4.4.1	Explain State the meteorological hazards to aviation.	1->2	Turbulence, thunderstorms, icing, micro bursts, squall, macro burst, wind shear Optional content: thunderstorms, squall
BASIC METB 4.4.2	Describe the effect of meteorological hazards on aviation.	2	
TOPIC MET	B 5 METEOROLOGICAL INFORMATI	ON	FOR AVIATION
Subtopic ME	TB 5.1 Messages and reports		
BASIC METB	Decode the content of weather reports and forecasts.	3	METAR, SPECI, TAF, SIGMET Optional content: local reports

Subject 5 : NAVIGATION

The general subject objective is:

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

3

2

TOPIC NAVB 1 INTRODUCTION TO NAVIGATION

Subtopic NAVB 1.1 Application of units of measurement

BASIC Apply the units of measurement

NAVB appropriate to navigation.

1.1.1

Subtopic NAVB 1.2 Purpose and use of navigation

BASIC Explain the need for navigation in aviation.

NAVB

1.2.1

BASIC Characterise navigation methods.

NAVB

1.2.2

Optional content: historical overview, celestial, on-board, radio, satellites

TOPIC NAVB 2 THE EARTH

Subtopic NAVB 2.1 Place and movement of the Earth

BASIC Explain the Earth's properties and their

NAVB effects.

2.1.1

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 Characterise the general principles of a grid

NAVB system.

Optional content: degrees, minutes, seconds, WGS-84, latitude/longitude

2.2.1

BASIC Explain direction and distance on a globe.

NAVB

Optional content: great circle, small circle, rhumb line, cardinal points, inter-cardinal points

Optional content: latitude/longitude

2.2.2

BASIC Estimate position on the Earth's surface.

NAVB

3

2.2.3

BASIC Estimate distance and direction between

NAVB two points.

3

2.2.4

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 NAV	B 3 MAPS AND AERONAUTICAL CHA	ART	S
Subtopic NA	VB 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 3.1.2	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 3.1.3	State Explain the properties and use of different projections.	2->:	Optional content: Lambert, Mercator, 1 stereographic
Subtopic NA	VB 3.2 Maps and charts used in aviatio	n	
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 NAV	B 4 NAVIGATIONAL BASICS		
Subtopic NA	VB 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	N	AVB 4.2 Speed		
BAS NA	VB	Explain the relationship between various speeds used in aviation.	2	True air speed, ground speed, indicated air speed (including Mach number)
4.2	2.1			number)
BAS	IC	Appreciate the use of various speeds in		
NA	VB	ATC.	3	
4.2	2.2			
Subtopic	NA	VB 4.3 Visual navigation		
BAS	IC	Differentiate Explain between the different		Map reading, visual reference
NA	VB	methods of visual navigation.	2	Optional content: dead-reckoning
4.3	3.1			
Subtopic	NA	VB 4.4 Navigational aspects of flight pl	ann	ning
BAS	IC	Describe the navigational aspects affecting		Optional content: fuel/time
NA	VB	flight planning.	2	calculations, min altitudes, alternativo routes
4.4	4.1			
TOPIC N	AVE	3 5 INSTRUMENTAL NAVIGATION		
Subtopic	NA	VB 5.1 Ground-based systems		
BAS	IC	Explain the basic working principles of		VDF, NDB, VOR, DME, ILS
NA	VB	ground-based systems.	2	Optional content: TACAN, MLS
5.1	1.1			
BAS	IC	State the use of ground-based systems.		VDF, NDB, VOR, DME, ILS
NA	VB		1	Optional content: TACAN, MLS
5.1	1.2			
BAS	IC	Characterise the main radio navigation		Optional content: homing,
NA		techniques based on ground-based	2	inbound/outbound tracking, instrument approach procedures,
5.1	1.3	systems.		holding, drift assessment
BAS	IC	Explain the effects of precision and		VDF, NDB, VOR, DME, ILS
NA	VB	limitations of ground-based systems on the	2	Optional content: TACAN, MLS
5.1	1.4	flight.		
Subtopic	NA	VB 5.2 Inertial navigation On-board sys	ste	ms
BAS		Explain the basic working principles,	J. 61	Optional content: INS/IRS
NA'		precision and limitations of on-boards	2	optional content. 1115/1113
5.2		systems.	_	
BAS	ic	State the use of on-board systems.		
NA'		otate the use of on bourd systems.	1	
5.2			_	
5.2				

BASIC Explain the effects of precision and NAVB limitations of on-board systems. 2 5.2.3 5.2.1 **Subtopic** NAVB 5.3 Satellite-based systems BASIC Explain the basic working principles of Optional content: GPS, GLONASS, Galileo positioning systems. NAVB 5.3.1 BASIC State the basic principles of GNSS concept. Basic, ABAS, SBAS, GBAS **NAVB** 1 5.3.2 Explain State the effects of precision and BASIC Optional content: RAIM, GPS Notams NAVB limitations of satellite-based systems. 1->2 5.3.3 **Subtopic** NAVB 5.4 Instrument approach procedures BASIC Recognise various types of instrument approach using aeronautical charts. 1 5.4.1 BASIC Differentiate between precision approach and non-precision approach procedures. NAVB 2 5.4.2 BASIC Recognise the different minima used during NAVB an instrument approach. 1 5.4.3 BASIC Define the terms obstacle clearance altitude/height and minimum descent NAVB altitude/height. 5.4.4 BASIC List the instrument approach fixes. IAF, IF, FAF, FAP, MAPt **NAVB** 1 5.4.5 NAVB 6 PERFORMANCE BASED AREA NAVIGATION **TOPIC Subtopic** NAVB 6.1 Principles and benefits of area navigation BASIC Explain the basic principles of area Optional content: ICAO Doc 9613 NAVB navigation. 2 6.1.1

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 6.2.2	Characterise the main aircraft and avionics functionalities navigational techniques based on used in area navigation.	2	Optional content: way points transitions (FRT) and path terminators (including RF), fly over and fly by a way point, parallel offset
BASIC NAVB 6.1.5 6.2.3	Characterise the navigational functions of FMS.	2	Optional content: VNAV, LNAV
Subtopic NA	AVB 6.2 Introduction to PBN		
BASIC NAVB 6.2.1	State the general concept of PBN.	2	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
BASIC NAVB 6.2.4 6.2.4	List the types of RNP.	1	
Subtopic NA	AVB 6.3 PBN applications Types and tec	hnic	ques
BASIC NAVB 6.3.1	List the navigation applications in use in Europe. types of RNAV.	1	En-route, terminal/approach Optional content: RNAV-5 (B-RNAV), RNAV-1 (≈ P-RNAV), RNP-RNAV

TOPIC NAVB 7 DEVELOPMENTS IN NAVIGATION

Subtopic NAVB 7.1 Future developments

BASIC State Be aware of new future NAVB developments in navigation.

PBN, etc.

0->1

7.1.1

6.3.1

Subject 6 : AIRCRAFT

The general 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 Apply the units of measurement

appropriate to aircraft and principles of ACFTB

flight. 1.1.1

Subtopic ACFTB 1.2 Aviation and aircraft

BASIC Explain the relevance of theory of flight and

ACFTB aircraft characteristics in ATS operations.

1.2.1

TOPIC ACFTB 2 PRINCIPLES OF FLIGHT

Subtopic ACFTB 2.1 Forces acting on aircraft

Explain the forces acting on an aircraft in BASIC

flight and their interaction. ACFTB

Optional content: during climb,

2.1.1

descent, turn Induced drag

BASIC Explain causes and effects of wake

ACFTB turbulence.

2

3

2

2.1.2

Subtopic ACFTB 2.2 Structural components and control of an aircraft

BASIC Describe List the main structural Rotary and fixed wing, tail plane, ACFTB components of an aircraft. 1->2 fuselage, flap, aileron, elevator, rudder, landing gear

2.2.1

Explain how the pilot controls the movements of an aircraft.

Optional content: rudder, aileron,

elevator, throttle, rotary wing controls

Lift, thrust, drag, weight during level

ACFTB 2.2.2

BASIC Explain the factors affecting aircraft

ACFTB stability.

2

2.2.3

Subtopic ACFTB 2.3 Flight envelope

BASIC Characterise the critical factors which affect ACFTB aircraft performance.

Maximum speeds, minimum and stall speeds, ceiling, critical angle of attack, maximum ROC

2.3.1

TOPIC ACFTB 3 AIRCRAFT CATEGORIES

Subtopic **ACFTB 3.1** Aircraft categories

1

1

1

1

BASIC List the different categories of aircraft.

ACFTB

3.1.1 5.1.1

Optional content: fixed wing, rotary wing, balloon, glider

Subtopic ACFTB 3.2 Wake turbulence categories

BASIC List the wake turbulence categories.

ICAO wake turbulence categories

ICAO Doc 8168

ACFTB

3.2.1

5.2.1

Subtopic ACFTB 3.3 ICAO approach categories

BASIC List the ICAO approach categories.

ACFTB

3.3.1

5.3.1

Subtopic ACFTB 3.4 Environmental categories

ICAO Annex 16 BASIC List ICAO noise classification.

ACFTB

3.4.1

TOPIC ACFTB 4 AIRCRAFT DATA

Subtopic ACFTB 4.1 Recognition

BASIC Recognise the most commonly used

aircraft. ACFTB

4.1.1

4.2.1

7.1.1

ACFTB 4.2 Performance data Subtopic

> BASIC State the ICAO aircraft type designators

and categories for the most commonly used 1 **ACFTB**

aircraft.

7.2.1

BASIC State the standard average performance

data of the most commonly used aircraft. **ACFTB**

ceiling

4.2.2

7.2.2

TOPIC ACFTB 5 AIRCRAFT ENGINES

Subtopic ACFTB 5.1 Piston engines

BASIC Explain the operating principles,

advantages and disadvantages of the piston 2 pitch, number of blades **ACFTB**

turbulence categories

Type designators, approach and wake

Rate of climb/descent, cruising speed,

Piston engines, fixed pitch, variable

engine and propeller. 5.1.1

Subtopic ACFTB 5.2 Jet engines Explain the operating principles, BASIC advantages and disadvantages of the jet **ACFTB** engine. 5.2.1 3.2.1 BASIC List the different types of jet engines. **ACFTB** 1 5.2.2 3.2.2 **Subtopic ACFTB 5.3** Turboprop engines **BASIC** Explain the operating principles, advantages and disadvantages of the **ACFTB** 2 turboprop engine and propeller. 5.3.1 3.3.1 **Subtopic ACFTB 5.4** Aviation fuels BASIC List the most common aviation fuels. **ACFTB** 1 5.4.1 TOPIC **ACFTB 6 AIRCRAFT SYSTEMS AND INSTRUMENTS** Subtopic ACFTB 6.1 Flight instruments **BASIC** Explain the basic operating principles and Altimeter, air speed indicator, vertical interpretation of the information displayed speed indicator, turn and bank **ACFTB** by flight instruments. indicator, artificial horizon, gyrosyn 6.1.1 compass 4.1.1 BASIC Explain the impact of errors and abnormal Optional content: Pitot-static failures, indications of flight instruments on aircraft unreliable gyro source **ACFTB** operations. 6.1.2 4.1.2 **Subtopic ACFTB 6.2** Navigational instruments BASIC Describe the basic on-board operating Optional content: ADF, VOR (TACAN), DME, ILS, MLS, inertial reference principles and interpretation of the **ACFTB** system, satellite-based systems information displayed by navigational 6.2.1 instruments/systems. 4.2.1 **Subtopic ACFTB 6.3** Engine instruments BASIC List the vital engine monitoring parameters Optional content: oil pressure and temperature, engine temperature, and their associated instruments. **ACFTB** rpm, fuel state and flow 6.3.1 4.3.1

Subtopic

ACFTB 6.4 Aircraft systems

BASIC Explain the use of the most common SSR transponder, GPWS, EFIS, flight ACFTB aircraft systems. director, autopilot, FMS, ice protection systems 6.4.1 Optional content: SSR transponder, 4.4.1 ADS capability, head up display, wind shear indicator, weather radar, GPWS, EFIS, Flight director, autopilot, FMS, hydraulic system, electrical system, environmental system BASIC Explain the impact of degradation/failure of Engine failure the most common aircraft systems on ACFTB Optional content: hydraulic failure, aircraft operations. electrical failure, environmental 6.4.2 system failure, degradation of aircraft 4.4.2 position source data

TOPIC ACFTB 7 FACTORS AFFECTING AIRCRAFT PERFORMANCE

Subtopic ACFTB 7.1 Take-off factors

BASIC Explain the factors affecting aircraft during ACFTB take-off.

7.1.1

6.1.1

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

Subtopic ACFTB 7.2 Climb factors

BASIC Explain the factors affecting aircraft during ACFTB climb.

Speed, mass, wind, temperature, cabin pressurisation, air density

7.2.1 6.2.1

Subtopic ACFTB 7.3 Cruise factors

BASIC Explain the factors affecting aircraft during ACFTB cruise.

Level, cruising speed, wind, mass, cabin pressurisation

7.3.1 6.3.1

Subtopic ACFTB 7.4 Descent and initial approach factors

BASIC Explain the factors affecting aircraft during ACFTB descent.

Wind, speed, rate of descent, aircraft configuration, cabin pressurisation

7.4.1 6.4.1

BASIC Explain the factors affecting an aircraft in a ACFTB holding pattern.

Speed, level, turbulence, icing

2

7.4.2

Subtopic ACFTB 7.5 Final approach and landing factors

BASIC Explain the factors affecting aircraft during ACFTB final approach and landing.

Aircraft configuration, mass, wind, wind shear, aerodrome elevation, runway conditions, runway slope,

7.5.1 6.5.1

Subtopic ACFTB 7.6 Economic factors

BASIC Explain the economic consequences of ATC ACFTB changes on the flight profile of an aircraft.

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

7.6.1 6.6.1

Subtopic ACFTB 7.7 Ecological Environmental factors

BASIC Explain performance restrictions due to ACFTB ecological environmental constraints.

Optional content: continuous descent operation (CDO), fuel dumping, noise abatement procedures, minimum flight levels

7.7.1

6.7.1

Subtopic ACFTB 7.8 Miscellaneous factors

BASIC Explain special operational requirements
ACFTB which affect aircraft performance.

Optional content: Military flying, calibration flights, aerial photography

6.8.1

6.8.1

2.1.1 PENB

Subject 7 : HUMAN FACTORS

The general subject objective is:

Learners shall characterise factors which affect personal and team performance.

TOPIC HUMB 1 INTRODUCTION TO HUMAN FACTORS

Subtopic HU	MB 1.1 Introduction Learning technique	es	
BASIC HUMB 1.1.1	List the topics that will be covered in the course:	1	Introduction to human factors, human performance, human error, communication, work environment
BASIC HUMB 1.1.1 1.1.3	Appreciate appropriate learning techniques.	3	How the influence of interactive techniques can lead to improved learning
BASIC HUMB 1.1.2	List the reference documents used.	1	Optional content: ICAO Human Factors Training Manual, EATCHIP/EATMP publications, Air Traffic Control-Human Performance Factors, (Anne Isaac 1999), Human Factors in Air Traffic Control, (V. David Hopkin 1995)

Subtopic HUMB 1.2 Why Relevance of human factors for ATC

BASIC Explain the relevance and importance of HUMB why human factors. is a subject in this course.

Historical background, safety impact on ATM, licensing requirements, incidents

Subtopic HUMB 1.3 Human factors and ATC

1.3.4

1.2.4

BASIC HUMB 1.3.1 1.2.2	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. use and benefits of the SHELL model.	2	Optional content: ICAO Human Factors Training Manual, visits to the simulator and operational roo, SHELL model, PEAR model
1.2.7			
BASIC	Explain the concept of systems.		People, procedures, equipment
HUMB		2	
1.3.3			
1.2.3			
BASIC	Explain ATM in systems terms.		
HUMB		2	

BASIC HUMB 1.3.5 1.2.5	Explain Recognise the consequences of a systems failure in ATS.	1->2	2
BASIC HUMB 1.3.7 1.2.8	Explain the information requirement of ATC.	2	Relevant, timely, accurate
BASIC HUMB 1.3.8 1.2.9	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 1.2.10	Explain Recognise the importance of situational awareness for decision making.	1->2	2

TOPIC HOM	2 HOMANTERIORIANCE		
Subtopic HU	JMB 2.1 Individual behaviour		
BASIC HUMB 2.1.1	Explain the differences and commonalities that exist between 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 HU	JMB 2.2 Safety culture and professional	con	duct
BASIC HUMB 2.2.1	Characterise the role of air traffic controller for positive safety culture.	2	
			Optional content: adherence to rules

BASIC HUMB 2.2.3 2.2.2	Appreciate Describe the needed basic professional attitudes appropriate to respond to a high level of safety.	2->3	Optional content: punctuality, rigour, adherence to rules, teamwork attitude
BASIC HUMB 2.2.4 2.2.3	Describe Recognise the impact of responsibility on controllers action(s).	1->2	Responsibility as a guidance for appropriate action
BASIC HUMB 2.2.5 2.2.4	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 HU	MB 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 HU	MB 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 Describe the principles of teamwork.	2->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.	2	
Subtopic HU	MB 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 HU	MB 2.6 Stress		

BASIC D			
2	Define stress.		Stress definition
HUMB		1	Optional content: EATCHIP Human Factors Module - Stress
2.6.1			ractors module - Stress
BASIC D	Describe Recognise stress symptoms and		Behavioural changes, lifestyle changes,
	ources.	1->2	physical symptoms, crisis events, main
2.6.2			causes of stress
			Optional content: EATCHIP Human Factors Module - Stress
BASIC D	Describe the stages of stress.		Stress performance curve
HUMB		2	Optional content: EATCHIP Human
2.6.3			Factors Module - Stress
BASIC A	Appreciate Describe techniques for stress		Optional content: relaxation
	nanagement.	2->3	techniques, diet and lifestyle, exercise, EATCHIP Human Factors Module -
2.6.4			Stress
TOPIC HUMB	3 HUMAN ERROR		
	B 3.1 Introduction Dangers of error		
-	Recognise the dangers of error in ATC.		Optional content: Air Traffic Control-
HUMB	decognise the dangers of error in Are.	1	Human Performance Factors, (Anne
		1	Isaac 1999), Human Factors in Air Traffic Control, (V. David Hopkin 1995)
3.1.1			Tranic Control, (v. David Hopkiii 1993)
Subtopic HUM	B 3.2 Definition of human error		
BASIC D	Define human error.		
HUMB		1	
3.2.1			
BASIC D	Describe the factors which contribute help		Fatigue, lack of skill,
	o cause error.	2	misunderstanding, multitasking, lack of
3.2.2		۷	information, distraction, lack of work
3.2.2			satisfaction
			Optional content: fatigue, lack of skill,
			misunderstanding, lack of information, distraction, lack of work satisfaction
Subtopic HUM	B 3.3 Classification of human error		
BASIC S	State the types of errors.		Optional content: slips, lapses,
HUMB		1	mistakes
3.3.1			
BASIC D	Define violations.		
HUMB		1	
3.3.2		-	
DACIC F	Nifferentiate between amount and violations		
	Differentiate between errors and violations of rules.	_	
LILIMD O			
HUMB 0 3.3.3		2	

BASIC HUMB	Describe the three levels of performance according to the Rasmussen model.	2	Skill based, knowledge based, rule based
3.3.4			
Subtopic HU	MB 3.4 The Reason model Risk analys	is and	d risk management
BASIC	Describe the Reason model risk analysis		Active failures and latent conditions
HUMB 3.4.1	and risk management of human systems and error.	2	Optional content: Reason model, HFACS (Human Factors Analysis & Classification System) model, Heinrich Theory
BASIC	Apply the Reason principles one risk		Optional content: Herald of Free
HUMB	analysis model on error during a case	3	Enterprise accident
3.4.2	study.		
TOPIC HUM	B 4 COMMUNICATION		
	MB 4.1 Introduction Importance of go		ommunications in ATC
BASIC HUMB	Appreciate Demonstrate the importance of good communications in ATC.		
4.1.1	good communications in Arc.	2->3	3
4.1.1			
Subtopic HU	MB 4.2 The Communication process		
BASIC	Define communication.		
HUMB		1	
4.2.1			
BASIC	Define the communication process.		Optional content: sender, encoder,
HUMB		1	transmitter, signal, interference, reception, decoder, receiver, feedback
4.2.2			reception, decoder, receiver, recuback
Subtopic HU	MB 4.3 Communication modes		
	Describe the factors which affect verbal		Optional content: word choice,
HUMB	communication.	2	intonation, speed, tone, distortion, load, expectation, noise, interruption,
4.3.1			language knowledge (i.e. accent,
			dialect, vocabulary)
BASIC	Describe the factors which affect non-verbal communication.		Optional content: touch, choice, expectation, noise, interruption
HUMB	verbar communication.	2	expectation, noise, interruption
4.3.2			
BASIC	Apply good communication practices.		Speaking and listening
HUMB		3	
4.3.3			
TOPIC HUM	B 5 THE WORK ENVIRONMENT		
Subtopic HU	MB 5.1 Introduction Ergonomics and t		

BASIC	Define ergonomics.	
HUMB		1
5.1.1		
BASIC	Recognise Be aware of the need for good	Optional content: light, insulation,
HUMB	building design.	_{0->1} decor, space, facilities
5.1.2		
BASIC	Explain the need for good work position	Optional content: anthropometry
HUMB	design.	(seating, work station design, input device, etc.)
5.1.3		
Subtopic H	JMB 5.2 Equipment and tools	
BASIC	Characterise the equipment and tools that	The physical environment, visual
HUMB		displays, suites, input devices,
5.2.1	with the SHELL model.	communications equipment, console
		profile and layout
Subtopic HI	JMB 5.3 Automation	profile and layout
Subtopic HI BASIC	JMB 5.3 Automation Explain the reasons for automation.	profile and layout
-		profile and layout
BASIC		
BASIC HUMB	Explain the reasons for automation. Describe the advantages and constraints of	2
BASIC HUMB 5.3.1	Explain the reasons for automation.	2
BASIC HUMB 5.3.1 BASIC	Explain the reasons for automation. Describe the advantages and constraints of	2

Subject 8 : EQUIPMENT AND SYSTEMS

The general subject objective is:

Learners shall : i. explain the basic working principles of equipment that is in general use in ATC ; and ii. appreciate how this equipment aids the controller in providing a safe and efficient ATS.

TOPIC EQPSB 1 GENERAL ATC EQUIPMENT

Subtopic EQPSB 1.1 Main types of ATC equipment

BASIC Explain the relevance of ATC equipment.

Characterise the main items of ATC **EQPSB**

equipment. 1.1.1

CWP, Communication equipment, ATS surveillance systems

Optional content: Communication equipment, VDF/UDF, radars

TOPIC EQPSB 2 RADIO

Subtopic EQPSB 2.1 Radio theory

BASIC State principles of radio waves.

EQPSB

2.1.1

BASIC Describe Recognise the characteristics of

EQPSB radio waves. 1->2

2.1.2

BASIC State the use, characteristics and

EQPSB limitations of frequency bands.

2.1.3

Use in ATC, navigation and communications, use and application in the Aeronautical Mobile Service, HF, VHF, UHF

Propagation, limitations

VDF/UDF, QDM, QDR, QTF

BASIC State the different uses of radio wave

EQPSB spectrum.

2.1.4

Subtopic EQPSB 2.2 Direction finding

BASIC State the principles and use of VDF/UDF.

EQPSB

1

1

1

2.2.1

2.3.1

State the precision of VDF/UDF used in the BASIC

EQPSB State system.

1

2.2.2

2.3.2

TOPIC EQPSB 3 OTHER SYSTEMS AND COMMUNICATIONS EQUIPMENT

Subtopic EQPSB 3.1 Radio communications

BASIC State the use of the radio in ATC. **EQPSB** 1 3.1.1 2.1.1 BASIC Describe the working principles of a EQPSB transmitting and receiving system. 2 3.1.2 2.2.2 BASIC Explain the effect of antenna shadowing on **EOPSB** RTF communications. 2 3.1.3 2.2.3 Subtopic EQPSB 3.2 Voice ATC communications between ATS units/positions BASIC Describe the use of other voice Optional content: telephone, interphone, intercom **EOPSB** communications in ATC. 3.2.1 3.1.1 Subtopic EQPSB 3.3 Data link Air ground communications BASIC Explain State the use and benefits of **EQPSB** controller pilot datalink communications 1->2 (CPDLC). 3.3.1 Subtopic EQPSB 3.4 Airline communications BASIC State the use of SELCAL. **EQPSB** 1 3.4.1 3.2.1 BASIC Explain the use and benefits of Aircraft **EOPSB** Communications Addressing and Reporting System (ACARS). 3.4.2 TOPIC EOPSB 4 INTRODUCTION TO SURVEILLANCE Subtopic EQPSB 4.1 Surveillance concept in ATS BASIC Describe the concept of surveillance for the EQPSB provision of ATS. 2 4.1.1 TOPIC EQPSB 5 RADAR Subtopic EQPSB 5.1 General Principles of radar

BASIC EQPSB 5.1.1 4.1.1	State the principles of radar.	1	
BASIC EQPSB 5.1.2 4.1.2	Recognise the characteristics of radar wave lengths.	1	
BASIC EQPSB 5.1.3 4.1.3	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 EQF	PSB 5.2 Primary radar		
BASIC EQPSB 5.2.1 4.2.1	Explain the working principles of PSR.	2	
Subtopic EQF	PSB 5.3 Secondary radar		
BASIC EQPSB 5.3.1 4.3.1	Explain the working principles of SSR.	2	Mode A, Mode C
BASIC EQPSB 5.3.2 4.3.2	Explain SSR code management	2	Discrete, non-discrete codes, special codes
BASIC EQPSB 5.3.3 4.3.3	Explain the effect of antenna shadowing on SSR operation.	2	
Subtopic EQF	PSB 5.4 Use of radars		
BASIC EQPSB 5.4.1 4.4.1	Explain the use of PSR/SSR in ATC.	2	Area, approach, aerodrome, surface movement radar, DFTI
BASIC EQPSB 4.4.2	Explain the link between PSR/SSR with automated systems.	2	

BASIC Explain the advantages and disadvantages EQPSB of PSR/SSR. 2 5.4.2 4.4.3

Subtopic EQPSB 5.5 Mode S

BASIC Explain State the principles of Mode S.

EQPSB 1->2

5.5.1

4.5.1

BASIC Explain the use of Mode S in ATC systems.

EQPSB 2

5.5.2 4.5.2

TOPIC EQPSB 6 AUTOMATIC DEPENDENT SURVEILLANCE

Subtopic EQPSB 6.1 Principles of automatic dependent surveillance

BASIC State the different applications of ADS. ADS-B, ADS-C

EQPSB 1

6.1.1

BASIC Explain State the working principles of ADS. Satellites, data links

EQPSB 1->2

6.1.2

5.1.1

Subtopic EQPSB 6.2 Use of automatic dependent surveillance

BASIC Describe Explain the use and limitations of Area, approach, aerodrome 2 ICAO Doc 4444

EQPSB ADS in ATC.

6.2.1

5.1.2

BASIC Explain the use and limitations of ADS.

EQPSB

6.2.2

5.1.2

Dependency on GNSS, dependency on airborne equipment

TOPIC EQPSB 7 MULTILATERATION

Subtopic EQPSB 7.1 Principles of multilateration

BASIC State the different applications of MLAT.

EQPSB

7.1.1

Optional content: ATC, environmental management, airport operations, LAM,

Optional content: passive and active

BASIC Explain the working principles of MLAT.

EQPSB

MLAT

7.1.2

BASIC EQPSB	Describe the use of MLAT in ATC.	2	Area, approach, aerodrome
7.2.1		_	
BASIC	Explain the limitations of MLAT.		Dependency on airborne equipment
EQPSB		2	
7.2.2			

Subtopic EQI	SB 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 EQ	pic EQPSB 8.2 Working principles of surveillance data networking		
BASIC EQPSB	Explain the working principles of surveillance data processing.	2	Track fusion process, surveillance information presented on CWP
8.2.1			
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 Future Equipment New developments

BASIC State the Be aware of developments in the equipment field for introduction in the near 0->1 training period future.

2

6.1.1

TOPIC EQPSB 10 AUTOMATION IN ATS

Subtopic EQPSB 10.1 General Principles of automation

BASIC Describe the principles of automation in EQPSB communication and datalinks in ATS.

10.1.1

7.1.1

Subtopic EQPSB 10.2 Aeronautical fixed telecommunication network (AFTN)

BASIC Describe the principles of AFTN. **EQPSB** 2 10.2.1 7.2.1 Subtopic EQPSB 10.3 On-line data interchange Accuracy, speed and safety, non-BASIC Describe Recognise the benefits of 1->2 verbal communications automatic exchange of ATS data in **EQPSB** coordination and transfer processes. 10.3.1 7.3.1 BASIC Describe Recognise the limitations of Non-recognition of a systems failure automatic exchange of ATS data in **EQPSB** 1->2 coordination. 10.3.2 7.3.2 Subtopic EQPSB 10.4 Closed circuit information system BASIC State the principles of CCIS. **EQPSB** 1 10.4.1 7.4.1 BASIC Explain the use of CCIS in ATS. Data carried on CCIS **EQPSB** 2 10.4.2 7.4.2 Subtopic EQPSB 10.4 Systems used for the automatic dissemination of information BASIC State the working principles of broadcasting Optional content: ATIS, VOLMET EQPSB systems. 1 10.4.1 7.5.1 BASIC Explain the use of ATIS and VOLMET in EQPSB ATS. 2 10.4.2 7.5.2 **TOPIC EQPSB 11 WORKING POSITIONS** Subtopic EQPSB 11.1 General Working position equipment BASIC Recognise equipment in a working position. Optional content: FPB, radio, telephone and other communication **EQPSB** equipment, relevant maps and charts, strip printer, teleprinter, clock, 11.1.1 information monitors, radars/ situation 8.1.1 displays Subtopic **EQPSB 11.2** Aerodrome control

1

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

11.2.1 8.2.1 Optional content: wind indicator, aerodrome traffic monitor, DFTI, SMR, crash alarm, signalling lamp, lighting control panel, runway-in-use indicator, binoculars, signalling/flare gun, IRVR and altimeter setting indicators, local information systems CCIS

Subtopic EQPSB 11.3 Approach control

BASIC Recognise equipment to be found

EQPSB specifically in an APP.

11.3.1 8.3.1 Optional content: sequencing system, PAR, RVR indicators

Subtopic EQPSB 11.4 Area control

BASIC Recognise equipment to be found EQPSB specifically in an ACC.

11.4.1

8.4.1

Subject 9 : PROFESSIONAL ENVIRONMENT

The general 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 P	ENB 1.1 Familiarisation ATS and aerodr	ome	facilities
BASIC PENB 1.1.1	,	1	Optional content: TWR, APP, ACC, AIS, RCC, Radar, Air Defence Unit
BASIC PENB 1.1.2	, , , , , , , , , , , , , , , , , , ,	1	Optional content: fire and emergency services, airline operations office

TOPIC PENB 2 AIRSPACE USERS

BASIC	Describe Name airspace requirements	Optional content: commercial flying,
PENB	usage for by civil aircraft.	1->2 recreational flying, gliders, balloons, calibration flights, aerial photography,
2.1.1		parachute dropping, UASs

Subtopic PENB 2.2 Military aviation

BASIC	Describe Name airspace requirements for	Airspace reservations, training,
PENB	usage by the military aircraft.	_{1->2} interception, in-flight refuelling, UASs
2.2.1		Optional content: low-level flying, in- flight refuelling, test flights, special military operations

Subtopic PENB 2.3 **Expectations and requirements of pilots**

Recognise Be aware of the expectations and requirements of pilots.	0->1	
State the use of standard operating procedures (SOPs) by aircraft operators.	1	

TOPIC PENB 3 CUSTOMER RELATIONS

TOPIC PEN	5 CUSTOMER RELATIONS	
Subtopic PE	NB 3.1 Customer relations	
BASIC	State the role of ATC as a service provider.	
PENB		1
3.1.1		
BASIC	Recognise the means by which ATC is	
PENB	funded.	1
3.1.2		

PENB 4 ENVIRONMENTAL PROTECTION **TOPIC Subtopic PENB 4.1** Environmental protection BASIC Recognise the importance of environmental Air, water, noise PENB protection. 1 4.1.1 BASIC Describe the impact aviation has on the Noise, air quality, climate change, environment. third-party risks **PENB** 4.1.1 BASIC Explain the role of ATC in the concept of Optional content: ICAO Annex 16 sustainable development. **PENB** 2 4.1.2 BASIC State how to measure, monitor and Optional content: EU ETS, SES initiative, EUROCONTROL role, continuous descent operations (CDO), mitigate the impact aviation has on the PENB environment. 4.1.3 collaborative environmental management (CEM)

AMC1 to Appendix 3 of ANNEX I — PART-ATCO

Aerodrome Control Visual Rating (ADV)

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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

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Subject 1: INTRODUCTION TO THE COURSE

The general subject objective is:

Learners shall know and understand the training programme that they will follow and learn how to obtain the appropriate information.

INTR 1 CC	DURSE MANAGEMENT			•
INTR 1.1 C	Course introduction			
ADV INTR 1.1.1	Explain the aims and main objectives of the course.	2		AL
INTR 1.2 C	Course administration			
ADV INTR 1.2.1	State course administration.	1		A
INTR 1.3 S	Study material and training documentati	on		
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	Α
ADV	Integrate appropriate information into		Training documentation	Α
INTR 1.3.2	course studies.	4	Optional content: Training documentation , supplementary information, library	_
INTR 2 IN	TRODUCTION TO THE ATC TRAINING C	OUF	RSE	-
INTR 2.1 C	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	A
ADV INTR 2.1.2	State the subjects of the course and their purpose.	1		Α
ADV INTR 2.1.3	Describe the organisation of theoretical training.	2	Optional content: course programme	Α
ADV INTR 2.1.4	Describe the organisation of practical training.	2	Optional content: PTP, simulation, briefing, debriefing, course programme	Α
INTR 2.2 1	Fraining ethos			Ì
ADV INTR 2.2.1	Recognise the feedback mechanisms available.	1	Training progress, assessment, briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	A
INTR 2.3 T	Fhe Assessment process			
ADV INTR 2.3.1	Describe the assessment process.	2		Al

Subject 2: AVIATION LAW

The general subject objective is:

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

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE				
LAW 1.1 Pi	rivileges and conditions			
ADV LAW 1.1.1	Appreciate the conditions which must shall be met to for the issue an of Aerodrome Control Visual rating.	3	EU Community air traffic controller licence Directive, ESARR5 Regulation (EU) 2015/340 on ATCO Licences, rating, valid rating	ADV
			Optional content: National documents , European Manual of Personnel Licensing - Air Traffic Controllers	
ADV LAW 1.1.2 6.1.1 HUM	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
ADV LAW 1.1.3 1.1.2	Explain the conditions for suspension/revocation of ATCO licence.	2	Incident/Accident, Competence in doubt, Medical, Regulation (EU) 2015/340 on ATCO Licences	ALL
LAW 2 RULES AND REGULATIONS				
LAW 2.1 Reports				

LAW 2.1 Reports				
ADV	List the standard forms for reports.		Air traffic incident report	ALL
LAW 2.1.1		1	Optional content: routine air reports, breach of regulations, watch/log book, records	_
ADV LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	ESARR 2, Reporting culture, air traffic incident report	ALL
			Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2	
ADV LAW 2.1.3	Use forms for reporting.	3	Regulation (EU) No 376/2014, air traffic incident reporting form(s)	ALL
			Optional content: ICAO Doc 4444 Appendix 4 , routine air reports, breach of regulations, watch/log book, records	

LAW 2.2.1 airspace and their relevance to Aerodrome Control Visual rating	LAW 2.2	Airspace		
operations.		airspace and their relevance to	3	AD

ADV LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	Optional content: Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, international requirements, civil requirements, military requirements, areas of responsibility, sectorization, national requirements	ALL
ADV LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL
LAW 3 ATO	C SAFETY MANAGEMENT			_
LAW 3.1 Ex	xperience Feedback process			
ADV LAW 3.1.1 10.1.1 HUM	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	ALL
ADV LAW 3.1.2 10.1.2 HUM	Describe how reported occurrences are analysed.	2	Optional content: ESARR 2, local procedures	ALL
ADV LAW 3.1.3 10.1.3 HUM	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety boards web pages	ALL
ADV	Appreciate Explain the 'Just Culture'		Benefits, prerequisites, constraints	ALL
10.1.4 HUM	concept.	2->3	Optional content: EAM 2 GUI 6, GAIN Report	_
LAW 3.2 Sa	afety Investigation Branch			
ADV LAW 3.2.1 10.2.1 HUM	Describe role and mission of Safety Investigation Branch in the improvemen of safety.	t 2		ALL
ADV LAW 3.2.2 10.2.2 HUM	Define working methods of Safety Investigation Branch.	1		ALL

Subject 3: AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

ATM 1	PROVISION OF SERVICES AIR TRAFFIC SERVICES AND AIRSPACE MANAGEMENT

ATM 1.1 A	erodrome control service			
ADV ATM 1.1.1 1.1.2	Appreciate areas of responsibility.	3	Control zone, traffic circuit, manoeuvring area, movement area, vicinity	
			Optional content: ATZ	
ADV ATM 1.1.1	Describe specific areas of responsibility of aerodrome control.	2	ICAO Annex 11	
ADV ATM 1.1.2 1.1.3	Provide the appropriate aerodrome control service.	4	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 7030, ICAO Doc 4444, operation manuals	
ATM 1.2 F	light information service (FIS)			Ī
ADV ATM 1.2.1	Describe the information that shall be passed to aircraft by an aerodrome controller.	2	ICAO Doc 4444 ICAO Annex 11	
ADV	Provide FIS.		ICAO Doc 4444	
ATM 1.2.2		4	Optional content: national documents	
ADV ATM 1.2.3	Issue appropriate traffic information.	3	ICAO Doc 4444, essential local traffic, traffic information	
ADV ATM 1.2.4	Appreciate the use of ATIS for the provision of flight information service by aerodrome controller.	3		_
ATM 1.3 A	lerting service (ALRS)			Ì
ADV	Provide ALRS.		ICAO Doc 4444	
ATM 1.3.1		4	Optional content: national documents	
ADV ATM 1.3.2	Respond to distress and urgency messages and signals.	3	Regulation (EU) No 923/2012, ICAO Annex 10, ICAO Doc 4444,	
			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	

ADV Appreciate principles of ATFCM ATS Optional content: EUROCONTROL ATFCM Users Manual Working principles of ATFCM, CFMU, Slot management, Slot **ATM** 1.4.1 system capacity and air traffic flow management. allocation procedures

ADV

ADI

ADV ATM 1.4.2 Inform appropriate authority. ATM 1.4.3 Inform appropriate authority. ATM 2.1 Effective communication ADV ATM 2.1.1 Use approved phraseology. ATM 2.1.1 Use approved phraseology. ADV ATM 2.1.2 Ensure effective Perform communication in containing of the communication					
ATM 1.4.3 3 decrease in sector capacity, limitations on systems and equipment, changes in workloadicapacity, unusual meteorological conditions, relevant information: reported ground-based incidents, forest fire, smoke, oil pollution ATM 2.1 Effective communication ADV		•	4	Optional content: departure sequence	
ATM 2.1 Effective communication ADV		Inform appropriate authority.	3	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,	
ADV ATM 2.1.1 ADV Ensure effective Perform communication. effectively: ADV ATM 2.1.2 ADV Analyse examples of pilot and controller communication for effectiveness: ADV Analyse examples of pilot and controller communication for effectiveness: ADV Analyse examples of pilot and controller communication for effectiveness: ADV Assure examples of pilot and controller communication for effectiveness: ADV Assure examples of pilot and controller communication for effectiveness: ADV Issue appropriate ATC clearances. ADV Integrate appropriate ATC clearances in control service. ADV Ensure the agreed course of action is carried out. ADV Issue appropriate ATC instructions. ADV Issue appropriate ATC instructions. ADV Issue appropriate ATC instructions. ADV Integrate appropriate ATC instructions in control service. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ADV Ensure the agreed course of action is carried out. ATM 4.1 Necessity for coordination ADV Identify the need for coordination.	ATM 2 CO	MMUNICATION			-
ATM 2.1.1 3 Optional content: ICAO Doc 9432 RTF manual, standard words and phrasses as contained in ICAO Annex 10 Vol. 2 ADV Ensure effective Perform communication. effectively: 3->4 readback/verification of readback ADV Analyse examples of pilot and controller communication for effectiveness: 4 6.1.2 HUM ATM 3 ATC CLEARANCES AND ATC INSTRUCTIONS ATM 3.1 ATC clearances ADV Integrate appropriate ATC clearances in control service. 4 ADV Ensure the agreed course of action is ATM 3.1.3 carried out. 4 ATM 3.2 ATC instructions ADV Integrate appropriate ATC instructions. 4 ATM 3.2.1 Scarried out. 4 ATM 3.2.2 Control service. 4 ADV Ensure the agreed course of action is carried out. 4 ATM 3.2.1 Service appropriate ATC instructions in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in control service. 4 ADV Ensure the agreed course of action is action in the first word action in the first w	ATM 2.1 E	ffective communication			
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ATM 3 ATC CLEARANCES AND ATC INSTRUCTIONS ATM 3.1 ATC clearances ADV		Analyse examples of pilot and controller			ALL
ATM 3.1 ATC CLEARANCES AND ATC INSTRUCTIONS ATM 3.1 ATC clearances ADV		communication for effectiveness.	4		
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ATM 3.2.1 3 Optional content: national documents ADV Integrate appropriate ATC instructions in ATM 3.2.2 control service. 4 ADV Ensure the agreed course of action is ATM 3.2.3 carried out. 4 ATM 4 COORDINATION ATM 4.1 Necessity for coordination ADV Identify the need for coordination. ALL	ATM 3.2 A	TC instructions			
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ATM 3.2.2 control service. ADV Ensure the agreed course of action is ATM 3.2.3 carried out. ATM 4 COORDINATION ATM 4.1 Necessity for coordination ADV Identify the need for coordination. ALL	ATM 3.2.1		3	Optional content: national documents	
ATM 3.2.2 control service. ADV Ensure the agreed course of action is ATM 3.2.3 carried out. ATM 4 COORDINATION ATM 4.1 Necessity for coordination ADV Identify the need for coordination. ATM 4.1 1	ADV	Integrate appropriate ATC instructions in			- ALL
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ATM 4 COORDINATION ATM 4.1 Necessity for coordination ADV Identify the need for coordination. ATM 4.1 1	ADV	Ensure the agreed course of action is			- ALI
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ADV Identify the need for coordination. ALL	ATM 4 CO	ORDINATION			_
ATM 4.1.1	ATM 4.1 N	lecessity for coordination			
A I M 4.1.1 3		Identify the need for coordination.			ALL
	A I M 4.1.1		3		_

ADV	Use the available tools for coordination.		Optional content: electronic transfer of	
ATM 4.2.1		3	flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination	
ATM 4.3 C	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	
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.	
ADV ATM 4.3.3	Select, after negotiation, an appropriate course of action.	5	When additional traffic cannot be accepted by adjacent position/unit, When additional traffic cannot be accepted by own position/unit, etc.	
ADV ATM 4.3.4	Ensure the agreed course of action is carried out.	4		_
ADV ATM 4.3.5	Coordinate in the provision of FIS.	4	ICAO Doc 4444	
ADV ATM 4.3.6	Coordinate in the provision of ALRS.	4	ICAO Doc 4444	
ATM 5 AL	TIMETRY AND LEVEL ALLOCATION			-
ATM 5.1 A	Altimetry			
ADV ATM 5.1.1	Allocate levels (height, altitude, flight level) according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	
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	_
ATM 6 SE	PARATIONS			-
ATM 6.1 S	Separation between departing aircraft			
ADV ATM 6.1.1	Provide separation between departing aircraft.	4	ICAO Doc 4444	

ADV	Provide separation of landing aircraft		ICAO Doc 4444	ADV
ATM 6.2.1	and preceding landing or departing	4		ADI
	aircraft.			-
ATM 6.3 T	ime-based wake turbulence longitudina	l sep	paration	
ADV	Provide time-based wake turbulence		ICAO Doc 4444	ADV
ATM 6.3.1	longitudinal separation.	4		ADI
ATM 6.4 R	Reduced separation minima			
ADV	Provide reduced separation minima.		ICAO Doc 4444	ADV
ATM 6.4.1		4		ADI
ATM 7 All	RBORNE COLLISION AVOIDANCE SYST	FMS	S AND GROUND-BASED SAFETY	•
	TS			
ATM 7.1 A	Airborne collision avoidance systems			
ADV	Differentiate between ACAS advisory		ICAO Doc 9863	ADV
ATM 7.1.1 7.1.6 B	thresholds and ATC aerodrome	2		ADI
	separation standards.			
ADV ATM 7.1.2	Describe the controller responsibility		ICAO Doc 4444	ALL
7.1.4 B	during and following an ACAS RA reported by pilot.	2		
ADV	Respond to pilot notification of actions		ACAS, GPWS TAWS	
ATM 7.1.3	based on airborne systems warnings.	3	Optional content: EUROCONTROL ACAS	ALL
7.1.1	,		web page	
ATM 7.2 G	Ground-based safety nets			
ADV	Respond to available ground-based		Optional content: anti-incursion	ADV
ATM 7.2.1	safety nets warnings.	3	,	ADI
ATM 8 DA	ATA DISPLAY			•
ATM 8.1 D	Data management			
ADV	Update the data display to accurately		Optional content: information displayed,	ALL
ATM 8.1.1	reflect the traffic situation.	3	strip marking procedures, electronic	
			information data displays, actions based on traffic display information, calculation of	
			EETs	
ADV ATM 8.1.2	Analyse pertinent data on data displays.			ALL
ATIVI 0.1.2		4		
ADV	Organise pertinent data on data			ALL
ATM 8.1.3	displays.	4		
ADV	Process pertinent data on data displays.			ALL
ATM 8.1.4		3		
ADV	Obtain flight plan information.		CPL, FPL, supplementary information	ALL
ATM 8.1.4	.	3	Optional content: RPL, AFIL, etc.	
8.1.5				

ADV ATM 8.1.5 8.1.6	Use flight plan information.	3		ALL
ATM 9 OP	ERATIONAL ENVIRONMENT (SIMULAT	ED)		
ATM 9.1 In	tegrity 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
ATM 9.2 V	erification of the currency of operationa	ıl pr	ocedures	
ADV ATM 9.2.1	Check all relevant documentation before managing traffic.	3	Optional content: briefing, LOAs, NOTAM, AICs	ALL
ATM 9.3 H	andover-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
ATM 10 PR	OVISION OF AN AERODROME CONTRO	DL S	ERVICE	-
ATM 10.1 G	eneral Responsibility for the provision			
ADV ATM 10.1.1	Explain the responsibility for the provision of an aerodrome control service.	2	ICAO Doc 4444, ICAO Annex 11	ADV ADI
ADV ATM 10.1.2	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ADV	Describe the responsibility in regard to		ICAO Doc 4444	ALL
ATM 10.1.3	military traffic.	2	Optional content: ICAO Doc 9554	
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 3.5.1 ACFT	Appreciate the influence of operational requirements.	3	Optional content: military flying, calibration flights, aerial photography	ALL
ATM 10.2 F	unctions 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

ATM 10.3 To	raffic management process			
ADV ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, observation, traffic projection	AD\ 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		AD\ ADI
ADV ATM 10.3.4	Evaluate possible outcomes of different control actions.	5		AD\ ADI
ADV ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective flow of aerodrome traffic.	5		AD\ ADI
ADV ATM 10.3.6 10.5.4	Ensure an adequate priority of actions.	4	Formal and situational requirements, Workload	ALL
ADV ATM 10.3.7	Execute plan in a timely manner.	3		AD\ ADI
ADV ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALI
ATM 10.4 A	eronautical ground lights			
ADV ATM 10.4.1 10.3.1	Select appropriate aeronautical ground lights.	5	ICAO Doc 4444	AD' ADI
ATM 10.5 In	formation to aircraft by aerodrome con	trol	tower	
ADV ATM 10.5.1 10.4.1	Provide information related to the operation of aircraft.	4	ICAO Doc 4444	AD\ ADI
ADV ATM 10.5.2 10.4.2	Provide information on aerodrome conditions.	4	ICAO Doc 4444	AD\ ADI
ATM 10.6 C	ontrol of aerodrome traffic			
ADV ATM 10.6.1 10.5.1	Predict positions of aircraft in the aerodrome traffic and taxi circuits.	4	ICAO Doc 4444	AD\ ADI
ADV ATM 10.6.2 10.5.2	Manage traffic on the manoeuvring area.	4	ICAO Doc 4444, aircraft, vehicles Optional content: runway inspection	AD' ADI

ADV ATM 10.6.3 10.5.3	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
ADV ATM 10.5.4	Ensure an adequate priority of actions.	4	Formal and situational requirements, Workload	ADV ADI
10.3.6				-
ATM 10.7 C	ontrol of traffic in the traffic circuit			
ADV ATM 10.7.1 10.6.1	Manage traffic in the traffic circuit.	4	ICAO Doc 4444, meteorological phenomena, geographical knowledge, environmental factors	ADV ADI
ADV ATM 10.7.2 10.6.2	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 10.6.3	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 10.6.4	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 10.6.5	Integrate information about meteorological phenomena into the control of aerodrome traffic.	4	Optional content: clouds, precipitation, visibility, wind, meteorological hazards	ADV ADI
ADV	Integrate the information provided by		Use, advantages, disadvantages	ADV
ATM 10.7.6 10.6.6	situation displays.	4		ADI
ADV ATM 10.7.7	Initiate missed approach.	3	Optional content: obstructed runway	ADV ADI
ATM 10.8 R	unway in use			
ADV ATM 10.8.1 10.7.1	Select the runway in use.	5	ICAO Doc 4444	ADV ADI
ADV ATM 10.8.2 10.7.2	Coordinate runway in use.	4	Optional content: approach control, area control, runway selection, change of runway	ADV ADI
ADV ATM 10.8.3 10.7.3	Manage traffic in the event of runway-inuse change.	4		ADV ADI

Subject 4: METEOROLOGY

The general subject objective is:

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

MET 1 ME	TEOROLOGICAL PHENOMENA			-
MET 1.1 N	leteorological 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 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		AD\ 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
MET 2 SO	URCES OF METEOROLOGICAL DATA			-
MET 2.1 N	leteorological instruments			
ADV MET 2.1.1	Extract information from meteorological instruments.	3	Optional content: anemometer, RVR indicator, cloud base indicator, ceilometer, barometer	AD\ ADI
MET 2.2 C	Other sources of meteorological data			
ADV MET 2.2.1	Decode information from-meteorological data displays.	3		AD\ ADI
ADV MET 2.2.2	Use appropriate communication tools and networks to obtain meteorological data.	3		AD\ ADI
ADV MET 2.2.3	Relay meteorological information. from pilot reports.	3	ICAO Doc 4444 Optional content: flight information centre, adjacent ATS unit	ALL

Subject 5: NAVIGATION

The general subject objective is:

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

NAV 1 MA	APS AND AERONAUTICAL CHARTS			•
NAV 1.1 N	laps and charts			
ADV NAV 1.1.1	Decode symbols and information displayed on aeronautical maps and charts.	3	Visual approach/departure charts, Instrument approach charts, aerodrome charts	AD
			Optional content: military maps and charts	
ADV NAV 1.1.2	Use relevant maps and charts.	3	Visual approach/departure charts, aerodrome charts	AD
			Optional content: military maps and charts	
NAV 2 IN	STRUMENT <mark>AL</mark> NAVIGATION			•
NAV 2.1 N	lavigational systems			
ADV NAV 2.1.1	Describe the possible operational status of navigational systems.	2	Optional content: NDB, VOR, DME	AD
ADV NAV 2.1.2	Decode operational status displays of navigational systems.	3	Optional content: NDB, VOR, DME	AD'
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	ALI
ADV 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	AD
NAV 2.2 S	Stabilised approach			
ADV	Describe the concept of stabilised		ICAO Doc 8168	ΑD
NAV 2.2.1	approach.	2	Optional content: SKYbrary, Regulation (EC) No 1899/2006	AD API AP:
ADV NAV 2.2.2	Appreciate the effect of late change of runway-in-use for landing aircraft.	3		AD'

Subject 6 : AIRCRAFT

The general subject objective is:

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

ACFT 1 All	RCRAFT INSTRUMENTS			•
ACFT 1.1 A	Aircraft instruments			
ADV ACFT 1.1.1	Integrate the information indication from aircraft instruments provided by the pilot in the provision of ATS.	4	Optional content: TCAS, wind shear indicator, weather radar	AL
ADV ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios, SELCAL	AL
ADV ACFT 1.1.3	Explain the operation of transponder equipment.	2	Transponders: equipment Mode A, Mode C, Mode S	AP AC
ADV ACFT 1.1.4	Explain the use and benefits of CPDLC.	2		AL
ACFT 2 All	RCRAFT CATEGORIES			-
ACFT 2.1 V	Vake turbulence categories			
ADV ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		AL
ADV ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		AL
ACFT 3 FA	CTORS AFFECTING AIRCRAFT PERFO	RM/	ANCE	-
ACFT 3.1 T	ake-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	AE AE
ACFT 3.2 C	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	AC AC
ACFT 3.3 F	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	AC AC
ACFT 3.4 E	Economic factors			

ADV ACFT 3.4.1	Integrate consideration of economic factors affecting aircraft.	4	Optional content: starting-up, taxiing, routing, departure sequence	ADV ADI
ACFT 3.5	liscellaneous factors			
ADV ACFT 3.5.1	Appreciate the influence of operational requirements.	3	Optional content: Military flying, Calibration flights, Aerial photography, banner towing	ADV ADI
10.1.5 ATM				-
ACFT 3.5 E	cological Environmental factors			
ADV ACFT 3.5.1 3.6.1	Appreciate the performance restrictions due to environmental constraints. Estimate the influence of ecological factors affecting aircraft.	3	Optional content: noise abatement procedures, minimum flight altitudes, bird hazard	ADV ADI
ACFT 4 AIF	RCRAFT DATA			-
ACFT 4.1 R	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
			Optional content: ICAO Approach Categories	
ACFT 4.2 P	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
ADV ACFT 4.2.2	Identify potential or actual emergency situations.	3		ADV ADI
1.1.2 ABES				_

Subject 7: HUMAN FACTORS

The general subject objective is:

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

HUM 1.1 C	Cognitive			
ADV HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	,
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	
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	
_	EDICAL AND PHYSIOLOGICAL FACTOR	S		
	atigue			
ADV HUM 2.1.1	State factors that cause fatigue.		Shift work	,
110W 2.1.1		1	Optional content: night shifts and rosters	_
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	,
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	_
ADV HUM 2.1.4	Recognise the onset of fatigue in others.			
HUW 2.1.4		1		_
ADV HUM 2.1.5	Describe Consider appropriate action when recognising fatigue.	2		,
HUM 2.2 F	itness			
ADV HUM 2.2.1	Recognise signs of lack of personal fitness.	1		
ADV HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		-

HUM 3 SOCIAL AND ORGANISATIONAL FACTORS

HUM 3.1 Team resource management (TRM)

ADV HUM 3.1.1	State the relevance objectives of TRM.	1	Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training	ALI
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	AL
HUM 3.2 T	eamwork and team roles			
ADV HUM 3.2.1	Identify reasons for conflict.	3		AL
ADV HUM 3.2.2	Describe actions to prevent human conflicts.	2	Optional content: TRM team roles	AL
ADV HUM 3.2.3	Describe strategies to cope with human conflicts.	2	Optional content: in your team, in the simulator	AL
HUM 3.3 R	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	AL
			judinidation, moral motivation, personality	
ADV HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	AL
HUM 3.3.2	Apply responsible judgement.	3	Case study and discussion about a	AL
HUM 3.3.2		3	Case study and discussion about a	AL
HUM 3.3.2	RESS	3	Case study and discussion about a	<u>.</u>
HUM 3.3.2 HUM 4 ST HUM 4.1 S ADV HUM 4.1.1	RESS Stress Recognise the effects of stress on		Case study and discussion about a dilemma situation Stress and its symptoms in self and in	<u>.</u>
HUM 3.3.2 HUM 4 ST HUM 4.1 S ADV HUM 4.1.1	RESS Stress Recognise the effects of stress on performance.		Case study and discussion about a dilemma situation Stress and its symptoms in self and in	AL
HUM 3.3.2 HUM 4.1 S ADV HUM 4.1.1 HUM 4.2 S ADV	RESS Stress Recognise the effects of stress on performance. Stress management	3	Case study and discussion about a dilemma situation Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress	AL
HUM 4.3.3.2 HUM 4.1 S ADV HUM 4.1.1 HUM 4.2 S ADV HUM 4.2.1	RESS Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance.	3	Case study and discussion about a dilemma situation Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful	AL AL
HUM 3.3.2 HUM 4.1 S ADV HUM 4.1.1 HUM 4.2 S ADV HUM 4.2.1 ADV HUM 4.2.2	RESS Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance. Obtain assistance in stressful situations. Recognise the effect of shocking and	3	Case study and discussion about a dilemma situation Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful situations Self and others, abnormal situations,	AL AL AL

HUM 5 HUMAN ERROR

HUM 5.1 H	luman error			
ADV HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, pro- active versus reactive approach to discovery of error	AL
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
ADV	Differentiate between the types of error.		Slips, lapses, mistakes	Al
HUM 5.1.2		2	Optional content: Slips, Lapses, Mistakes ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
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	Al
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	Al
ADV HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy	Al
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
ADV	Execute corrective actions.		Error compensation	ALL
HUM 5.1.6		3	Optional content: ICAO Circular 314 – AN/178 Threat and Error 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	Al
ADV HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	Optional content: reporting, SMS, investigation, CISM	A
HUM 5.2 V	iolation 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	Al
HUM 6 WC	ORKING METHODS			-
HUM 6.1 E	fficiency			
ADV HUM 6.1.1	Consider, from a human factors point of view, the factors affecting efficiency in the provision of air traffic control.	2	Optional content: Own and others workload, OJT, customer requirements, economy, ecology, safety	Al
				_

HUM 6.1 Communication

ADV HUM 6.1.1 8.1.1	Use communication effectively in ATC.	3		AL
ADV HUM 6.1.2 2.1.3 ATM	Analyse examples of pilot and controller communication for effectiveness.	4		AL
HUM 6.2 C	ollaborative work within the same area	of re	esponsibility	
ADV HUM 6.2.1 8.2.1	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	AL
ADV HUM 6.2.2 8.2.2	Explain consequences of the use of communication means on effectiveness.	2	Optional content: strips legibility and encoding, Radar labels designation, feedback	AL
ADV HUM 6.2.3 8.2.3	List possible actions to provide a safe position handover.	1	Optional content: rigour, preparation, overlap time	AL
ADV HUM 6.2.4 8.2.4	Explain consequences of a missed position handover process.	2		AL
HUM 6.3 C	ollaborative work between different area	as o	f responsibility	
ADV HUM 6.3.1 8.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	Optional content: other sectors constraints, electronic coordination tools	ALI
HUM 6.4 C	ontroller/pilot cooperation			
ADV HUM 6.4.1 8.4.1	Describe parameters affecting controller/pilot cooperation.	2	Optional content: workload, mutual knowledge, controller vs pilot mental picture	AL
HUM 7 WC	ORKING KNOWLEDGE			-
HUM 7.1 C	ontroller knowledge			
ADV HUM 7.1.1 1.1.2 LAW	Explain how to maintain and update professional knowledge to retain competence in the operational environment.	2	Optional content: Briefing, LOAs, NOTAM, AICs, Reports of accident/incident, VOLMET, ATIS, SIGMET	AL
HUM 9 WC	ORK ENVIRONMENT			-
HUM 9.1 E	r gonomics			
ADV	Appreciate the impact of working position ergonomics on controller	3		ALI

HUM 10.1 Experience feedback

H	ADV HUM 10.1.1	State the importance of the controllers contribution to the experience feedback	1	Optional content: voluntary reporting	ALL
	3.1.1 LAW	process.			_
H	ADV HUM 10.1.2	Describe how reported occurrences are analysed.	2	Optional content: ESARR2, local procedures	ALL
	3.1.2 LAW				
H	ADV HUM 10.1.3	Name the means used to disseminate recommendations.	1	Optional content: Safety letters, safety boards web pages	ALL
	3.1.3 LAW				
	ADV	Explain the "Just Culture" concept.		benefits, prerequisites, constraints	ALL
ŀ	HUM 10.1.4		2	Optional content: EAM 2 GUI 6, GAIN	
_	3.1.4 LAW			Report	-
H	IUM 10.2 Sa	afety investigation branch			
H	ADV IUM 10.2.1	Describe role and mission of Safety Investigation Branch in the improvement	2		ALL
	3.2.1 LAW	of safety.			
H	ADV HUM 10.2.2	Define working methods of Safety Investigation Branch.	1		ALL
_	3.2.2 LAW				_

Subject 8: EQUIPMENT AND SYSTEMS

The general subject objective is:

emergency situations.

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

EQP 1 VO	ICE COMMUNICATIONS			-
EQPS 1.1 R	adio communications			
ADV	Operate two-way communication		Transmit/receive switches, procedures	ALL
EQPS 1.1.1	equipment.	3	Optional content: frequency selection, standby equipment	
ADV EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	Optional content: indicator lights, serviceability displays, selector/frequency displays	ALL
EQPS 1.2 O	Other voice communications			
ADV EQPS 1.2.1	Operate landline communications.	3	Optional content: telephone, interphone and intercom equipment	ALL
EQP 2 AU	TOMATION IN ATS			-
EQPS 2.1 A	eronautical fixed telecommunication ne	etwo	rk (AFTN)	
ADV EQPS 2.1.1	Decode AFTN messages.	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	ALL
EQPS 2.2 A	utomatic 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	Explain operational application of		ICAO Doc 9694	ADV
EQPS 2.2.2	CPDLC for departure clearance (DCL) delivery and D-ATIS.	2		ADI
EQP 3 CO	NTROLLER WORKING POSITION			-
EQPS 3.1 6	ieneral Operation and monitoring of equ	uipm	ent	
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, strip-printer, clock, information systems monitors, (CCIS), UDF/VDF	ALL
ADV EQPS 3.1.3	Operate all-available equipment in unusual/degraded/abnormal and	3		ALL

EQPS 3.2 S	ituation displays and information system	ms		
ADV EQPS 3.2.1	Use situation displays.	3		AL
ADV EQPS 3.2.2	Check availability of information material.	3		AL
ADV EQPS 3.2.3	Obtain information from equipment.	3	Optional content: information from wind direction indicator	A[A[
ADV EQPS 3.2.4	Take account of anti-incursion equipment.	2		Α[
EQPS 3.3 F	light data systems			
ADV EQPS 3.3.1	Use the flight data information at controller working position.	3		AL
EQP 4 FU	TURE EQUIPMENT			-
EQPS 4.1 N	ew developments			
ADV EQPS 4.1.1	Recognise future developments.	1	New advanced systems	AL
EQP 5 EQ	UIPMENT AND SYSTEMS LIMITATIONS	AN	D DEGRADATION	_
EQPS 5.1 G	ieneral Reaction to limitations			
ADV EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		AL
ADV EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	AL
EQPS 5.2 C	ommunication equipment degradation			
ADV EQPS 5.2.1	Identify that communication equipment has degraded.	3	Optional content: ground-air, ground- ground and landline communications	AE AE
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	AE AE
EQPS 5.3 N	avigational equipment degradation			
ADV EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	Optional content: VOR, navigational aids	AL
ADV EQPS 5.3.2	Integrate contingency procedures in the event of a navigational equipment degradation.	4	Optional content: Vertical separation, Information to aircraft, Navigational assistance, Seeking assistance from adjacent units	AΓ

Subject 9: PROFESSIONAL ENVIRONMENT

The general subject objective is:

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

PEN 1 FAMILIARISATION PROFESSIONAL ENVIRONMENT

ADV Appreciate the functions and provision PEN 1.1.1 of an operational aerodrome control service. PEN 2 AIRSPACE USERS PEN 2.1 Contributors to civil ATS operations

ADV PEN 2.1.1 1.1.1	Characterise civil and military ATS activities at aerodrome.	2	Study visit to TWR Optional content: familiarisation visits to e. g. TWR, APP, ACC, AIS, RCC, Air Defence Units	ADV ADI
ADV PEN 2.1.2 1.1.2	Characterise other parties interfacing with ATS operations.	2	Optional content: familiarisation visits to e.g. engineering services, fire and emergency services, airline operations offices	ALL

ı	PEN 2.2	Contributors to military ATS operations			
	ADV PEN 2.2.1	Characterise civil and military ATS		Optional content: Familiarisation visits to e.	ALL
	1.1.1	activities.	2	g: TWR, APP, ACC, AIS, RCC, Air Defence Units	

PEN 3 CUSTOMER RELATIONS

PEN 3.1	Customer relations Provision of service	s and	d user requirements	
ADV PEN 3.1.1 1.2.1	Identify the role of ATC as a service provider. and the requirements of the ATS users.	3	Optional content: familiarisation flights, flight simulator visits, liaison visits to aerodrome authority, aircraft and/or airfield operators	ALL
ADV PEN 3.1.2 1.2.1	Appreciate ATS users requirements.	3		ALL

PEN 4 EN	IVIRONMENTAL PROTECTION			•
PEN 4.1 E	Environmental protection			
ADV PEN 4.1.1	Describe the environmental constraints on aerodrome operations.	2	Optional content: ICAO Circular 303 - Operational opportunities to minimise fuel use and reduce emissions	ADV ADI APP

APS

F	ADV PEN 4.1.2 1.3.1	Explain the use of Collaborative Environmental Management (CEM) process at airports. Describe processes used to ensure environmental protection.	2	Optional content: night curfews, relations with local community, relations with environmental associations, relevant administrations	ADV ADI APP APS
F	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: UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS

The general subject objective is:

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

ABE 1 UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS (ABES)

ABES 1.1 G	eneral Overview of ABES			
ADV ABES 1.1.1	List common unusual/degraded/abnormal and emergency situations.	1	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion	ALL
ADV ABES 1.1.2 4.1.2 ACFT	Identify potential or actual abnormal and emergency situations.	3		ALL
ADV	Take into account the procedures for		Bird strike, aborted take-off	ADV
ABES 1.1.3 1.1.2	given unusual/degraded/ abnormal and emergency situations.	2	Optional content: ICAO Doc 4444	ADI
ADV ABES 1.1.4 1.1.3	Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations.	2	Optional content: real life examples	ALL
ADV ABES 1.1.5 1.1.4	Consider how the evolution of a situation may have an impact on safety.	2	Optional content: separation, information, coordination	ALL
ABE 2 SK	ILLS IMPROVEMENT			_
ABES 2.1 C	ommunication 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
ABES 2.2 A	voidance of mental overload			
ADV ABES 2.2.1	Describe actions to keep the control of the situation.	2	Optional content: sector splitting, holding, flow management, task delegation	ALL
ADV	•	2		ALL
ADV ABES 2.2.1 ADV	the situation.			-

ADV ABES 2.2.4	Consider asking for help.	2		ALL
ABES 2.3 A	ir / ground cooperation			
ADV ABES 2.3.1	Collect appropriate information relevant for to the situation.	3		ALL
ADV	Assist the pilot.		Pilot workload	ALL
ABES 2.3.2		3	Optional content: instructions, information, support, human factors, etc.	_
	OCEDURES FOR UNUSUAL/DEGRADE TUATIONS	D/ AE	BNORMAL AND EMERGENCY	
ABES 3.1 G	leneral Application of procedures for Al	BES		
ADV ABES 3.1.1	Apply the procedures for given unusual/degraded/abnormal and emergency situations.	3	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure	ALL
ABES 3.2 R	adio failure			
ADV	Describe the procedures followed by a		ICAO Doc 7030	ALL
ABES 3.2.1	pilot when he/she experiences complete or partial radio failure.	2	Optional content: military procedures	_
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
ABES 3.3 U	Inlawful interference and aircraft bomb	hrea	at	
ADV ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALL
ABES 3.4 S	trayed or unidentified aircraft			
ADV	Apply the procedures in the case of		ICAO Doc 4444	ALL
ABES 3.4.1	strayed aircraft.	3	Optional content: inside controlled airspace, outside controlled airspace	
ADV	Apply the procedures in the case of		ICAO Doc 4444	ALL
ABES 3.4.2	unidentified aircraft.	3		
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

ADV Apply ATC procedures associated with ABES 3.5.1 runway incursion.

ICAO Doc 4444

ADV ADI

Subject 11: AERODROMES

The general subject objective is:

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

AGA 1 GENERAL AERODROME DATA, LAYOUT AND COORDINATION

AGA 1.1 **Definitions ADV** Describe the general layout of an ICAO Annex 14 APP AGA 1.1.1 APS aerodrome with a single runway and 2 Optional content: AIP ADV multiple runways. ADI **ADV** Define aerodrome data. Regulation (EU) No 139/2014 - EASA **ADV AGA** 1.1.1 ADI ED Decision 2014/013/R for CS-ADR-APP 1.1.2 DSN - Initial issue and EASA ED **APS** Decision 2014/012/R for ADR AMC/GM ICAO Annex 14 Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot

AGA 1.2 Coordination

ADV Identify the information that has to be passed between Air Traffic Services (ATS) and the airport authority.

Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14

APP APS

ADV

ADI

AGA 2 MOVEMENT AREA

	OVENIENT AILEA			
AGA 2.1 N	Movement area			
ADV AGA 2.1.1	Describe movement area.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	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
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	APS ADV ADI APP APS
AGA 2.2 N	Manoeuvring area			

ADV AGA 2.2.1	Describe manoeuvring area.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	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
AGA 2.3 F	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 instrument runway.	2	ICAO Annex 14	ADV
ADV AGA 2.3.2 2.3.3	Describe non-instrument runway.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	ADV ADI APP APS
ADV AGA 2.3.3 2.3.4	Explain declared distances.	2	TORA, TODA, ASDA, LDA	ADV ADI APP APS
ADV AGA 2.3.4 2.3.5	Explain the differences between ACN and PCN.	2	Strength of pavements	ADV ADI APP APS
ADV AGA 2.3.5 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
ADV AGA 2.3.6 2.3.7	Describe runway lights.	2	Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barettes	ADV ADI APP APS
ADV AGA 2.3.7 2.3.8	Explain the functions of visual landing aids.	2	Optional content: AVASI, VASI, PAPI	ADV ADI APP APS

ADV	Describe the approach lighting systems.		Centre line, cross bars, stroboscopic	AD	
AGA 2.3.8		2	lights, colours, intensity and brightness	AD AP	
2.3.9				_ AP	
ADV	Characterise the effect of water/ice on			ΑD	
AGA 2.3.9	runways.	0		AL	
2.3.10	Turiways.	2		AF	
				_ <i>AF</i>	
ADV	Explain braking action.		Braking action coefficient	AE	
AGA 2.3.10		2		AL	
2.3.11				AF _ AF	
ADV	Explain the offset of runway visual range				
AGA 2.3.11	Explain the effect of runway visual range			A[
2.3.12	on aerodrome operation	2	2		
				_ <i>AF</i>	
AGA 3 OB	STACLES			_	
AGA 3.1 G	eneral Obstacle-free airspace around a	eroc	Iromes		
ADV	Explain the necessity for establishing			ΑĽ	
AGA 3.1.1	and maintaining an obstacle-free	2		Α[
	airspace around aerodromes.	_		AF AF	
AGA 4 MIS	SCELLANEOUS EQUIPMENT			_	
AGA 4.1 L	ocation				
ADV	Explain the location of different		Optional content: LLZ, GP LD , VDF, radio	_ A[
AGA 4.1.1	aerodrome ground equipment.	2	communication or radar ATS surveillance	Αſ	
	asiosionio ground oquipinioni.	۷	systems sensors antennas , stopbars, AVASI, VASI, PAPI	AF AF	

AMC1 to Appendix 4 of ANNEX I — PART-ATCO

Aerodrome Control Instrument Rating -ADI (TWR)

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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

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Subject 1: INTRODUCTION TO THE COURSE

The general subject objective is:

Learners shall know and understand the training programme that they will follow and learn how to obtain the appropriate information.

INTR 1 CO	URSE MANAGEMENT			
INTR 1.1 Co	ourse introduction			
ADI (TWR) INTR 1.1.1	Explain the aims and main objectives of the course.	2		AL
INTR 1.2 Co	ourse administration			
ADI (TWR) INTR 1.2.1	State course administration.	1		Al
INTR 1.3 St	udy material and training documentation	on		
ADI (TWR) 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	AL
ADI (TWR)	Integrate appropriate information into		Training documentation	AL
INTR 1.3.2	course studies.	4	Optional content: Training documentation , supplementary information, library	
INTR 2 INT	RODUCTION TO THE ATC TRAINING C	OUF	RSE	
INTR 2.1 Co	ourse content and organisation	OUF		
INTR 2.1 Co		OUF	Theoretical training, practical training, self-study, types of training events	AL
INTR 2.1 Co ADI (TWR) INTR 2.1.1	ourse content and organisation State the different training methods		Theoretical training, practical training,	_
INTR 2.1 Co ADI (TWR) INTR 2.1.1 ADI (TWR) INTR 2.1.2	State the subjects of the course and	1	Theoretical training, practical training,	- Al
ADI (TWR) INTR 2.1.1 ADI (TWR) INTR 2.1.2 ADI (TWR) INTR 2.1.2 ADI (TWR) INTR 2.1.3	State the different training methods applied in the course. State the subjects of the course and their purpose. Describe the organisation of theoretical	1	Theoretical training, practical training, self-study, types of training events	AL AL AL
ADI (TWR) INTR 2.1.1 ADI (TWR) INTR 2.1.2 ADI (TWR) INTR 2.1.3 ADI (TWR) INTR 2.1.3	State the different training methods applied in the course. State the subjects of the course and their purpose. Describe the organisation of theoretical training. Describe the organisation of practical	1 1 2	Theoretical training, practical training, self-study, types of training events Optional content: course programme Optional content: PTP, simulation, briefing,	AL

INTR 2.3 The Assessment process

ADI (TWR) Describe the assessment process. ALL **INTR 2.3.1** 2

debriefing, learner/instructor feedback, instructor/instructor feedback

Subject 2: AVIATION LAW

The general subject objective is:

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

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE

LAW 1.1 Privileges and conditions EU Community air traffic controller ADI (TWR) Appreciate the conditions which must ADI **LAW 1.1.1** shall be met to for the issue an of licence Directive, ESARR5 Regulation Aerodrome Control Instrument rating (EU) 2015/340 on ATCO Licences, with Tower Control endorsement. rating, valid rating Optional content: national documents: European Manual of Personnel Licensing -Air Traffic Controllers ADI (TWR) Explain how to maintain and update ALL LAW 1.1.2 professional knowledge and skills to 2 6.1.1 HUM retain competence in the operational environment. ADI (TWR) Explain the conditions for Incident/Accident, Competence in ALL LAW 1.1.3 suspension/revocation of ATCO licence. 2 doubt, Medical, Regulation (EU) 1.1.2 2015/340 ATCO Licences

LAW 2 RULES AND REGULATIONS

LAW 2.1 Reports		
ADI (TWR) List the standard forms for reports.	Air traffic incident report	ALL
LAW 2.1.1	Optional content: routine air reports, breach of regulations, watch/log book, records	_
ADI (TWR) Describe the functions of, and LAW 2.1.2 processes for, reporting.	ESARR 2, Reporting culture, air traffic incident report	ALL
	Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2	_
ADI (TWR) Use forms for reporting. LAW 2.1.3	Regulation (EU) No 376/2014, air traffic incident reporting form(s)	ALL
	Optional content: ICAO Doc 4444 Appendix 4 , routine air reports, breach of regulations, watch/log book, records	_

LAW 2.2 Airspace		
ADI (TWR) Appreciate classes and structure of LAW 2.2.1 airspace and their relevance to Aerodrome Control Instrument rating with Tower Control endorsement operations.	3	ADI

ADI (TWR) LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	Optional content: Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, international requirements, civil requirements, military requirements, areas of responsibility, sectorization, national requirements	ALL
ADI (TWR) LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL
LAW 3 ATC	C SAFETY MANAGEMENT			_
LAW 3.1 Ex	cperience Feedback process			
ADI (TWR) LAW 3.1.1 10.1.1 HUM	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	ALL
ADI (TWR) LAW 3.1.2 10.1.2 HUM	Describe how reported occurrences are analysed.	2	Optional content: ESARR 2, local procedures	ALL
ADI (TWR) LAW 3.1.3 10.1.3 HUM	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety boards web pages	ALL
ADI (TWR)	Appreciate Explain the 'Just Culture'		Benefits, prerequisites, constraints	ALL
10.1.4 HUM	concept.	2->3	Optional content: EAM 2 GUI 6, GAIN Report	_
LAW 3.2 Sa	afety Investigation Branch			
ADI (TWR) LAW 3.2.1 10.2.1 HUM	Describe role and mission of Safety Investigation Branch in the improvement of safety.	2		ALL
ADI (TWR) LAW 3.2.2 10.2.2 HUM	Define working methods of Safety Investigation Branch.	1		ALL

Subject 3: AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

ATM 1 PROVISION OF SERVICES AIR TRAFFIC SERVICES AND AIRSPACE MANAGEMENT

ADI (TMP)	Appreciate areas of responsibility.		Control zone, traffic circuit,	١.
ADI (1 WIX)	Appreciate areas or responsibility.	3	manoeuvring area, movement area,	
1.1.2		3	vicinity	
			Optional content: ATZ	_
ADI (TWR)	Describe specific areas of responsibility		ICAO Annex 11	
TM 1.1.1	of aerodrome control.	2		
ADI (TWR)	Provide the appropriate aerodrome		Regulation (EU) No 923/2012, ICAO	
TM 1.1.2	control service.	4	Annex 11, ICAO Doc 7030, ICAO Doc	
1.1.3			4444, operation manuals	
TM 1.2 FI	ight information service (FIS)			
,	Describe the information that shall be		ICAO Doc 4444 ICAO Annex 11	
TM 1.2.1	passed to aircraft by an aerodrome controller.	2		
ADI (TWR)	Provide FIS.		ICAO Doc 4444	
TM 1.2.2		4	Optional content: national documents	
ADI (TWR)	Issue appropriate traffic information.		ICAO Doc 4444, essential local traffic,	
ATM 1.2.3		3	traffic information	
ADI (TWR)	Appreciate the use of ATIS for the			_
ATM 1.2.4	provision of flight information service by aerodrome controller.	3		
TM 1.3 AI	erting service (ALRS)			
	Provide ALRS.		ICAO Doc 4444	
TM 1.3.1		4	Optional content: national documents	
ADI (TWR)	Respond to distress and urgency		Regulation (EU) No 923/2012, ICAO	
TM 1.3.2	messages and signals.	3	Annex 10, ICAO Doc 4444,	
			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	

ADI (TWR) Appreciate principles of ATFCM ATS **ATM** 1.4.1 system capacity and air traffic flow management.

Optional content: EUROCONTROL ATFCM Users Manual Working principles of ATFCM, CFMU, Slot management, Slot 3 allocation procedures

ADV ADI

4	Optional content: departure sequence	ADV ADI
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
		-
	ICAO Doc 4444	ALL
3	Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2	_
	Communication techniques,	ALL
3->4	readback/verification of readback	_
		ALL
4		
		_
ONS		
	ICAO Doc 4444	ALL
3	Optional content: national documents	_
4		ALL
		ALL
4		
	ICAO Doc 4444	ALL
3	Optional content: national documents	
		ALL
4		
		ALL
4		
		-
-		ALL
3		_
	3 3->4 4 3 4	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 ICAO Doc 4444 3 Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2 Communication techniques, readback/verification of readback 4 ICAO Doc 4444 3 Optional content: national documents 4 ICAO Doc 4444 3 Optional content: national documents

ATM 4.2 Tools and methods for coordination			
ADI (TWR) Use the available tools for coordination. ATM 4.2.1	3	Optional content: electronic transfer of flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local agreements, automated system coordination	
ATM 4.3 Coordination procedures			
ADI (TWR) Initiate appropriate coordination. ATM 4.3.1	3	Delegation/transfer of responsibility for air-ground communications and separation, transfer of control, etc. ICAO Doc 4444	
		Optional content: release point	
ADI (TWR) Analyse effect of coordination requested ATM 4.3.2 by an adjacent position/unit.	4	Optional content: delegation/transfer of responsibility for air-ground communications and separation, release point, transfer of control, etc.	
ADI (TWR) Select, after negotiation, an appropriate ATM 4.3.3 course of action.	5	When additional traffic cannot be accepted by adjacent position/unit, When additional traffic cannot be accepted by own position/unit, etc.	
ADI (TWR) Ensure the agreed course of action is ATM 4.3.4 carried out.	4		_
ADI (TWR) Coordinate in the provision of FIS. ATM 4.3.5	4	ICAO Doc 4444	Ī
ADI (TWR) Coordinate in the provision of ALRS. ATM 4.3.6	4	ICAO Doc 4444	Ī
ATM 5 ALTIMETRY AND LEVEL ALLOCATION			-
ATM 5.1 Altimetry			
ADI (TWR) Allocate levels (height, altitude, flight ATM 5.1.1 level) according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	
ADI (TWR) Ensure separation according to altimetry ATM 5.1.2 data.	4	Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries	_
ATM 5.2 Terrain clearance			
ADI (TWR) Provide planning, coordination and ATM 5.2.1 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	_
ATM 6 SEPARATIONS			-

ADI (TWR) Provide separation between departing ICAO Doc 4444 ADV ADI **ATM** 6.1.1 aircraft. 4 ATM 6.2 Separation of departing aircraft from arriving aircraft ADI (TWR) Provide separation of departing aircraft ICAO Doc 4444 ADI ATM 6.2.1 from arriving aircraft. 4 ATM 6.3 Separation of landing aircraft and preceding landing or departing aircraft ICAO Doc 4444 ADI (TWR) Provide separation of landing aircraft ADV **ATM** 6.3.1 and preceding landing or departing ADI aircraft. ATM 6.4 Time-based wake turbulence longitudinal separation ADI (TWR) Provide time-based wake turbulence ICAO Doc 4444 ADI ADV ATM 6.4.1 longitudinal separation. 4 ATM 6.5 Reduced separation minima ICAO Doc 4444 ADI (TWR) Provide reduced separation minima. ADI ADV **ATM** 6.5.1 4 AIRBORNE COLLISION AVOIDANCE SYSTEMS AND GROUND-BASED SAFETY ATM 7 **NETS** ATM 7.1 Airborne collision avoidance systems ADI (TWR) Differentiate between ACAS advisory ICAO Doc 9863 ADV ADI **ATM** 7.1.1 thresholds and ATC aerodrome 2 7.1.6 B separation standards. ICAO Doc 4444 ADI (TWR) Describe the controller responsibility ALL ATM 7.1.2 during and following an ACAS RA 2 7.1.4 B reported by pilot. ADI (TWR) Respond to pilot notification of actions ACAS, GPWS TAWS ALL ATM 7.1.3 based on airborne systems warnings. 3 Optional content: EUROCONTROL ACAS 7.1.1 web page ATM 7.2 Ground-based safety nets ADI (TWR) Respond to available ground-based Optional content: anti-incursion ADV ADI **ATM** 7.2.1 safety nets warnings. 3 **ATM 8 DATA DISPLAY ATM** 8.1 Data management ADI (TWR) Update the data display to accurately Optional content: information displayed, ALL strip marking procedures, electronic **ATM 8.1.1** reflect the traffic situation. information data displays, actions based on traffic display information, calculation of **EETs** ADI (TWR) Analyse pertinent data on data displays. ALL **ATM 8.1.2** 4

				_
ADI (TWR) ATM 8.1.3	Organise pertinent data on data displays.	4		Al
ADI (TWR) ATM 8.1.4	Process pertinent data on data displays.	3		Al
ADI (TWR) ATM 8.1.4 8.1.5	Obtain flight plan information.	3	CPL, FPL, supplementary information Optional content: RPL, AFIL, etc.	Α
ADI (TWR) ATM 8.1.5 8.1.6	Use flight plan information.	3		Α
ATM 9 OP	ERATIONAL ENVIRONMENT (SIMULATI	ED)		-
TM 9.1 In	tegrity of the operational environment			
	Obtain information concerning the operational environment.	3	Optional content: briefing, notices, local orders, verification of information	Α
ADI (TWR) ATM 9.1.2	Ensure the integrity of the operational environment.	4	Optional content: frequency, VOLMET, ATIS, SIGMET, systems set-up, integrity of displays	A
TM 9.2 V	erification of the <mark>c</mark> urrency of <mark>o</mark> perationa	ıl pr	ocedures	
ADI (TWR) ATM 9.2.1	Check all relevant documentation before managing traffic.	3	Optional content: briefing, LOAs, NOTAM, AICs	A
TM 9.3 H	andover-takeover			
ADI (TWR) ATM 9.3.1	Transfer information to the relieving controller.	3		P
ADI (TWR) ATM 9.3.2	Obtain information from the controller handing over.	3		Α
ATM 10 PR	OVISION OF AN AERODROME CONTRO)LS	ERVICE	-
TM 10.1 G	eneral Responsibility for the provision			
ADI (TWR) ATM 10.1.1	Explain the responsibility for the provision of an aerodrome control service.	2	ICAO Doc 4444, ICAO Annex 11	A
,	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	
ADI (TWR) ATM 10.1.3	Describe the responsibility in regard to military traffic.	2	ICAO Doc 4444 Optional content: ICAO Doc 9554	
ADI (TWR) ATM 10.1.4	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	- - - -
				_

	Appreciate the influence of operational requirements.	3	Optional content: military flying, calibration flights, aerial photography	ALL
ATM 10.2 Fu	nctions of aerodrome control tower			
	Manage the general functions of aerodrome control.	4	ICAO Doc 4444	ADV ADI
ADI (TWR) ATM 10.2.2	Manage the suspension of VFR operations.	4	ICAO Doc 4444	ADV ADI
ATM 10.3 Tr	affic management process			
ADI (TWR)	Ensure that situational awareness is maintained.	4	Information gathering, observation, traffic projection	ADV ADI
ADI (TWR) ATM 10.3.2	Detect conflicts in time for appropriate resolution.	4		ALL
ATM 10.3.3	Identify potential solutions to achieve a safe and effective flow of aerodrome traffic.	3		ADV ADI
	Evaluate possible outcomes of different control actions.	5		ADV ADI
ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective flow of aerodrome traffic.	5		ADV ADI
ADI (TWR) ATM 10.3.6 10.5.4	Ensure an adequate priority of actions.	4	Formal and situational requirements, Workload	ALL
ADI (TWR) ATM 10.3.7	Execute plan in a timely manner.	3		ADV ADI
ADI (TWR) ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL
ATM 10.4 Ae	ronautical ground lights			
ADI (TWR)	Select appropriate aeronautical ground lights.	5	ICAO Doc 4444	ADV ADI
ATM 10.5 Inf	formation to aircraft by aerodrome con	trol	tower	
ADI (TWR)	Provide information related to the operation of aircraft.	4	ICAO Doc 4444	ADV ADI
	Provide information on aerodrome conditions.	4	ICAO Doc 4444	ADV ADI

TM 10.6 Co	ontrol of aerodrome traffic			
ADI (TWR) ATM 10.6.1 10.5.1	Predict positions of aircraft in the aerodrome traffic and taxi circuits.	4	ICAO Doc 4444	A A
	Manage traffic on the manoeuvring area.		ICAO Doc 4444, aircraft, vehicles	Α
10.5.2		4	Optional content: runway inspection	A
ADI (TWR) ATM 10.6.3 10.5.3	Manage traffic in accordance with procedural changes.	4	Optional content⊡axiway closure	A
ADI (TWR) ATM 10.6.4	Balance the workload against personal capacity.	5	Optional content: re-planning, prioritising solutions, denying requests, delaying traffic	A
ADI (TWR) ATM 10.5.4 10.3.6	Ensure an adequate priority of actions.	4	Formal and situational requirements, Workload	A
ATM 10.7 Co	ontrol of traffic in the traffic circuit			
ADI (TWR) ATM 10.7.1 10.6.1	Manage traffic in the traffic circuit.	4	ICAO Doc 4444, meteorological phenomena, geographical knowledge, environmental factors	A
ADI (TWR) ATM 10.7.2 10.6.2	Manage arriving and departing traffic.	4	ICAO Doc 4444, allocation of the order of priority, meteorological phenomena, wake turbulence, environmental factors	F F
ADI (TWR) ATM 10.7.3 10.6.3	Integrate the serviceability of radio aids in the management of aerodrome traffic.	4	Optional content: UDF, VDF, MLS, ILS, NDB, VOR, DME	H
ADI (TWR) ATM 10.7.4 10.6.4	Integrate surface conditions into the control of aerodrome traffic.	4	Optional content: damp, wet, water patches, flooding, snow, slush, ice, braking action	,
ADI (TWR) ATM 10.7.5 10.6.5	Integrate information about meteorological phenomena into the control of aerodrome traffic.	4	Optional content: clouds, precipitation, visibility, wind, meteorological hazards	,
ADI (TWR) ATM 10.7.6 10.6.6	Integrate the information provided by situation displays.	4	Use, advantages, disadvantages	ļ
ADI (TWR) ATM 10.7.7	Initiate missed approach.	3	Optional content: obstructed runway	- /
TM 10.8 R	ınway in use			
	Select the runway in use.		ICAO Doc 4444	1

ADI (TWR) ATM 10.8.2 10.7.2	Coordinate runway in use.	4	Optional content: approach control, area control, runway selection, change of runway	A[A[
ADI (TWR) ATM 10.8.3 10.7.3	Manage traffic in the event of runway-inuse change.	4		A[A[
ATM 11 PR	OVISION OF AERODROME CONTROL -	INS	TRUMENT	-
ATM 11.1 G	eneral Low visibility operations and spe	cia	I VFR	
ADI (TWR) ATM 11.1.1	Manage SVFR traffic.	4	ICAO Doc 4444	Α[
	Describe the Procedures for Low Visibility Operations.	2	ICAO Doc 4444	Α[
ATM 11.2 D	eparting traffic			
ADI (TWR) ATM 11.2.1	Manage control of departing aircraft.	4	ICAO Doc 4444, Use of situation displays, Wake turbulence, Appropriate departure clearances, SIDs	Αſ
	Integrate departure sequence into the control of aerodrome traffic.	4	ICAO Doc 4444	ΑI
	Provide appropriate information to departing traffic.	4	ICAO Doc 4444, use of situation displays, wake turbulence	ΑI
ATM 11.3 A	rriving traffic			
ADI (TWR) ATM 11.3.1	Manage control of arriving aircraft.	4	ICAO Doc 4444, wake turbulence	ΑI
	Integrate the approach sequence into the control of aerodrome traffic.	4	ICAO Doc 4444	ΑI
	Integrate aircraft on visual approach into the aerodrome traffic.	4	ICAO Doc 4444	Αſ
ADI (TWR) ATM 11.3.4	Integrate aircraft on missed approach into the aerodrome traffic.	4	ICAO Doc 4444, use of air traffic monitors	ΑI
ADI (TWR) ATM 11.3.5	Appreciate expected approach times.	3	ICAO Doc 4444	ΑI
ADI (TWR) ATM 11.3.5 11.3.6	Integrate aircraft performing circling approach into the aerodrome traffic.	4	ICAO Doc 8168	ΑI
ADI (TWR) ATM 11.3.6 11.3.7	Provide appropriate information to arriving aircraft.	4	ICAO Doc 4444	Αſ

ATM 11.4 Aerodrome control service with advanced system support

ADI (TWR) Appreciate the impact of advanced ATM 11.4.1 systems on the provision of aerodrome control service.

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 general subject objective is:

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

MET 1 METEOROLOGICAL PHENOMENA

	eteorological phenomena			
	Appreciate the impact of different cloud		Cumulus, cumulonimbus	AE AE
MET 1.1.1	types.	3	Optional content: stratus, nimbostratus, etc.	. AL
ADI (TWR)	Appreciate the impact of precipitation.		Precipitation and microphysics	ΑĽ
MET 1.1.2		3	Optional content: rain, snow, sleet, hail	Α[
ADI (TWR) MET 1.1.3	Appreciate the impact of atmospheric obscurity.	3	Optional content: advection fog, radiation fog, mixing, evaporation, Mist, drizzle	AI AI
ADI (TWR)	Appreciate the effect and impact of		Gusting, veering, backing	ΑĽ
MET 1.1.4	wind.	3	Optional content: land breezes, sea breezes, Föhn	Al
ADI (TWR) MET 1.1.5	Appreciate the effect and danger of hazardous meteorological phenomena.	3	Wind shear, turbulence, thunderstorms, icing, microbursts	AI AI
ADI (TWR) MET 1.1.6	Appreciate the effect of a frontal system on aerodrome operations.	3		Al Al
ADI (TWR)	Integrate data about meteorological		Clearances, instructions and transmitted	A
MET 1.1.7	phenomena into provision of ATS.	4	information	
			Optional content: relevant meteorological phenomena	
MET 2 SO	URCES OF METEOROLOGICAL DATA			•
MET 2.1 M	eteorological instruments			
ADI (TWR) MET 2.1.1	Extract information from meteorological instruments.	3	Optional content: anemometer, RVR indicator, cloud base indicator, ceilometer, barometer	A
MET 2.2 O	ther sources of meteorological data			
ADI (TWR) MET 2.2.1	Decode information from-meteorological data displays.	3		A A
ADI (TWR) MET 2.2.2	Use appropriate communication tools and networks to obtain meteorological data.	3		A A
ADI (TWR)	Relay meteorological information. from		ICAO Doc 4444	A
MET 2.2.3	pilot reports.	3	Optional content: flight information centre, adjacent ATS unit	-

Subject 5: NAVIGATION

The general subject objective is:

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

NAV 1	MADS AND	AERONAUTICAL	CHARTS
IVAVI	MAPS AND	AERUNAUTICAL	CHARIS

NAV 1.1 M	aps and charts			
	Decode symbols and information displayed on aeronautical maps and charts.	3	Instrument approach charts, SID charts, aerodrome charts, visual approach charts	AE AF
			Optional content: military maps and charts	
ADI (TWR) NAV 1.1.2	Use relevant maps and charts.	3	Instrument approach charts, SID charts, aerodrome charts, visual approach charts	A
			Optional content: military maps and charts	_
NAV 2 INS	TRUMENTAL NAVIGATION			•
NAV 2.1 Na	ovigational evetome			
	avigational systems Describe the possible operational status		Ontional content: NDP VOP DME II S	
NAV 2.1.1	of navigational systems.	2	Optional content: NDB, VOR, DME, ILS, MLS, ABAS, SBAS, GBAS, RNP	Α
ADI (TWR) NAV 2.1.2	Decode operational status displays of navigational systems.	3	Optional content: NDB, VOR, DME, ILS, MLS, D-GPS, RNAV, P-RNAV	A
				-
ADI (TWR) 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	Α
ADI (TWR) 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	Α
NAV 2.2 St	abilised approach			
ADI (TWR)	Describe the concept of stabilised		ICAO Doc 8168	Α
NAV 2.2.1	approach.	2	Optional content: SKYbrary, Regulation (EC) No 1899/2006	A A A
ADI (TWR)	Appreciate the effect of late change of			A
NAV 2.2.2	runway-in-use for landing aircraft.	3		Α
NAV 2.3 In	strument departures and arrivals			
1A V 2.5 III				Α
	Characterise SIDs.			
	Characterise SIDs.	2		A
ADI (TWR) NAV 2.3.1	Characterise SIDs. Describe the phases of an instrument	2		

ADI (TWR) Describe the relevant minima applicable NAV 2.3.3 for a precision/non-precision and visual approach.

ADI APP APS

NAV 2.4 Satellite-based systems

ADI (TWR) State the different applications
NAV 2.4.1

2.2.1 based systems relevant for aerodrome operations.

Optional content: NPA, APV-baro VNAV, APV, LPV, precision approach, ICAO Doc 8168 Vol.2 ADI

NAV 2.5 PBN applications

ADI (TWR) State future PBN developments. NAV 2.5.1

A-RNP, APV

1

Optional content: RNP 3D, RNP 4D

ADI APP ACP APS

ACS

Subject 6: AIRCRAFT

The general subject objective is:

ACFT 3.3 Final approach and landing factors

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

ACFT 1 AIR	CRAFT INSTRUMENTS			
ACFT 1.1 A	ircraft instruments			
ADI (TWR) ACFT 1.1.1	Integrate the information indication from aircraft instruments provided by the pilot in the provision of ATS.	4	Optional content: TCAS, wind shear indicator, weather radar	ALL
ADI (TWR) ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios, SELCAL	ALL
ADI (TWR) ACFT 1.1.3	Explain the operation of transponder on- board surveillance equipment.	2	Transponders: equipment Mode A, Mode C, Mode S, ADS capability	ADI APS ACS
ADI (TWR) ACFT 1.1.4	Explain the use and benefits of CPDLC.	2		ALL
ACFT 2 AIR	CRAFT CATEGORIES			•
ACFT 2.1 W	ake turbulence categories			
ADI (TWR) ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		ALL
ADI (TWR) ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		ALL
ACFT 2.2 A	pplication of ICAO approach categories			
ADI (TWR) ACFT 2.2.1	Describe the use of ICAO approach categories.	2	ICAO Doc 8168	ADI APP APS
ADI (TWR) ACFT 2.2.2	Appreciate the effect of ICAO approach categories on the traffic organisation.	3		ADI APP APS
ACFT 3 FA	CTORS AFFECTING AIRCRAFT PERFOR	RMA	NCE	•
ACFT 3.1 Ta	ake-off factors			
ADI (TWR) 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
ACFT 3.2 C	limb factors			
ADI (TWR) 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

ADI (TWR) 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	AD AD
ACFT 3.4 E	conomic factors			
ADI (TWR) ACFT 3.4.1	Integrate consideration of economic factors affecting aircraft.	4	Optional content: starting-up, taxiing, routing, departure sequence	AD AD
ACFT 3.5 M	iscellaneous factors			
ADI (TWR) ACFT 3.5.1 10.1.5 ATM	Appreciate the influence of operational requirements.	3	Optional content: Military flying, Calibration flights, Aerial photography, banner towing	AD AD
ACFT 3.5 E	cological Environmental factors			
ADI (TWR)	Appreciate the performance restrictions		Optional content: noise abatement	AD
ACFT 3.5.1 3.6.1	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft.	3	procedures, minimum flight altitudes, bird hazard	
ACFT 3.5.1 3.6.1 ACFT 4 AIR	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. CRAFT DATA	3	procedures, minimum flight altitudes, bird	
ACFT 4.1 RO	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. ECRAFT DATA ecognition of aircraft types	3	procedures, minimum flight altitudes, bird hazard	AC
ACFT 4.1 RO	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. CRAFT DATA	2	procedures, minimum flight altitudes, bird	AD
ACFT 4.1 ROADI (TWR)	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. CRAFT DATA ecognition of aircraft types Characterise a representative sample of		Procedures, minimum flight altitudes, bird hazard Recognition, ICAO type designators,	AD
ACFT 4.1 Re ADI (TWR) ACFT 4.1.1	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. ECRAFT DATA Ecognition of aircraft types Characterise a representative sample of aircraft which will be encountered in the		Recognition, ICAO type designators, wake turbulence categories Optional content: ICAO approach	AD
ACFT 4.1 Re ADI (TWR) ACFT 4.1.1	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. ECRAFT DATA Ecognition of aircraft types Characterise a representative sample of aircraft which will be encountered in the operational/working environment.		Recognition, ICAO type designators, wake turbulence categories Optional content: ICAO approach	AD
ACFT 4.1 Re ADI (TWR) ACFT 4.1.1 ACFT 4.2 Pe ADI (TWR) ACFT 4.2.1	due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. ECRAFT DATA Ecognition of aircraft types Characterise a representative sample of aircraft which will be encountered in the operational/working environment. Erformance data Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the	2	Recognition, ICAO type designators, wake turbulence categories Optional content: ICAO approach categories Performance data under a	AD AD AD AD AD

Subject 7: HUMAN FACTORS

The general subject objective is:

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

HUM 1 PSYCHOLOGICAL FACTORS

HUM 1.1 Co	ognitive			
ADI (TWR) HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	ALL
ADI (TWR) 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 (TWR) 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

HUM 2 MEDICAL AND PHYSIOLOGICAL FACTORS

_				
HUM 2.1 Fa	itigue			
	State factors that cause fatigue.		Shift work	ALL
HUM 2.1.1		1	Optional content: night shifts and rosters	
ADI (TWR) 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
ADI (TWR) 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
• • •	Recognise the onset of fatigue in others	S.		ALL
HUM 2.1.4		1		_
ADI (TWR)	Describe Consider appropriate action			ALL
HUM 2.1.5	when recognising fatigue.	2		_
HUM 2.2 Fit	tness			
ADI (TWR)	Recognise signs of lack of personal			ALL
HUM 2.2.1	fitness.	1		
• • •	Describe actions when aware of a lack			ALL
HUM 2.2.2	of personal fitness.	2		_

HUM 3 SOCIAL AND ORGANISATIONAL FACTORS

HUM 3.1 Team resource management (TRM)

HUM 3.1.1	State the relevance objectives of TRM.	1	Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training	
ADI (TWR) 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	
HUM 3.2 To	eamwork and team roles			
ADI (TWR) HUM 3.2.1	Identify reasons for conflict.	3		
ADI (TWR) HUM 3.2.2	Describe actions to prevent human conflicts.	2	Optional content: TRM team roles	
ADI (TWR) HUM 3.2.3	Describe strategies to cope with human conflicts.	2	Optional content: in your team, in the simulator	_
HUM 3.3 R	esponsible behaviour			
ADI (TWR) 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	
				Ξ
	Apply responsible judgement.	3	Case study and discussion about a dilemma situation	
HUM 3.3.2		3		
HUM 3.3.2 HUM 4 STI		3		
HUM 3.3.2 HUM 4 STI	RESS	1		
HUM 3.3.2 HUM 4.1 S ADI (TWR) HUM 4.1.1	RESS tress Recognise the effects of stress on		Stress and its symptoms in self and in	
HUM 3.3.2 HUM 4.1 S ADI (TWR) HUM 4.1.1 HUM 4.2 S ADI (TWR)	RESS tress Recognise the effects of stress on performance.		Stress and its symptoms in self and in	
HUM 3.3.2 HUM 4.1 S ADI (TWR) HUM 4.1.1 HUM 4.2 S ADI (TWR) HUM 4.2.1	RESS tress Recognise the effects of stress on performance. tress management	1	Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress	
HUM 3.3.2 HUM 4.1 S ADI (TWR) HUM 4.1.1 HUM 4.2 S ADI (TWR) HUM 4.2.1 ADI (TWR) HUM 4.2.2	RESS Recognise the effects of stress on performance. tress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance.	1 3	Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful	
HUM 3.3.2 HUM 4.1 S ADI (TWR) HUM 4.1.1 HUM 4.2 S ADI (TWR) HUM 4.2.1 ADI (TWR) HUM 4.2.2 ADI (TWR) HUM 4.2.2	RESS Recognise the effects of stress on performance. tress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance. Obtain assistance in stressful situations. Recognise the effect of shocking and	3	Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful situations Self and others, abnormal situations,	

HUM 5.1 Human error

ADI (TWR) HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, pro- active versus reactive approach to discovery of error	ALL
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	_
ADI (TWR) HUM 5.1.2	Differentiate between the types of error.	2	Slips, lapses, mistakes	ALL
			Optional content: Slips, Lapses, Mistakes ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
ADI (TWR) 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
ADI (TWR) 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 (TWR) HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy	ALL
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
				_
	Execute corrective actions.		Error compensation	ALL
ADI (TWR) 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
HUM 5.1.6	Execute corrective actions. Explain the importance of error management.	3	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management	-
ADI (TWR) HUM 5.1.7	Explain the importance of error		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control Optional content: prevention of incidents, safety improvement, revision of procedures	- ALL
ADI (TWR) HUM 5.1.7 ADI (TWR) HUM 5.1.8	Explain the importance of error management. Describe the impact on an ATCO	2	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises Optional content: reporting, SMS,	- ALL
ADI (TWR) HUM 5.1.7 ADI (TWR) HUM 5.1.8 HUM 5.2 Vi	Explain the importance of error management. Describe the impact on an ATCO following an occurrence/incident.	2	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises Optional content: reporting, SMS,	ALL ALL
ADI (TWR) HUM 5.1.7 ADI (TWR) HUM 5.1.8 HUM 5.2 Vi ADI (TWR) HUM 5.2.1	Explain the importance of error management. Describe the impact on an ATCO following an occurrence/incident. colation of rules Explain the causes and dangers of violation of rules becoming accepted as	2	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises Optional content: reporting, SMS, investigation, CISM Optional content: ICAO Circular 314 – AN/178 Threat and Error Management	- ALL - ALL
ADI (TWR) HUM 5.1.7 ADI (TWR) HUM 5.1.8 HUM 5.2 Vi ADI (TWR) HUM 5.2.1	Explain the importance of error management. Describe the impact on an ATCO following an occurrence/incident. colation of rules Explain the causes and dangers of violation of rules becoming accepted as a practice. Color of the impact on an ATCO following an occurrence/incident.	2	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises Optional content: reporting, SMS, investigation, CISM Optional content: ICAO Circular 314 – AN/178 Threat and Error Management	- ALL - ALL
ADI (TWR) HUM 5.1.7 ADI (TWR) HUM 5.1.8 HUM 5.2 Vi ADI (TWR) HUM 5.2.1 HUM 6.1 E	Explain the importance of error management. Describe the impact on an ATCO following an occurrence/incident. colation of rules Explain the causes and dangers of violation of rules becoming accepted as a practice. Color of the impact on an ATCO following an occurrence/incident.	2	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises Optional content: reporting, SMS, investigation, CISM Optional content: ICAO Circular 314 – AN/178 Threat and Error Management	ALL

HUM 6.1 Communication

ADI (TWR) HUM 6.1.1 8.1.1	Use communication effectively in ATC.	3		ALL
ADI (TWR) HUM 6.1.2 2.1.3 ATM	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
HUM 6.2 Co	ollaborative work within the same area	of re	sponsibility	
ADI (TWR) HUM 6.2.1 8.2.1	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 (TWR) HUM 6.2.2 8.2.2	Explain consequences of the use of communication means on effectiveness.	2	Optional content: strips legibility and encoding, Radar labels designation, feedback	ALL
ADI (TWR) HUM 6.2.3 8.2.3	List possible actions to provide a safe position handover.	1	Optional content: rigour, preparation, overlap time	ALL
ADI (TWR) HUM 6.2.4 8.2.4	Explain consequences of a missed position handover process.	2		ALL
HUM 6.3 Co	ollaborative work between different area	S O	f responsibility	
ADI (TWR) HUM 6.3.1 8.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	Optional content: other sectors constraints, electronic coordination tools	ALL
HUM 6.4 Co	ontroller/pilot cooperation			
ADI (TWR)	Describe parameters affecting controller/pilot cooperation.	2	Optional content: workload, mutual knowledge, controller vs pilot mental picture	ALL
HUM 7 WO	RKING KNOWLEDGE			-
HUM 7.1 Co	ontroller knowledge			
ADI (TWR) HUM 7.1.1 1.1.2 LAW	Explain how to maintain and update professional knowledge to retain competence in the operational environment.	2	Optional content: Briefing, LOAs, NOTAM, AICs, Reports of accident/incident, VOLMET, ATIS, SIGMET	ALL
HUM 9 WO	RK ENVIRONMENT			
HUM 9.1 Er	gonomics			
	Appreciate the impact of working position ergonomics on controller activity.	3		ALL
	SAFETY MANAGEMENT			-

HUM 10.1 Experience feedback

HUM 10.1.1	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	ALL
ADI (TWR) HUM 10.1.2 3.1.2 LAW	Describe how reported occurrences are analysed:	2	Optional content: ESARR2, local procedures	ALL
• • • • • • • • • • • • • • • • • • • •	Name the means used to disseminate recommendations.	1	Optional content: Safety letters, safety boards web pages	ALL
ADI (TWR) HUM 10.1.4 3.1.4 LAW	Explain the "Just Culture" concept.	2	benefits, prerequisites, constraints Optional content: EAM 2 GUI 6, GAIN Report	ALL
HUM 10.2 St	afety investigation branch			
HUM 10.2.1	Describe role and mission of Safety Investigation Branch in the improvement of safety.	2		ALL
	Define working methods of Safety Investigation Branch.	1		ALL

Subject 8: EQUIPMENT AND SYSTEMS

The general 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.

EQP 1 VOICE COMMUNICATIONS

emergency situations.

EQPS 3.2 Situation displays and information systems

EQPS 1.1 Radio communications			
ADI (TWR) Operate two-way communication		Transmit/receive switches, procedures	AL
EQPS 1.1.1 equipment.	3	Optional content: frequency selection, standby equipment	_
ADI (TWR) Identify indications of operational status EQPS 1.1.2 of radio equipment.	3	Optional content: indicator lights, serviceability displays, selector/frequency displays	AL
EQPS 1.2 Other voice communications			
ADI (TWR) Operate landline communications. EQPS 1.2.1	3	Optional content: telephone, interphone and intercom equipment	AL
EQP 2 AUTOMATION IN ATS			_
EQPS 2.1 Aeronautical fixed telecommunication ne	etwo	rk (AFTN)	
ADI (TWR) Decode AFTN messages. EQPS 2.1.1	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	AL
EQPS 2.2 Automatic data Interchange			
ADI (TWR) Use automatic data transfer equipment EQPS 2.2.1 where available.	3	Optional content: sequencing systems, automated information and coordination, OLDI	AD AD AP AC
ADI (TWR) Explain operational application of		ICAO Doc 9694	AD
EQPS 2.2.2 CPDLC for departure clearance (DCL) delivery and D-ATIS.	2	10/10/20001	AD
EQP 3 CONTROLLER WORKING POSITION			-
EQPS 3.1 General Operation and monitoring of equ	ıipm	ent	
ADI (TWR) Monitor the technical integrity of the EQPS 3.1.1 controller working position.	3	Notification procedures, responsibilities	AL
ADI (TWR) Operate the equipment of the controller EQPS 3.1.2 working position.	3	Optional content: situation displays, flight progress board, flight data display, radio, telephone, maps and charts, strip-printer, clock, information systems monitors, (CCIS), UDF/VDF	AL
ADI (TWR) Operate all-available equipment in EQPS 3.1.3 unusual/degraded/abnormal and	3		AL

ADI (TWR)	Use situation displays.			ALL
EQPS 3.2.1		3		
ADI (TWR) EQPS 3.2.2	Check availability of information material.	3		ALI
ADI (TWR) EQPS 3.2.3	Obtain information from equipment.	3	Optional content: information from wind direction indicator	AD'
ADI (TWR) EQPS 3.2.4	Take account of anti-incursion equipment.	2		AD
ADI (TWR) EQPS 3.2.5	Explain the use of ASMGCS.	2		AD
EQPS 3.3 FI	ight data systems			
ADI (TWR) EQPS 3.3.1	Use the flight data information at controller working position.	3		ALI
EQP 4 FUT	TURE EQUIPMENT			_
EQPS 4.1 No	ew developments			
ADI (TWR) EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALI
EQP 5 EQU	JIPMENT AND SYSTEMS LIMITATIONS	ANI	DEGRADATION	_
EQPS 5.1 G	eneral Reaction to limitations			
ADI (TWR) EQPS 5.1.1	Take account of the limitations of equipment and systems.	2		ALI
ADI (TWR) EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALI
EQPS 5.2 Co	ommunication equipment degradation			
ADI (TWR) EQPS 5.2.1	Identify that communication equipment has degraded.	3	Optional content: ground-air, ground- ground and landline communications	AD'
ADI (TWR) 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	AD'
EQPS 5.3 Na	avigational equipment degradation			
ADI (TWR) EQPS 5.3.1	Identify when a navigational equipment failure will affect operational ability.	3	Optional content: VOR, navigational aids	ALI
ADI (TWR) EQPS 5.3.2	Apply Integrate contingency procedures in the event of a navigational equipment degradation.	4->3	Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units	ADI API ACI APS

Subject 9: PROFESSIONAL ENVIRONMENT

The general subject objective is:

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

PEN 1 FAMILIARISATION PROFESSIONAL ENVIRONMENT

PEN 1.1 Study visit to aerodrome

ADI (TWR) Appreciate the functions and provision PEN 1.1.1 of an operational aerodrome control service.

Study visit to TWR

Units

2

ADV ADI

> ADV ADI

ALL

ALL

ALL

Al I

PEN 2 AIRSPACE USERS

PEN 2.1 Contributors to civil ATS operations

ADI (TWR) Characterise civil and military ATS PEN 2.1.1 activities at aerodrome.

Study visit to TWR

Optional content: familiarisation visits to e.
g.TWR, APP, ACC, AIS, RCC, Air Defence

ADI (TWR) Characterise other parties interfacing PEN 2.1.2 with ATS operations.

Optional content: familiarisation visits to e.g. engineering services, fire and emergency services, airline operations offices

PEN 2.2 Contributors to military ATS operations

ADI (TWR) Characterise civil and military ATS PEN 2.2.1 activities.

Optional content: Familiarisation visits to e.

TWR, APP, ACC, AIS, RCC, Air
Defence Units

PEN 3 CUSTOMER RELATIONS

1.1.1

PEN 3.1 Customer relations Provision of services and user requirements

ADI (TWR) Identify the role of ATC as a service PEN 3.1.1 provider. and the requirements of the 1.2.1 ATS users.

Optional content: familiarisation flights, flight simulator visits, liaison visits to aerodrome authority, aircraft and/or airfield operators

ADI (TWR) Appreciate ATS users requirements.

3

3

PEN 3.1.2 1.2.1

PEN 4 ENVIRONMENTAL PROTECTION

PEN 4.1 Environmental protection

ADI (TWR) Describe the environmental constraints PEN 4.1.1 on aerodrome operations.

Optional content: ICAO Circular 303 Operational opportunities to minimise fuel use and reduce emissions

ADV ADI APP APS

ADI (TWR) EN 4.1.2 1.3.1	Explain the use of Collaborative Environmental Management (CEM) process at airports. Describe processes used to ensure environmental protection.	2	Optional content: night curfews, relations with local community, relations with environmental associations, relevant administrations	ADV ADI APP APS
ADI (TWR) EN 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: UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS

The general subject objective is:

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

ABE 1 UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS (ABES)

eneral Overview of ABES			
List common unusual/degraded/abnormal and emergency situations.	1	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion	ALI
emergency situations.	3		ALI
Take into account the procedures for		Bird strike, aborted take-off	AD'
given unusual/degraded/ abnormal and emergency situations.	2	Optional content: ICAO Doc 4444	AD
Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations.	2	Optional content: real life examples	ALI
Consider how the evolution of a situation may have an impact on safety.	2	Optional content: separation, information, coordination	ALI
ILLS IMPROVEMENT			
Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALI
Apply change of radiotelephony call		ICAO Doc 4444	ALI
sign.	3		
voidance of mental overload			
Describe actions to keep the control of the situation.	2	Optional content: sector splitting, holding, flow management, task delegation	ALI
Organise priority of actions.	4		ALI
Ensure an 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.	ALI
	ldentify potential or actual abnormal and emergency situations. Take into account the procedures for given unusual/degraded/abnormal and emergency situations. Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations. Consider how the evolution of a situation may have an impact on safety. ILLS IMPROVEMENT Communication effectiveness Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. Apply change of radiotelephony call sign. Invoidance of mental overload Describe actions to keep the control of the situation. Organise priority of actions.	List common unusual/degraded/abnormal and emergency situations. Identify potential or actual abnormal and emergency situations. Take into account the procedures for given unusual/degraded/abnormal and emergency situations. Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations. Consider how the evolution of a situation may have an impact on safety. Communication effectiveness Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. Apply change of radiotelephony call sign. Apply change of radiotelephony call sign. Voidance of mental overload Describe actions to keep the control of the situation. 2 Corganise priority of actions.	List common unusual/degraded/abnormal and emergency situations. 1

ADI (TWR) ABES 2.2.4	Consider asking for help.	2		ALI
	ir / ground cooperation			
ADI (TWR) ABES 2.3.1	Collect appropriate information relevant for to the situation.	3		AL
	Assist the pilot.		Pilot workload	AL
ABES 2.3.2		3	Optional content: instructions, information, support, human factors, etc.	_
	OCEDURES FOR UNUSUAL/DEGRADE UATIONS	D/ AI	BNORMAL AND EMERGENCY	•
ABES 3.1 G	eneral Application of procedures for A	BES		
ADI (TWR) ABES 3.1.1	Apply the procedures for given unusual/degraded/abnormal and emergency situations.	3	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure	AL
ADI (TWR)	Apply the procedures for given		Runway incursion	AD
ABES 3.1.1	unusual/degraded/abnormal and emergency situations.	3	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure	_
ABES 3.2 Ra	adio failure			
	Describe the procedures followed by a		ICAO Doc 7030	AL
ABES 3.2.1	pilot when he/she experiences complete or partial radio failure.	2	Optional content: military procedures	
	Apply the procedures to be followed when a pilot experiences complete or partial radio failure.	3	Optional content: prolonged loss of communication	AL
ABES 3.3 U	nlawful interference and aircraft bomb t	hre	at	
ADI (TWR) ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	AL
	trayed or unidentified aircraft		1010 5 4444	
ADI (TWR) ABES 3.4.1	Apply the procedures in the case of strayed aircraft.	3	Optional content: inside controlled airspace, outside controlled airspace	AL
ADI (TWR)	Apply the procedures in the case of		ICAO Doc 4444	AL
ABES 3.4.2	unidentified aircraft.	3		
				_

ADI (TWR) Provide navigational assistance to ABES 3.4.3 aircraft.

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

ABES 3.5 Runway incursion

ADI (TWR) Apply ATC procedures associated with ABES 3.5.1 runway incursion.

ICAO Doc 4444

3

ADV ADI

Subject 11: AERODROMES

The general subject objective is:

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

AGA 1 GENERAL AERODROME DATA, LAYOUT AND COORDINATION

AGA 1.1 Definitions

ADI (TWR) Describe the general layout of an AGA 1.1.1

aerodrome with a single runway and multiple runways.

ICAO Annex 14

Optional content: AIP

APP APS ADV ADI

> ADV ADI

> APP

APS

APP APS

ADV

ADI

ADV ADI

APP

APS

ADV

ADI (TWR) Define aerodrome data. **AGA 1.1.1**

1.1.2

Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14

Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot

AGA 1.2 Coordination

ADI (TWR) Identify the information that has to be **AGA** 1.2.1 passed between Air Traffic Services (ATS) and the airport authority.

Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14

MOVEMENT AREA AGA 2

AGA 2.1 Movement area

ADI (TWR) Describe movement area. **AGA 2.1.1**

Regulation (EU) No 139/2014 - EASA 2 ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM

ICAO Annex 14

2

ADI (TWR) Describe the marking of obstacles and **AGA 2.1.2** unusable or unserviceable areas.

Flags, signs on pavement, lights

ADI APP APS

ADI (TWR) Identify the information on conditions of **AGA** 2.1.3 the movement area that have to be passed to aircraft.

Essential information on aerodrome conditions

ADV ADI APP APS

AGA 2.2 Manoeuvring area

ADI (TWR) AGA 2.2.1	Describe manoeuvring area.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR- DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	ADV ADI APP APS
ADI (TWR) AGA 2.2.2	Describe taxiway.	2		ADV ADI APP APS
ADI (TWR) AGA 2.2.3	Describe the daylight marking on taxiways.	2		ADV ADI APP APS
ADI (TWR) AGA 2.2.4	Describe taxiway lighting.	2		ADV ADI APP APS
AGA 2.3 Ru	Inwaya			
	Inways Describe runway.	2	Runway, runway surface, runway strip, shoulder, runway end safety areas, clearways, stopways	ADV ADI APP APS
ADI (TWR) AGA 2.3.2	Describe instrument runway.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	ADI APP APS
ADI (TWR) AGA 2.3.3	Describe non-instrument runway.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	ADV ADI APP APS
ADI (TWR) AGA 2.3.4	Explain declared distances.	2	TORA, TODA, ASDA, LDA	ADV ADI APP APS
ADI (TWR) AGA 2.3.5	Explain the differences between ACN and PCN.	2	Strength of pavements	ADV ADI APP APS
ADI (TWR) 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 (TWR) AGA 2.3.7	Describe runway lights.	2	Optional content: colour, centre line, intensity, edge, touchdown zone, threshold, barettes	ADV ADI APP APS
ADI (TWR) AGA 2.3.8	Explain the functions of visual landing aids.	2	Optional content: AVASI, VASI, PAPI	ADV ADI APP APS

ADI (TWR) Describe the approach lighting systems. AGA 2.3.9	2	Centre line, cross bars, stroboscopic lights, colours, intensity and brightness
ADI (TWR) Characterise the effect of water/ice on AGA 2.3.10 runways.	2	
ADI (TWR) Explain braking action. AGA 2.3.11	2	Braking action coefficient
ADI (TWR) Explain the effect of runway visual range AGA 2.3.12 on aerodrome operation	2	
AGA 3.1 General Obstacle-free airspace around ac	eroc	Iromes
ADI (TWR) Explain the necessity for establishing AGA 3.1.1 and maintaining an obstacle-free airspace around aerodromes.	2	
AGA 4 MISCELLANEOUS EQUIPMENT		
AGA 4.1 Location		
ADI (TWR) Explain the location of different AGA 4.1.1 aerodrome ground equipment.	2	Optional content: LLZ, GP LD , VDF, radio communication or radar ATS surveillance systems sensors antennas, stopbars, AVASI, VASI, PAPI

AMC1 to Appendix 5 of ANNEX I — PART-ATCO

Approach Control Procedural Rating (APP)

- This document has been provided to help i gYfg a U_Y U Wta dUf]gcb VYlk YYb h\Y WtbhYbh cZ
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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

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Subject 1: INTRODUCTION TO THE COURSE

The general subject objective is:

Learners shall know and understand the training programme that they will follow and learn how to obtain the appropriate information.

INTR 1 C	OURSE MANAGEMENT			•
INTR 1.1	Course introduction			
APP INTR 1.1.1	Explain the aims and main objectives of	f		ALL
INTR 1.1.1	the course.	2		
INTR 1.2	Course administration			
APP INTR 1.2.1	State course administration.	1		ALL
INTR 1.3	Study material and training documentat	ion		
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	Integrate appropriate information into		Training documentation	ALL
INTR 1.3.2	course studies.	4	Optional content: Training documentation , supplementary information, library	
INTR 2 IN	NTRODUCTION TO THE ATC TRAINING	COUF	RSE	•
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
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
INTR 2.3	The Assessment process			
APP	Describe the assessment process.			ALL
INTR 2.3.1		2		

Subject 2: AVIATION LAW

The general subject objective is:

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

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE

LAW 1 AIC	CO LICENSING / CERTIFICATE OF CO	IVII	LITOL	
LAW 1.1 Pr	rivileges and conditions			
APP LAW 1.1.1	Appreciate the conditions which must shall be met to for the issue an of Approach Control Procedural rating	3	EU Community air traffic controller licence Directive, ESARR5 Regulation (EU) 2015/340 on ATCO Licences, - rating, valid rating	APF
			Optional content: National documents, European Manual of Personnel Licensing - Air Traffic Controllers	_
APP LAW 1.1.2 6.1.1 HUM	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
APP LAW 1.1.3 1.1.2	Explain the conditions for suspension/revocation of ATCO licence	·2	Incident/Accident, Competence in doubt, Medical, Regulation (EU) 2015/340 on ATCO Licences	ALL
LAW 2 RUI	LES AND REGULATIONS			
LAW 2.1 R	eports			
APP	List the standard forms for reports.		Air traffic incident report	ALL
LAW 2.1.1		1	Optional content: routine air reports, breach of regulations, watch/log book, records	_
APP LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	ESARR 2, Reporting culture, air traffic incident report	ALL
			Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2	
APP LAW 2.1.3	Use forms for reporting.	3	Regulation (EU) No 376/2014, air traffic incident reporting form(s)	ALL
			Optional content: ICAO Doc 4444 Appendix 4 , routine air reports, breach of regulations, watch/log book, records	
LAW 2.2 Ai	irspace			
APP LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Approach Control Procedural rating operations.	3		APF

APP LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	Optional content: Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, international requirements, civil requirements, military requirements, areas of responsibility, sectorization, national requirements	ALL
APP LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL
LAW 3 ATC	SAFETY MANAGEMENT			-
LAW 3.1 Ex	perience Feedback process			
APP LAW 3.1.1 10.1.1 HUM	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	ALL
APP LAW 3.1.2 10.1.2 HUM	Describe how reported occurrences are analysed.	2	Optional content: ESARR 2, local procedures	ALL
APP LAW 3.1.3 10.1.3 HUM	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety boards web pages	ALL
APP	Appreciate Explain the 'Just Culture'		Benefits, prerequisites, constraints	ALL
LAW 3.1.4 10.1.4 HUM	concept.	2->3	Optional content: EAM 2 GUI 6, GAIN Report	
LAW 3.2 Sa	ifety Investigation -Branch			
APP LAW 3.2.1 10.2.1 HUM	Describe role and mission of Safety Investigation Branch in the improvement of safety.	^t 2		ALL
APP LAW 3.2.2 10.2.2 HUM	Define working methods of Safety Investigation Branch.	1		ALL

Subject 3: AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

AIM 1	PROVISION OF SERVICES	AIR TRAFFIC SERVICES AND AIRSPACE MANAGEMENT

ATM 1.1 A	Air traffic control (ATC) service			
APP ATM 1.1.1 1.1.2	Appreciate own area of responsibility.	3		APP ACP APS ACS
APP ATM 1.1.2 1.1.1	Provide the appropriate ATC approach control service.	4	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 7030, ICAO Doc 4444, operation manuals	APP APS
ATM 1.2 F	light information service (FIS)			
APP	Provide FIS.		ICAO Doc 4444	ALL
ATM 1.2.1 1.2.2		4	Optional content: national documents	_
APP ATM 1.2.2 1.2.1	Issue Relay appropriate information concerning the location of other 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
ATM 1.3 A	Alerting service (ALRS)			
APP	Provide ALRS.		ICAO Doc 4444	ALL
ATM 1.3.1		4	Optional content: national documents	
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,	ALL
			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	_
ATM 1.4 A	ATS System capacity and air traffic flov	v <mark>m</mark> ar	nagement	
APP ATM 1.4.1	Appreciate principles of ATFM-ATS system capacity and air traffic flow management.	3	Optional content: EUROCONTROL ATFCM Users Manual Working principles of ATFM, 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, 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 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
ATM 1.5	Airspace management (ASM)			
APP ATM 1.5.1	Appreciate the principles and means of ASM.	3	Regulation (EC) No 551/2004, Regulation (EC) 2150/2005, Regulation (EC) No 730/2006	APP ACP APS ACS
			Optional content: FABs, EUROCONTROL Specification for the application of FUA, ICAO Doc 4444, EUROCONTROL ASM HBK - Airspace Management Handbook for the application of FUA, TSAs, CDRs, CBAs	
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 <i>ACP</i>
ATM 2	COMMUNICATION			-
ATM 2.1	Effective communication			
APP	Use approved phraseology.		ICAO Doc 4444	ALL
ATM 2.1.1		3	Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2	_
APP	Ensure effective Perform		Communication techniques,	ALL
ATM 2.1.2	communication. effectively.	3->4	readback/verification of readback	
APP	Analyse examples of pilot and controlle	f		ALL
ATM 2.1.3	communication for effectiveness.	4		
6.1.2 HUI	M			_
ATM 3 A	ATC CLEARANCES AND ATC INSTRUCT	IONS		-
ATM 3.1	ATC clearances			
APP	Issue appropriate ATC clearances.		ICAO Doc 4444	ALL
ATM 3.1.1		3	Optional content: national documents	

APP ATM 3.1.2	Integrate appropriate ATC clearances in control service.	n 4		ALL
APP ATM 3.1.3	Ensure the agreed course of action is carried out.	4		ALL
ATM 3.2 A	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.	n 4		ALL
APP ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL
ATM 4 CC	OORDINATION			-
ATM 4.1 N	lecessity for coordination			
APP ATM 4.1.1	Identify the need for coordination.	3		ALL
ATM 4.2 T	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
ATM 4.3 C	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.	d 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	When additional traffic cannot be accepted by adjacent position/unit, When additional traffic cannot be accepted by own position/unit, etc.	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
ATM 5 AL	TIMETRY AND LEVEL ALLOCATION			-
ATM 5.1 A	ltimetry			
APP ATM 5.1.1	Allocate levels (height, altitude, flight level) according to altimetry data.	4	ICAO Doc 8168, ICAO Doc 4444	ALL
APP ATM 5.1.2	Ensure separation according to altimetr data.	y 4	Optional content: transition level, transition altitude, transition layer, height, flight level, altitude, vertical distance to airspace boundaries	ALL
ATM 5.2 To	errain 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
ATM 6 SE	PARATIONS			-
ATM 6.1 V	ertical 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	Provide increased vertical separation.		ICAO Doc 4444, ICAO Doc 7030	APP
ATM 6.1.2		4	Optional content: level allocation, during climb/descent, rate of climb/descent	ACP APS ACS
APP	Appreciate the application of vertical		ICAO Doc 4444, ICAO Doc 7030	APP
ATM 6.1.3	emergency separation.	3		ACP APS ACS
ATM 6.2 H	orizontal separation			700
APP ATM 6.2.1	Provide longitudinal separation.	4	Based on time, based on distance (DME and/or GNSS, RNAV), Based on time and ATS surveillance systems observation - European Region only	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
ATM 6.3 D	elegation of separation			i

APP ATM 6.3.1	Delegate separation to pilots in the case of aircraft executing successive visual approaches.	e 4		APP APS
APP ATM 6.3.2	Appreciate the conditions which must be met when delegating separation to pilot to fly maintaining own separation while in VMC.		ICAO Doc 4444	APP APS
APP ATM 6.3.3	Provide contingency separation in the event of a navigation aid failure.	4	Vertical, Standard, Emergency	APP ACP
ATM 7 AIF	RBORNE COLLISION AVOIDANCE SYS	TEM	S AND GROUND-BASED SAFETY	-
ATM 7.1 A	sirborne collision avoidance systems			
APP	Differentiate between ACAS advisory		ICAO Doc 9863	APP
ATM 7.1.1 7.1.6 B	thresholds and ATC separation standards applicable in the approach control environment.	2	Optional content: EUROCONTROL ACAS web page	APS
APP ATM 7.1.2 7.1.4 B	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	ALL
APP	Respond to pilot notification of actions		ACAS, TAWS	ALL
ATM 7.1.3 7.1.1	based on airborne systems warnings.	3	Optional content: GPWS EUROCONTROL ACAS web page	<u> </u>
ATM 8 DA	TA DISPLAY			
ATM 8.1 D	ata <mark>m</mark> anagement			
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	Analyse pertinent data on data displays			ALL
ATM 8.1.2		4		
APP ATM 8.1.3	Organise pertinent data on data displays.	4		ALL
APP ATM 8.1.4	Process pertinent data on data displays	. 3		ALL
APP	Obtain flight plan information.		CPL, FPL, supplementary information	ALL
ATM 8.1.4 8.1.5		3	Optional content: RPL, AFIL, etc.	_
APP ATM 8.1.5 8.1.6	Use flight plan information.	3		ALL
8.1.6				_

ATM 9.1 Ir				
	ntegrity of the operational environment	t		
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⊡ntegrity of displays, verification of the information provided by displays, etc.	APF ACF APS — ACS
ATM 9.2 V	erification of the currency of operation	nal pı	rocedures	7.00
APP ATM 9.2.1	Check all relevant documentation beformanaging traffic.	e 3	Optional content: briefing, LOAs, NOTAM, AICs	ALL
APP ATM 9.2.2	Manage traffic in accordance with procedural changes.	4		APF ACF APS
ATM 9.3 H	andover-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
ATM 10 PR	OVISION OF CONTROL SERVICE			_
ATM 10.1 R	esponsibility and processing of inform	natio	n	
APP ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
APP	Describe the responsibility in regard to		ICAO Doc 4444	ALL
ATM 10.1.2	military traffic.	2	Optional content: ICAO Doc 9554	
APP ATM 10.1.3 10.1.9	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	APF ACF APS
APP ATM 10.1.4 10.1.3	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APF ACF APS
APP ATM 10.1.5 10.1.4	Interpret operational information.	5		APF ACF APS
APP ATM 10.1.6 10.1.5	Organise forwarding of operational information.	4	Optional content: including the use of backup procedures	APF ACF APS

APP ATM 10.1.7 10.1.6	Integrate operational information into control decisions.	4		APP ACP APS ACS
APP ATM 10.1.7	Ensure an adequate priority of actions.	4	Formal and situational requirements, workload	APP ACP APS ACS
APP ATM 10.1.8 3.6.1 ACFT	Appreciate the influence of operational requirements.	3	Optional content: military flying, calibration flights, aerial photography	ALL
APP ATM 10.1.8 10.4.2	Balance the workload with the traffic demand against personal capacity.	5	e.g. in own sector, in adjacent sectors	APP ACP APS ACS
ATM 10.2 A	pproach control			ĺ
APP ATM 10.2.1	Explain the responsibility for the provision of an approach procedural control service.	2	ICAO Doc 4444, ICAO Annex 11, 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	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 4444	APP APS
				_
ATM 10.3 Ti	raffic management process			
ATM 10.3 To APP ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, traffic projection	APP ACP
APP	Ensure that situational awareness is	4	Information gathering, traffic projection	
APP ATM 10.3.1	Ensure that situational awareness is maintained. Detect conflicts in time for appropriate		Information gathering, traffic projection	ACP
APP ATM 10.3.1 APP ATM 10.3.2	Ensure that situational awareness is maintained. Detect conflicts in time for appropriate resolution. Identify potential solutions to achieve a	3	Information gathering, traffic projection	ACP ALL APP ACP APS ACS APP ACP APS
APP ATM 10.3.1 APP ATM 10.3.2 APP ATM 10.3.3	Ensure that situational awareness is maintained. Detect conflicts in time for appropriate resolution. Identify potential solutions to achieve a safe and effective traffic flow. Evaluate possible outcomes of different	3	Information gathering, traffic projection	ACP ALL APP ACP APS ACS APP ACP APS ACS APP ACS APP ACS
APP ATM 10.3.1 APP ATM 10.3.2 APP ATM 10.3.3 APP ATM 10.3.4	Ensure that situational awareness is maintained. Detect conflicts in time for appropriate resolution. Identify potential solutions to achieve a safe and effective traffic flow. Evaluate possible outcomes of different planning and control actions. Select an appropriate plan in time to	3	Information gathering, traffic projection Formal and situational requirements, workload	ACP ALL APP ACP APS ACS APP ACP APS ACP APS ACP APS ACS

APP ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL
ATM 10.4 H	andling traffic Vectoring			
APP ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP APS ACS
APP ATM 10.4.2 10.1.8	Balance the workload with the traffic demand against personal capacity.	5	Optional content: in own sector, in adjacent sectors 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
ATM 11 HO	LDING			-
ATM 11.1 G	eneral 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. effect of: wind, aircraft speed, rate of turn, height, aircraft type, aircraft performance.		Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS
ATM 11.2 V	ertical separation			
APP ATM 11.2.1	Provide vertical separation between aircraft in a holding pattern.	4		APP ACP APS ACS
6.1.1				ACS
APP ATM 11.2.2 6.1.1	Provide vertical separation between aircraft in a holding pattern and other aircraft.	4		APP ACP APS ACS
ATM 11.2 A	pproaching aircraft			
APP ATM 11.2.1 11.3.1	Calculate Expected Approach Times (EATs) and Expected Onward Clearance times.	3		APP APS

APP ATM 11.2.2 11.3.2

Organise the traffic landing sequence in a holding pattern.

Optional content: company preference, aircraft performance, aircraft approach capability, ILS categories, flow control management

APP APS

Subject 4: METEOROLOGY

The general subject objective is:

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

BACT 4	METEODOLOGICAL DUENOMENA	
	METEOROLOGICAL PHENOMENA	١.

	12011020010712111211011121171			
MET 1.1 M	leteorological <mark>p</mark> henomena			
APP 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
			Optional content: Volcanic ash	
APP MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information	ALL
			Optional content: relevant meteorological phenomena Separation, holding, diversions, re-routings, etc.	
APP MET 1.1.3	Integrate data about meteorological phenomena into clearances, instructions and transmitted information.	5 4	Optional content: Thunderstorm, Turbulence, Icing, Volcanic ash	APP ACP APS ACS
1.1.2	and transmitted information.			ACS
APP MET 1.1.3	Use techniques to avoid adverse		Re-routing, level change, etc.	APP ACP
1.1.4	weather when necessary/possible.	3		APS ACS
MET 2 SO	URCES OF METEOROLOGICAL DATA			•
MET 2.1 S	ources of meteorological information			
APP	Obtain meteorological information		METAR, TAF, SIGMET, AIRMET	APP
MET 2.1.1		3	Optional content: AIREP/AIREP Special	ACP APS ACS
APP	Relay meteorological information.		ICAO Doc 4444 To: aircraft, MET office	ALL
MET 2.1.2		3	Optional content: flight information centre, adjacent ATS unit	

Subject 5: NAVIGATION

The general subject objective is:

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

NAV 1 MA	APS AND AERONAUTICAL CHARTS			•
NAV 1.1 N	laps 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	AI AF AF
4.00			Optional content: military maps and charts	_
APP NAV 1.1.2	Use relevant maps and charts.	•		Al A
1.1.1		3		AF A(
NAV 2 INS	STRUMENT <mark>AL</mark> NAVIGATION			-
NAV 2.1 N	lavigational <mark>s</mark> ystems			
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	AF AC AF
APP NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operation status of navigational systems.	al ₃	Optional content: limitations, status, degraded procedures	AL
NAV 2.2 S	tabilised approach			
APP	Describe the concept of stabilised		ICAO Doc 8168	ΑĽ
NAV 2.2.1	approach.	2	Optional content: SKYbrary, Regulation (EC) No 1899/2006	AI AI AI
APP NAV 2.2.2	Appreciate the effect of late change of runway-in-use or type of approach for landing aircraft.	3		AF AF
APP NAV 2.2.3	Appreciate controller actions that may contribute to unstabilised approach.	3	Delayed descent	Al
NAV 2.3 In	nstrument departures and arrivals			
APP	Characterise SIDs.			Α[
NAV 2.3.1		2		AF
APP	Describe the types and phases of			AF
NAV 2.3.2	instrument approach procedures.	2		Αſ
APP NAV 2.3.3	Describe the relevant minima applicable for a precision/non-precision and visual approach.			AI AI
NAV 2.4 N	lavigational assistance			

APP NAV 2.4.1 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
NAV 2.5 S	atellite-based systems			
APP NAV 2.5.1 2.3.1	State the different applications operations associated with of satellite-based systems relevant for approach operations.	1	Optional content: NPA, APV-baro VNAV, APV, LPV, precision approach, ICAO Doc 8168 Vol.2	APP APS
NAV 2.6 P	BN applications			
APP NAV 2.6.1	State the navigation applications used in approach and terminal environments.	n 1	Approach-RNP APCH/ RNP AR APCH; Terminal-RNAV-1 (≈P-RNAV)	APP APS
			Optional content: A-RNP, EU PBN Implementing Rule, ICAO Doc 9613	
APP NAV 2.6.2	Explain the principles and designation of navigation specifications in use.	of 2	Optional content: performance, functionality, sensors, aircrew and controller requirements	APP ACP APS ACS
APP	State future PBN developments.		A-RNP, APV	ADI
NAV 2.6.3		1	Optional content: RNP 3D, RNP 4D	APP ACP APS ACS

Subject 6 : AIRCRAFT

The general subject objective is:

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

ACFT 1 AIR	RCRAFT INSTRUMENTS			-
ACFT 1.1 A	ircraft instruments			
APP ACFT 1.1.1	Integrate the information indication from aircraft instruments provided by the pilo in the provision of ATS.		Optional content: TCAS, wind shear indicator, weather radar	ALL
APP ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios, SELCAL	ALL
APP ACFT 1.1.3	Explain the operation of transponder equipment.	2	Transponders: equipment Mode A, Mode C, Mode S	ADV APP ACP
APP ACFT 1.1.4	Explain the use and benefits of CPDLC	2		ALL
ACFT 2 AIR	RCRAFT CATEGORIES			
ACFT 2.1 W	/ake turbulence categories			
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
ACFT 2.2 A	pplication of ICAO approach categorie	s		
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
ACFT 3 FA	CTORS AFFECTING AIRCRAFT PERFO	ORM/	NCE	
ACFT 3.1 C	limb 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
ACFT 3.2 C	ruise factors			

APP	Integrate the influence of factors		Level, cruising speed, wind, mass,	APP
ACFT 3.2.1	affecting aircraft during cruise.	4	cabin pressurisation	ACP APS
				- ACS
	escent 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
ACFT 3.4 F	inal 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
ACFT 3.5 E	conomic 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	Use continuous climb techniques where)		APP
ACFT 3.5.2	applicable.	3		<i>ACP</i> APS
A.D.D.				ACS
APP ACFT 3.5.3	Use direct routing where applicable.	3		APP ACP APS
				400
				ACS
ACFT 3.6 M	liscellaneous Factors			ACS
ACFT 3.6 M APP ACFT 3.6.1	Hiscellaneous Factors Appreciate the influence of operational requirements.	3	Optional content: Military flying, Calibration flights, Aerial photography, banner towing	APP APS
APP	Appreciate the influence of operational	3		APP
APP ACFT 3.6.1 10.1.8 ATM	Appreciate the influence of operational	3		APP
APP ACFT 3.6.1 10.1.8 ATM	Appreciate the influence of operational requirements.			APP
APP ACFT 3.6.1 10.1.8 ATM ACFT 3.6 E APP ACFT 3.6.1 3.7.1	Appreciate the influence of operational requirements: cological Environmental factors Appreciate the performance restrictions due to environmental constraints. Estimate the influence of ecological		Optional content: fuel dumping, noise abatement procedures, minimum flight levels, bird hazard, continuous descent	APP APS
APP ACFT 3.6.1 10.1.8 ATM ACFT 3.6 E APP ACFT 3.6.1 3.7.1	Appreciate the influence of operational requirements. cological Environmental factors Appreciate the performance restrictions due to environmental constraints. Estimate the influence of ecological factors affecting aircraft.		Optional content: fuel dumping, noise abatement procedures, minimum flight levels, bird hazard, continuous descent	APP APS
APP ACFT 3.6.1 10.1.8 ATM ACFT 3.6 E APP ACFT 3.6.1 3.7.1	Appreciate the influence of operational requirements. cological Environmental factors Appreciate the performance restrictions due to environmental constraints. Estimate the influence of ecological factors affecting aircraft.	3	Optional content: fuel dumping, noise abatement procedures, minimum flight levels, bird hazard, continuous descent	APP APS
APP ACFT 3.6.1 10.1.8 ATM ACFT 3.6 E APP ACFT 3.6.1 3.7.1 ACFT 4 AIF ACFT 4.1 P	Appreciate the influence of operational requirements. cological Environmental factors Appreciate the performance restrictions due to environmental constraints. Estimate the influence of ecological factors affecting aircraft. CCRAFT DATA erformance data Integrate the average performance data of a representative sample of aircraft which will be encountered in the operational/working environment into the	3	Optional content: fuel dumping, noise abatement procedures, minimum flight levels, bird hazard, continuous descent operations Approach	APP APS APP APS APP ACP APS

Subject 7: HUMAN FACTORS

The general subject objective is:

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

HUM 1	PSYCHOL	OGICAL	FACTORS
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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

HUM 2 MEDICAL AND PHYSIOLOGICAL FACTORS

HUM 2.1	Fatigue			
APP	State factors that cause fatigue.		Shift work	ALL
HUM 2.1.1		1	Optional content: night shifts and rosters	
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	Recognise the onset of fatigue in others	S.		ALL
HUM 2.1.4	}	1		
APP	Describe Consider appropriate action			ALL
HUM 2.1.5	when recognising fatigue.	2		
HUM 2.2	Fitness			
APP	Recognise signs of lack of personal			ALL
HUM 2.2.1	fitness.	1		

2

HUM 3 SOCIAL AND ORGANISATIONAL FACTORS

Describe actions when aware of a lack

HUM 3.1 Team resource management (TRM)

of personal fitness.

APP

HUM 2.2.2

ALL

APP HUM 3.1.1	State the relevance objectives 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
HUM 3.2 T	eamwork 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
HUM 3.3 F	Responsible behaviour			Ī
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
HUM 4 ST	RESS			-
HUM 4.1 S	tress			
APP HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL
HUM 4.2 S	tress management			Ī
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		Optional content: the benefits of offering, accepting and asking for help in stressful	ALL
	offering, asking or accepting assistance Obtain assistance in stressful situations		situations	
APP HUM 4.2.3				ALL
	Obtain assistance in stressful situations Recognise the effect of shocking and	1	Self and others, abnormal situations,	ALL

HUM 5 HU	IMAN ERROR		
HUM 5.1 H	luman error		
APP HUM 5.1.1	Explain the relationship between error and safety.	Number and combination of errors, pro- active versus reactive approach to discovery of error	
		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
APP	Differentiate between the types of error.	Slips, lapses, mistakes	ŀ
HUM 5.1.2		Optional content: Slips, Lapses, Mistakes ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
APP HUM 5.1.3	Describe error-prone conditions.	Optional content: increase in traffic, changes in procedures, complexities of systems or traffic, weather, unusual occurrences	,
APP HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	,
APP HUM 5.1.5	Explain how to detect errors to compensate for them.	STCA, MSAW, individual and collective strategy	
		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
APP	Execute corrective actions.	Error compensation	-
HUM 5.1.6		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
APP HUM 5.1.7	Explain the importance of error management.	Optional content: prevention of incidents, safety improvement, revision of procedures and/or working practises	_
APP HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	Optional content: reporting, SMS, investigation, CISM	_
HUM 5.2 V	iolation of rules		
APP HUM 5.2.1	Explain the causes and dangers of violation of rules becoming accepted as a practice.	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
HUM 6 W	ORKING METHODS		_
HUM 6.1 E	:fficiency		
APP HUM 6.1.1	Consider, from a human factors point of view, the factors affecting efficiency in the provision of air traffic control.	Optional content: Own and others workload, OJT, customer requirements, economy, ecology, safety	,

HUM 6.1 C	ommunication			
APP	Use communication effectively in ATC.			AL
HUM 6.1.1 8.1.1		3		
				_
APP	Analyse examples of pilot and controlle	r		AL
HUM 6.1.2	communication for effectiveness.	4		
2.1.3 ATM				_
HUM 6.2 C	collaborative work within the same are	a of r	esponsibility	
APP HUM 6.2.1 8.2.1	List communication means between controllers in charge of the same area responsibility (sector or tower).	of ₁	Optional content: electronic, written, verbal and non-verbal communication	AL
APP	,			-
HUM 6.2.2	Explain consequences of the use of communication means on effectiveness	2	Optional content: strips legibility and encoding, Radar labels designation,	ALI
8.2.2	Communication means on electiveness	² ·2	feedback	
APP	List possible actions to provide a safe		Outlined and advantaging and advantage	_
HUM 6.2.3	position handover.		Optional content: rigour, preparation, overlap time	ALI
8.2.3	position riandovor.	1	·	
APP	Explain consequences of a missed			– ALI
HUM 6.2.4	position handover process.	•		ALI
8.2.4	position number of process.	2		
HUM 6.3 C	ollaborative work between different a	reas c	of responsibility	
APP	List factors and means for an effective		Optional content: other sectors constraints,	ALI
HUM 6.3.1	coordination between sectors and/or	1	electronic coordination tools	/ \L
8.3.1	tower positions.	ı		
HUM 6.4 C	ontroller/pilot cooperation			Ī
APP	Describe parameters affecting		Optional content: workload, mutual	– ALI
HUM 6.4.1	controller/pilot cooperation.	2	knowledge, controller vs pilot mental	
8.4.1		_	picture	
HUM 7 WC	ORKING KNOWLEDGE			_
HUM 7.1 C	ontroller knowledge			
APP	Explain how to maintain and update		Optional content: Briefing, LOAs, NOTAM,	AL
HUM 7.1.1	professional knowledge to retain	2	AICs, Reports of accident/incident,	
1.1.2 LAW	competence in the operational	2	VOLMET, ATIS, SIGMET	
1.1.2 LAVV	environment.			
HUM 9 WC	ORK ENVIRONMENT			_
HUM 9.1 E	rgonomics			
APP	Appreciate the impact of working			AL
HUM 9.1.1	position ergonomics on controller	3		
	activity.	5		
HIIM 40 AT	C SAFETY MANAGEMENT			_
HUW TO AT	C SAFETT WANAGEWENT			

HUM 10.1 Ex	kperience feedback			
APP HUM 10.1.1	State the importance of the controllers contribution to the experience feedback	1	Optional content: voluntary reporting	ALL
3.1.1 LAW	process.			
APP HUM 10.1.2	Describe how reported occurrences are analysed.	2	Optional content: ESARR2, local procedures	ALL
3.1.2 LAW				
APP HUM 10.1.3	Name the means used to disseminate recommendations.	1	Optional content: Safety letters, safety boards web pages	ALL
3.1.3 LAW				
APP	Explain the "Just Culture" concept.		benefits, prerequisites, constraints	ALL
HUM 10.1.4		2	Optional content: EAM 2 GUI 6, GAIN	
3.1.4 LAW			Report	
HUM 10.2 St	afety investigation branch			
APP HUM 10.2.1	Describe role and mission of Safety Investigation Branch in the improvement	t ₂		ALL
3.2.1 LAW	of safety.			
APP HUM 10.2.2	Define working methods of Safety Investigation Branch.	1		ALL
3.2.2 LAW				

Subject 8: EQUIPMENT AND SYSTEMS

The general 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.

EQPS 1	OICE COMMUNICATIONS			-
EQPS 1.1	Radio communications			
APP	Operate two-way communication		Transmit/receive switches, procedures	ALL
EQPS 1.1.1	equipment.	3	Optional content: frequency selection, standby equipment	
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
EQPS 1.2	Other voice communications			
APP EQPS 1.2.1	Operate landline communications.	3	Optional content: telephone, interphone and intercom equipment	ALL
EQPS 2	AUTOMATION IN ATS			_
EQPS 2.1	Aeronautical fixed telecommunication r	etwo	ork (AFTN)	
APP EQPS 2.1.1	Decode AFTN messages.	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	ALL
EQPS 2.2	Automatic data Interchange			
APP EQPS 2.2.1	Use automatic data transfer equipment where available.	3	Optional content: Sequencing systems, automated information and coordination, OLDI	APP ACP
EQPS 3	CONTROLLER WORKING POSITION			_
EQPS 3.1	General Operation and monitoring of ed	uipm	nent	
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, strip-printer, clock, information systems monitors, (CCIS), UDF/VDF	ALL
APP EQPS 3.1.3	Operate all-available equipment in unusual/degraded/abnormal and emergency situations.	3		ALL
EQPS 3.2	Situation displays and information syst	ems		

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 the information from equipment.	3		APP ACP APS - ACS
EQPS 3.3 F	light data systems			
APP EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL
EQPS 4 FU	TURE EQUIPMENT			
EQPS 4.1 N	ew developments			
APP EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL
EQPS 5 EQ	UIPMENT AND SYSTEMS LIMITATION	S ANI	DEGRADATION	-
EQPS 5.1 G	leneral 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
EQPS 5.2 C	ommunication equipment degradation	l		
APP EQPS 5.2.1	Identify that communication equipment has degraded.	3	Optional content: ground-air and landline communications	APP ACP APS ACS
APP EQPS 5.2.2	Apply Integrate contingency procedures in the event of communication equipment degradation.	s 4->3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APP ACP APS ACS
EQPS 5.3 N	avigational 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 Integrate contingency procedures in the event of a navigational equipment degradation.	t _{4->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 general subject objective is:

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

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PEN 1 FAMILIARISATION PROFESSIONAL ENVIRONMENT

PEN 1.1 Study visit to approach control unit

APP Appreciate the functions and provision **PEN 1.1.1** of an operational approach control service.

Study visit to an approach control unit

APP APS

APP

APS

ALL

ALL

ALL

ALL

PEN 2 AIRSPACE USERS

Contributors to civil ATS operations **PEN 2.1**

APP Characterise civil and military ATS **PEN 2.1.1** activities in approach control unit. 1.1.1

Study visit to an approach control unit Optional content: Familiarisation visits to : g. TWR, APP, ACC, AIS, RCC, Air Defence Units

APP **PEN 2.1.2**

1.1.2

1.1.1

Characterise other parties interfacing with ATS operations.

Optional content: familiarisation visits to e: g. engineering services, fire and emergency services, airline operations offices

PEN 2.2 Contributors to military ATS operations

APP Characterise civil and military ATS **PEN 2.2.1** activities.

Optional content: Familiarisation visits to e. g. TWR, APP, ACC, AIS, RCC, Air 2

Defence Units

PEN 3 CUSTOMER RELATIONS

Customer relations Provision of services and user requirements **PEN 3.1**

APP Identify the role of ATC as a service **PEN 3.1.1** provider. and the requirements of the 1.2.1 ATS users.

Optional content: familiarisation flights, flight simulator visits, liaison visits to aerodrome authority, aircraft and/or airfield operators

APP PEN 3.1.2

1.2.1

Appreciate ATS users requirements.

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PEN 4 ENVIRONMENTAL PROTECTION

PEN 4.1 Environmental protection

APP Describe the environmental constraints **PEN 4.1.1** on aerodrome operations.

Optional content: ICAO Circular 303 -Operational opportunities to minimise fuel use and reduce emissions

ADV ADI APP **APS**

APP PEN 4.1.2 1.3.1	Explain the use of Collaborative Environmental Management (CEM) process at airports. Describe processes used to ensure environmental protection.	2	Optional content: night curfews, relations with local community, relations with environmental associations, relevant administrations	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: UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS

The general subject objective is:

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

ABES 1.1 G	eneral Overview of ABES			
APP ABES 1.1.1	List common unusual/degraded/abnormal and emergency situations.	1	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion	ALL
APP ABES 1.1.2 4.1.2 ACFT	Identify potential or actual abnormal and emergency situations.	3		ALL
APP ABES 1.1.3 1.1.2	Take into account the procedures for given unusual/degraded/abnormal and emergency situations.	2	Optional content: ICAO Doc 4444	APP ACP APS ACS
APP ABES 1.1.4 1.1.3	Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations.	2	Optional content: real life examples	ALL
APP ABES 1.1.5 1.1.4	Consider how the evolution of a situation may have an impact on safety.	n 2	Optional content: separation, information, coordination	ALL
ABES 2 SK	ILLS IMPROVEMENT			
ABES 2.1 C	ommunication effectiveness			
APP ABES 2.1.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	⁹ 4	Phraseology, vocabulary, readback, silence instruction	ALL
APP ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	ALL
ABES 2.2 A	voidance of mental overload			
APP ABES 2.2.1	Describe actions to keep the 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	Ensure an effective circulation of information.		Optional content: between executive and planner/coordinator, with the supervisor,	ALL

APP	Consider asking for help.			ALI
ABES 2.2.4		2		
ABES 2.3 Ai	ir / ground cooperation			
APP ABES 2.3.1	Collect appropriate information relevant			ALI
ADLO 2.3.1	for to the situation.	3		_
APP ABES 2.3.2	Assist the pilot.		Pilot workload	ALI
ABES 2.3.2		3	Optional content: instructions, information, support, human factors, etc.	_
	OCEDURES FOR UNUSUAL/DEGRADI UATIONS	ED/ AE	NORMAL AND EMERGENCY	•
ABES 3.1 G	eneral Application of procedures for A	BES		
APP ABES 3.1.1	Apply the procedures for given unusual/degraded/abnormal and emergency situations.	3	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure	ALI
ABES 3.2 Ra	adio failure			
APP ABES 3.2.1	Describe the procedures followed by a		ICAO Doc 7030	ALI
ABES 3.2.1	pilot when he/she experiences complete or partial radio failure.	⁹ 2	Optional content: military procedures	_
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	ALI
ABES 3.3 U	nlawful interference and aircraft bomb	thre	at	
APP ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALI
ABES 3.4 St	trayed or unidentified aircraft			
APP ABES 3.4.1	Apply the procedures in the case of		ICAO Doc 4444	ALI
ABES 5.4.1	strayed aircraft.	3	Optional content: inside controlled airspace, outside controlled airspace	_
APP ABES 3.4.2	Apply the procedures in the case of		ICAO Doc 4444	ALI
ABES 5.4.2	unidentified aircraft.	3		_
ABES 3.5 Di	iversions			
APP ABES 3.5.1	Provide navigational assistance to		Track/heading, distance, other	AP AC
ADES 3.3.1	diverting emergency aircraft.	4	navigational assistance Optional content: nearest most suitable	AP:
			aerodrome	

Subject 11: AERODROMES

The general subject objective is:

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

AGA 1 GENERAL AERODROME DATA, LAYOUT AND COORDINATION

AGA 1.1 **Definitions APP** Describe the general layout of an ICAO Annex 14 APP AGA 1.1.1 APS aerodrome with a single runway and 2 Optional content: AIP ADV multiple runways. ADI **APP** Define aerodrome data. Regulation (EU) No 139/2014 - EASA ADV **AGA** 1.1.1 ADI ED Decision 2014/013/R for CS-ADR-1 APP 1.1.2 DSN - Initial issue and EASA ED **APS** Decision 2014/012/R for ADR AMC/GM ICAO Annex 14 Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot

3

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.

Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14

APP

APS

ADV

ADI

AGA 2 MOVEMENT AREA

ent area.	2 E	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR- DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14
	2 E	ED Decision 2014/013/R for CS-ADR- DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM
king of obstacles and rviceable areas.	2 2	Flags, signs on pavement, lights
nation on conditions of ea that have to be		Essential information on aerodrome conditions
1 1	rviceable areas. ation on conditions of ea that have to be	rviceable areas. 2 eation on conditions of ea that have to be 3

APP AGA 2.2.1	Describe manoeuvring area.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	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
AGA 2.3 R	Runways			, 0
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	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	ADI APP APS
APP AGA 2.3.3	Describe non-instrument runway.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	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	s. 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 rang on aerodrome operation	je 2		ADV ADI APP APS
AGA 3 OB	STACLES			
	STACLES seneral Obstacle-free airspace around	aero	dromes	
		aeroc	dromes	ADV ADI APP APS
AGA 3.1 G APP AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free		dromes	ADI APP
AGA 3.1 G APP AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free airspace around aerodromes.		dromes	ADI APP

AMC1 to Appendix 6 of ANNEX I — PART-ATCO

Area Control Procedural Rating (ACP)

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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

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Subject 1: INTRODUCTION TO THE COURSE

The general subject objective is:

Learners shall know and understand the training programme that they will follow and learn how to obtain the appropriate information.

INTR 1 COURSE MANAGEMENT		•
INTR 1.1 Course introduction		
ACP Explain the aims and main objectives the course	of	ALL
INTR 1.1.1 the course.	2	
INTR 1.2 Course administration		
ACP State course administration. INTR 1.2.1		ALL
INTIX 1.2.1	1	
INTR 1.3 Study material and training document	ation	
INTR 1.3.1 Use appropriate documentation and their sources for course studies.	Optional content: training documentation, library, CBT library, web, learning management server	ALL
ACP Integrate appropriate information into	Training documentation	ALL
INTR 1.3.2 course studies.	4 Optional content: Training documentation , supplementary information, library	
INTR 2 INTRODUCTION TO THE ATC TRAINING	COURSE	•
INTR 2.1 Course content and organisation		
ACP State the different training methods applied in the course.	Theoretical training, practical training, self-study, types of training events	ALL
ACP State the subjects of the course and		ALL
INTR 2.1.2 their purpose.	1	
ACP Describe the organisation of theoretical	Optional content: course programme	ALL
INTR 2.1.3 training.	2	
ACP Describe the organisation of practical	Optional content: PTP, simulation, briefing,	ALL
INTR 2.1.4 training.	debriefing, course programme	
INTR 2.2 Training ethos		
ACP Recognise the feedback mechanisms	<u> </u>	ALL
INTR 2.2.1 available.	briefing, debriefing, learner/instructor feedback, instructor/instructor feedback	
	reedback, instructor/instructor reedback	
INTR 2.3 The Assessment process		
ACP Describe the assessment process.		ALL
INTR 2.3.1	2	

Subject 2: AVIATION LAW

The general subject objective is:

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

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE

LAW 1 AI	CO LICENSING / CERTIFICATE OF COI	MPE	ENCE	
LAW 1.1 P	rivileges and conditions			
ACP LAW 1.1.1	Appreciate the conditions which must shall be met to for the issue an of Area Control Procedural rating.	3	EU Community air traffic controller licence Directive, ESARR5 Regulation (EU) 2015/340 on ATCO Licences, rating, valid rating	ACP
			Optional content: National documents, European Manual of Personnel Licensing - Air Traffic Controllers	
ACP LAW 1.1.2	Explain how to maintain and update			ALL
6.1.1 HUM	professional knowledge and skills to retain competence in the operational environment.	2		
ACP	Explain the conditions for		Incident/Accident, Competence in	ALL
LAW 1.1.3 1.1.2	suspension/revocation of ATCO licence.	2	doubt, Medical, Regulation (EU) 2015/340 on ATCO Licences	
			2019/340 0H ATCO Licences	_
	LES AND REGULATIONS			
	eports			
ACP LAW 2.1.1	List the standard forms for reports.		Air traffic incident report	ALL
		1	Optional content: routine air reports, breach of regulations, watch/log book, records	
ACP LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	ESARR 2, Reporting culture, air traffic incident report	ALL
			Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2	
ACP LAW 2.1.3	Use forms for reporting.	3	Regulation (EU) No 376/2014, air traffic incident reporting form(s)	ALL
		Ü	Optional content: ICAO Doc 4444 Appendix 4 , routine air reports, breach of regulations, watch/log book, records	
LAW 2.2 A	irspace			
ACP LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Area 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: Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, international requirements, civil requirements, military requirements, areas of responsibility, sectorization, national requirements	ALL
ACP LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL
LAW 3 ATO	SAFETY MANAGEMENT			_
LAW 3.1 Ex	(perience Feedback process			
ACP LAW 3.1.1 10.1.1 HUM	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	ALL
ACP LAW 3.1.2 10.1.2 HUM	Describe how reported occurrences are analysed.	2	Optional content: ESARR 2, local procedures	ALL
ACP LAW 3.1.3 10.1.3 HUM	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety boards web pages	ALL
ACP	Appreciate Explain the 'Just Culture'		Benefits, prerequisites, constraints	ALL
10.1.4 HUM	concept.	2->3	Optional content: EAM 2 GUI 6, GAIN Report	
LAW 3.2 Sa	afety Investigation Branch			
ACP LAW 3.2.1 10.2.1 HUM	Describe role and mission of Safety Investigation Branch in the improvemen of safety.	^t 2		ALL
ACP LAW 3.2.2 10.2.2 HUM	Define working methods of Safety Investigation Branch.	1		ALL

Subject 3: AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

ATM 1 PR	OVISION OF SERVICES AIR TRAFFIC	SER\	VICES AND AIRSPACE MANAGEMENT	-
ATM 1.1 A	ir traffic control (ATC) service			
ACP ATM 1.1.1 1.1.2	Appreciate own area of responsibility.	3		,
ACP ATM 1.1.2	Provide the appropriate ATC area control service.	4	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 7030, ICAO Doc 4444, operation manuals	
ATM 1.2 F	light information service (FIS)			
ACP	Provide FIS.		ICAO Doc 4444	
ATM 1.2.1 1.2.2		4	Optional content: national documents	
ACP ATM 1.2.2 1.2.1	Issue Relay appropriate information concerning the location of other conflicting traffic.	3	ICAO Doc 4444, traffic information, essential traffic information	
ATM 1.3 A	lerting service (ALRS)			
ACP	Provide ALRS.		ICAO Doc 4444	
ATM 1.3.1		4	Optional content: national documents	
ACP ATM 1.3.2	Respond to distress and urgency messages and signals.	3	Regulation (EU) No 923/2012, ICAO Annex 10, ICAO Doc 4444,	
			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	
ATM 1.4 A	TS System capacity and air traffic flow	v <mark>m</mark> aı	nagement	Ī
ACP ATM 1.4.1	Appreciate principles of ATFM ATS system capacity and air traffic flow management.	3	Optional content: EUROCONTROL ATFCM Users Manual Working principles of ATFM, FABs, FUA, free flight, etc.	
ACP ATM 1.4.2	Apply flow management procedures in the provision of ATC.	3	Optional content: EUROCONTROL ATFCM Users Manual	_
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	
ACP ATM 1.4.4	Organise traffic flows and patterns to take account of areas of responsibility.	4	Optional content: EUROCONTROL ATFCM Users Manual	_

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
ATM 1.5 A	Airspace management (ASM)			
ACP ATM 1.5.1	Appreciate the principles and means of ASM.	3	Regulation (EC) No 551/2004, Regulation (EC) 2150/2005, Regulation (EC) No 730/2006	APP ACP APS ACS
			Optional content: FABs, EUROCONTROL Specification for the application of FUA, ICAO Doc 4444, EUROCONTROL ASM HBK - Airspace Management Handbook for the application of FUA, TSAs, CDRs, CBAs	_
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
ATM 2 CC	DMMUNICATION			_
ATM 2.1 E	Effective communication			
ACP ATM 2.1.1	Use approved phraseology.		ICAO Doc 4444	ALL
ATW 2.1.1		3	Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2	
ACP ATM 2.1.2	Ensure effective Perform communication. effectively.	3->4	Communication techniques, readback/verification of readback	ALL
ACP ATM 2.1.3	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
6.1.2 HUM				
ATM 3 AT	C CLEARANCES AND ATC INSTRUCTI	ONS		•
ATM 3.1 A	ATC clearances			
ACP	Issue appropriate ATC clearances.		ICAO Doc 4444	ALL
ATM 3.1.1		3	Optional content: national documents	
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
ATM 3.2 A	ATC instructions			İ
ACP	Issue appropriate ATC instructions.		ICAO Doc 4444	ALL
ATM 3.2.1		3	Optional content: national documents	
ACP	Integrate appropriate ATC instructions in	 1		ALL
ATM 3.2.2	control service.	4		/ NLL
				-

ACP ATM 3.2.3	Ensure the agreed course of action is carried out.	4		ALL
ATM 4 CO	OORDINATION			•
ATM 4.1 N	lecessity for coordination			
ACP ATM 4.1.1	Identify the need for coordination.	3		ALL
ATM 4.2 T	ools 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
ATM 4.3 C	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	ALL
			Optional content: release point	_
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	When additional traffic cannot be accepted by adjacent position/unit, When additional traffic cannot be accepted by own position/unit, etc.	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
ATM 5 AL	TIMETRY AND LEVEL ALLOCATION			•
ATM 5.1 A	lltimetry			
ACP ATM 5.1.1	Allocate levels (height, altitude, flight level) 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
ATM 5.2 T	errain 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
ATM 6 SE	PARATIONS			•
ATM 6.1 V	ertical 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, RVSM, non-RVSM aircraft, holding pattern	ACP ACS
ACP	Provide increased vertical separation.		ICAO Doc 4444, ICAO Doc 7030	APP
ATM 6.1.2		4	Optional content: level allocation, during climb/descent, rate of climb/descent	ACP APS ACS
ACP	Appreciate the application of vertical		ICAO Doc 4444, ICAO Doc 7030	APP
ATM 6.1.3	emergency separation.	3		ACP APS
ATM CO. III				ACS
ATM 6.2 H ACP ATM 6.2.1	Iorizontal separation Provide longitudinal separation.		Based on time, based on distance	ACP
ATW 0.2.1		4	(DME and/or GNSS, RNAV), Based on time and ATS surveillance systems observation - European Region only	
			Optional content: based on time with Mach number technique	
ACP ATM 6.2.2	Provide lateral separation.	4	ICAO Doc 4444, ICAO Doc 7030, holding	APP ACP
ACP	Provide track separation.			A C D
ATM 6.2.3	Frovide track separation.	4		ACP APP
ACP ATM 6.2.4	Provide geographical separation.	4	Visual, using navigation aids, area navigation	ACP APP
ATM 6.3 B	Delegation of separation			
ACP	Provide contingency separation in the		Vertical, Standard, Emergency	APP
ATM 6.3.1	event of a navigation aid failure.	4		ACP
	RBORNE COLLISION AVOIDANCE SYS	TEMS	S AND GROUND-BASED SAFETY	•
	Airborne collision avoidance systems			
ACP	Differentiate between ACAS advisory		ICAO Doc 9863	ACP
ATM 7.1.1	thresholds and ATC separation	2	Optional content: EUROCONTROL ACAS web	ACS
7.1.6 B	standards applicable in the area control environment.		page	

ACP ATM 7.1.2 7.1.4 B	Describe the controller responsibility during and following an ACAS RA reported by pilot.	2	ICAO Doc 4444	A
ACP ATM 7.1.3 7.1.1	Respond to pilot notification of actions based on airborne systems warnings.	3	ACAS, TAWS Optional content: GPWS-EUROCONTROL ACAS web page	ļ ļ
ATM 8 DA	ATA DISPLAY			
	Pata 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	,
ACP ATM 8.1.2	Analyse pertinent data on data displays.	4		,
ACP ATM 8.1.3	Organise pertinent data on data displays.	4		_
ACP ATM 8.1.4	Process pertinent data on data displays.	3		_
ACP ATM 8.1.4 8.1.5	Obtain flight plan information.	3	CPL, FPL, supplementary information Optional content: RPL, AFIL, etc.	,
ACP ATM 8.1.5 8.1.6	Use flight plan information.	3		
ATM 9 OF	PERATIONAL ENVIRONMENT (SIMULAT	ΓED)		-
TM 9.1 lı	ntegrity 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	,
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.	
TM 9.2 V	erification of the currency of operation	al pr	ocedures	
ACP ATM 9.2.1	Check all relevant documentation before managing traffic.	3	Optional content: briefing, LOAs, NOTAM, AICs	•
ACP ATM 9.2.2	Manage traffic in accordance with procedural changes.	4		

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
ATM 10 PR	OVISION OF CONTROL SERVICE			-
ATM 10.1 R	esponsibility and processing of inforn	natior	1	
ACP ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ACP	Describe the responsibility in regard to		ICAO Doc 4444	ALL
ATM 10.1.2	military traffic.	2	Optional content: ICAO Doc 9554	
ACP	Describe the responsibility in regard to		ICAO Doc 4444	APP
ATM 10.1.3 10.1.9	unmanned free balloons.	2		ACP APS ACS
ACP ATM 10.1.4 10.1.3	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APP ACP APS ACS
ACP ATM 10.1.5 10.1.4	Interpret operational information.	5		APP ACP APS ACS
ACP ATM 10.1.6 10.1.5	Organise forwarding of operational information.	4	Optional content: including the use of backup procedures	APP ACP APS ACS
ACP ATM 10.1.7 10.1.6	Integrate operational information into control decisions.	4		APP ACP APS ACS
ACP ATM 10.1.7	Ensure an adequate priority of actions.	4	Formal and situational requirements, workload	APP ACP APS
10.3.6				ACS
ACP ATM 10.1.8 3.5.1 ACFT	Appreciate the influence of operational requirements.	3	Optional content: military flying, calibration flights, Aerial photography	ALL
ACP ATM 10.1.8 10.4.2	Balance the workload with the traffic demand against personal capacity.	5	e.g. in own sector, in adjacent sectors	APP ACP APS ACS
ATM 10.2 A	rea control			
ACP ATM 10.2.1	Explain the responsibility for the provision of an area procedural control service.	2	ICAO Doc 4444, ICAO Annex 11, local operation manuals	ACP

ACP ATM 10.2.2	Provide planning, coordination and control actions appropriate to the VFR and IFR in VMC and IMC.	4	Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, ICAO Doc 4444	ACP ACS
ATM 10.3 Tr	raffic 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 10.1.7	Ensure an adequate priority of actions.	4	Formal and situational requirements, workload	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
ATM 10.4 H	andling traffic Vectoring			
ACP ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP APS ACS
ACP ATM 10.4.2 10.1.8	Balance the workload with the traffic demand against personal capacity.	5	Optional content: in own sector, in adjacent sectors re-routing, re-planning, prioritising solutions, denying requests, delegating responsibility for separation	APP ACP APS ACS
ATM 11 HO	LDING			•
ATM 11.1 G	eneral 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. effect of: wind, aircraft speed, rate of turn, height, aircraft type, aircraft performance.	-	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS

ATM 11.2 V	ertical separation		
ACP ATM 11.2.1	Provide vertical separation between aircraft in a holding pattern.	4	APF ACF APS
6.1.1			ACS
ACP ATM 11.2.2	Provide vertical separation between aircraft in a holding pattern and other	4	APF ACF APS
6.1.1	aircraft.		ACS
ATM 11.2 H	olding aircraft		
ACP ATM 11.2.1	Calculate expected onward clearance times.	3	ACF ACS
11.3.1		3	

Subject 4: METEOROLOGY

The general subject objective is:

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

MET 1 ME	TEOROLOGICAL PHENOMENA			•
MET 1.1 M	leteorological phenomena			
ACP MET 1.1.1	Appreciate the impact of adverse weather.	3	Thunderstorms, icing, jet streams, clear air turbulence (CAT), turbulence, microburst, severe mountain waves, line squalls, volcanic ash	ACP ACS
			Optional content: Volcanic ash solar radiation	
ACP MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information	ALL
			Optional content: relevant meteorological phenomena Separation, holding, diversions, re-routings, etc.	
ACP MET 1.1.3	Integrate data about meteorological phenomena into clearances, instruction and transmitted information.	\$ 4	Optional content: Thunderstorm, Turbulence, Icing, Volcanic ash	APP ACP APS ACS
ACP MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Re-routing, level change, etc.	APP ACP APS ACS
MET 2 SO	URCES OF METEOROLOGICAL DATA			•
MET 2.1 S	ources of meteorological information			
ACP	Obtain meteorological information		METAR, TAF, SIGMET, AIRMET	APP
MET 2.1.1		3	Optional content: AIREP/AIREP Special	ACP APS ACS
ACP	Relay meteorological information.		ICAO Doc 4444 To: aircraft, MET office	ALL
MET 2.1.2		3	Optional content: flight information centre, adjacent ATS unit	

Subject 5: NAVIGATION

The general subject objective is:

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

NAV 1 MA	APS AND AERONAUTICAL CHARTS			
NAV 1.1 N	laps and charts			
ACP NAV 1.1.1	Use relevant maps and charts.	3		APF ACF APS
NAV 2 INS	STRUMENT <mark>AL</mark> NAVIGATION			•
NAV 2.1 N	avigational 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	APF ACF APS
ACP NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operationa status of navigational systems.	13	Optional content: limitations, status, degraded procedures	ALL
NAV 2.2 N	avigational 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	APF ACF APS
NAV 2.3 P	BN applications			
ACP NAV 2.3.1	State the navigation applications used in terminal and en-route environments.	1	Terminal-RNAV-1 (≈P-RNAV); Enroute-RNAV-5 (B-RNAV)	ACF ACS
			Optional content: A-RNP, EC PBN Implementing Rule , ICAO Doc 9613	
ACP NAV 2.3.2	Explain the principles and designation o navigation specifications in use.	f 2	Optional content: performance, functionality, sensors, aircrew and controller requirements	APF ACF APS
ACP	State future PBN developments.		A-RNP, APV	ADI
NAV 2.3.3		1	Optional content: RNP 3D, RNP 4D	APF ACF APS

Subject 6 : AIRCRAFT

The general subject objective is:

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

ACFT 1 AIF	RCRAFT INSTRUMENTS			-
ACFT 1.1 A	ircraft instruments			
ACP ACFT 1.1.1	Integrate the information indication from aircraft instruments provided by the pilo in the provision of ATS.		Optional content: TCAS, wind shear indicator, weather radar	Al
ACP ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios, SELCAL	Al
ACP ACFT 1.1.3	Explain the operation of transponder equipment.	2	Transponders: equipment Mode A, Mode C, Mode S	AI AI
ACP ACFT 1.1.4	Explain the use and benefits of CPDLC.	2		– Al
ACFT 2 AIF	RCRAFT CATEGORIES			
	Vake turbulence categories			
ACP ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		Al
ACP ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		Al
ACFT 3 FA	CTORS AFFECTING AIRCRAFT PERFO	ORM/	ANCE	-
ACFT 3.1 C	limb 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	A A A
ACFT 3.2 C	ruise factors			
ACP ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	Level, cruising speed, wind, mass, cabin pressurisation	AI AI AI
ACFT 3.3 D	escent factors			
ACP ACFT 3.3.1	Integrate the influence of factors affecting aircraft during descent.	4	Optional content: wind, speed, rate of descent, cabin pressurisation	A(
ACFT 3.4 E	conomic factors			Ī
ACP ACFT 3.4.1	Integrate consideration of economic factors affecting aircraft.	4	Optional content: routing, level, speed, rate of climb and rate of descent, approach profile, top of descent	A(

ACP ACFT 3.4.2	Use continuous climb techniques where applicable.	3		APP ACP APS
ACP ACFT 3.4.3	Use direct routing where applicable.	3		ACS APP ACP APS ACS
ACFT 3.5	Miscellaneous factors			
ACP ACFT 3.5.1	Appreciate the influence of operational requirements.	3	Optional content: Military flying, Calibration flights, Aerial photography, banner towing	ACP ACS
10.1.8 ATM				
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, continuous descent operations	ACP ACS
ACFT 4 AI	RCRAFT DATA			
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
ACP ACFT 4.1.2 1.1.2 ABES	Identify potential or actual emergency situations.	3		APP ACP APS ACS

Subject 7: HUMAN FACTORS

The general subject objective is:

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

HUM 1 PS	SYCHOLOGICAL FACTORS			-
HUM 1.1	Cognitive			
ACP HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	A
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	A
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	A
HUM 2 M	EDICAL AND PHYSIOLOGICAL FACTOR	RS		•
HUM 2.1	Fatigue			
ACP	State factors that cause fatigue.		Shift work	A
HUM 2.1.1		1	Optional content: night shifts and rosters	
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	Α
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	Α
ACP HUM 2.1.4	Recognise the onset of fatigue in others			Α
ACP HUM 2.1.5	Describe Consider appropriate action when recognising fatigue.	2		Α
HUM 2.2	Fitness			
ACP HUM 2.2.1	Recognise signs of lack of personal fitness.	1		Α
ACP HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		A
HUM 3 SC	OCIAL AND ORGANISATIONAL FACTOR	RS		
HUM 3.1	Team resource management (TRM)			
ACP HUM 3.1.1	State the relevance objectives of TRM.	1	Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training	A

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
HUM 3.2 T	eamwork 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
HUM 3.3 F	Responsible behaviour			Ī
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
HUM 4 ST	RESS			-
HUM 4.1 S	Stress			
ACP HUM 4.1.1	Recognise the effects of stress on performance.	1	Stress and its symptoms in self and in others	ALL
HUM 4.2 S	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. Obtain assistance in stressful situations.	0	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

HUM 5.1 Human error

ACP HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, pro- active versus reactive approach to discovery of error	ALL
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
ACP	Differentiate between the types of error.		Slips, lapses, mistakes	ALL
HUM 5.1.2		2	Optional content: Slips, Lapses, Mistakes ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
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.		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL
ACP HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy	ALL
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	_
ACP	Execute corrective actions.		Error compensation	ALL
HUM 5.1.6		3	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
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
HUM 5.2 V	iolation 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
HUM 6 WC	ORKING METHODS			
	fficiency			
ACP HUM 6.1.1	Consider, from a human factors point of view, the factors affecting efficiency in the provision of air traffic control.	2	Optional content: Own and others workload, OJT, customer requirements, economy, ecology, safety	ALL
HUM 6 CO	LLABORATIVE WORK			•
HUM 6.1 C	ommunication			
ACP	Use communication effectively in ATC.			ALL
HUM 6.1.1 8.1.1		3		
				-

ACP Analyse examples of pilot and controller communication for effectiveness. 2.1.3 ATM Analyse examples of pilot and controller communication for effectiveness.	ALL
HUM 6.2 Collaborative work within the same area of responsibility	
ACP List communication means between controllers in charge of the same area of 1 responsibility (sector or tower). Optional content: electronic, written, verification and non-verbal communication	erbal ALL
ACP Explain consequences of the use of Communication means on effectiveness. 2 Explain consequences of the use of Communication means on effectiveness. 2 Explain consequences of the use of Communication means on effectiveness. 2 Explain consequences of the use of Communication means on effectiveness. 2 Explain consequences of the use of Communication means on effectiveness. 2 Explain consequences of the use of Communication means on effectiveness. 2 Explain consequences of the use of Communication means on effectiveness.	ALL
ACP List possible actions to provide a safe position handover. List possible actions to provide a safe position handover. Optional content: rigour, preparation, overlap time	ALL
ACP Explain consequences of a missed position handover process. 2	ALL
HUM 6.3 Collaborative work between different areas of responsibility	
ACP List factors and means for an effective coordination between sectors and/or tower positions. Optional content: other sectors constrate electronic coordination tools	aints, ALL
HUM 6.4 Controller/pilot cooperation	
ACP Describe parameters affecting Controller/pilot cooperation. 8.4.1 Describe parameters affecting Controller vs pilot mental picture Optional content: workload, mutual knowledge, controller vs pilot mental picture	ALL
HUM 7 WORKING KNOWLEDGE	
HUM 7.1 Controller knowledge	
ACP HUM 7.1.1 1.1.2 LAW Explain how to maintain and update professional knowledge to retain competence in the operational environment. Optional content: Briefing, LOAs, NOT AICS, Reports of accident/incident, VOLMET, ATIS, SIGMET	TAM, ALL
HUM 9 WORK ENVIRONMENT	
HUM 9.1 Ergonomics	
ACP Appreciate the impact of working HUM 9.1.1 position ergonomics on controller activity.	ALL
HUM 10 ATC SAFETY MANAGEMENT	
HUM 10.1 Experience feedback	
ACP State the importance of the controllers contribution to the experience feedback 1 process. Optional content: voluntary reporting 1 Optional content: voluntary reporting 2 Optional content: voluntary reporting 2 Optional content: voluntary reporting 2	ALL

ŀ	ACP HUM 10.1.2 3.1.2 LAW	Describe how reported occurrences are analysed.	2	Optional content: ESARR2, local procedures	ALL
	ACP HUM 10.1.3	Name the means used to disseminate recommendations.	1	Optional content: Safety letters, safety boards web pages	ALL
_	3.1.3 LAW	Explain the "Just Culture" concept.		benefits, prerequisites, constraints	ALL
H	HUM 10.1.4		2	Optional content: EAM 2 GUI 6, GAIN Report	
-	3.1.4 LAW	afety investigation branch		,	ĺ
	ACP HUM 10.2.1	Describe role and mission of Safety Investigation Branch in the improvement	¹ 2		ALL
_	3.2.1 LAW	of safety.			_
	ACP HUM 10.2.2	Define working methods of Safety Investigation Branch.	1		ALL
_	3.2.2 LAW				_

Subject 8: EQUIPMENT AND SYSTEMS

The general subject objective is:

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

EQPS 1 VC	DICE COMMUNICATIONS			-
EQPS 1.1 F	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	AP AC AP
EQPS 1.2 C	Other voice communications			
ACP EQPS 1.2.1	Operate landline communications.	3	Optional content: telephone, interphone and intercom equipment	ALI
EQPS 2 AU	JTOMATION IN ATS			
EQPS 2.1 A	Aeronautical fixed telecommunication n	etwo	ork (AFTN)	
ACP EQPS 2.1.1	Decode AFTN messages.	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	ALI
EQPS 2.2 A	Automatic data Interchange			
ACP EQPS 2.2.1	Use automatic data transfer equipment where available.	3	Optional content: Sequencing systems, automated information and coordination, OLDI	AP AC
EQPS 3 CC	ONTROLLER WORKING POSITION			_
EQPS 3.1	General Operation and monitoring of eq	uipm	nent	
ACP EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	ALI
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, strip-printer, clock, information systems monitors; (CCIS), UDF/VDF	ALI
ACP EQPS 3.1.3	Operate all-available equipment in unusual/degraded/abnormal and emergency situations.	3		AL
EQPS 3.2 S	Situation displays and information systemation	ems		

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 the information from equipment.	3		APP ACP APS ACS
EQPS 3.3 FI	light data systems			ACG
ACP EQPS 3.3.1	Use the flight data information at controller working position.	3		ALL
EQPS 4 FU	TURE EQUIPMENT			•
EQPS 4.1 No	ew developments			
ACP EQPS 4.1.1	Recognise future developments.	1	New advanced systems	ALL
EQPS 5 EQ	UIPMENT AND SYSTEMS LIMITATIONS	S AND	DEGRADATION	
EQPS 5.1 G	eneral 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
EQPS 5.2 C	ommunication 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 Integrate contingency procedures in the event of communication equipment degradation.	4->3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APP ACP APS ACS
EQPS 5.3 No	avigational 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 Integrate contingency procedures in the event of a navigational equipment degradation.	4->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 general subject objective is:

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

3

2

PEN 1 FAMILIARISATION PROFESSIONAL ENVIRONMENT

PEN 1.1 Study visit to area control centre

ACP Appreciate the functions and provision **PEN 1.1.1** of an operational area control service.

Study visit to area control centre

ACP ACS

ACP

ACS

AIRSPACE USERS PEN 2

Contributors to civil ATS operations **PEN 2.1**

ACP Characterise civil and military ATS **PEN 2.1.1** activities in area control centre. 1.1.1

Optional content: Familiarisation visits to e. g. TWR, APP, ACC, AIS, RCC, Air Defence Units

Study visit to an area control centre

ACP PEN 2.1.2 1.1.2

Characterise other parties interfacing with ATS operations.

Optional content: familiarisation visits to e. g. engineering services, fire and 2 emergency services, airline operations offices

ALL

PEN 2.2 Contributors to military ATS operations

ACP PEN 2.2.1 1.1.1

Characterise civil and military ATS activities.

Optional content: Familiarisation visits to e. g. TWR, APP, ACC, AIS, RCC, Air 2 Defence Units

Al I

ALL

ALL

ACP

ACS

CUSTOMER RELATIONS PEN 3

PEN 3.1 Customer relations Provision of services and user requirements

ACP PEN 3.1.1 1.2.1

Identify the role of ATC as a service provider. and the requirements of the ATS users.

Optional content: familiarisation flights, flight simulator visits, liaison visits to aerodrome authority, aircraft and/or airfield operators

ACP

Appreciate ATS users requirements.

PEN 3.1.2 1.2.1

3

3

ENVIRONMENTAL PROTECTION PEN 4

PEN 4.1 Environmental protection

ACP PEN 4.1.1

1.3.1

Appreciate the mitigation techniques used en-route to minimise the aviation's 2 impact on the environment. Describe processes used to ensure environmental protection.

Optional content: free route airspace (FRA), night/weekend routes curfews, relations with local community, relations with environmental associations, relevant administrations ICAO Circular 303 - Operational

opportunities to minimize fuel use and

reduce emissions

Subject 10: UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS

The general subject objective is:

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

ABES 1.1 G	eneral Overview of ABES			
ACP ABES 1.1.1	List common unusual/degraded/abnormal and emergency situations.	1	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion	ALL
ACP ABES 1.1.2 4.1.2 ACFT	Identify potential or actual abnormal and emergency situations.	3		ALL
ACP ABES 1.1.3 1.1.2	Take into account the procedures for given unusual/degraded/abnormal and emergency situations.	2	Optional content: ICAO Doc 4444	APP ACP APS ACS
ACP ABES 1.1.4 1.1.3	Take into account that procedures do not don't exist for all unusual/degraded/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.	า 2	Optional content: separation, information, coordination	ALL
ABES 2 SK	ILLS IMPROVEMENT			
ABES 2.1 C	ommunication effectiveness			
ACP ABES 2.1.1	ommunication effectiveness Ensure effective communication in all circumstances including the case where standard phraseology is not applicable.	4	Phraseology, vocabulary, readback, silence instruction	ALL
ACP	Ensure effective communication in all circumstances including the case where	3	•	ALL
ACP ABES 2.1.1 ACP ABES 2.1.2	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. Apply change of radiotelephony call		silence instruction	
ACP ABES 2.1.1 ACP ABES 2.1.2	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. Apply change of radiotelephony call sign.		silence instruction	
ACP ABES 2.1.1 ACP ABES 2.1.2 ABES 2.2 A	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. Apply change of radiotelephony call sign. voidance of mental overload Describe actions to keep the control of	3	Silence instruction ICAO Doc 4444 Optional content: sector splitting, holding,	ALL
ACP ABES 2.1.1 ACP ABES 2.1.2 ABES 2.2 A ACP ABES 2.2.1	Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. Apply change of radiotelephony call sign. voidance of mental overload Describe actions to keep the control of the situation.	3	Silence instruction ICAO Doc 4444 Optional content: sector splitting, holding,	ALL

ACP ABES 2.2.4	Consider asking for help.			ALI
ADLO 2.2.4		2		
ABES 2.3 A	ir / ground cooperation			
ACP ABES 2.3.1	Collect appropriate information relevant for to the situation.	3		ALI
ACP	Assist the pilot.		Pilot workload	ALI
ABES 2.3.2	•	3	Optional content: instructions, information, support, human factors, etc.	
	OCEDURES FOR UNUSUAL/DEGRADE UATIONS	D/ AE	BNORMAL AND EMERGENCY	-
ABES 3.1 G	eneral Application of procedures for A	BES		
ACP ABES 3.1.1	Apply the procedures for given unusual/degraded/abnormal and emergency situations.	3	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure	ALI
ABES 3.2 R	adio <mark>f</mark> ailure			
ACP	Describe the procedures followed by a		ICAO Doc 7030	ALI
ABES 3.2.1	pilot when he/she experiences complete or partial radio failure.	2	Optional content: military procedures	_
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	ALI
ABES 3.3 U	nlawful interference and aircraft bomb	threa	nt	
ACP ABES 3.3.1	Apply ATC procedures associated with unlawful interference and aircraft bomb threat.	3	ICAO Doc 4444	ALI
ABES 3.4 S	trayed or unidentified aircraft			
ACP	Apply the procedures in the case of		ICAO Doc 4444	ALI
ABES 3.4.1	strayed aircraft.	3	Optional content: inside controlled airspace, outside controlled airspace	_
ACP ABES 3.4.2	Apply the procedures in the case of		ICAO Doc 4444	ALI
ADES 3.4.2	unidentified aircraft.	3		_
ABES 3.5 D	iversions			
ACP ABES 3.5.1	Provide navigational assistance to diverting emergency aircraft.	4	Track/heading, distance, other navigational assistance	AP AC AP
			Optional content: nearest most suitable aerodrome	AC

AMC1 to Appendix 7 of ANNEX I — PART-ATCO

Approach Control Surveillance Rating (APS)

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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

1

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Subject 1: INTRODUCTION TO THE COURSE

The general subject objective is:

Learners shall know and understand the training programme that they will follow and learn how to obtain the appropriate information.

	NIDOE MANAOEMENT		
	DURSE MANAGEMENT		
INTR 1.1 C	Course introduction		
APS	Explain the aims and main objectives of		
INTR 1.1.1	the course.	2	
	Course administration		
APS INTR 1.2.1	State course administration.		
IINTK 1.2.1		1	
INTR 1.3 S	Study material and training documentat	ion	
APS	Use appropriate documentation and		Optional content: training documentation,
INTR 1.3.1	their sources for course studies.	3	library, CBT library, web, learning
		3	management server
APS	Integrate appropriate information into		Training documentation
INTR 1.3.2	course studies.	4	Optional content: Training documentation ,
		•	supplementary information, library
INTR 2 IN	TRODUCTION TO THE ATC TRAINING	COU	RSE
INTR 2.1 C	Course content and organisation		
APS	State the different training methods		Theoretical training, practical training,
INTR 2.1.1	applied in the course.	1	self-study, types of training events
		<u>'</u>	con stary, types or training events
APS	State the subjects of the course and		
INTR 2.1.2	their purpose.	1	
4.00	D 3 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
APS INTR 2.1.3	Describe the organisation of theoretical		Optional content: course programme
11111 2.1.5	training.	2	
APS	Describe the organisation of practical		Optional content: PTP, simulation, briefing,
INTR 2.1.4	training.	2	debriefing, course programme
INTR 2.2 T	raining ethos		
			Training progress accessors
APS INTR 2.2.1	Recognise the feedback mechanisms available.		Training progress, assessment, briefing, debriefing, learner/instructor
	avaliable.	1	feedback, instructor/instructor feedback
			recupack, manucion/manucion reedback
INTR 2.3 T	The Assessment process		
APS	Describe the assessment process.		
INTR 2.3.1	besome the assessment process.	2	
		2	

Subject 2: AVIATION LAW

The general subject objective is:

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

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE

LAW 1 AI	CO LICENSING / CERTIFICATE OF COI	MPE	IENCE	
LAW 1.1 P	rivileges and conditions			
APS LAW 1.1.1	Appreciate the conditions which must shall be met to for the issue an of Approach Control Surveillance rating with Radar endorsement.	3	EU Community air traffic controller licence Directive, Regulation (EU) 2015/340 on ATCO Licences, ESARR5 rating, valid rating	APS
			Optional content: national documents; European Manual of Personnel Licensing - Air Traffic Controllers	_
APS LAW 1.1.2 6.1.1 HUM	Explain how to maintain and update professional knowledge and skills to retain competence in the operational environment.	2		ALL
APS LAW 1.1.3 1.1.2	Explain the conditions for suspension/revocation of ATCO licence.	· 2	Incident/Accident, Competence in doubt, Medical, Regulation (EU) 2015/340 on ATCO Licences	ALL
LAW 2 RU	LES AND REGULATIONS			-
LAW 2.1 R	eports			
APS	List the standard forms for reports.		Air traffic incident report	ALL
LAW 2.1.1		1	Optional content: routine air reports, breach of regulations, watch/log book, records	_
APS LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	ESARR 2, Reporting culture, air traffic incident report	ALL
			Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2	_
APS	Use forms for reporting.		Regulation (EU) No 376/2014, air traffic	ALL
LAW 2.1.3		3	incident reporting form(s)	
			Optional content: ICAO Doc 4444 Appendix 4 , routine air reports, breach of regulations, watch/log book, records	_
LAW 2.2 A	irspace			
APS LAW 2.2.1	Appreciate classes and structure of airspace and their relevance to Approach Control Surveillance rating with Radar endorsement operations.	3		APS

APS LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	Optional content: Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, international requirements, civil requirements, military requirements, areas of responsibility, sectorization, national requirements	
APS LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		
LAW 3 ATO	C SAFETY MANAGEMENT			_
LAW 3.1 Ex	kperience Feedback process			
APS LAW 3.1.1 10.1.1 HUM	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	
APS LAW 3.1.2 10.1.2 HUM	Describe how reported occurrences are analysed.	2	Optional content: ESARR 2, local procedures	_
APS LAW 3.1.3 10.1.3 HUM	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety boards web pages	
APS	Appreciate Explain the 'Just Culture'		Benefits, prerequisites, constraints	Ī
10.1.4 HUM	concept.	2->3	Optional content: EAM 2 GUI 6, GAIN Report	
LAW 3.2 Sa	afety Investigation -Branch			
APS LAW 3.2.1 10.2.1 HUM	Describe role and mission of Safety Investigation Branch in the improvemen of safety.	t ₂		
APS LAW 3.2.2 10.2.2 HUM	Define working methods of Safety Investigation Branch.	1		_

Subject 3: AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

ATM 1 PROVISION OF SERVICES AIR TRAFFIC SERVICES AND AIRSPACE MANAGEMENT

ATM 1 PR	OVISION OF SERVICES AIR TRAFFIC S	SERV	TICES AND AIRSPACE MANAGEMENT	
ATM 1.1 A	ir traffic control (ATC) service			
APS ATM 1.1.1 1.1.2	Appreciate own area of responsibility.	3		APP ACP APS ACS
APS ATM 1.1.2	Provide the appropriate ATC approach control service.	4	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 7030, ICAO Doc 4444, operation manuals	APP APS
ATM 1.2 FI	light information service (FIS)			
APS	Provide FIS.		ICAO Doc 4444	ALL
ATM 1.2.1 1.2.2	ı	4	Optional content: national documents	_
APS ATM 1.2.2	Use radar ATS surveillance system for the provision of FIS.	3	ICAO Doc 4444, information to identified aircraft concerning: traffic, navigation	APS ACS
			Optional content: weather	
APS ATM 1.2.3	Issue Relay appropriate information concerning the location of other 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
ATM 1.3 A	lerting service (ALRS)			
APS	Provide ALRS.		ICAO Doc 4444	ALL
ATM 1.3.1		4	Optional content: national documents	
APS ATM 1.3.2	Respond to distress and urgency messages and signals.	3	Regulation (EU) No 923/2012, ICAO Annex 10, ICAO Doc 4444,	ALL
			Optional content: EUROCONTROL Guidelines for Controller Training in the Handling of Unusual/Emergency Situations	_
APS ATM 1.3.3	Use radar ATS surveillance system for the provision of ALRS.	3		APS ACS
ATM 1.4 A	TS System capacity and air traffic flow	man	agement	
APS ATM 1.4.1	Appreciate principles of ATFM ATS system capacity and air traffic flow management.	3	Optional content: EUROCONTROL ATFCM Users Manual Working principles of ATFM, 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.	14	e.g. radar coverage	APS ACS
	ATM 1.5 Ai	irspace management (ASM)			
	APS ATM 1.5.1	Appreciate the principles and means of ASM.	3	Regulation (EC) No 551/2004, Regulation (EC) 2150/2005, Regulation (EC) No 730/2006	APP ACP APS ACS
				Optional content: FABs, EUROCONTROL Specification for the application of FUA, ICAO Doc 4444, EUROCONTROL ASM HBK - Airspace Management Handbook for the application of FUA, TSAs, CDRs, CBAs	
	APS	Organise traffic to take account of ASM.		Real-time activation, deactivation or	APS ACS
	ATM 1.5.2		4	reallocation of airspace	
_				Optional content: CDR, TSA, TRA, CBA	_
	ATM 2 CO	MMUNICATION			-
	ATM 2.1 Ef	fective communication			
	APS ATM 2.1.1	Use approved phraseology.		ICAO Doc 4444	ALL
	ATWIZ.1.1		3	Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2	
	APS ATM 2.1.2	Ensure effective Perform communication. effectively.	3->4	Communication techniques, readback/verification of readback	ALL
_	APS ATM 2.1.3	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
-	6.1.2 HUM				_
_					•

ATM 3 ATC CLEARANCES AND ATC INSTRUCTIONS

	ATC clearances		
APS ATM 3.1.1	Issue appropriate ATC clearances.		ICAO Doc 4444
ATW 5.1.1		3	Optional content: national documents
APS	Integrate appropriate ATC clearances in		
ATM 3.1.2	control service.	4	
APS	Ensure the agreed course of action is		
ATM 3.1.3	carried out.	4	
	ATC instructions		
APS ATM 3.2.1	Issue appropriate ATC instructions.		ICAO Doc 4444
7 (TWI 0.2.1		3	Optional content: national documents
APS	Integrate appropriate ATC instructions in	1	
ATM 3.2.2	control service.	4	
APS	Ensure the agreed course of action is		
ATM 3.2.3	carried out.	4	
ATM 4 CC	OORDINATION		
ATM 4.1 N	lecessity for coordination		
APS ATM 4.1.1	Identify the need for coordination.		
ATIVI 4.1.1		3	
ATM 4.2 T	ools and methods for coordination		
APS	Use the available tools for coordination.		Optional content: electronic transfer of
ATM 4.2.1		3	flight data, telephone, interphone, intercom, direct speech, radiotelephone (RTF), local
			agreements, automated system
			coordination
ATM 4.3 C	Coordination procedures		
APS	Initiate appropriate coordination.		Delegation/transfer of responsibility for
ATM 4.3.1		3	air-ground communications and
			separation, transfer of control, etc. ICAO Doc 4444
			Optional content: release point
			Optional content. Telease point
APS ATM 4.3.2	Analyse effect of coordination requested		Optional content: delegation/transfer of responsibility for air-ground
ATIVI 4.3.2	by an adjacent position/unit.	4	communications and separation, release
			point, transfer of control, etc.
APS	Select, after negotiation, an appropriate		When additional traffic cannot be
ATM 4.3.3	course of action.	5	accepted by adjacent position/unit,
			When additional traffic cannot be
			accepted by own position/unit, etc.

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
ATM 5 AL	TIMETRY AND LEVEL ALLOCATION			-
ATM 5.1 A	litimetry			
APS ATM 5.1.1	Allocate levels (height, altitude, flight level) 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
ATM 5.2 T	errain 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: minimum vectoring altitude, terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude	APS ACS
ATM 6 SE	PARATIONS			-
ATM 6.1 V	ertical 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	APF APS
APS	Provide increased vertical separation.		ICAO Doc 4444, ICAO Doc 7030	APF ACF
ATM 6.1.2		4	Optional content: level allocation, during climb/descent, rate of climb/descent	APF ACF APS ACS
			ICAO Doc 4444, ICAO Doc 7030	APF
APS ATM 6.1.3	Appreciate the application of vertical emergency separation.	3		ACF APS ACS
		3	Pressure altitude-derived information, pilot level reports	_
ATM 6.1.3	emergency separation. Provide vertical separation in a		Pressure altitude-derived information,	_
APS ATM 6.1.4	emergency separation. 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 ATM 6.1.4	emergency separation. Provide vertical separation in a	4	Pressure altitude-derived information, pilot level reports Optional content: into/out of ATS surveillance system coverage	APP ACS ACS ACS

ATM 6.3 I	Delegation of separation			
APS ATM 6.3.1	Delegate separation to pilots in the case of aircraft executing successive visual approaches.	4		
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.		ICAO Doc 4444	
ATM 6.4 \	Nake turbulence distance-based separa	ition		
APS	Provide distance-based wake		ICAO Doc 4444	
ATM 6.4.1	turbulence separation.	4	Optional content: national documents	
ATM 6.5	Radar Separation based on ATS surveill	ance	e systems	
APS	Describe how separation based on ATS		ICAO Doc 4444	
ATM 6.5.1	surveillance systems is applied.	2		
APS	Provide radar horizontal separation.		ICAO Doc 4444, ICAO Doc 7030, local	Ī
ATM 6.5.2	·	4	operation manuals, holding	
APS ATM 6.5.3	Provide radar horizontal separation by using practising vectoring techniques in a variety of situations.	4	Optional content: transit, meteorological phenomena, vectoring for approach, departure vs transit vs arrival	
APS ATM 6.5.4	Ensure horizontal or vertical separation from airspace boundaries.	4	Adjacent sectors, PRD, TSAs	
	RBORNE COLLISION AVOIDANCE SYS	TEM	S AND GROUND-BASED SAFETY	_
ATM 7.1				
	Airborne collision avoidance systems			
APS	Airborne collision avoidance systems Differentiate between ACAS advisory		ICAO Doc 9863	
	•	2	ICAO Doc 9863 Optional content: EUROCONTROL ACAS web page	
APS ATM 7.1.1 7.1.6 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the approach control environment. Describe the controller responsibility	2	Optional content: EUROCONTROL ACAS web	
APS ATM 7.1.1 7.1.6 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the approach control environment.	2	Optional content: EUROCONTROL ACAS web page	
APS ATM 7.1.1 7.1.6 B APS ATM 7.1.2 7.1.4 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the approach control environment. Describe the controller responsibility during and following an ACAS RA		Optional content: EUROCONTROL ACAS web page	
APS ATM 7.1.1 7.1.6 B APS ATM 7.1.2 7.1.4 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the approach control environment. Describe the controller responsibility during and following an ACAS RA reported by pilot.		Optional content: EUROCONTROL ACAS web page ICAO Doc 4444	
APS ATM 7.1.1 7.1.6 B APS ATM 7.1.2 7.1.4 B APS ATM 7.1.3 7.1.1	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the approach control environment. Describe the controller responsibility during and following an ACAS RA reported by pilot. Respond to pilot notification of actions	2	Optional content: EUROCONTROL ACAS web page ICAO Doc 4444 ACAS, TAWS Optional content: GPWS EUROCONTROL	
APS ATM 7.1.1 7.1.6 B APS ATM 7.1.2 7.1.4 B APS ATM 7.1.3 7.1.1	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the approach control environment. Describe the controller responsibility during and following an ACAS RA reported by pilot. Respond to pilot notification of actions based on airborne systems warnings.	2	Optional content: EUROCONTROL ACAS web page ICAO Doc 4444 ACAS, TAWS Optional content: GPWS EUROCONTROL	

APS ATM 7.2.2 7.2.1	Respond to ground-based safety nets warnings.	3	Optional content: STCA, MSAW, APW, APM	APS ACS
ATM 8 DA	ATA DISPLAY			•
ATM 8.1 D	ata 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	Process pertinent data on data displays	3		ALL
APS ATM 8.1.4 8.1.5	Obtain flight plan information.	3	CPL, FPL, supplementary information Optional content: RPL, AFIL, etc.	ALL
APS ATM 8.1.5 8.1.6	Use flight plan information.	3		ALL
ATM 9 OF	PERATIONAL ENVIRONMENT (SIMULA	ΓED)		-
ATM 9.1 Ir	ntegrity 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
ATM 9.2 V	erification of the currency of operation	al pr	ocedures	
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
ATM 9.3 H	landover-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		
ATM 10 PR	OVISION OF CONTROL SERVICE			_
ATM 10.1 R	esponsibility and processing of inform	atio	n	
APS ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	
APS	Describe the responsibility in regard to		ICAO Doc 4444	
ATM 10.1.2	military traffic.	2	Optional content: ICAO Doc 9554	
APS	Describe the responsibility in regard to		ICAO Doc 4444	
ATM 10.1.3	unmanned free balloons.	2		
			1010 D 1111 1	
APS ATM 10.1.4	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	
10.1.3	l	3		
APS	Interpret operational information.			_
ATM 10.1.5		5		
				_
APS ATM 10.1.6	Organise forwarding of operational information.	4	Optional content: including the use of backup procedures	
10.1.5		_		
APS	Integrate operational information into			_
ATM 10.1.7 10.1.6	control decisions.	4		
APS	Ensure an adequate priority of actions.		Formal and situational requirements,	_
ATM 10.1.7	Ensure an adequate priority of actions.	4	workload	
10.3.6				
APS	Appreciate the influence of operational		Optional content: military flying, calibration	_
ATM 10.1.8 3.6.1 ACFT	requirements.	3	flights, aerial photography	
				_
APS ATM 10.1.8	Balance the workload with the traffic demand against personal capacity.	5	e.g. in own sector, in adjacent sectors	
10.4.2		J		
				_
ATM 10.2 A	TS surveillance service with Radar Explain the responsibility for the		ICAO Doc 4444, ICAO Annex 11, local	
ATM 10.2.1	provision of an ATS surveillance service	2	operation manuals	
	appropriate to APS rating with Radar endorsement.	_		

APS ATM 10.2.2	Explain the functions that may be performed with the use of radar-ATS surveillance systems derived information presented on a situation display.	2 1	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	Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, ICAO Doc 4444	APS APF
APS	Apply the procedures for termination of		ICAO Doc 4444	APS ACS
ATM 10.2.4	ATS surveillance service.	3	Optional content: transfer of control, termination or interruption of ATS surveillance service	_
ATM 10.3 T	raffic management process			
APS ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, scanning, 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		APF ACF APS ACS
APS ATM 10.3.4	Evaluate possible outcomes of different planning and control actions.	5		APF ACF APS ACS
APS ATM 10.3.5	Select an appropriate plan in time to achieve safe and effective traffic flow.	5		APF ACF APS ACS
APS ATM 10.3.6	Ensure an adequate priority of actions.	4	Formal and situational requirements, workload	ALL
10.1.7				-
APS ATM 10.3.7	Execute selected plan in a timely manner.	3		APF ACF APS ACS
APS ATM 10.3.8	Ensure a safe and efficient outcome is achieved.	4	Traffic monitoring, adaptability and follow up	ALL
ATM 10.4 H	andling traffic Vectoring			
APS ATM 10.4.1	Manage arrivals, departures and overflights.	4		APF ACF APS ACS
APS ATM 10.4.2	Balance the workload with the traffic demand against personal capacity.	5	Optional content: in own sector, in adjacent sectors re-routing, re-planning, prioritising solutions, denying requests, delegating	APF ACF APS ACS

APS ATM 10.4.3 10.3.1	Define flight path monitoring and vectoring.	1	ICAO Doc 4444	APS ACS
APS ATM 10.4.4 10.3.2	Explain the requirements for vectoring and termination of vectoring.	2	ICAO Doc 4444	APS ACS
APS ATM 10.4.5 10.3.3	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 10.3.4	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
ATM 10.5 C	ontrol service with advanced system s	uppo	ort	
APS ATM 10.5.1 10.4.1	Appreciate Explain the impact of advanced systems on the provision of approach control service.	2->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
ATM 11 HO	LDING			-
ATM 11.1 G	eneral 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. effect of: wind, aircraft speed, rate of turn, height, aircraft type, aircraft performance.	•	Effect of speed, effect of level used, effect of navigation aid in use, turbulence, aircraft type	APP ACP APS ACS
ATM 11.2 V	ertical separation			
APS ATM 11.2.1	Provide vertical separation between aircraft in a holding pattern.	4		APP ACP APS ACS
6.1.1				_

	APS ATM 11.2.2	Provide vertical separation between aircraft in a holding pattern and other aircraft.	4		AP AC AP AC
_	6.1.1	all Galt.			_
	ATM 11.2 Ap	pproaching aircraft			
	APS ATM 11.2.1 11.3.1	Calculate Expected Approach Times (EATs) and Expected Onward Clearance times.	3		AP AP
-	APS ATM 11.2.2 11.3.2	Organise the traffic landing sequence in a holding pattern.	4	Optional content: company preference, aircraft performance, aircraft approach capability, ILS categories, flow control management	AP AP
	ATM 11.3 Ho	olding in a surveillance environment			
	APS ATM 11.4.1 10.4.5	Provide vectors to aircraft leaving a holding pattern.	4		AP:
	APS ATM 11.3.1 11.4.2	Organise traffic to separate other aircraft from holding aircraft.	4		AP AC
	APS ATM 11.4.3 12.3.1	Ensure identity of aircraft leaving a holding pattern.	4		AP AC
-	APS ATM 11.3.2 11.4.4	Integrate system support, when available.	4	Optional content: arrival management system, automated holding lists, vertical traffic displays	AP AC
	ATM 12 IDE	NTIFICATION			_
	ATM 12.1 Es	stablishment of identification			
	APS ATM 12.1.1 12.1.2	Appreciate the precautions when establishing identification.	3	ICAO Doc 4444, SSR Optional content: PSR	AP: AC
	APS ATM 12.1.1 12.1.1 9.4.2 ATMB	Apply the methods of establishing identification.	3	ICAO Doc 4444, SSR e.g. PSR	AP AC
-	APS ATM 12.1.2	Identify aircraft.	3	Optional content: PSR, SSR or ADS identification method	AP AC
_	APS ATM 12.1.3	Apply procedures in the case of misidentification.	3		AP AC
	ATM 12.2 Ma	aintenance of identification			

APS ATM 12.2.1	Appreciate the necessity to maintain identification.	3		APS ACS
ATM 12.3 Lo	oss of identity			
APS ATM 12.3.1	Appreciate when an aircraft identification is lost or in doubt.	n 3	Optional content: out of radar ATS surveillance system coverage, loss failure of ATS surveillance system service, 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
ATM 12.4 P	osition information			
APS ATM 12.4.1	Appreciate the circumstances when position information should be passed the aircraft.	03		APS ACS
APS	State the format in which position		ICAO Doc 4444	APS ACS
ATM 12.4.2	information can be passed to aircraft.	1		_
ATM 12.5 Ti	ransfer 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		APS ACS
				_

Subject 4: METEOROLOGY

The general subject objective is:

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

BACT 4	METEODOL	COLOAL	DUENIONENIA
	METEURUL	JUGILAL	PHENOMENA

	IVIL I IVIL	TEOROLOGICAL FILITOMILITA			
	MET 1.1 M	leteorological 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
				Optional content: Volcanic ash	_
	APS MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information	ALL
				Optional content: relevant meteorological phenomena Separation, holding, diversions, re-routings, etc.	_
	APS MET 1.1.3 1.1.2	Integrate data about meteorological phenomena into clearances, instructionand transmitted information.	ns 4	Optional content: Thunderstorm, Turbulence, Icing, Volcanic ash	APP ACP APS ACS
	APS MET 1.1.3	Use techniques to avoid adverse weather when necessary/possible.	3	Re-routing, level change, etc.	APP ACP APS ACS
_	MET 2 SO	URCES OF METEOROLOGICAL DATA	A		-
	MET 2.1 S	ources of meteorological information	1		
	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 To: aircraft, MET office Optional content: flight information centre, adjacent ATS unit	ALL

Subject 5: NAVIGATION

The general subject objective is:

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

NAV 1	MAPS AND AERONAUTICAL CHARTS	
NAVI	MAPS AND AERUNAUTICAL CHARTS	

NAV 1.1 M	laps 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	
APS NAV 1.1.2	Use relevant maps and charts.	3		
NAV 2 INS	STRUMENT <mark>AL</mark> NAVIGATION			_
NAV 2.1 N	lavigational 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	
APS NAV 2.1.2	Appreciate the effect of precision, limitations and change of the operational status of navigational systems.	al ₃	Optional content: limitations, status, degraded procedures	
NAV 2.2 S	tabilised approach			
APS	Describe the concept of stabilised		ICAO Doc 8168	
NAV 2.2.1	approach.	2	Optional content: SKYbrary, Regulation (EC) No 1899/2006	
APS NAV 2.2.2	Appreciate the effect of late change of runway-in-use or type of approach for landing aircraft.	3		
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	
NAV 2.3 Ir	nstrument departures and arrivals			
APS NAV 2.3.1	Characterise SIDs.	2		
APS NAV 2.3.2	Describe the types and phases of instrument approach procedures.			

APS Describe the relevant minima applicable NAV 2.3.3 for a precision/non-precision and visual 2 approach. **NAV 2.4** Navigational assistance **APS** Evaluate the necessary information to Optional content: nearest most suitable **NAV 2.4.1** aerodrome, track, heading, distance, be provided to pilots in need of 5 aerodrome information, any other 2.2.1 navigational assistance. navigational assistance relevant at the time **APS** Aircraft observed to be deviating from Assist aircraft in navigation when **NAV 2.4.2** required. its known intended route, on request 3 2.2.2 **NAV 2.5** Satellite-based systems **APS** State the different applications Optional content: NPA, APV-baro VNAV. **NAV 2.5.1** APV, LPV, precision approach, ICAO Doc operations associated with of satellite-1 8168 Vol. 2 2.3.1 based systems relevant for approach operations. NAV 2.6 PBN applications **APS** State the navigation applications used in Approach-RNP APCH/ RNP AR APCH; NAV 2.6.1 Terminal-RNAV-1 (≈P-RNAV) approach and terminal environments. Optional content: A-RNP, EU PBN Implementing Rule, ICAO Doc 9613 **APS** Explain the principles and designation of Optional content: performance, **NAV 2.6.2** functionality, sensors, aircrew and navigation specifications in use. 2 controller requirements State future PBN developments. A-RNP, APV APS NAV 2.6.3 1 Optional content: RNP 3D, RNP 4D

Subject 6 : AIRCRAFT

ACFT 3.2 Cruise factors

The general subject objective is:

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

ACFT 1 AIF	RCRAFT INSTRUMENTS		
ACFT 1.1 A	ircraft instruments		
APS ACFT 1.1.1	Integrate the information indication from aircraft instruments provided by the pilot in the provision of ATS.	4	Optional content: TCAS, wind shear indicator, weather radar
APS ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios, SELCAL
APS ACFT 1.1.3	Explain the operation of transponder on- board surveillance equipment.	2	Transponders: equipment Mode A, Mode C, Mode S, ADS capability
APS ACFT 1.1.4	Explain the use and benefits of CPDLC.	2	
ACFT 2 AIF	RCRAFT CATEGORIES		
ACFT 2.1 V	Vake turbulence categories		
APS ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2	
APS ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3	
ACFT 2.2 A	pplication of ICAO approach categorie	S	
APS ACFT 2.2.1	Describe the use of ICAO approach categories.	2	ICAO Doc 8168
APS ACFT 2.2.2	Appreciate the effect of ICAO approach categories on the traffic organisation.	3	
ACFT 3 FA	CTORS AFFECTING AIRCRAFT PERFO	RM	ANCE
ACFT 3.1 C	limb 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
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

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
ACFT 3.3 D	escent 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
ACFT 3.4 F	inal 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, aircraft configuration, mass, meteorological conditions, runway conditions, runway slope, aerodrome elevation	APP APS
ACFT 3.5 E	conomic 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
ACFT 3.6	liscellaneous Factors			
APS ACFT 3.6.1	Appreciate the influence of operational requirements.	3	Optional content: Military flying, Calibration flights, Aerial photography, banner towing	APP APS
10.1.8 ATM				-
ACFT 3.6 E	cological Environmental factors			
APS ACFT 3.6.1 3.7.1	Appreciate the performance restrictions due to environmental constraints. Estimate the influence of ecological factors affecting aircraft.	3	Optional content: fuel dumping, noise abatement procedures, minimum flight levels, bird hazard, continuous descent operations Approach	APP APS
ACFT 4 AIF	RCRAFT DATA			•
ACFT 4.1 P	erformance <mark>d</mark> ata			
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
APS	Identify potential or actual emergency			APP ACP APS ACS

Subject 7: HUMAN FACTORS

The general subject objective is:

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

HUM 1 PSYCHOLOGICAL FACTORS

HUM 1.1 C	ognitive			
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

HUM 2 MEDICAL AND PHYSIOLOGICAL FACTORS

HUM 2.1 F	atigue			
APS	State factors that cause fatigue.		Shift work	Al
HUM 2.1.1		1	Optional content: night shifts and rosters	
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	Α
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	Α
APS HUM 2.1.4	Recognise the onset of fatigue in others	. 1		Α
APS HUM 2.1.5	Describe Consider appropriate action when recognising fatigue.	2		A
HUM 2.2 F	itness			
APS HUM 2.2.1	Recognise signs of lack of personal fitness.	1		Al
APS HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		Al

HUM 3 SOCIAL AND ORGANISATIONAL FACTORS

HUM 3.1 Team resource management (TRM)

APS HUM 3.1.1	State the relevance objectives of TRM.	1	Optional content: TRM course, EUROCONTROL Guidelines for the development of TRM training
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
HUM 3.2 T	eamwork and team roles		
APS HUM 3.2.1	Identify reasons for conflict.	3	
APS HUM 3.2.2	Describe actions to prevent human conflicts.	2	Optional content: TRM team roles
APS HUM 3.2.3	Describe strategies to cope with human conflicts.	2	Optional content: in your team, in the simulator
HUM 3.3 F	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
APS	Apply responsible judgement.		Case study and discussion about a
HÜM 3.3.2		3	dilemma situation
HUM 3.3.2	RESS	3	dilemma situation
HUM 3.3.2	RESS	3	dilemma situation
HUM 3.3.2		1	Stress and its symptoms in self and in others
HUM 4.1 ST HUM 4.1 S APS HUM 4.1.1	Stress Recognise the effects of stress on		Stress and its symptoms in self and in
HUM 4.1 ST HUM 4.1 S APS HUM 4.1.1	Recognise the effects of stress on performance.		Stress and its symptoms in self and in
HUM 4.1 S APS HUM 4.1.1 HUM 4.2 S APS	Recognise the effects of stress on performance. Stress management	3	Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress
HUM 4.1 S APS HUM 4.1.1 HUM 4.2 S APS HUM 4.2.1	Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance.	3	Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful
HUM 3.3.2 HUM 4.1 S APS HUM 4.1.1 HUM 4.2 S APS HUM 4.2.1 APS HUM 4.2.2	Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance. Obtain assistance in stressful situations. Recognise the effect of shocking and	3 3	Stress and its symptoms in self and in others The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful situations Self and others, abnormal situations,

HUM 5.1 F	luman error		
APS HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, pro- active versus reactive approach to discovery of error
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control
APS	Differentiate between the types of error.		Slips, lapses, mistakes
HUM 5.1.2		2	Optional content: Slips, Lapses, Mistakes ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control
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
APS HUM 5.1.4	Collect examples of different error types, their causes and consequences in ATC.		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control
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 Threat and Error Management (TEM) in Air Traffic Control
APS	Execute corrective actions.		Error compensation
HUM 5.1.6		3	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control
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
APS HUM 5.1.8	Describe the impact on an ATCO following an occurrence/incident.	2	Optional content: reporting, SMS, investigation, CISM
HUM 5.2 V	iolation 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
HUM 6 W	ORKING METHODS		
HUM 6.1 E	Efficiency		
APS HUM 6.1.1	Consider, from a human factors point of view, the factors affecting efficiency in the provision of air traffic control.	2	Optional content: Own and others workload, OJT, customer requirements, economy, ecology, safety

TIOM COLLABORATIVE W

HUM 6.1 Communication

APS HUM 6.1.1	Use communication effectively in ATC.	3	
8.1.1		5	
APS HUM 6.1.2 2.1.3 ATM	Analyse examples of pilot and controller communication for effectiveness.	4	
HUM 6.2 C	ollaborative work within the same area	of re	esponsibility
APS HUM 6.2.1 8.2.1	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
APS HUM 6.2.2 8.2.2	Explain consequences of the use of communication means on effectiveness.	2	Optional content: strips legibility and encoding, Radar labels designation, feedback
APS HUM 6.2.3 8.2.3	List possible actions to provide a safe position handover.	1	Optional content: rigour, preparation, overlap time
APS HUM 6.2.4 8.2.4	Explain consequences of a missed position handover process.	2	
HUM 6.3 C	ollaborative work between different are	as o	f responsibility
APS HUM 6.3.1 8.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	Optional content: other sectors constraints, electronic coordination tools
HUM 6.4 Co	ontroller/pilot cooperation		
APS HUM 6.4.1 8.4.1	Describe parameters affecting controller/pilot cooperation.	2	Optional content: workload, mutual knowledge, controller vs pilot mental picture
HUM 7 WO	RKING KNOWLEDGE		
HUM 7.1 C	ontroller knowledge		
APS HUM 7.1.1 1.1.2 LAW	Explain how to maintain and update professional knowledge to retain competence in the operational environment.	2	Optional content: Briefing, LOAs, NOTAM, AICs, Reports of accident/incident, VOLMET, ATIS, SIGMET
HUM 9 WO	RK ENVIRONMENT		
HUM 9.1 E	rgonomics		
APS HUM 9.1.1	Appreciate the impact of working position ergonomics on controller activity.	3	

HUM 10.1 Ex	rperience feedback			
APS HUM 10.1.1	State the importance of the controllers contribution to the experience feedback	1	Optional content: voluntary reporting	ALI
3.1.1 LAW	process.			
APS HUM 10.1.2	Describe how reported occurrences are analysed.	2	Optional content: ESARR2, local procedures	ALI
3.1.2 LAW				
APS HUM 10.1.3	Name the means used to disseminate recommendations.	1	Optional content: Safety letters, safety boards web pages	ALL
3.1.3 LAW				
APS	Explain the "Just Culture" concept.		benefits, prerequisites, constraints	ALL
HUM 10.1.4		2	Optional content: EAM 2 GUI 6, GAIN Report	
3.1.4 LAW				_
HUM 10.2 Sa	afety investigation branch			
APS HUM 10.2.1	Describe role and mission of Safety Investigation Branch in the improvement	2		ALL
3.2.1 LAW	of safety.			
APS HUM 10.2.2	Define working methods of Safety Investigation Branch.	1		ALL
3.2.2 LAW				_

Subject 8: EQUIPMENT AND SYSTEMS

The general subject objective is:

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

EQPS 1 VOIC	E COMMU	JNICATIONS
--------------------	---------	------------

EQPS 1.1 R	Radio communications			
APS	Operate two-way communication		Transmit/receive switches, procedures	AL
EQPS 1.1.1	equipment.	3	Optional content: frequency selection, standby equipment	
APS EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	Optional content: indicator lights, serviceability displays, selector/frequency displays	AL
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	AP AC AP AC
EQPS 1.2 O	Other voice communications			
APS EQPS 1.2.1	Operate landline communications.	3	Optional content: telephone, interphone and intercom equipment	ALI
EQPS 2 AU	TOMATION IN ATS			-
EQPS 2.1 A	eronautical fixed telecommunication n	etwo	rk (AFTN)	
APS EQPS 2.1.1	Decode AFTN messages.	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	ALI
EQPS 2.2 A	automatic data Interchange			
APS EQPS 2.2.1	Use automatic data transfer equipment where available.	3	Optional content: sequencing systems, automated information and coordination, OLDI	AD AD AP AC
EQPS 3 CO	NTROLLER WORKING POSITION			-
EQPS 3.1 6	Seneral Operation and monitoring of eq	uipm	ent	
APS	Monitor the technical integrity of the		Notification procedures, responsibilities	ALI
EQPS 3.1.1	controller working position.	3		
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, strip-printer, clock, information systems monitors; (CCIS), UDF/VDF	AL
APS EQPS 3.1.3	Operate all-available equipment in unusual/degraded/abnormal and emergency situations.	3		ALI

EQPS 3.2 S	ituation displays and information syste	ms	
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 the information from equipment.	3	API ACI APS ACS
EQPS 3.3 F	light data systems		
APS EQPS 3.3.1	Use the flight data information at controller working position.	3	ALL
EQPS 3.4 U	Ise of Radars ATS surveillance system		
APS EQPS 3.4.1	Use the ATS surveillance system functions. Operate radar equipment.	3	APS ACS
APS EQPS 3.4.2	Analyse the information provided by the radar equipment 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 Mode S.	Optional content: Mode S, ADS-B, MLAT 3	APS ACS
EQPS 3.5 A	dvanced 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 the information provided by advanced systems, when available.	Optional content: trajectory-based information, MTCD, MONA, etc.	APS ACS
EQPS 4 FU	TURE EQUIPMENT		_
EQPS 4.1 N	lew developments		
APS EQPS 4.1.1	Recognise future developments.	New advanced systems	ALL
EQPS 5 EQ	UIPMENT AND SYSTEMS LIMITATIONS	AND DEGRADATION	_
EQPS 5.1	General Reaction to limitations		
APS	Take account of the limitations of		ALL

APS EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	Α
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	# # #
APS EQPS 5.2.2	Apply Integrate contingency procedures in the event of communication equipment degradation.	4->3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	
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	
APS EQPS 5.3.2	Apply Integrate contingency procedures in the event of a navigational equipment degradation.	4->3	Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units	_
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 EQPS 5.4.2	Apply Integrate contingency procedures in the event of surveillance equipment degradation.	4->3	Optional content: inform adjacent sectors, inform aircraft, apply vertical separation (emergency, increased), increased radar horizontal separation, reduce the number of aircraft entering area of responsibility, transfer aircraft to another unit	_
EQPS 5.5	ATC processing system degradation			
APS EQPS 5.5.1	Identify a processing system degradation.	3	Optional content: FDPS, RSDPS, software processing of situation display	
APS EQPS 5.5.2	Apply Integrate contingency procedures in the event of a processing system degradation.	4->3		_

Subject 9: PROFESSIONAL ENVIRONMENT

The general subject objective is:

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

3

2

2

PEN 1 FAMILIARISATION PROFESSIONAL ENVIRONMENT

PEN 1.1 Study visit to approach control unit

APS Appreciate the functions and provision of an operational approach control service.

Study visit to an approach control unit

APP

ALL

ALL

ALL

PEN 2 AIRSPACE USERS

1.1.2

1.2.1

PEN 2.1 Contributors to civil ATS operations

APS Characterise civil and military ATS activities in approach control unit.

Study visit to an approach control unit

Optional content: Familiarisation visits to e.

g. TWR, APP, ACC, AIS, RCC, Air Defence Units

APS Characterise other parties interfacing With ATS operations.

Optional content: familiarisation visits to e:
g: engineering services, fire and
emergency services, airline operations
offices

PEN 2.2 Contributors to military ATS operations

APS Characterise civil and military ATS activities.

Optional content: Familiarisation visits to e.
g: TWR, APP, ACC, AIS, RCC, Air

Defence Units

PEN 3 CUSTOMER RELATIONS

PEN 3.1 Customer relations Provision of services and user requirements

APS Identify the role of ATC as a service provider. and the requirements of the ATS users.

Optional content: familiarisation flights, flight simulator visits, liaison visits to aerodrome authority, aircraft and/or airfield operators

APS Appreciate ATS users requirements. PEN 3.1.2

3

2

3

PEN 4 ENVIRONMENTAL PROTECTION

PEN 4.1 Environmental protection

APS Describe the environmental constraints on aerodrome operations.

Optional content: ICAO Circular 303 -Operational opportunities to minimise fuel use and reduce emissions ADV ADI APP APS

AP PEI	2S N 4.1.2 1.3.1	Explain the use of Collaborative Environmental Management (CEM) process at airports. Describe processes used to ensure environmental protection.	2	Optional content: night curfews, relations with local community, relations with environmental associations, relevant administrations	ADV ADI APP APS
AP PE	S N 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: UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS

The general subject objective is:

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

ABES 1 UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS (ABES)

ABES 1.1 G	ieneral Overview of ABES			
APS ABES 1.1.1	List common unusual/degraded/abnormal and emergency situations.	1	Optional content: EATM Guidelines for Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure, unreliable instruments, runway incursion	Al
APS ABES 1.1.2 4.1.2 ACFT	Identify potential or actual abnormal and emergency situations.	3		A
APS ABES 1.1.3 1.1.2	Take into account the procedures for given unusual/degraded/abnormal and emergency situations.	2	Optional content: ICAO Doc 4444	A A A
APS ABES 1.1.4 1.1.3	Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations.	2	Optional content: real life examples	Al
APS ABES 1.1.5	Consider how the evolution of a situation may have an impact on safety.	1 2	Optional content: separation, information, coordination	Al
ABES 2 SK	ILLS IMPROVEMENT			
ABES 2.1 C	ommunication 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	A
APS ABES 2.1.2	Apply change of radiotelephony call sign.	3	ICAO Doc 4444	A
ABES 2.2 A	voidance of mental overload			
APS ABES 2.2.1	Describe actions to keep the control of the situation.	2	Optional content: sector splitting, holding, flow management, task delegation	Al
APS ABES 2.2.2	Organise priority of actions.	4		Al
APS ABES 2.2.3	Ensure an effective circulation of information.	4	Optional content: between executive and planner/coordinator, with the supervisor,	A

APS Consider asking for help. ALL **ABES** 2.2.4 2 ABES 2.3 Air / ground cooperation **APS** Collect appropriate information relevant ALL **ABES 2.3.1** for to the situation. 3 **APS** Assist the pilot. Pilot workload **ABES 2.3.2** 3 Optional content: instructions, information, support, human factors, etc. PROCEDURES FOR UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS **ABES** 3.1 **General Application of procedures for ABES** Apply the procedures for given AΠ **APS** Optional content: EATM Guidelines for **ABES 3.1.1** Controller Training in the Handling of unusual/degraded/abnormal and 3 Unusual/Emergency Situations, ambulance emergency situations. flights, GPWS ground based safety nets alerts, airframe failure **ABES** 3.2 Radio failure ICAO Doc 7030 ALL APS Describe the procedures followed by a **ABES** 3.2.1 pilot when he/she experiences complete 2 Optional content: military procedures or partial radio failure. **APS** AΠ Apply the procedures to be followed Optional content: prolonged loss of **ABES** 3.2.2 communication when a pilot experiences complete or 3 partial radio failure. Unlawful interference and aircraft bomb threat **ABES** 3.3 ICAO Doc 4444 AΠ **APS** Apply ATC procedures associated with **ABES** 3.3.1 unlawful interference and aircraft bomb 3 threat. **ABES** 3.4 Strayed or unidentified aircraft **APS** Apply the procedures in the case of ICAO Doc 4444 ALL **ABES 3.4.1** strayed aircraft. 3 Optional content: inside controlled airspace, outside controlled airspace Apply the procedures in the case of ICAO Doc 4444 **APS ABES** 3.4.2 unidentified aircraft. 3 **ABES** 3.5 **Diversions** Provide navigational assistance to Track/heading, distance, other **APS ABES** 3.5.1 diverting emergency aircraft. navigational assistance Optional content: nearest most suitable aerodrome **ABES** 3.6 Transponder failure

3

APS ABES 3.6.1 Apply procedures in the event of an SSR transponder failure.

ICAO Doc 4444, ICAO Doc 7030

Optional content: total/partial failure, impact on ADS-B/Mode S capability

Subject 11: AERODROMES

The general subject objective is:

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

AGA 1 GENERAL AERODROME DATA, LAYOUT AND COORDINATION

AGA 1.1 **Definitions APS** Describe the general layout of an ICAO Annex 14 AGA 1.1.1 aerodrome with a single runway and 2 Optional content: AIP multiple runways. **APS** Define aerodrome data. Regulation (EU) No 139/2014 - EASA **AGA 1.1.1** ED Decision 2014/013/R for CS-ADR-1.1.2 DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14 Optional content: aerodrome elevation, reference point, apron, movement area, manoeuvring area, hot spot

3

AGA 1.2 Coordination

APS Identify the information that has to be **AGA 1.2.1** passed between Air Traffic Services (ATS) and the airport authority.

Airport conditions, fire/rescue category, condition of ground equipment and NAVAIDs, AIRAC, Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14

AGA 2 MC	OVEMENT AREA			•
AGA 2.1 N	Novement area			
APS AGA 2.1.1	Describe movement area.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	AE AF AF
APS AGA 2.1.2	Describe the marking of obstacles and unusable or unserviceable areas.	2	Flags, signs on pavement, lights	AD AD AP
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	AD AD AP AP
AGA 2.2 N	Manoeuvring area			

APS AGA 2.2.1	Describe manoeuvring area.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	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 APP APS
APS AGA 2.2.4	Describe taxiway lighting.	2		ADV ADI APP APS
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	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR- DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	ADI APP APS
APS AGA 2.3.3	Describe non-instrument runway.	2	Regulation (EU) No 139/2014 - EASA ED Decision 2014/013/R for CS-ADR-DSN - Initial issue and EASA ED Decision 2014/012/R for ADR AMC/GM ICAO Annex 14	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	Characterise the effect of water/ice on			
AGA 2.3.10	runways.	2		
APS	Explain braking action.		Braking action coefficient	
AGA 2.3.11		2		
APS	Explain the effect of runway visual rang	е		
AGA 2.3.12	on aerodrome operation	2		
AGA 3 OB	STACLES			_
	OTAGLEG			
	i eneral Obstacle-free airspace around	aerod	dromes	
AGA 3.1 G	ieneral Obstacle-free airspace around Explain the necessity for establishing	aeroo	dromes	
AGA 3.1 G	deneral Obstacle-free airspace around	aeroc	dromes	
AGA 3.1 6 APS AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free		dromes	
AGA 3.1 G APS AGA 3.1.1	Explain the necessity for establishing and maintaining an obstacle-free airspace around aerodromes.		dromes	

AMC1 to Appendix 8 of ANNEX I — PART-ATCO

Area Control Surveillance Rating (ACS)

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Spec V1.0 -> IR TRACK CHANGES FILE

To decode the changes the following conventions have been used:

Deleted information is shown with the strikethrough effect

Relocated information is shown with the strikethrough effect

New information is shown in blue text.

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

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

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Subject 1: INTRODUCTION TO THE COURSE

The general subject objective is:

INTR 2.3.1

Learners shall know and understand the training programme that they will follow and learn how to obtain the appropriate information.

10 0bla	in the appropriate information.			_
INTR 1 CC	DURSE MANAGEMENT			•
INTR 1.1 C	Course introduction			
ACS	Explain the aims and main objectives of			ALL
INTR 1.1.1	the course.	2		
	Course administration			
ACS INTR 1.2.1	State course administration.			ALL
		1		_
INTR 1.3 S	Study material and training documentati	ion		
ACS	Use appropriate documentation and		Optional content: training documentation,	ALL
INTR 1.3.1	their sources for course studies.	3	library, CBT library, web, learning management server	
ACS	Integrate appropriate information into		Training documentation	ALL
INTR 1.3.2	course studies.	4	Optional content: Training documentation ,	
			supplementary information, library	_
INTR 2 IN	TRODUCTION TO THE ATC TRAINING O	COUF	 RSE	•
INTR 2.1 C	Course content and organisation			
ACS	State the different training methods		Theoretical training, practical training,	ALL
INTR 2.1.1	applied in the course.	1	self-study, types of training events	
ACS	State the subjects of the source and			
INTR 2.1.2	State the subjects of the course and their purpose.	4		ALL
		1		-
ACS	Describe the organisation of theoretical		Optional content: course programme	ALL
INTR 2.1.3	training.	2		
ACS	Describe the organisation of practical		Optional content: PTP, simulation, briefing,	ALL
INTR 2.1.4	training.	2	debriefing, course programme	,
		_		
INTR 2.2 T	raining ethos			
ACS INTR 2.2.1	Recognise the feedback mechanisms		Training progress, assessment, briefing,	ALL
INTR 2.2.1	available.	1	debriefing, learner/instructor feedback, instructor/instructor feedback	
			manuctor/manuctor recupack	
	The Assessment process			
ACS	Describe the assessment process.			ALL

2

Subject 2: AVIATION LAW

The general subject objective is:

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

LAW 1 ATCO LICENSING / CERTIFICATE OF COMPETENCE

L	AW 1.1 P	rivileges and conditions			
AC LA	CS AW 1.1.1	Appreciate the conditions which must shall be met to for the issue an of Area Control Surveillance rating with Radar endorsement.	3	EU Community air traffic controller licence Directive, Regulation (EU) 2015/340 on ATCO Licences, ESARR5 rating, valid rating	ACS
				Optional content: National documents, European Manual of Personnel Licensing - Air Traffic Controllers	
AC LA	CS W 1.1.2	Explain how to maintain and update professional knowledge and skills to	2		ALL
	6.1.1 HUM	retain competence in the operational environment.			_
AC LA	CS AW 1.1.3 1.1.2	Explain the conditions for suspension/revocation of ATCO licence.	2	Incident/Accident, Competence in doubt, Medical, Regulation (EU) 2015/340 on ATCO Licences	ALL

LAW 2 RULES AND REGULATIONS

LAW 2.1	Reports			
ACS	List the standard forms for reports.		Air traffic incident report	ALL
LAW 2.1.1		1	Optional content: routine air reports, breach of regulations, watch/log book, records	_
ACS LAW 2.1.2	Describe the functions of, and processes for, reporting.	2	ESARR 2, Reporting culture, air traffic incident report	ALL
			Optional content: breach of regulations, watch/log book, records, voluntary reporting, ESARR 2	
ACS LAW 2.1.3	Use forms for reporting.	3	Regulation (EU) No 376/2014, air traffic incident reporting form(s)	ALL
			Optional content: ICAO Doc 4444 Appendix 4 , routine air reports, breach of regulations, watch/log book, records	

LAW 2.2 Airspace

ACS
LAW 2.2.1
Appreciate classes and structure of airspace and their relevance to Area Control Surveillance rating with Radar endorsement operations.

ACS LAW 2.2.2	Provide planning, coordination and control actions appropriate to the airspace classification and structure.	4	Optional content: Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, international requirements, civil requirements, military requirements, areas of responsibility, sectorization, national requirements	ALL
ACS LAW 2.2.3	Appreciate responsibility for terrain clearance.	3		ALL
LAW 3 ATC	SAFETY MANAGEMENT			-
LAW 3.1 Ex	cperience Feedback process			
ACS LAW 3.1.1 10.1.1 HUM	State the importance of the controllers contribution to the experience feedback process.	1	Optional content: voluntary reporting	ALL
ACS LAW 3.1.2 10.1.2 HUM	Describe how reported occurrences are analysed.	2	Optional content: ESARR 2, local procedures	ALL
ACS LAW 3.1.3 10.1.3 HUM	Name the means used to disseminate recommendations.	1	Optional content: safety letters, safety boards web pages	ALL
ACS	Appreciate Explain the 'Just Culture'		Benefits, prerequisites, constraints	ALL
10.1.4 HUM	concept.	2->3	Optional content: EAM 2 GUI 6, GAIN Report	_
LAW 3.2 Sa	afety Investigation Branch			
ACS LAW 3.2.1 10.2.1 HUM	Describe role and mission of Safety Investigation Branch in the improvement of safety.	t ₂		ALL
ACS LAW 3.2.2 10.2.2 HUM	Define working methods of Safety Investigation Branch.	1		ALL

Subject 3 : AIR TRAFFIC MANAGEMENT

The general subject objective is:

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

ATM 1 PR	ROVISION OF SERVICES AIR TRAFFIC	SER\	/ICES AND AIRSPACE MANAGEMENT	-
ATM 1.1 A	Air traffic control (ATC) service			
ACS ATM 1.1.1 1.1.2	Appreciate own area of responsibility.	3		APP ACP APS ACS
ACS ATM 1.1.2	Provide the appropriate ATC area control service.	4	Regulation (EU) No 923/2012, ICAO Annex 11, ICAO Doc 7030, ICAO Doc 4444, operation manuals	ACP ACS
ATM 1.2 F	Flight information service (FIS)			
ACS	Provide FIS.		ICAO Doc 4444	ALL
ATM 1.2.1 1.2.2		4	Optional content: national documents	
ACS ATM 1.2.2 1.2.3	Use radar ATS surveillance system for the provision of FIS.	3	ICAO Doc 4444, information to identified aircraft concerning: traffic, navigation	APS ACS
			Optional content: weather	
ACS ATM 1.2.3	Issue Relay appropriate information concerning the location of other conflicting traffic.	3	ICAO Doc 4444, traffic information, essential traffic information	APS ACS APP ACP
	Alerting service (ALRS)		1000 Dec 4444	
ACS ATM 1.3.1	Provide ALRS.		ICAO Doc 4444	ALL
		4	Optional content: national documents	_
ACS ATM 1.3.2	Respond to distress and urgency messages and signals.	3	Regulation (EU) No 923/2012, 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 radar ATS surveillance system for the provision of ALRS.	3		APS ACS
ATM 1.4 A	ATS System capacity and air traffic flow	/ <mark>m</mark> ar	nagement	
ACS ATM 1.4.1	Appreciate principles of ATFM ATS system capacity and air traffic flow management.	3	Optional content: EUROCONTROL ATFCM Users Manual Working principles of ATFM, 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.	۱ ₄	e.g. radar coverage	APS ACS
ATM 1.5 A	irspace management (ASM)			
ACS ATM 1.5.1	Appreciate the principles and means of ASM.	3	Regulation (EC) No 551/2004, Regulation (EC) 2150/2005, Regulation (EC) No 730/2006	APP ACP APS ACS
			Optional content: FABs, EUROCONTROL Specification for the application of FUA, ICAO Doc 4444, EUROCONTROL ASM HBK - Airspace Management Handbook for the application of FUA, TSAs, CDRs, CBAs	
ACS ATM 1.5.2	Organise traffic to take account of ASM.	4	Real-time activation, deactivation or reallocation of airspace	APS ACS
			Optional content: CDR, TSA, TRA, CBA	_
ATM 2 CC	MMUNICATION			-
ATM 2.1 E	ffective communication			
ACS	Use approved phraseology.		ICAO Doc 4444	ALL
ATM 2.1.1		3	Optional content: ICAO Doc 9432 RTF manual, standard words and phrases as contained in ICAO Annex 10 Vol. 2	_
ACS ATM 2.1.2	Ensure effective Perform communication. effectively.	3->4	Communication techniques, readback/verification of readback	ALL

ACS ATM 2.1.3 6.1.2 HUM	Analyse examples of pilot and controller communication for effectiveness.	4		ALL
				-
-	C CLEARANCES AND ATC INSTRUCTION	ONS		
	ATC clearances			
ACS ATM 3.1.1	Issue appropriate ATC clearances.		ICAO Doc 4444	ALL
		3	Optional content: national documents	_
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
ATM 3.2 A	ATC instructions			
ACS	Issue appropriate ATC instructions.		ICAO Doc 4444	ALL
ATM 3.2.1		3	Optional content: national documents	
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
ATM 4 CC	OORDINATION			•
ATM 4.1 N	lecessity for coordination			
ACS ATM 4.1.1	Identify the need for coordination.	3		ALL
ATM 4.2 T	ools 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
ATM 4.3 C	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	ALL
			Optional content: release point	
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	When additional traffic cannot be accepted by adjacent position/unit, When additional traffic cannot be accepted by own position/unit, etc.	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
ATM 5 AL	TIMETRY AND LEVEL ALLOCATION			-
ATM 5.1 A	Altimetry			
ACS ATM 5.1.1	Allocate levels (height, altitude, flight level) 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
ATM 5.2 T	errain 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: minimum vectoring altitude, terrain clearance dimensions, minimum safe altitudes, transition level, minimum flight level, minimum sector altitude	APS ACS
ATM 6 SE	PARATIONS			-
ATM 6.1 V	/ertical 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	Provide increased vertical separation.		ICAO Doc 4444, ICAO Doc 7030	APP
ATM 6.1.2		4	Optional content: level allocation, during climb/descent, rate of climb/descent	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 ATM 6.1.4	Provide vertical separation in a surveillance environment.	4	Pressure altitude-derived information, pilot level reports	APS ACS
			Optional content: into/out of ATS surveillance system coverage	_

	ongitudinal Horizontal separation in a s	surv	eillance 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 radar transfer, ICAO Doc 4444	AC
			Optional content: Within ATS surveillance system coverage	
ATM 6.3 V	Vake turbulence distance-based separa	tion		
ACS	Provide distance-based wake		ICAO Doc 4444	AP
ATM 6.3.1	turbulence separation.	4	Optional content: national documents	AC
ATM 6.4	Radar Separation based on ATS surveill	ance	systems	
ACS	Describe how separation based on ATS		ICAO Doc 4444	AP
ATM 6.4.1	surveillance systems is applied.	2		AC
ACS	Provide radar horizontal separation.		ICAO Doc 4444, ICAO Doc 7030, local	AP
ATM 6.4.2	·	4	operation manuals, holding	AC
ACS ATM 6.4.3	Provide radar horizontal separation by vectoring in a variety of situations.	4	Optional content: transit, meteorological phenomena, vectoring for approach, departure vs transit vs arrival	AP AC
ACS ATM 6.4.4	Ensure horizontal or vertical separation from airspace boundaries.	4	Adjacent sectors, PRD, TSAs	AP AC
	RBORNE COLLISION AVOIDANCE SYSTEM	TEM	S AND GROUND-BASED SAFETY	_
ATM 7.1 A	airborne collision avoidance systems			
ACS	Differentiate between ACAS advisory		ICAO Doc 9863	
	•	2	ICAO Doc 9863 Optional content: EUROCONTROL ACAS web page	
ACS ATM 7.1.1 7.1.6 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the area control environment. Describe the controller responsibility		Optional content: EUROCONTROL ACAS web	AC
ACS ATM 7.1.1 7.1.6 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the area control environment.	2	Optional content: EUROCONTROL ACAS web page	AC
ACS ATM 7.1.1 7.1.6 B ACS ATM 7.1.2 7.1.4 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the area control environment. Describe the controller responsibility during and following an ACAS RA		Optional content: EUROCONTROL ACAS web page	AC AC
ACS ATM 7.1.1 7.1.6 B ACS ATM 7.1.2 7.1.4 B	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the area control environment. Describe the controller responsibility during and following an ACAS RA reported by pilot.		Optional content: EUROCONTROL ACAS web page ICAO Doc 4444	AC ALI
ACS ATM 7.1.1 7.1.6 B ACS ATM 7.1.2 7.1.4 B ACS ATM 7.1.3 7.1.1	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the area control environment. Describe the controller responsibility during and following an ACAS RA reported by pilot. Respond to pilot notification of actions	2	Optional content: EUROCONTROL ACAS web page ICAO Doc 4444 ACAS, TAWS Optional content: GPWS EUROCONTROL	AC ALI
ACS ATM 7.1.1 7.1.6 B ACS ATM 7.1.2 7.1.4 B ACS ATM 7.1.3 7.1.1	Differentiate between ACAS advisory thresholds and ATC separation standards applicable in the area control environment. Describe the controller responsibility during and following an ACAS RA reported by pilot. Respond to pilot notification of actions based on airborne systems warnings.	2	Optional content: EUROCONTROL ACAS web page ICAO Doc 4444 ACAS, TAWS Optional content: GPWS EUROCONTROL	AC ALI

ACS **ATM** 7.2.2 7.2.1 ATM 8 DATA DISPLAY

ACS

ATM 9.2.2

Respond to ground-based safety nets warnings.

3

Optional content: STCA, MSAW, APW, APM

APS ACS

ATM 8.1 D	ata 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
ACS ATM 8.1.2	Analyse pertinent data on data displays.	4	
ACS	Organise pertinent data on data		
ATM 8.1.3	displays.	4	
ACS	Process pertinent data on data displays.		
ATM 8.1.4		3	
ACS	Obtain flight plan information.		CPL, FPL, supplementary information
ATM 8.1.4 8.1.5		3	Optional content: RPL, AFIL, etc.
ACS	Use flight plan information.		
ATM 8.1.5		3	
8.1.6	<u> </u>		

ATM 9 OF	PERATIONAL ENVIRONMENT (SIMULA	TED)		
ATM 9.1 I	ntegrity of the operational environment	t		
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
ATM 9.2 \	Verification of the currency of operation	nal p	rocedures	
ACS ATM 9.2.1	Check all relevant documentation before managing traffic.	e 3	Optional content: briefing, LOAs, NOTAM, AICs	ALL

ATIVI 9.2.2	procedural changes.	4	APS ACS
ATM 9.3 H	landover-takeover		
ACS	Transfer information to the relieving		ALL
ATM 9.3.1	controller.	3	

Manage traffic in accordance with

procedural changes.

APP

ACP

ACS ATM 9.3.2	Obtain information from the controller handing over.	3		ALL
ATM 10 PR	OVISION OF CONTROL SERVICE			-
ATM 10.1 R	esponsibility and processing of inform	nation	n	
ACS ATM 10.1.1	Describe the division of responsibility between air traffic control units.	2	ICAO Doc 4444	ALL
ACS	Describe the responsibility in regard to		ICAO Doc 4444	ALL
ATM 10.1.2	military traffic.	2	Optional content: ICAO Doc 9554	
ACS ATM 10.1.3 10.1.9	Describe the responsibility in regard to unmanned free balloons.	2	ICAO Doc 4444	APP ACP APS ACS
ACS ATM 10.1.4 10.1.3	Obtain operational information.	3	ICAO Doc 4444, local operation manuals	APP ACP APS ACS
ACS ATM 10.1.5 10.1.4	Interpret operational information.	5		APP ACP APS ACS
ACS ATM 10.1.6 10.1.5	Organise forwarding of operational information.	4	Optional content: including the use of backup procedures	APP ACP APS ACS
ACS ATM 10.1.7 10.1.6	Integrate operational information into control decisions.	4		APP ACP APS ACS
ACS ATM 10.1.7	Ensure an adequate priority of actions.	4	Formal and situational requirements, workload	APP ACP APS
10.3.6				ACS
ACS ATM 10.1.8 3.5.1 ACFT	Appreciate the influence of operational requirements.	3	Optional content: military flying, calibration flights, Aerial photography	ALL
ACS ATM 10.1.8	Balance the workload with the traffic demand against personal capacity.	5	e.g. in own sector, in adjacent sectors	APP ACP APS ACS
	TS surveillance service with Radar		ICAO Dog 4444 ICAO Azzay 44 Izazi	
ACS ATM 10.2.1	Explain the responsibility for the provision of ATS surveillance service appropriate to ACS rating with Radar endorsement.	2	ICAO Doc 4444, ICAO Annex 11, local operation manuals	ACS

ACS ATM 10.2.2	Explain the functions that may be performed with the use of radar-ATS surveillance systems derived information presented on a situation display.	2 1	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	Regulation (EU) No 923/2012, ICAO Annex 2, ICAO Annex 11, ICAO Doc 4444	ACS ACP
ACS	Apply the procedures for termination of		ICAO Doc 4444	APS
ATM 10.2.4	ATS surveillance service.	3	Optional content: transfer of control, termination or interruption of ATS surveillance service	ACS
ATM 10.3 T	raffic management process			
ACS ATM 10.3.1	Ensure that situational awareness is maintained.	4	Information gathering, scanning, traffic projection	APS ACS
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	Formal and situational requirements, workload	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
ATM 10.4 H	andling traffic Vectoring			
ACS ATM 10.4.1	Manage arrivals, departures and overflights.	4		APP ACP APS ACS
ACS ATM 10.4.2 10.1.8	Balance the workload with the traffic demand against personal capacity.	5	Optional content: in own sector, in adjacent sectors re-routing, re-planning, prioritising solutions, denying requests, delegating responsibility for separation	APP ACP APS ACS

			10.00	
ACS ATM 10.4.3	Define flight path monitoring and vectoring.	1	ICAO Doc 4444	APS ACS
	Final sign than a surjective and a few contactions		1040 Dec 4444	
ACS ATM 10.4.4	Explain the requirements for vectoring and termination of vectoring.	_	ICAO Doc 4444	APS ACS
10.3.2	and termination of vectoring.	2		
ACS	Provide vectoring.		ICAO Doc 4444	APS
ATM 10.4.5 10.3.3		4	Optional content: separation, expediting arrivals, departures and/or climb to cruising levels, aircraft leaving the hold, navigation assistance, uncontrolled airspace, etc.	ACS
ACS	Apply the procedures for termination of		ICAO Doc 4444	APS
ATM 10.4.6 10.3.4	vectoring.	3		ACS
ATM 10.5 C	ontrol service with advanced system s	uppo	ort	
ACS	Appreciate Explain the impact of		Optional content: sequencing systems,	ACS
ATM 10.5.1 10.4.1	advanced systems on the provision of area control service.	?	automated holding lists, vertical traffic displays, conflict detection and decision making tools, automated information and coordination tools	_
ATM 11 HO	LDING			•
ATM 11.1 G	eneral 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	Appreciate the factors affecting holding		Effect of speed, effect of level used,	APP
ATM 11.1.2	patterns. effect of: wind, aircraft speed,	3	effect of navigation aid in use,	ACP APS
	rate of turn, height, aircraft type, aircraft performance.		turbulence, aircraft type	ACS
ATM 44-2 V				
ACS	ertical separation Provide vertical separation between			APP
ATM 11.2.1	aircraft in a holding pattern.	4		ACP APS
6.1.1		·		ACS
ACS	Provide vertical separation between			APP
ATM 11.2.2	aircraft in a holding pattern and other	4		ACP APS
6.1.1	aircraft.			ACS
ATM 11.2 H	olding aircraft			
ACS	Calculate expected onward clearance			ACP
ATM 11.2.1 11.3.1	times.	3		ACS
ATM 11.3 H	olding in a surveillance environment			
				-

AC AT	S M 11.4.1	Provide vectors to aircraft leaving a holding pattern.	4		APS ACS
	10.4.5		•		
AC AT	S M 11.3.1 11.4.2	Organise traffic to separate other aircraft from holding aircraft.	4		APS ACS
AC AT	S M 11.4.3 12.3.1	Ensure identity of aircraft leaving a holding pattern.	4		APS ACS
AC AT		Integrate system support, when available.	4	Optional content: arrival management system, automated holding lists, vertical traffic displays	APS ACS
Α٦	M 12 IDE	NTIFICATION			_
Al	M 12.1 Es	stablishment of identification			
AC AT	S M 12.1.1 12.1.2	Appreciate the precautions when establishing identification.	3	HCAO Doc 4444, SSR Optional content: PSR	APS ACS
AC AT	S M 12.1.1 12.1.1 9.4.2 ATMB	Apply the methods of establishing identification.	3	ICAO Doc 4444, SSR e.g. PSR	APS ACS
AC AT		Identify aircraft.	3	Optional content: PSR, SSR or ADS identification method	APS ACS
AC AT	S M 12.1.3	Apply procedures in the case of misidentification.	3		APS ACS
Al	M 12.2 M	aintenance of identification			
AC AT	S M 12.2.1	Appreciate the necessity to maintain identification.	3		APS ACS
AT	M 12.3 Lo	oss of identity			
AC AT	S M 12.3.1	Appreciate when an aircraft identification is lost or in doubt.	3	Optional content: out of radar ATS surveillance system coverage, loss failure of ATS surveillance system service, weather clutter, other clutter, garbling, holding, etc.	APS ACS
AC AT	S M 12.3.2	Apply methods to re-establish identification.	3		APS ACS
AC AT	S M 12.3.3	Respond to loss/doubt concerning identification.	3	Optional content: procedural separation	APS ACS

ATM 12.4 P	osition information			
ACS ATM 12.4.1	Appreciate the circumstances when position information should be passed the aircraft.	to 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
ATM 12.5 T	ransfer of identity			
ACS ATM 12.5.1	Apply the methods of transfer of identification.	3		APS
ACS ATM 12.5.2	Appreciate the precautions when transferring identification.	3		APS

Subject 4: METEOROLOGY

The general subject objective is:

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

MET 1 ME	TEOROLOGICAL PHENOMENA			•
MET 1.1 M	leteorological phenomena			
ACS MET 1.1.1	Appreciate the impact of adverse weather.	3	Thunderstorms, icing, jet streams, clear air turbulence (CAT), turbulence, microburst, severe mountain waves, line squalls, volcanic ash	ACP ACS
			Optional content: Volcanic ash solar radiation	_
ACS MET 1.1.2	Integrate data about meteorological phenomena into provision of ATS.	4	Clearances, instructions and transmitted information	ALL
			Optional content: relevant meteorological phenomena Separation, holding, diversions, re-routings, etc.	
ACS MET 1.1.3 1.1.2	Integrate data about meteorological phenomena into clearances, instructions and transmitted information.	4	Optional content: Thunderstorm, Turbulence, Icing, Volcanic ash	APP ACP APS ACS
ACS	Use techniques to avoid adverse		Re-routing, level change, etc.	APP
MET 1.1.3 1.1.4	weather when necessary/possible.	3		ACP APS ACS
MET 2 SO	URCES OF METEOROLOGICAL DATA			,
MET 2.1 S	ources of meteorological information			
ACS	Obtain meteorological information		METAR, TAF, SIGMET, AIRMET	APP
MET 2.1.1		3	Optional content: AIREP/AIREP Special	ACP APS ACS
ACS	Relay meteorological information.		ICAO Doc 4444 To: aircraft, MET office	ALL
MET 2.1.2		3	Optional content: flight information centre, adjacent ATS unit	

Subject 5: NAVIGATION

The general subject objective is:

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

NAV 1 MA	APS AND AERONAUTICAL CHARTS			
NAV 1.1 N	laps and charts			
ACS NAV 1.1.1	Use relevant maps and charts.	3		APP ACP APS ACS
NAV 2 INS	STRUMENT <mark>AL</mark> NAVIGATION			-
NAV 2.1 N	lavigational 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
NAV 2.2 N	lavigational 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
NAV 2.3 P	PBN applications			
ACS NAV 2.3.1	State the navigation applications used in terminal and en-route environments.	1	Terminal-RNAV-1 (≈P-RNAV); Enroute-RNAV-5 (B-RNAV)	ACP ACS
			Optional content: A-RNP, EC PBN Implementing Rule , ICAO Doc 9613	
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	State future PBN developments.		A-RNP, APV	ADI
NAV 2.3.3		1	Optional content: RNP 3D, RNP 4D	APP ACP APS
				ACS

Subject 6 : AIRCRAFT

The general subject objective is:

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

ACFT 1 All	RCRAFT INSTRUMENTS			-
ACFT 1.1	Aircraft instruments			
ACS ACFT 1.1.1	Integrate the information indication from aircraft instruments provided by the pilot in the provision of ATS.	4	Optional content: TCAS, wind shear indicator, weather radar	ALI
ACS ACFT 1.1.2	Explain the operation of aircraft radio equipment.	2	Optional content: radios (number of), emergency radios, SELCAL	AL
ACS ACFT 1.1.3	Explain the operation of transponder on- board surveillance equipment.	2	Transponders: equipment Mode A, Mode C, Mode S, ADS capability	AD AP AC
ACS ACFT 1.1.4	Explain the use and benefits of CPDLC.	2		AL
ACFT 2 All	RCRAFT CATEGORIES			-
ACFT 2.1 V	Vake turbulence categories			
ACS ACFT 2.1.1	Explain the wake turbulence effect and associated hazards to the succeeding aircraft.	2		AL
ACS ACFT 2.1.2	Appreciate the techniques used to prevent hazards associated with wake turbulence on succeeding aircraft.	3		AL
ACFT 3 FA	CTORS AFFECTING AIRCRAFT PERFO	RMA	ANCE	-
ACFT 3.1 C	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	AP AC AP AC
ACFT 3.2 C	Cruise factors			
ACS ACFT 3.2.1	Integrate the influence of factors affecting aircraft during cruise.	4	Level, cruising speed, wind, mass, cabin pressurisation	AP AC AP
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, cabin pressurisation	AC AC
ACFT 3.4 E	Economic factors			

ACS ACFT 3.4.1	Integrate consideration of economic factors affecting aircraft.	4	Optional content: routing, level, speed, rate of climb and rate of descent, approach profile, top of descent	ACF ACS
ACS ACFT 3.4.2	Use continuous climb techniques where applicable.	3		APF ACF APS
ACS ACFT 3.4.3	Use direct routing where applicable.	3		ACS APS ACS
ACFT 3.5	liscellaneous factors			
ACS ACFT 3.5.1	Appreciate the influence of operational requirements.	3	Optional content: Military flying, Calibration flights, Aerial photography, banner towing	ACI ACS
10.1.8 ATM	М			_
ACFT 3.5 E	Environmental factors			
ACS ACFT 3.5.1	Appreciate the performance restrictions due to environmental constraints.	3	Optional content: fuel dumping, minimum flight levels, continuous descent operations	AC:
ACFT 4 All	RCRAFT DATA			-
ACFT 4.1 F	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	API ACI APS
ACS ACFT 4.1.2	Identify potential or actual emergency situations.	3		API AC
1.1.2 ABES	S			AC
				_

Subject 7: HUMAN FACTORS

The general subject objective is:

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

HUM 1.1 C	cognitive			
ACS HUM 1.1.1	Describe the human information processing model.	2	Attention, perception, memory, situational awareness, decision making, response	F
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	A
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	
HUM 2 ME	DICAL AND PHYSIOLOGICAL FACTOR	RS		•
HUM 2.1 F	atigue			
ACS	State factors that cause fatigue.		Shift work	,
HUM 2.1.1		1	Optional content: night shifts and rosters	
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	,
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	-
ACS HUM 2.1.4	Recognise the onset of fatigue in others	1		,
ACS HUM 2.1.5	Describe Consider appropriate action when recognising fatigue.	2		
HUM 2.2 F	itness			
ACS HUM 2.2.1	Recognise signs of lack of personal fitness.	1		,
ACS HUM 2.2.2	Describe actions when aware of a lack of personal fitness.	2		-

HUM 3 SOCIAL AND ORGANISATIONAL FACTORS

HUM 3.1 Team resource management (TRM)

ACS HUM 3.1.1	State the relevance objectives 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
HUM 3.2 T	eamwork 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
HUM 3.3 F	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
HUM 4 ST	RESS			
	RESS			
		1	Stress and its symptoms in self and in others	ALL
HUM 4.1 S ACS HUM 4.1.1	Stress Recognise the effects of stress on	1		ALL
HUM 4.1 S ACS HUM 4.1.1	Recognise the effects of stress on performance.	1		
HUM 4.1 S ACS HUM 4.1.1 HUM 4.2 S ACS	Recognise the effects of stress on performance. Stress management	3	The effect of personality in coping with stress, the benefits of active stress	ALL
HUM 4.1 S ACS HUM 4.1.1 HUM 4.2 S ACS HUM 4.2.1	Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance.	3	The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful	ALL
HUM 4.1 S ACS HUM 4.1.1 HUM 4.2 S ACS HUM 4.2.1 ACS HUM 4.2.2	Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance. Obtain assistance in stressful situations. Recognise the effect of shocking and	3 3	The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful situations Self and others, abnormal situations,	ALL
HUM 4.1 S ACS HUM 4.1.1 HUM 4.2 S ACS HUM 4.2.1 ACS HUM 4.2.2 ACS HUM 4.2.2	Recognise the effects of stress on performance. Stress management Act to reduce stress. Respond to stressful situation by offering, asking or accepting assistance. Obtain assistance in stressful situations. Recognise the effect of shocking and stressful events. Consider the benefits of Critical Incident	3 3	The effect of personality in coping with stress, the benefits of active stress management Optional content: the benefits of offering, accepting and asking for help in stressful situations Self and others, abnormal situations,	ALL ALL ALL

HUM 5 HU	JMAN ERROR			-
HUM 5.1 H	luman error			
ACS HUM 5.1.1	Explain the relationship between error and safety.	2	Number and combination of errors, pro- active versus reactive approach to discovery of error	ALI
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	_
ACS	Differentiate between the types of error.		Slips, lapses, mistakes	ALL
HUM 5.1.2		2	Optional content: Slips, Lapses, Mistakes ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
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.		Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	ALL
ACS HUM 5.1.5	Explain how to detect errors to compensate for them.	2	STCA, MSAW, individual and collective strategy	ALL
			Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	_
ACS	Execute corrective actions.		Error compensation	ALL
HUM 5.1.6		3	Optional content: ICAO Circular 314 – AN/178 Threat and Error Management (TEM) in Air Traffic Control	
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	ALI
HUM 5.2 V	/iolation 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
HUM 6 W	ORKING METHODS			-
HUM 6.1 E	Efficiency			
ACS HUM 6.1.1	Consider, from a human factors point of view, the factors affecting efficiency in the provision of air traffic control.	2	Optional content: Own and others workload, OJT, customer requirements, economy, ecology, safety	ALL

HUM 6.1 Co	ommunication		
ACS HUM 6.1.1 8.1.1	Use communication effectively in ATC.	3	
ACS HUM 6.1.2 2.1.3 ATM	Analyse examples of pilot and controller communication for effectiveness.	4	
HUM 6.2 Co	ollaborative work within the same area	of r	esponsibility
ACS HUM 6.2.1 8.2.1	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
ACS HUM 6.2.2 8.2.2	Explain consequences of the use of communication means on effectiveness.	2	Optional content: strips legibility and encoding, Radar labels designation, feedback
ACS HUM 6.2.3 8.2.3	List possible actions to provide a safe position handover.	1	Optional content: rigour, preparation, overlap time
ACS HUM 6.2.4 8.2.4	Explain consequences of a missed position handover process.	2	
HUM 6.3 Co	ollaborative work between different are	as c	of responsibility
ACS HUM 6.3.1 8.3.1	List factors and means for an effective coordination between sectors and/or tower positions.	1	Optional content: other sectors constraints, electronic coordination tools
HUM 6.4 Co	ontroller/pilot cooperation		
ACS HUM 6.4.1 8.4.1	Describe parameters affecting controller/pilot cooperation.	2	Optional content: workload, mutual knowledge, controller vs pilot mental picture
HUM 7 WO	RKING KNOWLEDGE		
	ontroller knowledge		
ACS HUM 7.1.1 1.1.2 LAW	Explain how to maintain and update professional knowledge to retain competence in the operational environment.	2	Optional content: Briefing, LOAs, NOTAM, AICs, Reports of accident/incident, VOLMET, ATIS, SIGMET

HUM 9.1 Ergonomics

ACS Appreciate the impact of working ALL HUM 9.1.1 position ergonomics on controller 3 activity. **HUM 10 ATC SAFETY MANAGEMENT HUM 10.1 Experience feedback ACS** State the importance of the controllers ALL Optional content: voluntary reporting HUM 10.1.1 contribution to the experience feedback 1 process. 3.1.1 LAW **ACS** Describe how reported occurrences are ALL Optional content: ESARR2, local HUM 10.1.2 analysed. procedures 2 3.1.2 LAW ACS Name the means used to disseminate ALL Optional content: Safety letters, safety HUM 10.1.3 recommendations. boards web pages 1 3.1.3 LAW ACS Explain the "Just Culture" concept. benefits, prerequisites, constraints ALL HUM 10.1.4 2 Optional content: EAM 2 GUI 6, GAIN Report 3.1.4 LAW **HUM 10.2 Safety investigation branch**

		of safety.	
AC HU		Define working methods of Safety Investigation Branch.	ALL
	3.2.2 LAW		

Describe role and mission of Safety

ALL

Subject 8: EQUIPMENT AND SYSTEMS

emergency situations.

The general subject objective is:

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

in the p	provision of ATS.			
EQP 1 VO	DICE COMMUNICATIONS			-
EQPS 1.1 R	Radio communications			
ACS	Operate two-way communication		Transmit/receive switches, procedures	Al
EQPS 1.1.1	equipment.	3	Optional content: frequency selection, standby equipment	
ACS EQPS 1.1.2	Identify indications of operational status of radio equipment.	3	Optional content: indicator lights, serviceability displays, selector/frequency displays	Al
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	AI AI AI
EQPS 1.2 C	Other voice communications			
ACS EQPS 1.2.1	Operate landline communications.	3	Optional content: telephone, interphone and intercom equipment	Al
EQP 2 AU	TOMATION IN ATS			-
EQPS 2.1 A	eronautical fixed telecommunication n	etwo	ork (AFTN)	
ACS EQPS 2.1.1	Decode AFTN messages.	3	Optional content: movement and control messages, NOTAM, SNOWTAM, BIRDTAM, etc.	Al
EQPS 2.2 A	Automatic data Interchange			
ACS EQPS 2.2.1	Use automatic data transfer equipment where available.	3	Optional content: sequencing systems, automated information and coordination, OLDI	1A 1A 1A 1A
EQP 3 CC	ONTROLLER WORKING POSITION			-
EQPS 3.1	General Operation and monitoring of eq	uipn	nent	
ACS EQPS 3.1.1	Monitor the technical integrity of the controller working position.	3	Notification procedures, responsibilities	Al
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, strip-printer, clock, information systems monitors, (CCIS), UDF/VDF	Al
ACS EQPS 3.1.3	Operate all available equipment in unusual/degraded/abnormal and	3		A

EQPS 3.2 S	Situation displays and information syste	ms	
ACS	Use situation displays.		ALL
EQPS 3.2.1		3	
ACS	Check availability of information		ALL
EQPS 3.2.2	material.	3	
ACS	Obtain the information from equipment.		APP
EQPS 3.2.3	. ,	3	ACP APS
			ACS
	light data systems		
ACS EQPS 3.3.1	Use the flight data information at controller working position.		ALL
	controller working position.	3	
EQPS 3.4 U	Ise of Radars ATS surveillance system		
ACS	Use the ATS surveillance system		APS
EQPS 3.4.1	functions. Operate radar equipment.	3	ACS
ACS	Analyse the information provided by the		APS
EQPS 3.4.2	radar equipment ATS surveillance	4	ACS
	system.		
ACS EQPS 3.4.3	Assign codes.		APS ACS
		4	
ACS	Appreciate the use of advanced	Optional content: Mode S, ADS-B, ML	AT APS
EQPS 3.4.4	surveillance technology Mode S .	3	ACS
EQPS 3.5 A	Advanced systems		
ACS	Appreciate the Uuse of controller pilot		APS
EQPS 3.5.1	datalink communications when	3	ACS
	available.		
ACS EQPS 3.5.2	Appreciate the Uuse of the information	Optional content: trajectory-based	APS ACS
LQF 0 0.0.2	provided by advanced systems , when available .	information, MTCD, MONA, etc.	7.00
FOR 4 FILE	TUDE FOLUDATAT		
	TURE EQUIPMENT		
EQPS 4.1 N	lew developments Recognise future developments.	New advanced systems	ALL
EQPS 4.1.1	recognise future developments.	1	ALL
		'	
EQP 5 EC	QUIPMENT AND SYSTEMS LIMITATIONS	AND DEGRADATION	
	General Reaction to limitations		
ACS EQPS 5.1.1	Take account of the limitations of equipment and systems.		ALL
	equipment and systems.	2	

ACS EQPS 5.1.2	Respond to technical deficiencies of the operational position.	3	Notification procedures, responsibilities	ALL
EQPS 5.2 C	Communication equipment degradation			
ACS EQPS 5.2.1	Identify that communication equipment has degraded.	3	Optional content: ground-air and landline communications	APF ACF APS
ACS EQPS 5.2.2	Apply Integrate contingency procedures in the event of communication equipment degradation.	4->3	Procedures for total or partial degradation of ground-air and landline communications, alternative methods of transferring data	APF ACF ACS
EQPS 5.3 N	lavigational 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 Integrate contingency procedures in the event of a navigational equipment degradation.	4->3	Optional content: vertical separation, information to aircraft, navigational assistance, seeking assistance from adjacent units	ADI APF ACF APS
EQPS 5.4 S	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 Integrate contingency procedures in the event of surveillance equipment degradation.	4->3	Optional content: inform adjacent sectors, inform aircraft, apply vertical separation (emergency, increased), increased radar horizontal separation, reduce the number of aircraft entering area of responsibility, transfer aircraft to another unit	APS ACS
EQPS 5.5 A	ATC processing system degradation			
ACS EQPS 5.5.1	Identify a processing system degradation.	3	Optional content: FDPS, RSDPS, software processing of situation display	APS ACS
ACS EQPS 5.5.2	Apply Integrate contingency procedures in the event of a processing system degradation.	4->3		APS ACS

Subject 9: PROFESSIONAL ENVIRONMENT

The general subject objective is:

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

3

2

3

3

PEN 1 FAMILIARISATION PROFESSIONAL ENVIRONMENT

PEN 1.1 Study visit to area control centre

Appreciate the functions and provision **ACS PEN 1.1.1**

of an operational area control service.

Study visit to area control centre

ACP. **ACS**

ACP

ACS

ALL

PEN 2 AIRSPACE USERS

PEN 2.1 Contributors to civil ATS operations

ACS Characterise civil and military ATS **PEN 2.1.1** activities in area control centre.

1.1.1

Study visit to an area control centre

Optional content: Familiarisation visits to : g. TWR, APP, ACC, AIS, RCC, Air Defence Units

Characterise other parties interfacing **ACS PEN 2.1.2** with ATS operations.

1.1.2

Optional content: familiarisation visits to e. g. engineering services, fire and 2

emergency services, airline operations offices

PEN 2.2 Contributors to military ATS operations

ACS PEN 2.2.1 Characterise civil and military ATS activities.

Optional content: Familiarisation visits to en TWR, APP, ACC, AIS, RCC, Air 2 Defence Units

ALL

ALL

ALL

1.1.1

CUSTOMER RELATIONS PEN 3

PEN 3.1 Customer relations Provision of services and user requirements

ACS Identify the role of ATC as a service **PEN 3.1.1** provider. and the requirements of the

ATS users. 1.2.1

Optional content: familiarisation flights. flight simulator visits, liaison visits to aerodrome authority, aircraft and/or airfield operators

ACS PEN 3.1.2 Appreciate ATS users requirements.

1.2.1

PEN 4 ENVIRONMENTAL PROTECTION

PEN 4.1 Environmental protection

ACS PEN 4.1.1 Appreciate the mitigation techniques used en-route to minimise the aviation's 2

1.3.1

impact on the environment. Describe processes used to ensure environmental protection.

Optional content: free route airspace (FRA), night/weekend routes curfews, relations with local community, relations with environmental associations, relevant administrations |

ICAO Circular 303 - Operational opportunities to minimize fuel use and reduce emissions

ACP ACS

Subject 10: UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS

The general subject objective is:

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

ABE 1 UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY SITUATIONS (ABES)

ACS ABES 1.1.1 List common unusual/degraded/abnormal and emergency situations. ACS ABES 1.1.2 Lidentify potential or actual abnormal and emergency situations. ACS ABES 1.1.2 ACS ABES 1.1.3 Take into account the procedures for given unusual/degraded/abnormal and emergency situations. ACS ABES 1.1.4 ACS ABES 1.1.5 Take into account that procedures do not don't exist for all 1.1.3 unusual/degraded/abnormal and emergency situations. ACS ABES 1.1.4 ACS ABES 1.1.5 ACS ABES 1.1.6 Take into account that procedures do not don't exist for all 1.1.1 Experiments in the Handling of Control of the situation or actual abnormal and emergency situations. ACS ABES 1.1.4 ABES 2.1 Consider how the evolution of a situation may have an impact on safety. 2 Optional content: real life examples AL ACS ABES 2.1.1 ABES 2.1 Communication effectiveness ACS ACS Apply change of radiotelephony call sign. ACS Apply change of radiotelephony call sign. ABES 2.2 ADBES 2.2.1 ABES 2.2 AVOIdance of mental overload ACS ACS Describe actions to keep the control of the situation. ACS Organise priority of actions. AL Optional content: EATM Guidelines for Controller Training in the Handling and the Handling in the Handling and the Handling in the Handling in the Handling and the Handling in the Handlin	ABES 1.1 €	Seneral Overview of ABES			
ABES 1.1.2 4.1.2 ACS ABES 1.1.3 ACS ABES 1.1.4 ABES 1.1.5 ABES 1.1.5 ABES 2.1.1 ABES 2.1.1 ABES 2.1.1 ABES 2.1.2 ACS Apply change of radiotelephony call sign. ACS ABES 2.2.2 ACS ACS Aper Abes 2.2.2 ACS ACS ADS ADS ADS ADS ADS ADS	ACS	List common unusual/degraded/abnormal and	1	Controller Training in the Handling of Unusual/Emergency Situations, ambulance flights, GPWS ground based safety nets alerts, airframe failure, unreliable	ALL
ABES 1.1.3 given unusual/degraded/abnormal and emergency situations. ACS Take into account that procedures do not don't exist for all unusual/degraded/abnormal and emergency situations. ACS Consider how the evolution of a situation may have an impact on safety. 1.1.4 ABE 2 SKILLS IMPROVEMENT ABES 2.1 Communication effectiveness ACS Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. ACS Apply change of radiotelephony call sign. ABES 2.2 Avoidance of mental overload ACS Describe actions to keep the control of ABES 2.2.1 Ensure am effective circulation. ACS Organise priority of actions. ACS Organise priority of actions. ACS ABES 2.2.2 Ensure am effective circulation of information. ACS Organise priority of actions. ACS ABES 2.2.3 Ensure am effective circulation of information. ACS Optional content: between executive and planner/coordinator, with the supervisor, between ACC, APP and	ABES 1.1.2	emergency situations.			ALL
ABES 1.1.4 not don't exist for all 1.1.3 unusual/degraded/abnormal and emergency situations. ACS ABES 1.1.5 Consider how the evolution of a situation may have an impact on safety. 1.1.4 ABE 2 SKILLS IMPROVEMENT ABES 2.1 Communication effectiveness ACS ABES 2.1.1 circumstances including the case where standard phraseology is not applicable. ACS Apply change of radiotelephony call sign. ABES 2.2 Avoidance of mental overload ACS ABES 2.2.1 Describe actions to keep the control of the situation. ACS ACS ACS ACS ACS ACS ACS ACS ACS AC	ABES 1.1.3	given unusual/degraded/ abnormal and	2	Optional content: ICAO Doc 4444	APF ACF APS ACS
ABES 1.1.5 may have an impact on safety. 1.1.4 ABE 2 SKILLS IMPROVEMENT ABES 2.1 Communication effectiveness ACS Ensure effective communication in all circumstances including the case where standard phraseology is not applicable. ACS Apply change of radiotelephony call sign. ABES 2.1.2 asign. ABES 2.2 Avoidance of mental overload ACS Describe actions to keep the control of ABES 2.2.1 the situation. ACS Organise priority of actions. ACS ABES 2.2.2 and and a planner/coordinator, with the supervisor, between sectors, between ACC, APP and	ABES 1.1.4	not don't exist for all unusual/degraded/abnormal and	2	Optional content: real life examples	ALL
ACS Apply change of radiotelephony call sign. ABES 2.1 Avoidance of mental overload ACS ABES 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions. ACS Apply change of radiotelephony call sign. ACS Apply change of mental overload ACS ABES 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Organise priority of actions. ACS ABES 2.2.2 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Describe actions to keep the control of the situation. ACS ABES 2.2.3 Describe actions to keep the control of the situation. ACS ABES 2.2.3 Describe actions to keep the control of the situation. ACS ABES 2.2.3 Describe actions to keep the control of the situation. ACS ABES 2.2.4 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.4 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation. ACS ABES 2.2.5 Describe actions to keep the control of the situation.	ABES 1.1.5				ALL
ACS Apply change of radiotelephony call sign. ABES 2.1.2 Avoidance of mental overload ACS Apes 2.2.1 Describe actions to keep the control of ABES 2.2.1 Describe actions. ACS Apes 2.2.1 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Organise priority of actions. ACS ABES 2.2.2 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Organise priority of actions. ACS ABES 2.2.2 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Organise priority of actions. ACS ABES 2.2.2 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Organise priority of actions. ACS ABES 2.2.2 Describe actions to keep the control of the situation. ACS ABES 2.2.2 Organise priority of actions. ACS ABES 2.2.3 Ensure an effective circulation of information. ACS ABES 2.2.3 Ensure an effective circulation of between sectors, between ACC, APP and	ABE 2 SK	ILLS IMPROVEMENT			-
ABES 2.1.1 circumstances including the case where standard phraseology is not applicable. ACS Apply change of radiotelephony call sign. ABES 2.1.2 sign. ABES 2.2 Avoidance of mental overload ACS Describe actions to keep the control of the situation. ACS Organise priority of actions. ACS ABES 2.2.2 ACS Ensure an effective circulation of information. ACS Optional content: between executive and planner/coordinator, with the supervisor, between ACC, APP and	ABES 2.1 C	Communication effectiveness			
ABES 2.1.2 sign. ABES 2.2 Avoidance of mental overload ACS Describe actions to keep the control of the situation. ACS Organise priority of actions. ACS ABES 2.2.2 ACS Ensure an effective circulation of information. ACS ABES 2.2.3 ACS Describe actions to keep the control of the situation. 2 Optional content: sector splitting, holding, flow management, task delegation AL Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and		circumstances including the case where	4		ALL
ACS Describe actions to keep the control of the situation. ACS Organise priority of actions. ACS ABES 2.2.2 ACS Ensure an effective circulation of information. ACS Describe actions to keep the control of the situation of the situation. 2 Optional content: sector splitting, holding, flow management, task delegation AL Optional content: between executive and planner/coordinator, with the supervisor, between sectors, between ACC, APP and			3	ICAO Doc 4444	ALL
ABES 2.2.1 the situation. 2	ABES 2.2	Avoidance of mental overload			
ACS Ensure an effective circulation of ABES 2.2.3 Ensure an effective circulation of Information. ACS Ensure an effective circulation of Information. 4 Optional content: between executive and Planner/coordinator, with the supervisor, between ACC, APP and		•	2		ALL
ABES 2.2.3 information. 4 planner/coordinator, with the supervisor, between sectors, between ACC, APP and		Organise priority of actions.	4		ALL
			4	planner/coordinator, with the supervisor, between sectors, between ACC, APP and	ALL

ACS Consider asking for help. ALL **ABES** 2.2.4 2 ABES 2.3 Air / ground cooperation **ACS** Collect appropriate information relevant AI I **ABES 2.3.1** for to the situation. 3 Pilot workload **ACS** Assist the pilot. ALL **ABES** 2.3.2 3 Optional content: instructions, information, support, human factors, etc. PROCEDURES FOR UNUSUAL/DEGRADED/ABNORMAL AND EMERGENCY ABE 3 **SITUATIONS** ABES 3.1 General Application of procedures for ABES ACS Apply the procedures for given ALL Optional content: EATM Guidelines for **ABES 3.1.1** unusual/degraded/abnormal and Controller Training in the Handling of 3 Unusual/Emergency Situations, ambulance emergency situations. flights, GPWS ground based safety nets alerts, airframe failure **ABES 3.2** Radio failure **ACS** Describe the procedures followed by a ICAO Doc 7030 ALL **ABES 3.2.1** pilot when he/she experiences complete 2 Optional content: military procedures or partial radio failure. **ACS** Apply the procedures to be followed ALL Optional content: prolonged loss of **ABES** 3.2.2 when a pilot experiences complete or communication 3 partial radio failure. ABES 3.3 Unlawful interference and aircraft bomb threat ICAO Doc 4444 **ACS** Apply ATC procedures associated with ALL **ABES 3.3.1** unlawful interference and aircraft bomb threat. ABES 3.4 Straved or unidentified aircraft **ACS** Apply the procedures in the case of ICAO Doc 4444 Al I **ABES** 3.4.1 strayed aircraft. 3 Optional content: inside controlled airspace, outside controlled airspace **ACS** ICAO Doc 4444 Apply the procedures in the case of ALL **ABES** 3.4.2 unidentified aircraft. 3 **Diversions ABES** 3.5 **ACS** Track/heading, distance, other Provide navigational assistance to APP **ACP ABES** 3.5.1 diverting emergency aircraft. navigational assistance APS ACS Optional content: nearest most suitable aerodrome **ABES 3.6** Transponder failure

3

ACS Apply procedures in the event of an ABES 3.6.1 SSR transponder failure.

ICAO Doc 4444, ICAO Doc 7030

APS ACS

Optional content: total/partial failure, impact on ADS-B/Mode S capability