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FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

Guidelines for the Development of Unit Training Plans

EUROPEAN AIR TRAFFIC MANAGEMENT PROGRAMME

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Guidelines for the Development of Unit Training Plans

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Abstract

The aim of these guidelines is to assist those who are responsible for developing and establishing a Unit Training Plan (UTP) for their operational units by:

- Explaining the general principles of what should be included in a UTP.

- Providing a process to develop a UTP and providing hints and references (e.g. reference documents) regarding the location of building blocks that are needed to write a UTP.

- Providing a template on which a UTP can be written.

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Performance Objective	Pre-OJT	Student
Syllabus	Trainee	Training Event
Transitional Training	Unit Endorsement	Unit Training Plan
Unit Training		

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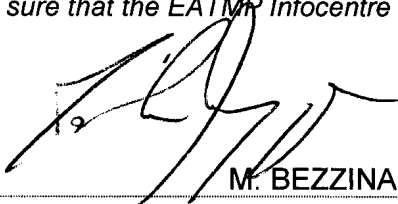
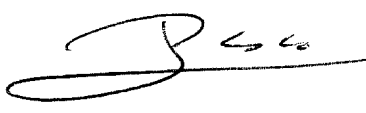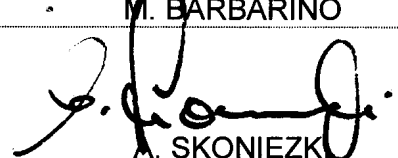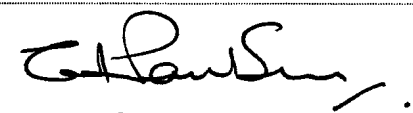**EATMP Infocentre**
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DOCUMENT APPROVAL

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DOCUMENT CHANGE RECORD

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

EDITION NUMBER	EDITION DATE	INFOCENTRE REFERENCE	REASON FOR CHANGE	PAGES AFFECTED
0.9 (draft)	23/12/04		Version distributed to TFG	
0.91 (draft)	28/02/05		Formatting (margins, some spelling and grammatical errors, resizing of a number of tables) - no content change Version distributed to HRT. *Note: Page numbers on the mind maps preceding each sub-section are incorrect.*	All
1.0			Released Issue	All

CONTENTS

EXECUTIVE SUMMARY

Background

EUROCONTROL's Safety Regulatory Requirement (ESARR) 5: "ATM Services' Personnel"[1], EUROCONTROL's "European Manual of Personnel Licensing - Air Traffic Controllers"[2] and the European Commission's "Proposal for a Directive of the European Parliament and of the Council on a Community Air Traffic Controller Licence"[3] require operational units to have an approved Unit Training Plan (UTP).

Aim of this document

The aim of these guidelines is to assist those who have been tasked with developing their operational unit's UTP or refining their existing one.

Structure

This document is divided into three parts.

🞤 Part 1 explains the principles to be kept in mind while developing a UTP.

🞤 Part 2 provides a process which could be followed to develop and organise the UTP.

🞤 Part 3 presents a template which could be used in the writing of this plan.

Wherever possible, hints and tips are proposed.

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[1] EUROCONTROL; ESARR 5: "Safety Regulatory Requirement for ATM Services' Personnel", 2nd Edition, SRC/SRU, April 2002

[2] EUROCONTROL; The European Manual of Personnel Licensing - Air Traffic Controllers, 2nd Edition, June 2004

[3] European Commission: Proposal for a Directive of the European Parliament and of the Council on a Community Air Traffic Controller Licence – European Commission, Brussels, October 2004

ACKNOWLEDGEMENTS

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[4] CAA; The UK ATCO Licence; A guide to the development of Unit Training Plans, SRG, UK, April 2003

1. INTRODUCTION

1.1 General Overview

EUROCONTROL's Safety Regulatory Requirement (ESARR) 5: "ATM Services' Personnel"[5], EUROCONTROL's "European Manual of Personnel Licensing - Air Traffic Controllers"[6] and the European Commission's "Proposal for a Directive of the European Parliament and of the Council on a Community Air Traffic Controller Licence"[7] require operational units to have an approved Unit Training Plan (UTP).

The Training Development and Harmonisation Unit (TDH) at EUROCONTROL's Institute of Air Navigation Services (IANS) was requested, through EATM's Human Resources Team (HRT) and the Training Focus Group (TFG), to provide EUROCONTROL's member states with guidelines on how to develop UTPs.

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[5] EUROCONTROL; ESARR 5: "Safety Regulatory Requirement for ATM Services' Personnel", 2nd Edition, SRC/SRU,   April 2002

[6] EUROCONTROL; The European Manual of Personnel Licensing - Air Traffic Controllers, 2nd Edition, June 2004

[7] European Commission: Proposal for a Directive of the European Parliament and of the Council on a Community Air Traffic Controller Licence – European Commission, Brussels, October 2004

1.2   Aim of the guidelines

The aim of these guidelines is to assist those who are responsible for developing and establishing a UTP for their operational units by:

- Explaining the general principles of what should be included in a UTP.

- Providing a process to develop a UTP and providing hints and references (e.g. reference documents) regarding the location of building blocks that are needed to write a UTP.

- Providing a template on which a UTP can be written.

1.3   Unit Training Plan - Definition

A Unit Training Plan can (should) be defined simply as a Training Plan for the Unit Training Phase.

Where:

Unit training is defined as training comprising transitional training, pre-on-the-job-training (OJT) and OJT which results in a learner obtaining an air traffic control (ATC) licence with appropriate rating and with appropriate rating endorsement and unit endorsement.

Training plan is defined as a plan which specifies how an entity will provide training to fill an identified training gap. It includes syllabi, training events, timings, staff responsibilities and assessment mechanisms.

Therefore, a UTP should specify how unit training will be provided so that a learner obtains an ATC licence with an appropriate rating and with appropriate rating and unit endorsements.

According to this definition, a plan for qualified air traffic controllers (ATCOs) to maintain their valid licence / rating/ endorsement (including on-going competence assessment, refresher training and emergency training for qualified ATCOs) is not part of a UTP.

Therefore, this document only contains guidelines on how to develop a UTP so that through unit training, learners obtain an ATC licence with appropriate rating and with appropriate rating endorsement and unit endorsement.

The part describing how the unit will ensure that qualified ATCOs will maintain their competence is called a competence scheme. <u>This part will not be included in these guidelines</u>.

It is important to note that both the European Manual of Personnel Licensing - Air Traffic Controllers, (*code* L1) 2nd Edition (June 2004) and the European Commission's (EC) proposed directive follow this logic where the EC defines a UTP as:

An approved plan detailing the processes and timing required to allow the applicant for an air traffic control licence [/ rating endorsement / unit endorsement] to apply the unit procedures to the local area under the supervision of an on-the-job-training instructor.

However, ESARR 5 and the European Manual of Personnel Licensing - "Guidelines for Implementation - Air Traffic Controllers" - (November 2001 *code* L2), take a different approach and include, in their definition of a UTP, both the procedure whereby a licence is obtained and the maintenance parts.

Nevertheless, all four documents require the same elements from an operational unit:

A plan which describes how learners will obtain an ATCO licence / rating / unit endorsement and a scheme / plan which describes how the unit will ensure that qualified ATCOs maintain their competence levels.

A more detailed description of the differences in the way UTP is defined in the different documents is available in Appendix 1 to these guidelines.

1.4 Scope of these guidelines
(what they describe and what they do not)

In: Guidelines on how to develop a training plan for the unit training phase as per the definition in the previous section.

Out: Competence assessment scheme and related refresher training.

Training plans for ATCO development training

Training plans for other Air Traffic Services (ATS) safety-related personnel

The following table illustrates what a UTP is and what it is not:

What a UTP **IS**	What a UTP **IS NOT**
It is geared towards ATCO Training.	Does not cover plans for maintenance of an ATCO licence.
Covers the training gap between initial training and the obtaining of an ATC licence / rating / rating endorsement / unit endorsement.	Does not cover continuation training for ATCOs
Includes training objectives which are unit-specific.	Does not cover development training for ATCOs.
Interacts with other training and the competence assessment scheme.	
Includes other elements in addition to training objectives, such as assessment, duration of training, method and media used, personnel responsible, quality assurance, etc.	
Includes conversion training for ATCOs (when the trainee is training for a new unit endorsement).	

1.5 Assumptions taken while writing these guidelines

In order to make the flow easy and clear, an assumption has been made while writing these guidelines:

- The persons who would use this document would be appropriately trained professionals who are conversant with the writing of training objectives and training plans within an ATC environment but who need guidelines on the user process and the items to put in their UTP.

Nevertheless, simplified descriptions of how to write objectives will be reproduced in the document.

1.6 Definitions

Ab initio:

A candidate for a student ATC licence.

Assessment:

Consideration of all, or individual, aspects of a learner's actions. This may take the form of a verbal or written opinion of that person's position and the likelihood of what will happen in the future, depending on whether that assessment is formative or summative. *Ref E*

Assessment Level:

A way of organising objectives during OJT according to when they will be assessed.

Assessment Points:

Occasions when learners will be assessed.

Common Core Content:

A set of agreed standard training objectives and syllabi for ATS jobs, designed to impart fundamental knowledge and skills to enable ab initio/student/trainee ATCOs to progress to unit training.

Conditions (Performance Objectives):

The conditions under which the assessment of the performance objectives is made. In the case of unit training, this is the unit and its associated airspace, ATC procedures, etc.

Continuation Training:

Training given to licensed/certified personnel designed to augment existing knowledge and skills. It includes refresher and emergency training [for certified ATCOs]. *Ref D (adapted).*

Conversion Training:

Training designed to provide knowledge and skills appropriate to a change in either:

A.   job category (new rating, rating endorsement or unit endorsement), or

B.   environment (new procedures) or system (system upgrade or change). *Ref D*

Core Tasks (task analysis):

Tasks which involve the design and provision of a product and/or service. *Ref G*

Development Training:

Training designed to provide additional knowledge and skills demanded by a change in job profile, e.g. new licence endorsement (OJTI) or any other career development including assessor, supervisor, safety manager, incident investigator, airspace developer, training manager, traffic flow manager, etc. *Ref D*

Direct Support Tasks (task analysis):

Tasks which contribute to the design and provision of the product and/or service in the short term. *Ref G*

Essential Knowledge (performance objectives):

This is the fundamental knowledge and understanding necessary to perform to requirements and to transfer skills from one situation to another.

Formative Assessment:

Assessment given for the purpose of personal development which should have an important and lasting influence on that person's abilities or attitudes. It may be given in a verbal or written form but, irrespective of this, should only be for that person's attention, or use, and should be factual in content. *Ref E*

Hi-fi Simulator:

A full-size replica of a Controller Working Position (CWP) including all equipment and computer programmes necessary to represent sectoral tasks in full or the tower and their environment. A spare operational position used as a simulator is a good example of a Hi-fi Simulator. In the case of an airfield, it includes a view looking out from the tower. *Ref D*

Indirect Support Tasks (task analysis):

Tasks which contribute to the development of a product and/or service in the longer term. *Ref G*

Initial Training:

Training which includes technical subjects and ATC theory and simulator practice. The aim of initial training is to prepare an ab initio student for training at an ATC unit. It includes two phases (basic and rating) leading to a student licence. Rating training may also be provided as training for conversion to another rating. *Ref D*

Learner:

'Learner' is the generic term for the person performing a learning activity without any reference to his/her status.

In the case of ATCO training, the specific names according to the training phase are:

- participants in initial training are referred to as 'ab initio' (they do not hold a student licence);

- participants in unit training are referred to as 'student air traffic controllers' when they hold a student air traffic controller licence and 'trainees' when they hold an ATC licence;

- participants in continuation or development training are referred to as 'trainees' (they hold an ATC licence). Ref D

In this document, 'learner' will signify a 'student and/or trainee'.

On the Job Training:

The integration in practice of previously acquired job-related routines and skills under the supervision of an On-the-Job-Training Instructor (OJTI) in a live traffic situation. *Ref D*

Operational Unit (or ATC Unit):

A generic term meaning Air Traffic Control centre or Approach Control Office or Aerodrome Control Tower. *Ref C*

Performance Objectives:

The objectives that a competent ATCO will have to fulfil in order to provide the type of air traffic control service to which the unit and rating requirements relate.

Pre On the Job Training:

Phase of locally based training during which extensive use of simulation using site-specific facilities will enhance the development of previously acquired routines and abilities to a [very high] level of achievement, enabling the learner to control live traffic under the supervision of an OJTI. *Ref D*

Rating Training (as part of Initial Training):

Specialised ATC training to provide knowledge and skills related to a job category and appropriate to the discipline to be pursued in the ATS environment. *Ref D*

Student:

See definition for *Learner*.

Summative Assessment:

An assessment which represents a summary of the learner's attitudes and abilities over a period of time. This summation should be given in both a verbal and written form and must be factual in content. It should not be given by those responsible for coaching a particular learner but should be an independent appraisal by suitably qualified personnel. *Ref E*

Syllabus:

A listing of subjects and topics showing the training necessary to fill the training gap and achieve the course aim. It does not indicate the amount of time to be devoted to each part, nor the methods or sequence. *Ref C*

Task:

A piece of work performed by an individual or individuals which has a definite beginning and end, and which results in a product or service. *Ref G*

Trainee:

See definition for *Learner*.

Training Gap:

The training required to bring learners from their present level of competence to the level identified in the training aim. *Ref C*

Training Plan:

This is a plan which specifies how an entity will provide training to achieve an identified training gap. It includes the syllabus, training events, timings, staff responsibilities and assessment mechanisms.

Training Event:

A set of actions identified in the training plan as the smaller unit of training. The training event may be described by the association of a training technique, media, a rate of learning and a mode of delivery. *Ref D*

Training Section:

The section within an operational unit which is in charge of training.

Transitional Training:

Phase following initial training during which site-specific theoretical knowledge and understanding will be transferred to the student air traffic controller and/or trainee air traffic controller using a variety of methods and during which skills will be developed through the use of site-specific simulations. *Ref D*

Unit Competence Scheme:

An approved scheme indicating the method by which the unit maintains the competence of its licensed holders. *Ref M*

Unit Training Plan:

An approved plan detailing the processes and timing required to allow the applicant for an air traffic control licence [rating or endorsement] to apply the unit procedures to the local area under the supervision of an on-the-job-training instructor. *Ref M*

Note: The references which follow at the end of definitions (where applicable) relate to the reference section at the end of this document.

1.7 How to use this document

These guidelines are divided into three parts:

1. The first part is about the general principles behind a UTP. This part puts the UTP within the ATCO training context and describes:

    - The principles used as a basis when deciding on the objectives to be covered during unit training

    - Phasing the training and assessing it

    - Including emergency training within unit training

    - Timing issues

    - Training management issues

    - The quality and resources necessary to develop and maintain a good UTP

    - How and where it interacts with other training

2. The second part describes a process of developing a UTP.

This process will follow this sequence:

    - Developing a syllabus for each unit endorsement practised at the operational unit through:

        ➢ Task analysis

        ➢ Writing performance objectives

        ➢ Identifying the gap between what is covered in initial training and the unit's performance objectives

    - Phasing training objectives

    - Organising the training into phases

    - Assessing training

    - Defining roles and responsibilities

3.   The third part will propose a template on which a UTP could be developed.

Use of English Language

In order to reach the widest audience possible within European Air Traffic Management (ATM) training, an effort was made to write these guidelines in the simplest English possible.

However, if some readers feel more comfortable in terms of understanding what is being proposed by translating this document into their native language, they should go ahead and do so. These guidelines will only reach their full objective when understood by those who need to use them.
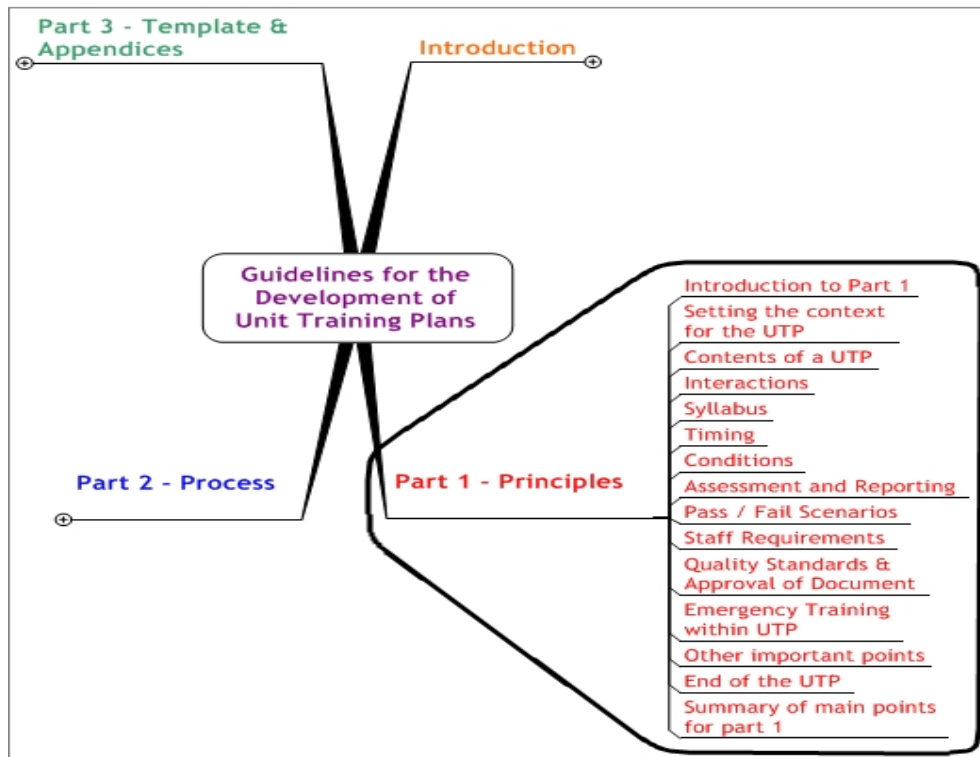
2. GENERAL PRINCIPLES BEHIND A UNIT TRAINING PLAN (Part 1)

2.1 Introduction to part 1

Part 1 will describe the general principles behind a UTP.

In this first part, we will see how a UTP fits into the general training context.

We will also discuss what should be included in a UTP. For example, the UTP phases, assessment, pass/failure scenarios, etc.

Also, the quality standards which the UTP should meet, together with the review mechanism which should be incorporated into the UTP will be discussed.
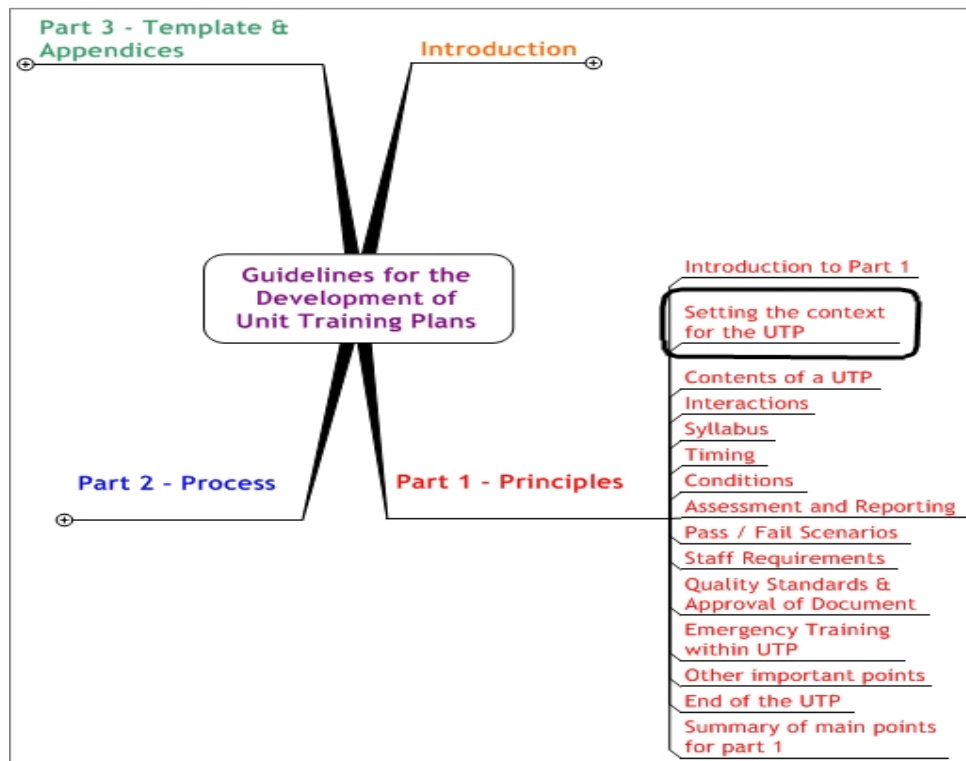
2.2 Setting the context for the UTP

2.2.1 Unit Training within ATCO Training Progression

It is first necessary to see how unit training fits within ATCO training progression:

Unit training fills the gap between the knowledge and skills acquired on the initial training courses (basic and rating training) and those the learner needs in order to achieve an ATCO licence with a valid rating and unit endorsement.

The diagram which follows illustrates the training progression for an ATCO. The UTP is the training plan which fulfils unit training (second block from bottom).

Unit training is specific to the environment in which the learner will be expected to work once he/she successfully obtains a valid ATCO licence / rating / rating endorsement / unit endorsement. This differs from the initial phase where the training is generic.
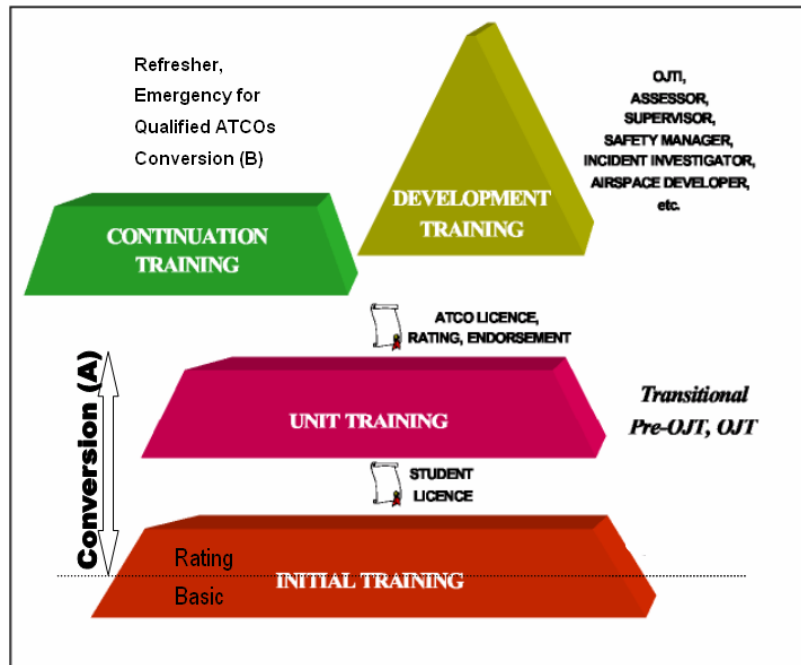
Figure1: ATCO Training Progression

Adapted from EATM Training progression and concepts document

Note: For the difference between conversion (A) and conversion (B), see the definitions in section 2.2.2.

2.2.2 Note regarding Conversion Training

It is important to understand where conversion training fits within unit training and the UTP context.

Conversion training is defined as:

Training designed to provide knowledge and skills appropriate to a change in either:

A.   job category (new rating and/or rating endorsement and/or unit endorsement), or

B.   environment (new procedures) or system (system upgrade or change).

In the UTP context, we can directly ignore definition B because this relates to qualified ATCOs who, in order to maintain their skills and keep their knowledge of the changing environment up to date, need to receive training for the change which is being introduced within the environment.

On the other hand, we do need to consider definition A.

In definition A, we can have 2 types of conversion:

1. A qualified ATCO who applies for a new unit endorsement within his/her rating/rating endorsement. In this case, this ATCO needs to follow **unit training** for the unit endorsement he/she is training for*.
    This is valid both for a new unit endorsement within the same operational unit or for a new unit endorsement in a different operational unit but where the same rating privileges as the one(s) possessed by the conversion ATCO are being exercised.

Below is a short example of this case:

Mrs J. Smith is an area controller at CityACC. She holds a valid ACS/RAD rating / rating endorsement and she has 2 unit endorsements for 2 sectors. She wants to obtain a validation for a 3rd sector. She needs to complete an approved UTP for the unit endorsement she is training towards. Then, following completion of this training, her competence will be assessed and a new unit endorsement will be issued in relation to her already valid ACS/RAD.

Additional unit endorsements at same unit or move to new unit to exercise privileges of previously held rating
↓
Completion of an approved unit training plan
↓
Assessment of competence
↓
Issuance of an additional unit endorsement

Example Box 1

2. A qualified ATCO who applies for a new rating / rating endorsement with a (set of) new unit endorsement(s). In this case,* this ATCO has to

Note: In the case of a conversion trainee who has to follow rating and/or rating endorsement and/or unit endorsement training, nothing prevents the Air Navigation Service Provider (ANSP), with the approval of the designated authority, from analysing which of the newly required objectives have already been covered by the conversion ATCO in previous training. Once this analysis is made, a reduced training programme (comprising the objectives not yet covered by the conversion ATCO) may be drawn up.

follow the appropriate rating training with the appropriate rating endorsement (part of initial training) and then follow **unit training.**

Below is a short example of this case:

Mrs J. Smith now wants to move to VillaAPP. Since she only holds a valid ACS / RAD rating / rating endorsement and now she requires APS/PAR, she has to:

Complete rating training for APS / PAR and then

Complete an approved UTP for the unit endorsement she wishes to obtain.

Then, following completion of this training, her competence will be assessed and a new rating / rating endorsement / unit endorsement will be issued in relation to her ATCO licence.

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┌─────────────────────────────────────┐
│ Successful completion of approved    │
│ training and associated examinations │
│ or assessments                       │
└─────────────────────────────────────┘
                  ↓
┌─────────────────────────────────────┐
│ Completion of an approved            │
│ unit training plan                   │
└─────────────────────────────────────┘
                  ↓
┌─────────────────────────────────────┐
│ Rating examination and assessment of │
│ competence                           │
└─────────────────────────────────────┘
                  ↓
┌─────────────────────────────────────┐
│ Issuance of an a new rating / rating │
│ endorsement and corresponding unit   │
│ endorsement(s) / additional unit     │
│ endorsement                          │
└─────────────────────────────────────┘
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Example Box 2

In the 2 cases, the qualified ATCO applying for conversion training has to follow the appropriate **unit training** for the new unit endorsement(s) he/she needs to obtain.

2.2.3 Determination of the starting point for unit training
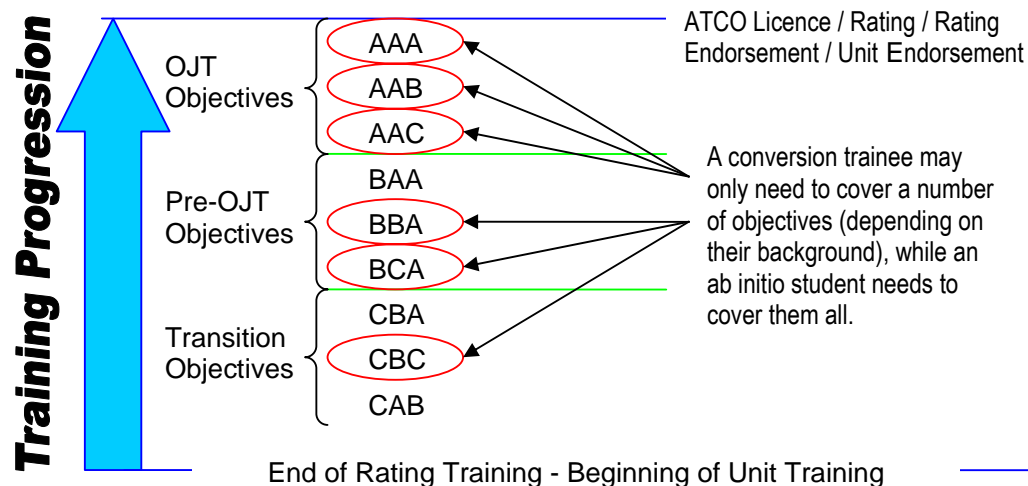
Figure 2: Unit Training Progression

Full unit training bridges the gap between initial training and the achievement of an ATC licence with the appropriate rating and endorsement.

The starting point for unit training should be based on the objectives achieved in the basic training and the corresponding rating training. The unit training should concentrate more on unit-specific items.

In the case of ab initio students who would only have completed initial training, they would need to cover all the unit-specific objectives.

On the other hand, for conversion ATCOs (conversion definition 'A'), as discussed in 2.2.2 above, the ATC unit could choose to take into consideration unit training objectives which these conversion controllers have already covered (if any) and develop a custom 'conversion training plan' for them. This, of course, would have to be customised on a case by case basis as different conversion controllers bring with them different knowledge and skills depending on the environment in which they were working previously.

2.2.4 Unit training plan phases

The following are the phases which make up unit training:

- Transitional training - This is the first phase in unit training and it follows initial training. During this phase, site-specific theoretical knowledge and understanding will be transferred to the learner using a variety of methods and during which time skills will be developed through the use of site-specific simulations.

♣ This phase is followed by pre-OJT. This phase consists of locally based training during which simulation using site-specific facilities will be used extensively. This will enhance the development of previously acquired routines and abilities to a very high level of achievement, enabling the learner to control live traffic under the supervision of an OJTI.

♣ The final phase of unit training is OJT. During this phase, the learner integrates in practice previously acquired job-related routines and skills under the supervision of an OJTI in a live traffic situation.
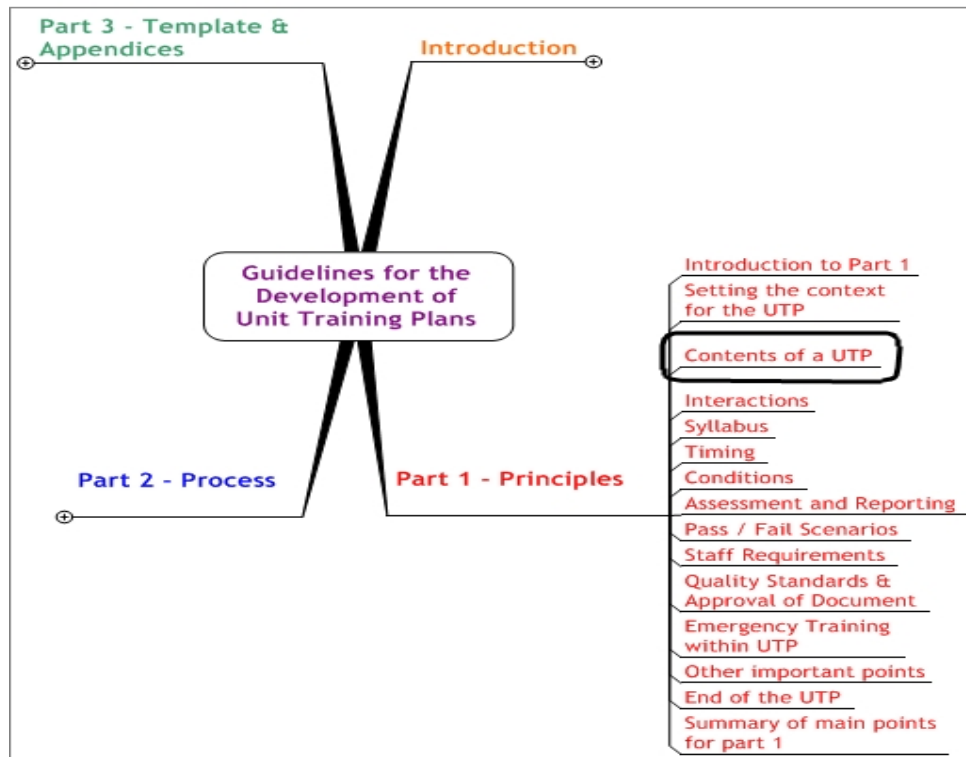
2.3 Contents of a UTP

After having seen where UTP fits within ATCO training progression, its contents will be looked at:

According to the definition of a UTP given in section 1.3, a UTP should consist of:

a)   The phased training objectives which make up unit training;

b)   The training processes through which the objectives will be met;

c)   The assessment process by which progress will be judged;

d)   The minimum training time and the maximum period of time within which learner ATCOs are expected to achieve their training objectives;

e)   The roles and responsibilities of those involved with unit training.
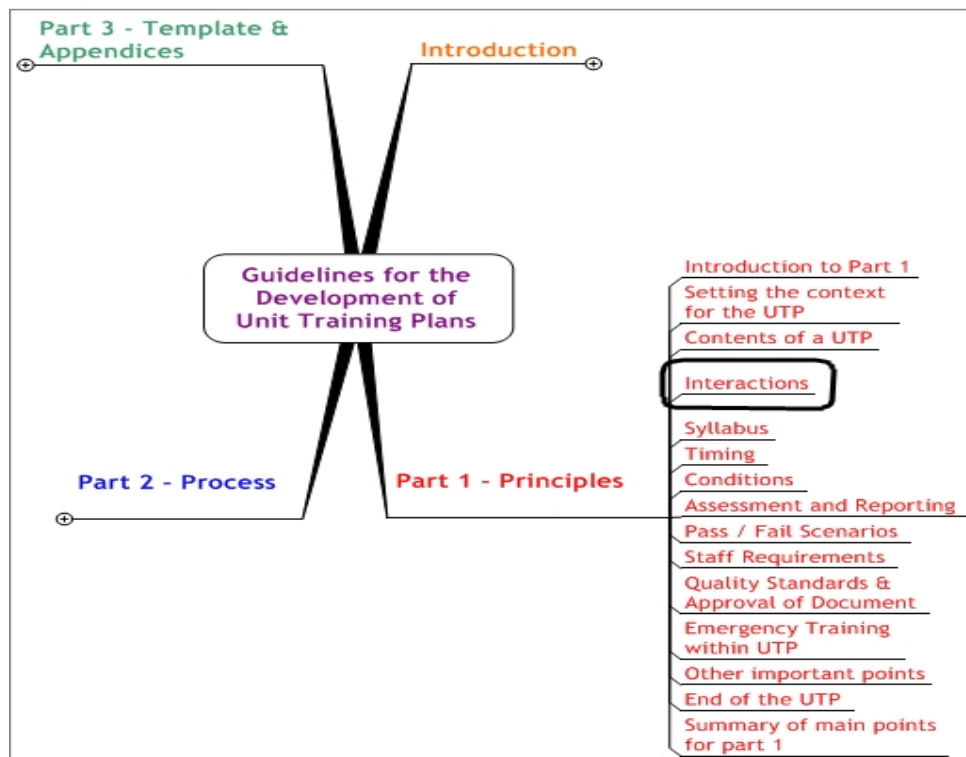
2.4 Interactions

A change in the UTP may impact on another plan or scheme, and a change in another area could impact on the UTP. Therefore, another important feature which the developer of a UTP should understand is how this training plan interacts with other plans / procedures / schemes, etc.

This is important so that the whole operational system functions well since one plan / procedure / scheme within the ATC system may affect another. By knowing the interaction between them, a clearer picture will be obtained of how one item depends on another.

A number of interactions are described below together with a diagram which illustrates some of the links between various plans/schemes or systems.

Figure 3: UTP Interactions

Note 1: There may be other interactions between unit training and other schemes/training, etc. The diagram above only represents the main ones.

Note 2: Only the interactions with unit training have been included. For reasons of simplicity, the interactions between the other training/schemes/etc. which do not include unit training were omitted.

Note 3: Interactions with the licensing scheme are not included except for the interaction between unit training and the designated licensing authority.

The sub-section below briefly discusses the interactions which have been illustrated above.

A. With designated licensing authority (regulator)

First Interaction:

The principal objective of unit training is to get the learners who follow it to achieve a valid licence with a valid rating and unit endorsement(s). In order to achieve this objective, unit training needs to interact with the designated licensing authority and the licensing scheme.

Second Interaction:

The UTP needs to be approved by the designated authority. This means that the designated authority needs to be informed every time there is a significant change to the UTP, and it needs to approve the changes.

Third interaction:

The designated authority will use the UTP to determine whether, based on what is written, a candidate for a licence / rating / rating endorsement / unit endorsement has attained the necessary standard.

B. With unit competence scheme

The unit competence scheme comprises, at least, refresher training, emergency and unusual situations training for qualified ATCOs, and the competence assessment. A large part of the training to maintain competence may be similar to the training to achieve competence (unit training). However, the approach (how to train qualified staff compared with how to train learners) may differ.

From an interaction point of view, this means that for those parties responsible for training, every time something is added or changed in one part of the training, something may need to be changed in another.

C. With development training

Development training includes OJTI and assessor training. Both these functions interact with unit training. The quality and the number of OJTIs and assessors will influence unit training.

It is important to co-ordinate with the provider of OJTI and assessor training to ensure that what is taught in these courses corresponds to what is expected from the OJT instructors and assessors during unit training, and vice-versa. It is important to establish what OJTIs and assessors know so that you can use their skills and knowledge to the full.

D.   With initial training

The interaction between unit training and initial training is a direct one.

The starting point for a unit developing its first UTP will be the final objectives of the initial rating training course. Units should therefore familiarise themselves with the knowledge and skills trained during initial training. This is best done by visiting an initial training course while training is in progress, particularly during the latter stages of the course.

Also, in the case of ab initio training, it is important that the training (from basic to rating to unit training) is seen as one process. Symptoms of things going wrong in a particular phase could be due to problems in another. It is important for those parties who are responsible for unit training to have a knowledge of, and interact with, what happens in the earlier phases of training.

Conclusion: Interactions

A close interaction between various training and other schemes related to competence and licensing is important so that the training received by the learner is coherent throughout the training phases and with one objective in mind; i.e. that of helping them to become competent and licensed ATCOs. From a unit training point of view, it is important to know and understand the other parts of the system with which the training interacts so as to know how to use the best possible environment for the success of the unit and of its learners.

It would be helpful to draw a diagram within the UTP to show how it interacts with other training / schemes within the operational unit.

Hints and tips regarding interaction

+ Consider having a scheme where the unit training instructors and OJTIs participate in initial training.

+ Consider having basic training instructors participate in unit training.

+ Consider regular meetings and co-ordination with those responsible for basic training.

+ Consider regular interactions and honest feedback between you and the regulator. This will help both in understanding the other one's position, environment, and point of view.

Hint Box 1
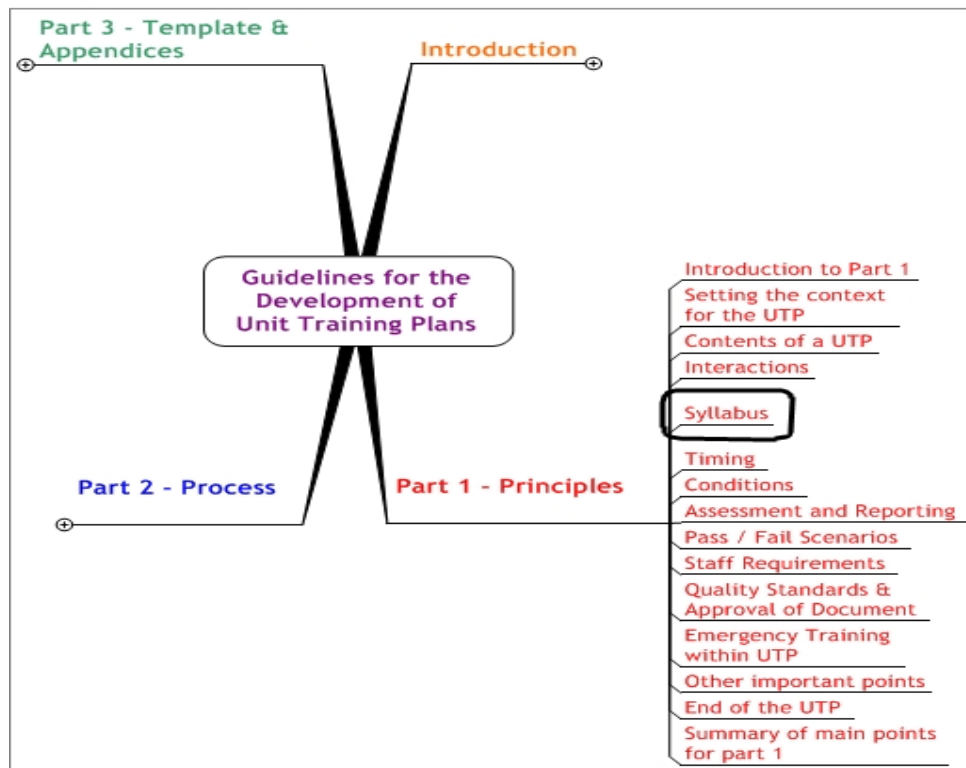
2.5   Syllabus

This section will briefly discuss the need to have a well defined syllabus within the UTP. A large part of section 3 of these guidelines is dedicated to the process of how to create the syllabus.

In these guidelines, a syllabus is defined as:

> A listing of subjects and topics showing the training necessary to fill the training gap and achieve the course aim. It does not indicate the amount of time to be devoted to each part, nor the methods or sequence.

In the case of unit training, the **training gap** is**:**

The gap between achieving competence at an ATC unit (licence / rating / rating endorsement / unit endorsement) and what has been already covered by the learner (in the case of an ab initio student: initial training).

The course aim is to achieve qualified, competent and valid ATCOs within the operational unit.

2.5.1 Different unit endorsements* require different syllabi

The syllabus which needs to be covered for a particular unit endorsement will be (slightly) different from another syllabus for another unit endorsement within the same operational unit. This is because each unit endorsement will have its specificities.

Within the UTP, a syllabus is needed for every unit endorsement. Of course, common objectives (subjects/topics) from each syllabus could be organised in common training events.

2.5.2 Process of developing the syllabi for UTP

The process of developing the syllabus for every unit endorsement will be described in section 3.

The next sub-section will consider a number of principles which need to be taken into account when considering the **timing** element within the UTP.
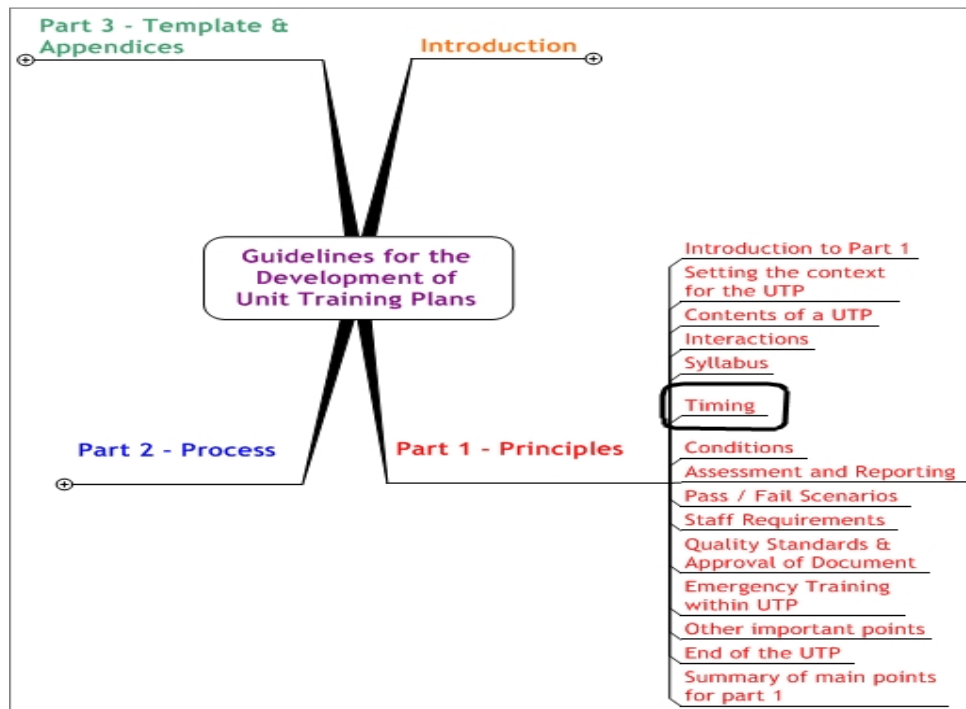
2.6 Timing

The definition of a UTP states that timing should be included in the plan.

The element of time should be included in the UTP in a number of dimensions. These guidelines identify at least 3 such dimensions:

- The overall timing of the UTP from beginning to end (taking into account the different unit endorsements which need to be covered), if taken in its entirety (e.g. in the case of ab initio students) and without interruptions between phases.

- The timing per phase.

- The timing per training event (total number of periods and duration of a period) or, in the case of OJT, the duration per assessment level.

2.6.1 Using a timeframe rather than definite timing

In the case of training events in which training is carried out in a group environment, a definite number of periods can be defined - and with this the corresponding timing. However, in skill acquisition exercises, since different learners often have different rates of learning, a buffer could be incorporated so that an additional number of periods could be added to specific training events for those learners who would need them. This would mostly apply to pre-OJT simulation exercises.

In the case of OJT, where the training environment is harder to control and also where learners often display significantly different rates of learning, a timeframe should be defined for each assessment level[8]. This would need to include a minimum and a maximum time within which an assessment to pass to the next level, or to be proposed for licence/rating/endorsement checkout, should be carried out.

As regards live traffic, an equation including the time spent training, the traffic levels and the complexity of the traffic may need to be included.

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[8] Assessment levels will be described in section 3 of these guidelines.
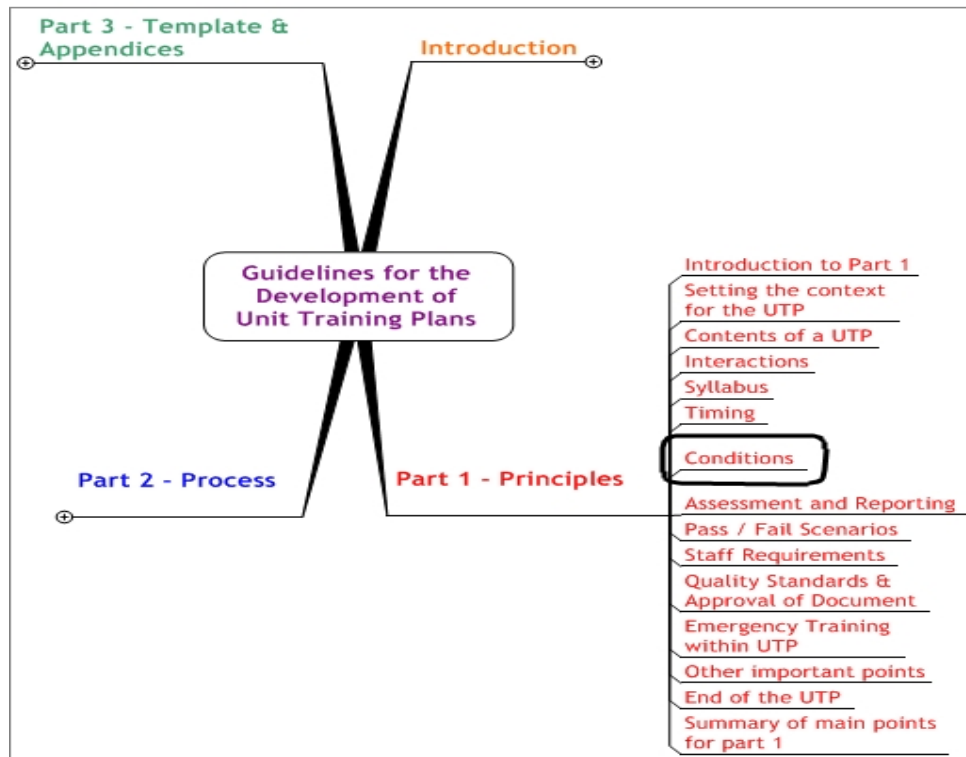
2.7 Conditions

When developing a training plan, each objective needs to be accompanied by conditions which need to be fulfilled in order to realize the objective or to assess that the objective has been performed.

This sub-section is divided into 2 parts:

1. Conditions for training

2. Conditions for assessment

2.7.1 Conditions for training

'Conditions for training' means that a set of parameters should be defined for each performance objective during any phase of training. For example, in the case of a training event during pre-OJT, the maximum and minimum numbers of aircraft per hour in a simulation session need to be determined. Other conditions in relation to the complexity of the task to be performed also need to be specified (e.g. the number of conflicts per hour, the maximum number of aircraft on a frequency at any given moment, etc.).

2.7.2 **Conditions for assessment**

The conditions for an assessment also need to be carefully specified. These assessment conditions may be divided into two categories: Validity conditions and pass/fail conditions.

Validity conditions:

These conditions need to be met in order to consider the assessment valid. For example, if, in the case of a level one assessment, during OJT, it has been defined that the learner should show proficiency in a number of objectives given moderate traffic levels at moderate complexity (bear in mind that what constitutes moderate traffic at moderate complexity also needs to be defined in the UTP), then the assessment is only valid if it took place during periods where the traffic was as defined in the conditions. If the assessment were to take place during periods of low or high traffic, then it should be considered invalid.

Pass/Fail conditions:

These are conditions which determine, for the benefit of all parties involved, what constitutes a pass and what would constitute a fail.

For example, in the case of OJT, it could be defined that the learner needs to show proficiency in all the performance objectives which are to be assessed. On the other hand, in a theoretical assessment, the unit may decide that a percentage of correct answers (e.g. 70%) would constitute a pass. Bear in mind that this needs to be approved by the designated authority.

2.7.3 **Conclusion: Conditions**

Defining conditions is crucial for having a robust UTP. Where this not the case, then all the effort expended in defining the objectives, putting them into phases and preparing training events, etc, would be undone by the fact that an allowance is given to both the assessor and to the learner as to which goals the plan is aiming for.
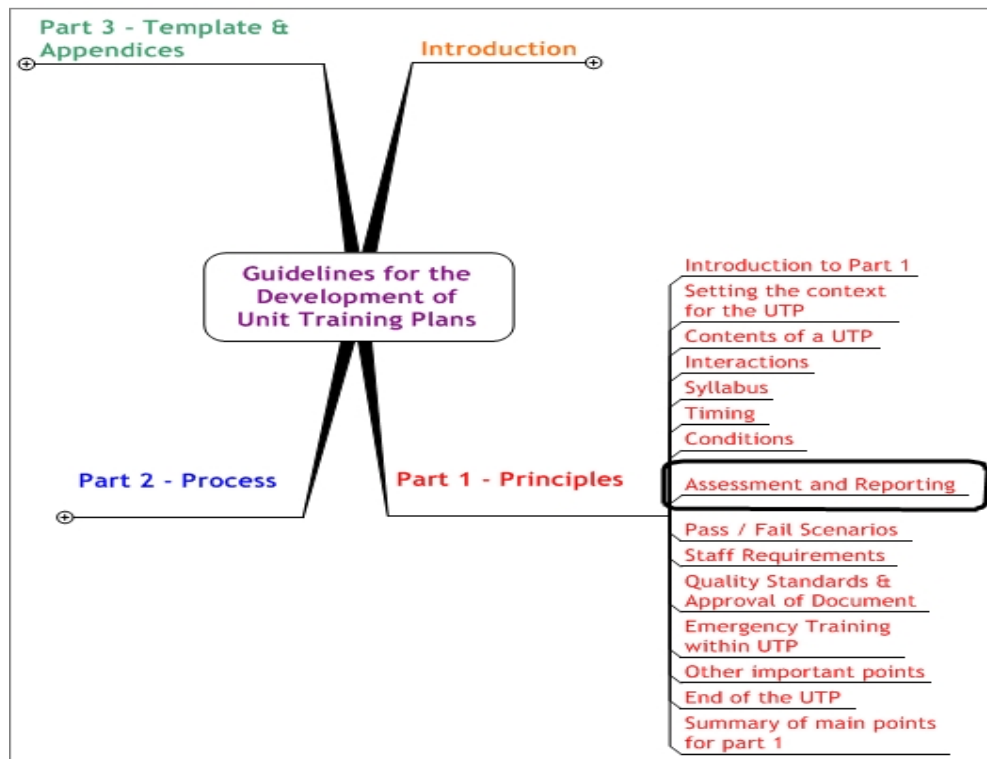
2.8　　　Assessment and Reporting

2.8.1　　Introduction

Both how and when assessments will take place during unit training need to be defined within the UTP. In this training context, assessment and reporting are very closely linked to each other and may be defined as:

> A consideration of all, or individual, aspects of a learner's actions. This may be in the form of a verbal or written opinion of that person's position and the likelihood of what will happen in the future, depending on whether the assessment is formative or summative.

Assessment is also a process of gathering evidence regarding the learners' performance to determine how they are progressing with their training and to identify any shortcomings that need to be addressed. This evidence is acquired by comparing the learner's performance with a fixed standard.

A well defined standard is needed for assessment purposes

Without a well defined standard, the assessor can be misdirected into comparing the learner's performance against widely differing objects of comparison.

In a unit training context, the standards need to be defined within the UTP. If the UTP is well written, these standards will be nothing other than the objectives and their corresponding conditions already laid down within the plan.

Formative or summative assessment?

As mentioned in the definition above, an assessment (and its corresponding report) may be either formative or summative. The distinction is rather straightforward. A description of both forms of assessment follows below:

A **formative assessment** is an assessment given for the purpose of personal development which should have an important and lasting influence on that person's abilities or attitudes. It may be given in a verbal or written form but, in whatever way it is given, should only be for that person's attention, or use, and should be factual in content.

Therefore, a formative assessment is meant for the learner and should not only include an account of current performance but also advice from the instructor on how the learner may improve (that is why it is called formative).

A formative assessment is normally performed in practical sessions (simulator or on the job).

A formative assessment generates a **formative report**. This is simply a report of the learner's performance during the day-to-day practical training sessions. While these reports should contain the instructor's comments on the learner's performance and state whether or not he/she satisfied the training objectives, they do not need to be graded. Importantly, a formative report should contain advice from the instructor to the learner on how to improve on certain elements discussed during the report. It is also recommended that instructors complete formative training reports on a regular basis, preferably for each training day undertaken.

A tip regarding the formative report

- One of the tasks that an OJTI or a simulator instructor is taught to perform is the verbal debriefing at the end of a training session. This debriefing highlights the learner's performance against the target level of achievement for this particular stage of training. Once this is done, the OJTI or the simulator instructor should write a summary of the main points discussed in the verbal debriefing as a formative report.

Hint Box 2

On the other hand, a **summative assessment** is an assessment which represents a summary of the learner's attitudes and abilities over a period of time. This summation should be given in both a verbal and written form and must be factual in content. It should not be provided by those responsible for coaching a particular learner but should be an independent appraisal by suitably qualified personnel.

During a summative assessment, the performance of the learner will be marked and classified as either 'satisfactory' or 'not satisfactory' against the published training objectives for that level of training.

The summative assessment, though also communicated to the learner, is not aimed towards the learner but towards the training managers. This form of assessment should include an appraisal of the learner's situation against the standard which has been established for the phase of training being assessed.

In both formative and summative reports, it is important to ensure that the reports are formulated using the UTP's objectives as a standard and should indicate the level of traffic (in OJT) the learner handled during the practical session.

Hint: Comparing summative and formative reports

- A major difference between the summative and formative assessments which cover the same objectives may indicate that the learner has a particular problem or that the instructors have been too generous or unduly harsh in their formative reports.

Hint Box 3

2.8.2   **What is needed within the UTP?**

In brief, these are the 5 items regarding assessment and reporting that are required in the UTP:

1.   Method of assessment

The method of assessment will need to be defined in the UTP. This will help both the learner and the instructor to understand what will be expected of them during the assessment.

The following are some examples of assessment methods:

- a checkout - the learner is assessed while doing a simulator exercise or for a defined period of time in live traffic. This method takes a 'snap shot' of the learner's performance and assesses it against a set of performance objectives. This method is mostly used to assess skills but can also be used to assess applied knowledge.

- a continuous assessment - the learner is observed over a prolonged period of time (e.g. a week or a number of weeks or a number of sessions). This method is used to assess skills and applied knowledge.

- an oral examination - the learner answers questions or discusses a situation in front of a board of assessors. This method is mostly used to test knowledge and understanding/appreciation of problems or issues.

- a written examination - the learner is asked questions and needs to answer in writing. This method is mostly used to assess knowledge.

- a combination of these summative assessment methods.

2.   Procedure of assessment

The procedures used to assess will need to be detailed in the UTP.

The following items may be included within the assessment procedure:

- Information provided to the learner before and after an assessment

- Information regarding who will be doing the assessment

2A.   Information provided to the learner before and after an assessment

Information before the assessment:

Learners must be given prior warning of any summative assessments and should sign the resulting assessment report.

After the summative assessment:

Apart from the outcome of the assessment (e.g. pass or fail), learners should be given a briefing on the outcome of the assessment. This will extend the purpose of the assessment by taking formative elements and communicating them to the learner.

2B.   Who assesses

Within the UTP, the body that will do the assessments will need to be defined for every assessment point.

Depending on the importance of the summative assessment, the unit training management needs to determine whether the assessment is carried out by an instructor who was involved in training or by a third person.

The advantage of the third person is that the result will be more objective than with someone who was involved in the training.

3.   Occasions when learners will be assessed (assessment points)

Another requirement of a UTP is to define the occasions when learners will be assessed. These guidelines refer to these occasions as "assessment points". 'How to determine the assessment points' will be explained in more detail in the second part of this document. Brief general guidance follows below:

Learners should be assessed at least at the end of transition training and at the end of pre-OJT. Failure to reach a satisfactory standard should exclude progression to the next stage of training.

During OJT, learners should be assessed at regular intervals. These intervals should be defined by the setting up of a number of assessment levels.

For the rest of part 1 of these guidelines, it will be assumed that a number of assessment points have been determined.

4.   What will be assessed

Once an assessment point is agreed, the objectives which will be assessed also need to be defined.

5.   Reporting

How the outcome of the summative assessment will be reported to the training managers needs to be defined in the UTP.

Things to consider regarding assessment and reporting

+ Consider asking learners to sign the formative report as confirmation of having understood the comments, both from the training viewpoint and as potential evidence in the event of an appeal against an assessment.

+ Consider informing all those involved in a summative assessment (including the learner) in a timely manner. This allows the necessary preparations to be made.

+ Consider giving the learner formative feedback about the outcome of a summative assessments.

Hint Box 4
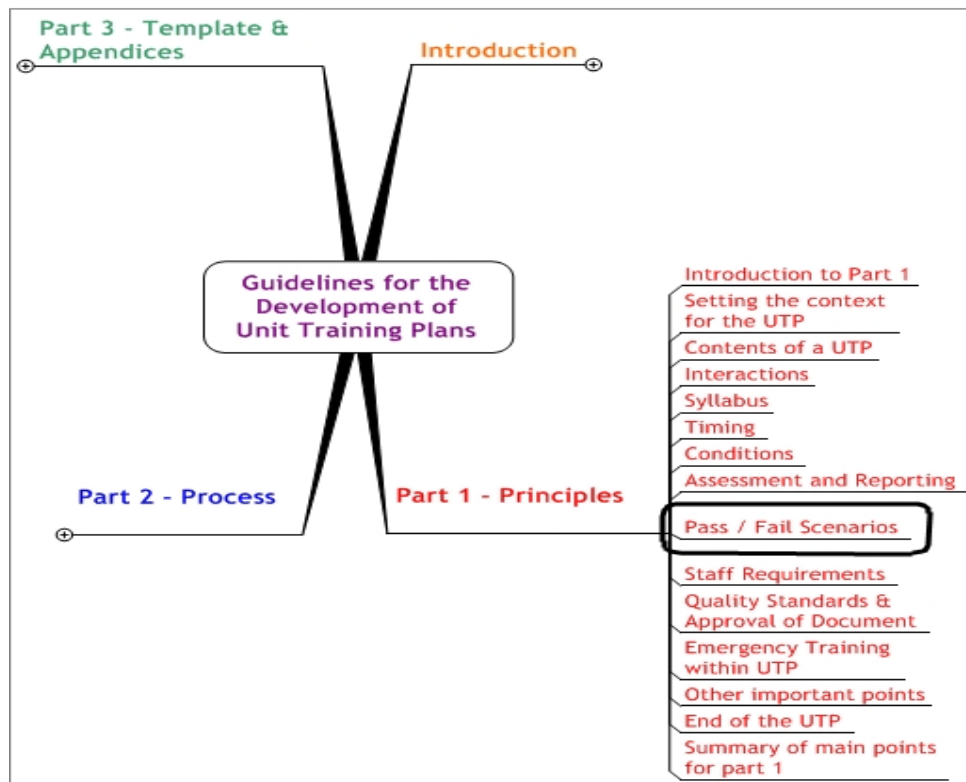
2.9   Pass/Fail scenarios

(what will happen once a learner passes an assessment point and what will happen if a learner fails the assessment point)

Within the UTP, both pass and fail scenarios need to be taken into account.

As discussed in section 2.8, a number of assessment points needs to be defined within the UTP.

Once these assessment points are defined, the UTP developers need to consider what happens as a result of the assessment.

2.9.1   Pass Scenario

In a pass scenario, meaning that the learner shows that he/she fulfils the conditions set by the assessment, the result is simple; the learner is allowed to continue on to the next phase of training or, if it is the last assessment, he/she is put forward to apply for an ATC licence.

2.9.2   Fail Scenario

In the event that the learner fails an assessment point, the way ahead may be more complicated (than if they had passed).

While developing the UTP, the persons responsible need to decide what will happen to a learner who fails an assessment point. These are some of the options which may be considered:

Decision A.   Recommend stopping the learner's training: This will mean that the assessors advise management that the learner should not continue with the training. The reasons for this should be documented in the recommendation report.

Decision B.   Recommend giving the learner another chance: With this recommendation, some conditions need to be specified:

B1   How long will the new training period be?

B2   What happens if the result is still negative?

B3   What should the learner concentrate on during this period?

Also, the consequences of this recommendation need to be considered:

In case of group or team learning:

➕   Does the learner need to wait for the next group of learners to reach the phase of training which he/she failed?

➕   Or will he/she be given individual instruction?

➕   Are instructors available?

In the case of OJT:

➕   Will the learner be assigned to the same OJTI (or group of OJTIs which have trained him/her before)?

➕   Will the learner impede the progress of other learners?

2.9.3   Major and minor assessment points:

While developing assessment points within a UTP, the operational unit may want to differentiate between major and minor assessment points.

The **major assessment points** would serve as a go/no go check point where the learner needs to pass the assessment before proceeding to the next point.

The **minor assessment points** would serve as a point where the learner's progression is verified against the progress which should have been made according to the plan.

If the assessment point is a major one, then only one of the two recommendations above should be given.

However, if the assessment point is considered to be a minor one, then a third option could be envisaged:

Decision C.   Recommend the learner continues with the next part of the training but with additional emphasis on the objectives which were not achieved satisfactorily during assessment.

In this case:

The objectives for which extra training needs to be provided must be documented, as well as the process by which this will be achieved.

It must also be made clear to the learner

➕   that these objectives, together with the new ones, will be assessed during the following assessment point, and

+ what would happen if the learner fails to show proficiency in these objectives at the following assessment.

These issues could be explained to the learner during a special interview. At the end of the interview, the operational unit may consider asking the learner to sign a paper summarising the agreement. This would avoid potential misunderstandings in the future.

2.9.4 Conclusion: Pass/Fail scenarios.

It is the responsibility of the authority developing the UTP to decide on the course of action in the event an assessment point is failed.

However, the possible recommendations, and a description of when they apply, need to be carefully described in the UTP.

This will make the process transparent to the designated authority, to the operational unit (including management, assessors and instructors) and to the learners who will follow the UTP.
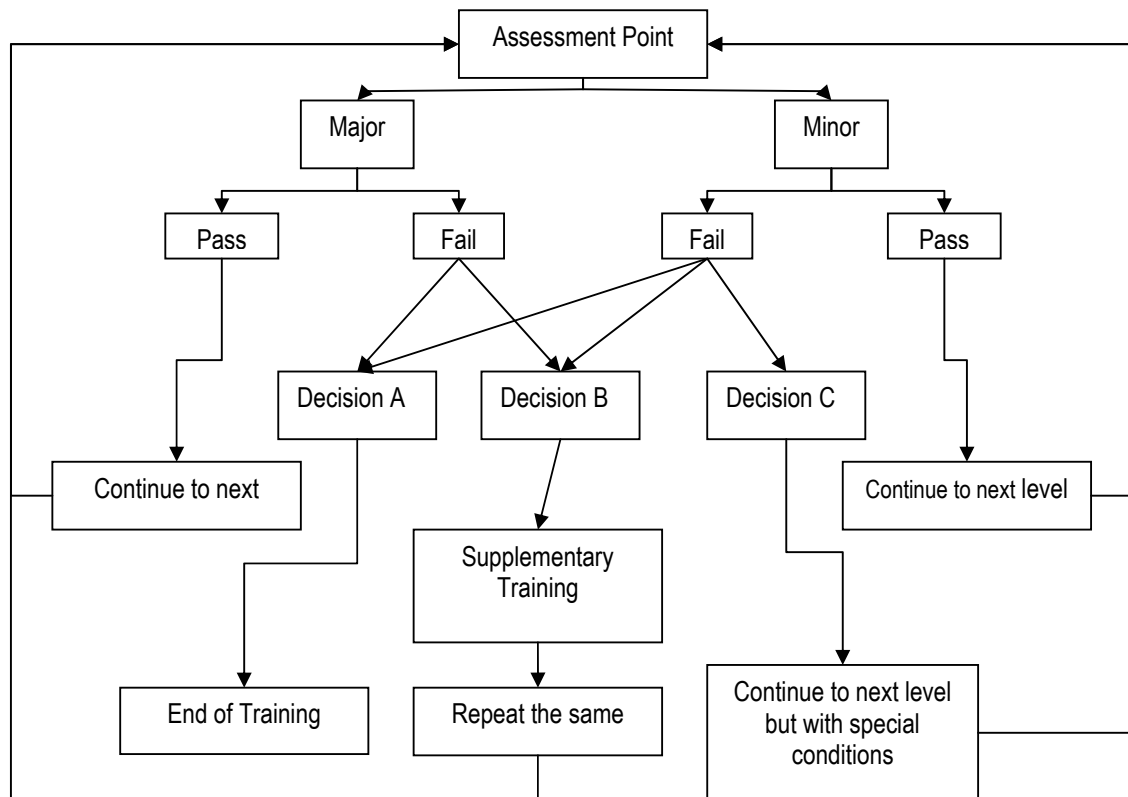
Figure 4: Different decisions at every assessment point

Note: The decisions in figure 4 above correspond to the 3 scenarios described in section 2.9
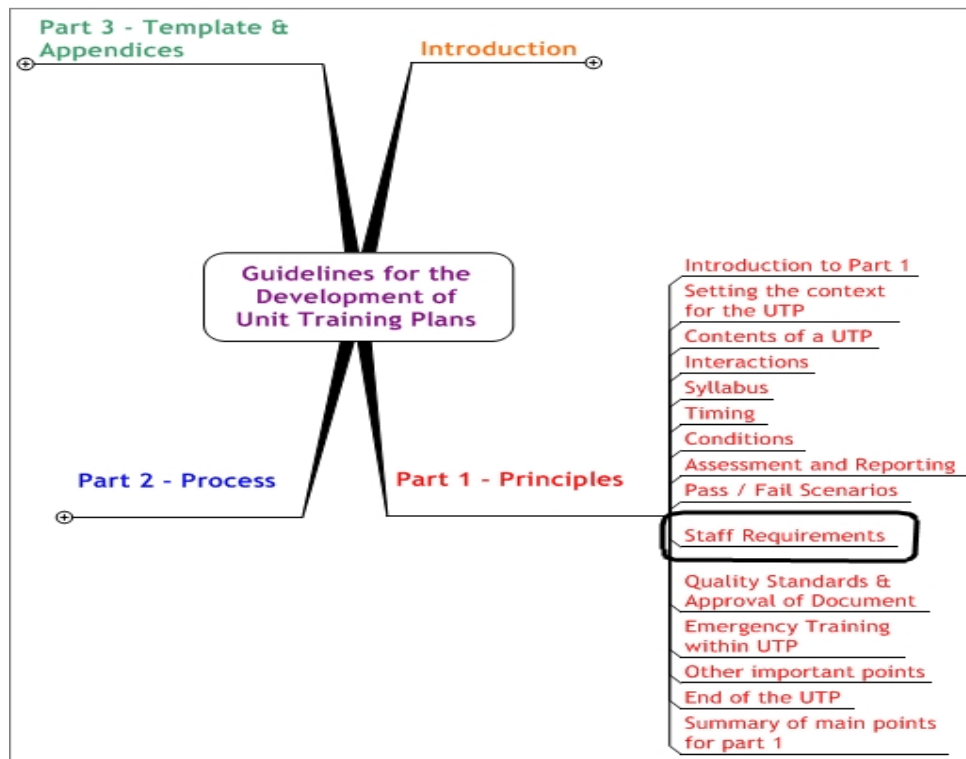
2.10 Staff requirements

Other items which should be thought of and which should be present in a UTP are the responsibilities and qualifications of staff who will deal with the unit training.

In order to identify issues regarding staff requirements, the questions to be asked may be divided into:

- ♣ Who will manage the training?
- ♣ Who will develop the training?
- ♣ Who will deliver the training? and
- ♣ Who will carry out the assessment?

The following questions should be considered and the appropriate answers should be made available in the UTP:

2.10.1 Who will manage?

+ Who will have overall co-ordination responsibility for the learners following the UTP?

+ Who will be responsible for reviewing the UTP?

+ Once the training is divided into phases, who will be responsible for each phase?

+ What qualifications do these persons need?

For transitional and pre-OJT phases, once the training events have been defined:

+ Who is responsible for each training event and what qualifications do they need?

2.10.2 Who will develop?

For knowledge acquisition events (e.g. classroom, case studies, briefings, Computer Based Training / Web Based Training, etc.), and for simulation exercises:

+ Who will prepare the training?

+ What skills/knowledge/training do these persons need?

+ How many are needed?

+ To whom do they report?

+ What information do they need to perform their task?

2.10.3 Who will deliver?

For knowledge acquisition delivery and for simulator instructors:

+ What skills/knowledge/training do these instructors need?

+ How many of these instructors would be needed? (e.g. per group of learners)

+ To whom do they report?

+ What information do they need to perform their task?

For OJTIs:

+ Have they been given the appropriate training (including refresher training)?

+ How many are needed?

+ What information do they need to perform their task?

+ To whom do they report?

2.10.4   Who will assess?

After defining assessment points during unit training, the following questions need to be answered:

- Who will carry out the assessment?
- What skills/knowledge/training do these persons need?
- To whom do they report?
- What information do they need to perform their task?

Hints and tips regarding staff planning for UTP

- If, within your training structure, simulator instructors are not also active OJTIs, consider getting the OJTIs to participate as instructors in simulator exercises and the simulator instructors to observe in the operational environment. This will help both groups to better understand the training needs and requirements.

- Similarly, in classroom instruction, try to integrate as much experience as possible from the operations room by planning for OJTIs to give a number of lessons. This will further enhance the integration of training within the unit.

- The expertise and effort (in terms of the number of staff and the amount of time) required to prepare simulation exercises are often underestimated. Analyse in detail the tasks that need to be performed and allow for them accordingly.

- Some centres have schemes to assign OJTIs to learners during OJT. For example, they assign the same OJTI to the learner for the first level of OJT training. This helps the learner to gain confidence at the outset (the OJTI - learner combination is carefully selected beforehand to avoid character clashes!). Then, gradually, at subsequent levels, the learner is asked to train with a number of OJTIs in order to become accustomed to, and learn from, different styles.

Hint Box 5

2.10.5   Conclusion: Staff Requirements

Identifying who will do the job and how it will be done are very important parts of a UTP.
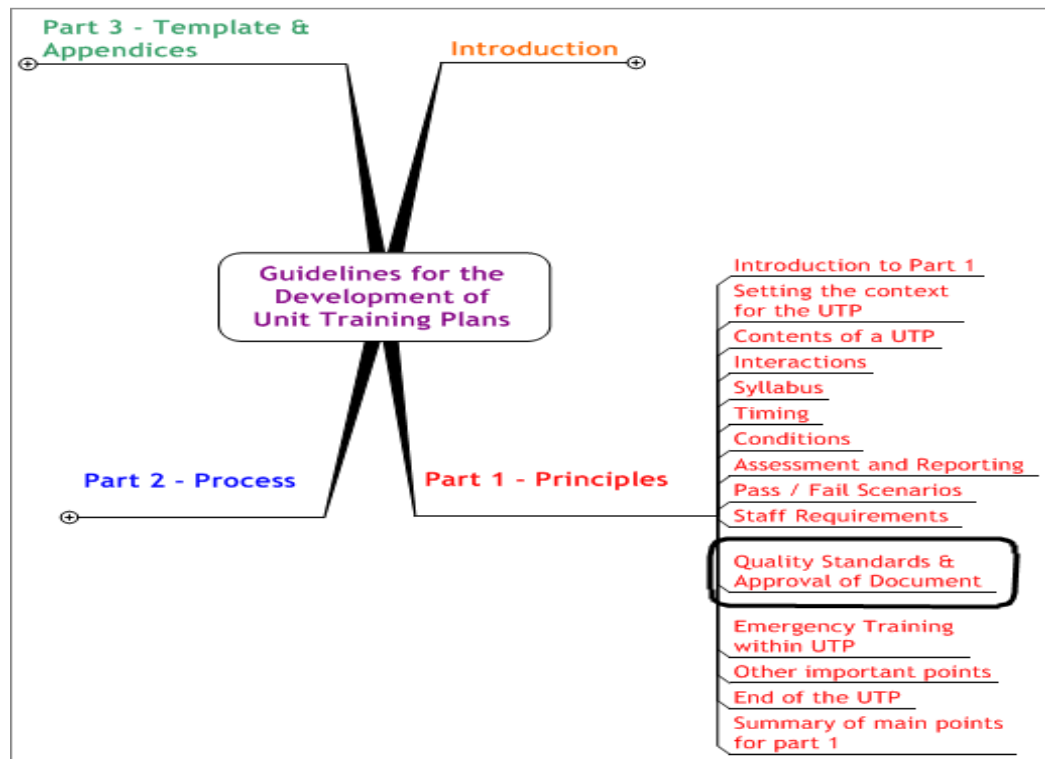
2.11 Quality standards and approval of document

2.11.1 Introduction: Quality

Since the UTP is a very important document at the operational unit, the quality of its contents should be as high as possible.

One of the main items to be addressed before starting development of a UTP is to understand the quality requirements it aims to fulfil. This will not only help you deliver a high quality UTP but will also help you plan the development of your UTP.

This section will look at how quality is defined in relation to a UTP and will give a number of hints as to how to increase the quality of the document.

Once written, the document needs to be approved (endorsed) by management at the unit. A typical UTP would be endorsed at least by the head of the training unit/section and the head of operations (or their equivalent in your operational unit).

More importantly, the UTP will need to be approved by the state's designated authority. ESARR5, the European Licensing Manual and the European Directive require this.

If a quality control system is present within the operational unit, or at the ANSP, this should be used for the UTP as well.

A quality control system may include the following:

- Who is responsible for the UTP?

- By whom does it need to be endorsed?

- Who, within the unit, is the contact with the state's designated authority?

- Who checks the UTP once it is written?

- Who audits the UTP?

- Whether the UTP has to be written in a format already agreed by the unit.

- Whether a safety analysis needs to be carried out on the UTP.

- What is the review mechanism for the UTP?

- For how long are learner reports kept in the unit's archives?

- How are changes to the UTP (following a review) recorded?

- How is training validated?

Hint Box 6

What will follow is a brief description of some of the elements which make up the quality system:

2.11.2   Who is responsible for quality?

The first important element regarding quality is to establish who will be responsible at different levels of the UTP.

The following are examples of questions which may help to establish these aspects:

- Who will be responsible for the UTP?

   i.   Will it be the person who is developing the UTP or will it be someone else?
   ii.   What is the person responsible expecting from the UTP?

- Who will endorse (approve) the UTP?

   i.   Will it be the head of the operations unit?
   ii.   Will it be someone else?
   iii. Will it be a group of people?
   iv.   What are these persons expecting from the UTP?
   v.   Do they expect it to be in any particular format?
   vi.   Do they expect the UTP to resemble other training plans within the ANSP?
   vii. Do they anticipate that the UTP will contain specific sections which have already been defined elsewhere?

♣ Who will be the contact with the state's designated authority?

    i. What are the expectations of the designated authority?
    ii. Do they need the UTP to be in any particular format…?

♣ Who checks the UTP once it is written? Or, is there a body within the ANSP who is responsible for checking the quality of deliverables?

♣ Once the UTP is developed, will there be a body within the ANSP who will cross-check its content before proposing its endorsement?

    i. What will this body expect to find in the UTP?
    ii. Do they have a set of criteria they will check against?

♣ Will an audit be carried out on the UTP?

An audit in this context means whether someone will check whether what is written in the UTP is actually being followed in unit training.

It is important to establish the answers to the relevant questions before starting development of the UTP. This may avoid problems in the future, for instance, refusal to endorse the UTP because it does not meet the expectations of those who will endorse it.

2.11.3 Does the plan need to be written in a particular form?

One of the main requirements in terms of application in places which adopt a formal quality management system is that the documents written follow a pre-defined format.

For example:

Does your ANSP and/or operational unit require the UTP to be written according to a specified format?

Do specific sections (e.g. document change record, etc.) need to be present in the UTP document?

Even if a formal quality management system is not used in your environment, the unit and/or ANSP may require you to develop the UTP according to certain standards. You need to know these standards before you start developing the plan.

2.11.4 Safety analysis

While the UTP is being developed, a safety analysis should be carried out in order to analyse the impact unit training is having / will have on ATC operations. This is very important since unit training is a safety-related activity.

A safety analysis can be carried out by identifying factors related to unit training and analysing what the impact may be on overall training and operational safety.

For those parts where the impact on safety is at a level which the unit decides as being unacceptable for operational safety, an action needs to be implemented in order to make the element acceptable in the interests of safety.

The level of detail of each part of the training and the level of acceptable risk are parameters the unit should decide upon based on the environment but which also need to be approved by the designated authorities.

An example of a safety analysis follows below:

Cause	Effect	Impact (Low/ Medium/ High)	Action
A lot of tasks identified in the UTP have not been assigned to persons (In an actual case, the tasks need to be specifically mentioned)	A lot of tasks may not be performed. (In an actual case, the tasks need to be specifically mentioned)	High	More care will be taken to assign tasks to functions while developing the UTP
Because the training structure is being altered, at the beginning of OJT, the OJTIs may not know what aspects the learners should perform without assistance & the areas in which the OJTIs need to assist the learners	The OJT learners will be left without assistance in tasks they have not yet learned to perform	High	Inform OJTIs, by means of briefings (verbal + written) regarding the tasks the learners should be aware of when starting OJT and those tasks where they would still need assistance.
…	…	…	…

As in the table above, the safety analysis should not be seen as a very difficult task to achieve. It should contain related training elements identified during the development of the UTP.

This analysis does not need to be published within the UTP.

It is recommended that this exercise is carried out by a group of training experts since different people view factors differently. A group will have a more holistic view of what is important compared to a single individual.

It is also recommended that this exercise is repeated a number of times during the development of a UTP:

- Initially at the very beginning, so as to identify important factors which need to be addressed.

- A number of times during the development of the UTP, so as to update with the actions taken on factors identified previously and to see whether new elements have been identified.

- Once towards the end of the UTP's development, so as to establish whether there are any issues pending which need to be resolved.

    ❖   Each time during a review mechanism, so as to ensure that the items identified while using the UTP are dealt with as necessary.

2.11.5   Review mechanism

The UTP should be viewed as a living document. A living document is one which periodically adapts to the circumstances and to the environment in order to continue to fulfil its objectives.

In the case of the UTP, its main objectives are to define and describe a plan for training during the unit training phase which is the most effective and efficient.

In order to continue to fulfil these objectives, the UTP needs to be reviewed periodically.

When the review mechanism is being set up for a given UTP, a decision needs to be taken on the following:

    ❖   How often will the UTP review be triggered?*

    ❖   Who is responsible for triggering the review?

    ❖   Who would participate in the review?

*   *The review mechanism should incorporate trigger dates at which the persons responsible sit down and decide whether or not a review of the UTP is required.*

See the table below for some hints of what could be done during a review:

Hints and tips regarding reviewing a UTP

- Does training continue to produce competent, licensed, ATCOs in an efficient and effective manner?

- If not, which stage(s) / phase(s) of training need to be reviewed/adjusted/improved?

- Has new training technology or ideas, training methods or media recently been made available or could they be made available in future to make training more effective and/or efficient?

- In the operations room, have procedures and or technology or working methods changed which may have implications on unit training (or other training)?

- Has the provision of other phases of training (e.g. basic/rating) changed? And do these changes have implications on unit training?

- Do the simulation exercises (especially in pre-OJT) still represent the actual 'live' situation?

- Consider interviewing recently licensed ATCOs (who, until very recently, were undergoing unit training). They may provide you with a lot of information from a different perspective!

- Consider asking OJTIs for their opinion of the training. They are often the best link between training and the operational environment. They are also very well placed to identify any additional skills or knowledge that should be taught prior to or during OJT.

Hint Box 7

2.11.6 Recording changes to the UTP

Once the UTP has been reviewed, changes which are made as a result should be documented in a dedicated section within the UTP. Where appropriate, the reasons for making these changes should also be included.

This will assist those who are familiar with previous versions of the UTP in finding differences in the updated UTP.

2.11.7 Archiving of reports and records

Another important quality aspect which needs to be defined while developing the UTP, and which needs to be written down within the UTP, is the length of time reports and records written in relation to a learner during unit training are kept.

The decision may be based on the following items:

- Requirements by the operational unit or ANSP

- Requirements by the designated authority

- The way training is organised at the unit (e.g. When will further related training be given to the learner after achieving the licence / rating / rating endorsement / unit endorsement?)

- Etc.

Archiving should be considered while developing the UTP and a decision taken on how long different reports and records should be kept. (Different records of varying importance may be kept in the archives for different periods of time. This also needs to be specified within the UTP.)

2.11.8 Validation of training in case of change

Even though unit training has been administered to students and trainees in your unit for a long time, if parts of the unit training are changed, it is very important to first validate the training prior to administering it to the learners.

This can be done by assessing the impact each part which has been changed may have on the rest of the training and on the environment (including learners, trainers, other personnel and resources).

In this case, the safety analysis described in 2.11.4 becomes a useful tool.

2.11.9 Conclusion: Quality

This marks the end of a description of the quality standards the UTP should meet.

Although, at first glance, this section may not seem directly related to the development of a UTP, it is strongly believed that setting quality standards (for example, by including elements as the ones described above) while developing the UTP will help to produce a robust UTP which meets everyone's expectations and which delivers training aimed at producing licensed ATCOs.

In the next section, we will discuss how emergency and unusual situations training could be integrated within unit training.
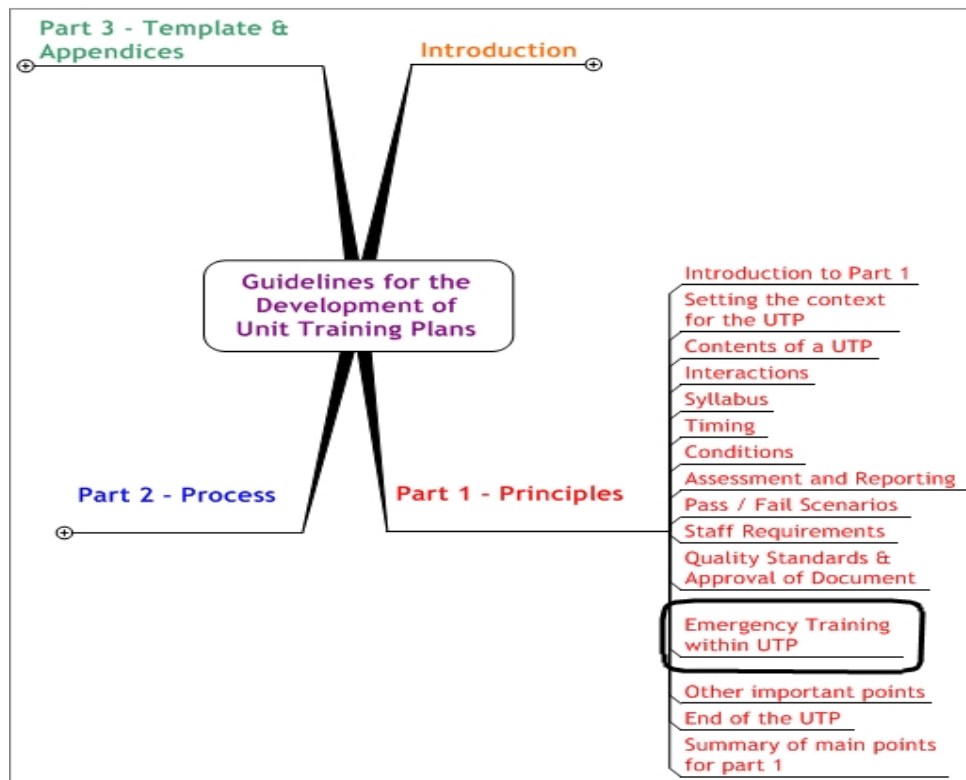
2.12 Emergency training within the UTP

Emergency and unusual situations training must constitute an integral part of unit training. However, it is up to the individual units to decide how to incorporate the emergency/unusual situations training within the UTP.

> A note on emergency training for learners within unit training
>
> and emergency training for qualified controllers.
>
> In most of the existing guidelines regarding emergency and unusual situation training within the UTP context, it is mentioned that this training should be administered to learners prior to validation and to qualified staff routinely after validation.
>
> Since at the beginning of these guidelines we have defined the unit training plan as the training plan to achieve unit training and since we defined unit training as the phase of training in which unit-specific objectives are realised so that learners achieve validation, only the part which needs to be administered to learners prior to validation will be covered here.
>
> It is believed that the other part, although similar, should be covered within the unit's competence scheme.

Note Box 1

The approach proposed in this document suggests spreading the objectives covering emergency and unusual situations training in an appropriate manner throughout unit training as a whole.

A.   The first step is to identify which objectives need to be covered.

In the case of emergency and unusual situations, the objectives can be divided into two parts.

A1.   The first part will cover objectives related to system degradation and to situations at the place of work (e.g. fire alarm in the ops room).

Most of the objectives in this part are unit-specific and most probably could not have been covered during initial training. Therefore, all the objectives which fall under this heading need to be covered during unit training.

A2.   The second part will cover objectives related to aircraft in emergency or unusual situations which usually cause additional complexity and work load.

As for the objectives in the second part, an analysis needs to be made of which objectives were covered during initial training (and whether the unit considers that these were covered in enough detail for the operational environment) and which situations are unit-specific and need to be covered from scratch.

B.   The second step is to spread the objectives throughout unit training.

Once the unit knows which objectives need to be addressed during unit training, it needs to decide where they can best be incorporated in a particular training phase.

B1.   Knowledge-based objectives may be covered during transitional training.

It is suggested that all the objectives which are knowledge based (such as the functionality of the fallback system or the details of the go-around procedure) are integrated within transitional training. A number of training events could be created to group and cover these objectives from a theoretical point of view.

B2.   Skills-based objectives divided into basic and advanced.

For the skills-based objectives, it is proposed dividing the training into two parts. The paragraphs which follow describe a scheme where the skills-based emergency and unusual situations' training is administered partly during pre-OJT and partly during OJT (in both cases, using simulation).

The first part of the skills-based emergency/unusual situations training is carried out during the pre-OJT. This training, which will be simulator-based, will cover all the essential objectives related to emergency and unusual situations.

A second course would be administered during the OJT but will also be simulator-based.

The reason for dividing the skills-based training into two parts is that, in a number of environments, it was felt that the learner would appreciate more the nature of the actions required during an emergency or an unusual situation if he/she had an appreciation of operational environment conditions. The situations would assume a different dimension and the learner would feel more comfortable in terms of relating to what he/she would have done if they were on the job, and also how the other (more experienced) members of the team would have reacted in real life.

Note: If the option of splitting the skills-based training objectives is followed, it needs to be made clear to the OJTI what the learner knows and what he/she has not yet covered when starting OJT.

Note: Emergency and unusual situations training for military personnel providing ATS to civil and military air traffic in a mixed civil-military environment.

It is understood that military personnel who are developing a UTP may need to take a different approach due to the different environment and requirements within which they work.

More emergency training may be needed in this instance based, for example, on operational air traffic requirements. In this case, a sub-phase dealing with emergencies could be envisaged and/or more emergency training during OJT.

Whichever approach is favoured, the most important thing is that the training is clearly defined.

Note Box 2
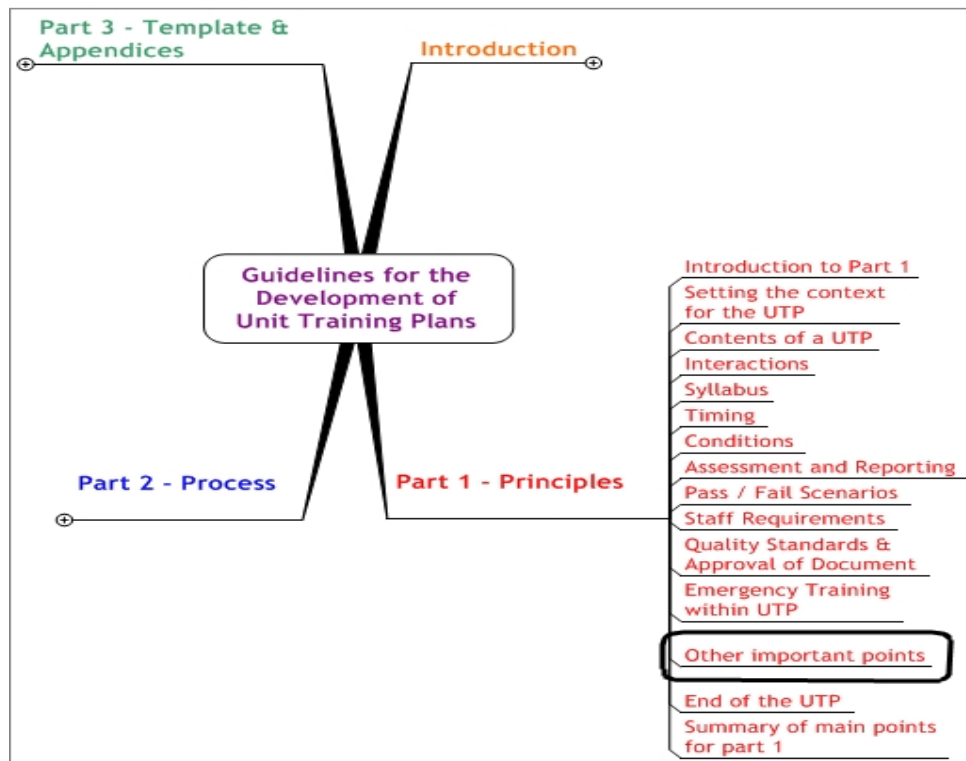
2.13 Other important points

This last sub-section in part 1 will deal with two further important considerations which need to be addressed when developing a UTP.

The first is the consideration on how training within the unit phase should be given, i.e. when should it be individual or team or group training. The second section deals with some principles which need to be considered while developing the OJT phase of unit training.

2.13.1 Individual, group and team training

The issue of whether unit training should be given to learners on an individual or group basis needs to be discussed and decided upon at a unit training level. The choice of one over another will have implications on training in terms of time, cost and quality of training. Each one has its advantages and disadvantages. In an ATC environment, team training also needs to be taken into account.

The choices proposed are group training, team training and individual training. More details of the benefit and advantages of each mode are given in Appendix 2.

2.13.2 On The Job Training

From the feedback received from training managers responsible for unit training, a number of difficulties have been encountered in developing the OJT part of the plan.

This sub-section will deal with the principles which need to be considered when developing the OJT part of the UTP.

The difficulties may be due to the fact that in OJT, it is more difficult to control the training events. It may also be due to the fact that the learners are exposed to the operational environment in which, in addition to the tasks related to controlling aircraft, they have to learn and master other skills in order to function well within their team.

A check list of items which should be satisfied in order to have a sound plan for the OJT part of training follows below:

Items to consider	Checked?
Which performance objectives are necessary for the learner to start OJT?	☐
What are the traffic thresholds for the unit endorsement to which training is geared?	☐
What is the average time it takes a learner to be ready for final assessment?	☐
Stipulating a timeframe within which the majority of learners, under normal conditions, would be ready for final assessment. This would include a minimum and a maximum time.	☐
Dividing the OJT into a number of levels, for example, beginner, intermediate and advanced. Or level A, level B and level C	☐
Having a summative assessment at the end of each level.	☐
Defining the amount of training hours (minimum and maximum) a student would have to undergo at each level.	☐
Defining the ideal traffic levels the learner would deal with at each level.	☐
Defining the training objectives at each level.	☐
Including emergency/unusual situations training objectives which are to be realised at each level	☐
Planning appropriate simulation sessions, during the OJT phase, to cover emergency/unusual situations training objectives.	☐
Including team resource management objectives within the OJT	☐
Including detailed guidelines for OJTIs on how to carry out OJT instruction	☐
Including in these guidelines regular formative reports (e.g. at the end of each training session)	☐

Check list 1
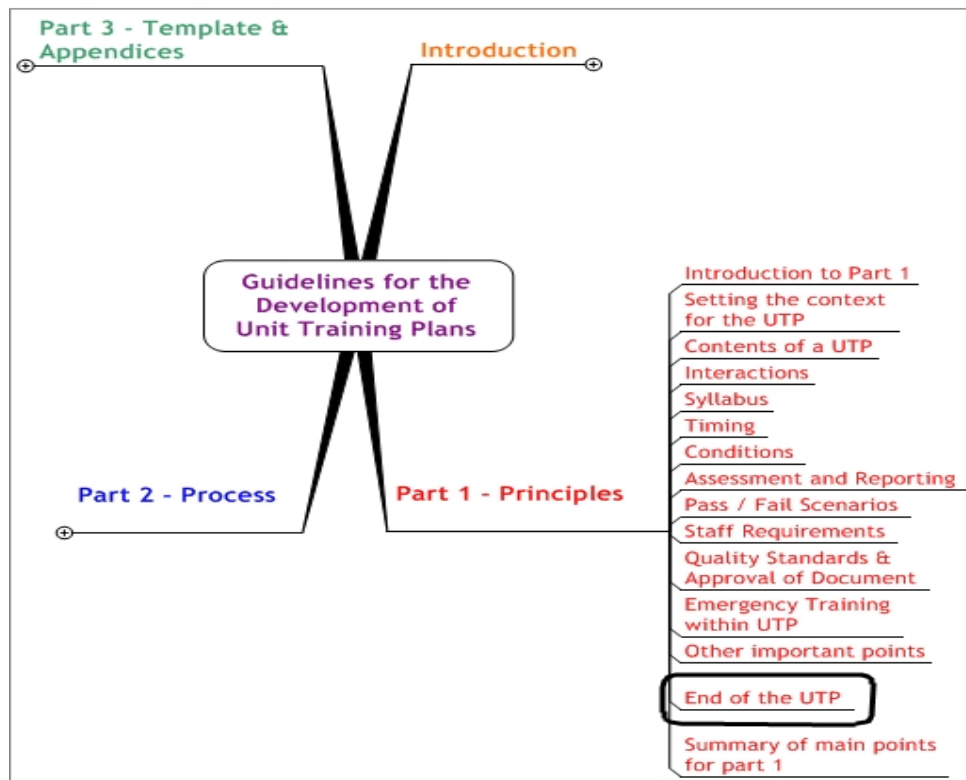
2.14 End of unit training for a learner

The end of unit training for a given learner occurs either:

🔸 When he/she is recommended by the operational unit to apply for an ATCO licence / rating / rating endorsement / unit endorsement, at which point the appropriate licensing authority would carry out the final check.

In this case, once the final assessment in the UTP is made, and the ANSP is of the opinion that the learner has fulfilled all the objectives necessary to obtain the ATC licence / rating / rating endorsement / unit endorsement(s), the service provider needs to inform* the designated licensing authority so that the appropriate procedure is initiated. This will probably take the form of a final check on the learner from someone representing the licensing authority.

When the learner reaches this point, it marks the end of the unit training progression.

Note: In a number of ANSPs, it is the applicants' responsibility, once the go-ahead is given by the operational unit, to apply for the licence through the licensing authority.

Or

🔸 When the operational unit recommends stopping the learner's training due to unsatisfactory results.

2.15　Summary of main points for part 1

Part one of these guidelines have concentrated on a number of principles behind the development of unit training plans. Namely, the following topics were discussed:

∗	Setting the context	∗	Interactions between the UTP and other elements of the ATC system
∗	Timing	∗	The setting of conditions
∗	Assessment and Reporting	∗	Pass/Fail scenarios
∗	Staff requirements	∗	Quality standards
∗	Emergency training within the UTP		

These topics will be used in the second and third parts of this document.

The next part will describe options governing how to set up a process in order to develop the UTP.
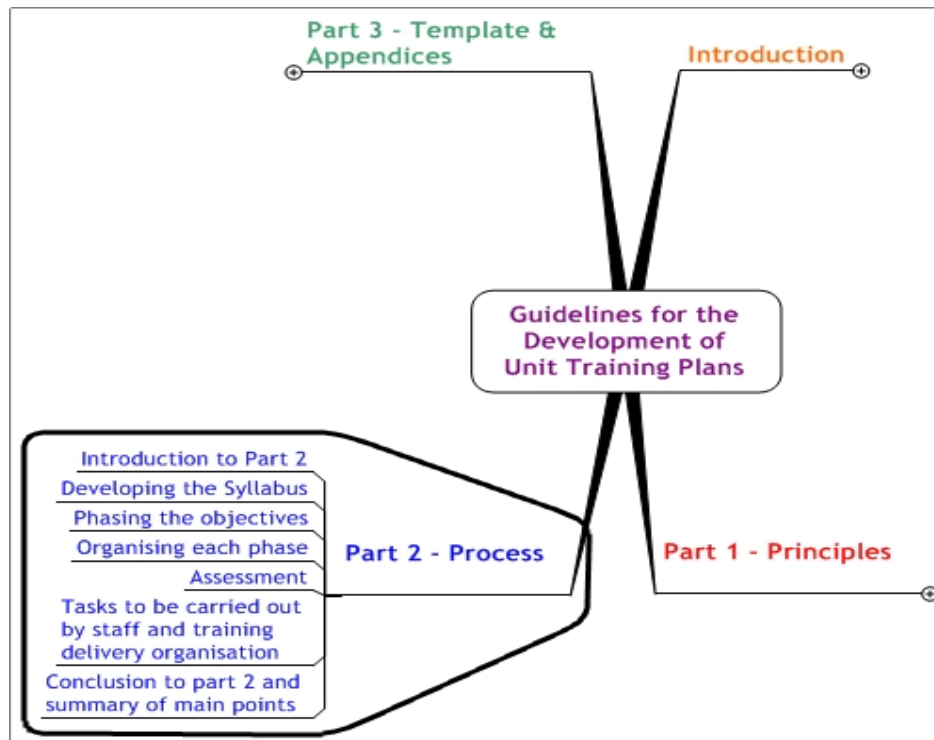
3. THE PROCESS OF DEVELOPING A UNIT TRAINING PLAN (Part 2)

3.1 Introduction to part 2: Process overview

The second part of this document will propose a process by which a UTP could be developed.

In short, the process will help the developer of a UTP to:

➕ Create a unit training syllabus for every unit endorsement practised at the operational unit.

➕ Group and phase* the training objectives.

➕ Organize them into training events (for transitional and pre-OJT) or into assessment levels (OJT).

➕ Describe the assessment process.

➕ Describe who is responsible for the different training deliverables.

* See the second note in the following note box.

Notes:

I. For unit training, a different syllabus needs to be created for every unit endorsement practised at the operational unit. Although the syllabi may be similar to each other, each unit endorsement has its specificities and these need to be reflected in the UTP.

II. From this point of the guidelines onwards, a phase of training within unit training will refer to either transitional, pre-OJT or OJT.

Note Box 3

Below is a flow diagram of the process which will be described in part 2:

Based on the required level of competence for every unit endorsement to be trained for.

EUROCONTROL's document entitled Model for Task and Job Descriptions of Air Traffic Controllers* could serve as a basis

Clear and simple, measurable objectives.

To develop the UTP, it is preferable to work with a group of training experts!

- Task analysis
- Tasks / Sub-Tasks
- Performance Objectives
- Gap Analysis - What is already covered in initial training?
- Objectives to be covered during unit training
- Phasing
- Training Events / Assessment Levels
- Assessments
- Responsibilities

Flow Diagram 1: From UTP development process

* EUROCONTROL; EATCHIP: Model for Task and Job Description of Air Traffic Controllers, March 1996

General tips about developing a UTP

✦ When developing a UTP, it is beneficial if you seek help from a team of operational experts who are involved with training. This will be of benefit as it will help you address all matters in a more complete manner.

Hint Box 8
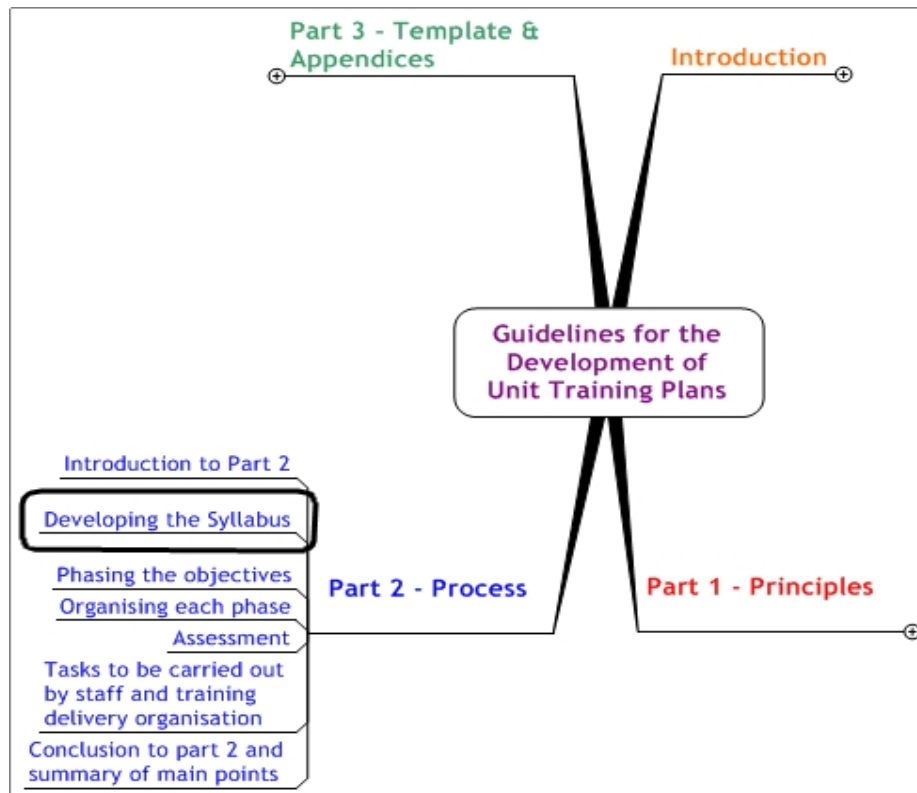
3.2   Developing the syllabus

Reminder: Syllabus development (and the remainder of the process) has to be effected for every unit endorsement practised at the unit.

3.2.1   Introduction

This section will first describe how a task analysis may be carried out for every unit endorsement in your unit, followed by a description of how performance objectives could be developed, based on the task analysis, and how the unit can identify which objectives have already been covered during initial training and which are unit endorsement-specific and need to be covered during unit training.

3.2.2   Task analysis

Output of this part: A set of tasks and sub-tasks particular to a unit endorsement practised at the operational unit.

Description:

The starting point for knowing which objectives need to be covered by a learner during unit training is an analysis of those tasks a competent, qualified, ATCO needs to perform for every unit endorsement. This is called a task analysis.

The bases of the general tasks which need to be performed by an ATCO are available in the EUROCONTROL document entitled: Model for Task and Job

Description of Air Traffic Controllers (EATCHIP, March 1996). This document contains a number of tasks and sub-tasks which an ATCO should perform. The tasks were divided into Core Tasks, Direct Support Tasks and Indirect Support Tasks (the definitions of each are found in Note Box 4). Sub-Tasks detail the corresponding tasks.

Definitions:

Task: A piece of work, performed by an individual or individuals, which has a definite beginning and end, and which results in a product or a service.

Core Tasks: Tasks which involve the design and provision of a product and/or service.

Direct Support Tasks: Tasks which contribute to the design and provision of the product and/or service in the short term.

Indirect Support Tasks: Tasks which contribute to the development of a product and/or service in the longer term.

For example:

Core Task 4   PROVIDE SEPARATION
Sub-Tasks

CT4.1   Maintain separation between A/C
CT4.2   Maintain separation between A/C and surface obstacles
CT4.3   Separate surface aircraft from obstacles on the airfield

Core Task 5   PROVIDE PILOTS WITH RELEVANT INFORMATION

Sub-Tasks

CT5.1   Respond to pilots' requests for advice
CT5.2   Provide airport information
CT5.3   Provide weather information

Direct Support Task 1

CHECK TECHNICAL EQUIPMENT AT WORKING POSITION

DST1.1   Maintain the integrity of the working position
DST1.2   Select and adjust technical equipment

Note Box 4

The tasks and sub-tasks found in the EUROCONTROL document are not exhaustive (more tasks may be added to them as needed) but form a very good starting point for a task analysis for every unit endorsement at your unit. This list is reproduced in full in Appendix 3. The EUROCONTROL document also describes the process by which the task force, which was assigned to carry out the work, arrived at this list. This process may be useful in identifying whether more tasks need to be added or whether some tasks need to be adjusted to suit your operational unit's environment.

> **Note on performing a task analysis**
>
> ✦ Note that the tasks described in Appendix 3 are general.
> For example, core task 4.3: 'Separate surface aircraft from obstacles on the airfield' applies to tower controllers and not to area controllers. It is very important that the persons performing a task analysis on their unit endorsements adapt these tasks to the unit's requirements, needs and environment, hence deleting core tasks, adjusting others and including new ones as appropriate.

Note Box 5

Difference between core tasks and sub-tasks, and key roles as proposed in CAA's CAP 624

Those who are familiar with the CAA's organisation of rating requirements in CAP 624 will note that the terminology used there differs from that proposed here.

CAP 624 uses key roles which are developed into topics, then sub-topics, to produce objectives. These guidelines propose a different path: From tasks to sub-tasks to performance objectives.

Both approaches result in the same list of unit endorsement-specific performance objectives.

We chose this approach because we think it is simple to use and to explain, and we have seen good examples where it has been used in developing a UTP[9]. However you may prefer the other approach (CAA CAP 624); they both produce good results.

Each sub-task has associated performance objectives, essential knowledge needed to fulfil the objective, and a set of conditions. The next section will briefly describe what is needed for writing sound performance objectives.

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[9] UTP for Skopje ACC, FYR Macedonia

3.2.3 Performance objectives

Output of this part: A set of performance objectives particular to the unit's rating requirements.

Description: Performance objectives are the objectives that a competent ATCO will have to be able to satisfy to provide the type of air traffic control service to which the unit and rating requirements relate.

Performance objectives need to be complemented by:

a)   Conditions

Meaning the conditions under which the assessment of the performance objectives is made. In the case of unit training, this is your unit's environment and its associated airspace, ATC procedures, etc.

and;

b)   Essential knowledge

This is the fundamental knowledge and understanding necessary to perform to requirements and transfer skills from one situation to another.

In order to develop the performance objectives for the rating requirements in your unit, you will have to make the conditions applicable to your unit. You will also have to determine what essential knowledge, in the form of the unit's environment and ATC procedures, is required by ATCOs to enable them to provide the air traffic control services at your unit.

Since these objectives will be used by trainers, learners and assessors, it is very important that they are comprehensive, unambiguous and well written.

Note on the importance of writing good objectives:

Since it is so important to write down good objectives, it is strongly suggested that the

person or team writing them should have received prior training on how to do this. If the

persons tasked with writing the training objectives feel they do not have sufficient knowledge

on how to do this, they should contact the appropriate authority within their unit with a

request to pursue adequate training.

Note Box 6

The following hint box provides some further hints on developing performance objectives:

Further hints on writing objectives from sub-tasks:

🔸 Before starting to develop objectives, you need to keep in mind the sub-task and who (for which rating/unit endorsement) will need to learn it - *remember, the objectives need to be (re)written for each rating and unit endorsement because the performance on a particular position will be different from another.*

🔸 Taking a sub-task as the starting block, an analysis is needed to describe the steps which are needed to arrive at the desired action/performance.

This can be done by always asking the question "how?" in relation to the sub-task.
Hence, taking the example of CT5.3: *Provide weather information*
the question: "how?" would at least provide a breakdown to the following tasks:

> *Detect weather*

> *Be aware of consequences*

> *Advise Aircraft*

> …

Each of these statements needs to be broken down further until the point where the answer to the question "how?" does not bring further value to the task breakdown.

🔸 A training objective should contain an <u>action verb</u>. Identify, describe, decode, list… are examples of action verbs. An extensive but non-exhaustive list of action verbs is available in the EATM Training Progression & Concepts document (1st Edition, March 2004 pgs 13-24).

🔸 The action verb should describe an <u>observable action</u> which can be measured. The verb 'to know' is an example of a verb which cannot be easily observed. This would be unsuitable for accurate measurement and leaves the door open for interpretations.

Hint Box 9

Example of developing performance objectives from sub-tasks

Keeping the same example as in hint box 9, above, CT5.3: *Provide weather information* will be used:

In order to provide weather information, the learner needs to be trained on how to: (*this is done by asking the question 'how' as in the hint box above*)

Knowledge-based objectives:

General knowledge

Name the basic duties, organisation and working methods of the local meteorological office;

State the international and national standards for the exchange of meteorological data;

Identify the local FIR methods used for the collection of meteorological data;

Explain the different local conditions for the formation of clouds.

Regarding local weather characteristics

Identify different cloud types and state their local characteristics;

Describe most common types of precipitation in the local environment and their corresponding cloud families;

Explain the most common causes of atmospheric obscurity within the FIR.

Skills-based objectives

Monitor sources of meteorological information (IDS, radar observed weather);

Use meteorological information provided by pilots and controllers reports;

Obtain meteorological information from the met office;

Establish the relevance of meteorological information to individual flights;

Recognise significant changes in weather information.

Note 1: All the skills-based objectives are built on the knowledge-based ones; without the knowledge-based objectives, the learner could not be trained to perform the skills-based objectives.

Note 2: For these objectives to be complete, the corresponding content should be added. These guidelines will not go into further detail as it is assumed that those in charge of developing the UTP know how to perform this step.

The next section will describe the part of the process called the 'gap analysis' which investigates which objectives identified in section 3.2.3 have already been covered during initial training and which objectives still need to be covered during unit training.

3.2.4   **Gap analysis**

Output of this part: A set of unit-specific performance objectives which need to be realised during unit training.

Description:

Once the performance objectives are available for each unit endorsement, a cross-check should be made against the objectives which are found in initial training, common core content for ATCO training.

This work is better carried out by a group of training experts who, on the one hand, are knowledgeable about the performance objectives which make up the unit's rating and unit endorsement requirements and, on the other, have a knowledge of initial training and the training provided at the unit level (unit training).

From the list of performance objectives which result from the task analysis (see previous sections), the job of the group is to determine which performance objectives still need to be realised during unit training, either because they were not covered before or because they were only covered at a general level.

The work can be carried out through a comparison of the unit's performance objectives against the objectives found in the common core content, always taking into account the specific environment at the unit.

3.2.4.1   *Analysing which emergency/unusual situations-related objectives need to be covered during unit training.*

This sub-section is included to highlight the importance of emergency/unusual situations training within unit training.

Output of this part: To have a set of unit-specific performance objectives related to emergency and unusual situations which need to be realised during unit training.

Description: As discussed in part one, unit-specific objectives related to emergency and unusual situations need to be covered during unit training.

It is therefore important to include these objectives during an analysis of which unit-specific objectives still need to be realised during unit training. The process of how this could be done should be similar to the description of the gap analysis above. The training experts doing the analysis should know which emergencies and unusual situations (including system degradation) should be particularly emphasised during unit training and should include them in the list of objectives to be covered in the UTP.

Later on in the process, whilst the objectives are being organised into phases, a decision will need to be taken on when to train for these objectives. It is advisable that these objectives are integrated with the others and distributed over the three unit training phases: transitional, pre-OJT and OJT.

A brief list of items which may be included in the unit-specific emergency/unusual situations-related section(s) follows below. Note that the list is not exhaustive.

Some emergency/unusual situation objectives could be built on the following items:

- Scenarios of ACFT in emergency, e.g. engine failure, pressurization failure, landing gear problems, hijack, etc.

- ACFT-related unusual situations, relative to unit environment - e.g. local go around procedures in a tower environment, fuel dumping, etc.

- Failure/degradation of equipment (Radar Fallback, Communications Fallback…)

- Operational unit evacuation,

- Etc...

Hint Box 10

3.2.4.2   Conclusion: Syllabus

Section 3.2 described how a unit training syllabus could be developed for every unit endorsement.

At this stage of the process of development of the UTP, you should have a syllabus populated by tasks, sub-tasks and performance objectives for every unit endorsement practised at your operational unit and which need to be covered during unit training.
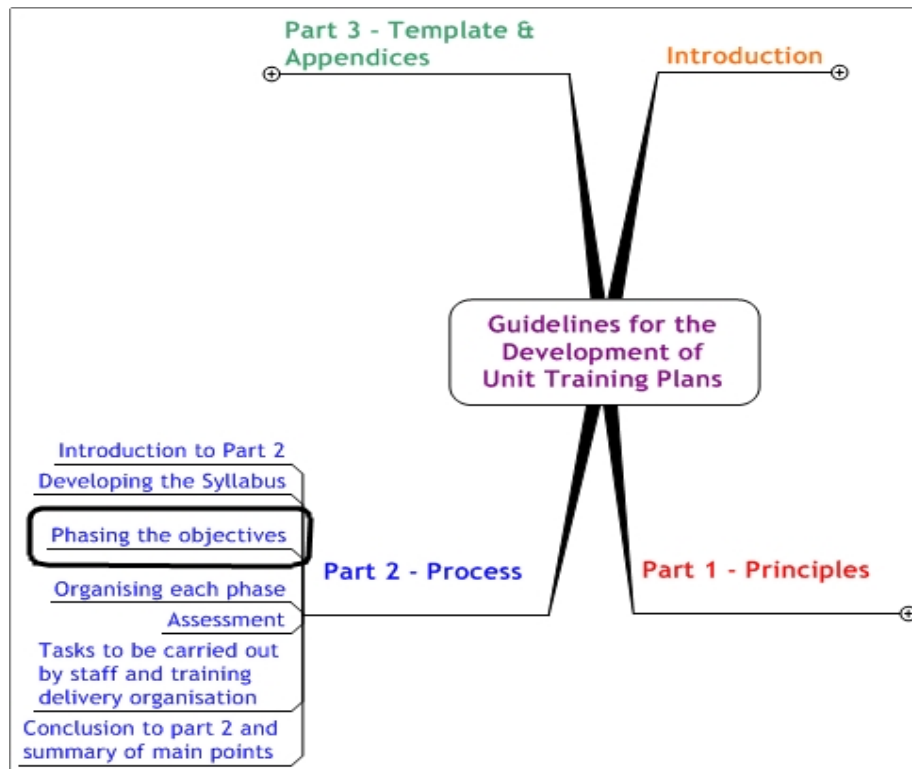
3.3 Phasing the objectives

Output of this part: To organise the objectives which need to be realised during unit training into 3 phases: transitional, pre-OJT and OJT.

Description: Within the UTP, the objectives should be organised into the 3 training phases. In order to do this, initially we need to consider the aim of each part. In short, the main objectives of each phase are:

Transitional: The aim of this phase is to teach the learners the objectives which are knowledge based, and to start introducing the site-specific skills through a number of skill acquisition sessions.

Pre-OJT: The main aims of this phase are to train learners in the skills required to perform ATC at the unit so that OJT is shortened to a minimum and to bring the learners to start OJT at a level where they can safely control air traffic, under the supervision of an OJTI, at least under normal unit conditions[10].

OJT: The aim of this phase is to integrate previously acquired job-related routines and skills so that the learner becomes fully competent in

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[10] It is understood that some units, due to their traffic load and/or for other reasons, are not able to provide extensive training to learners during pre-OJT using high fidelity simulators and, as a result, the entry level of these learners at OJT is not up to the principle described in the definition above. In this case, these units should justify the reason(s) why the starting level of OJT is below this principle and document this in the UTP.

performing ATC, and is seen by the operational unit as ready to receive an ATC licence / rating / unit endorsement (as applicable).

As a general rule, OJT should be used to fine tune previously acquired tasks and to train in situations which may be considered outside normal operations but which still come under the requirements of a competent ATCOs performance.

Based on the objectives of these three phases, the group designing the UTP needs to consider the following points:

- Which objectives need to be taught theoretically (knowledge based) and which need to be taught at a practical level (skills-based).

- Which objectives need to be realised first, and which objectives are based on others.

- Which objectives can be realised using a simulated environment (High Fidelity Simulator) in order to shorten the OJT part as far as possible.

  The extensive use of hi-fi simulator prior to OJT has the advantage of freeing up operational training slots and enabling the learner to operate in a realistic operational environment with considerable autonomy without any impact on operational efficiency or safety. Learners who have undergone pre-OJT training should be better equipped to benefit from the OJT and to adapt to the operational environment.

In all cases, those developing the UTP need to ensure that there is a smooth progression of training throughout the plan.

Using the experience already available at the unit compared with the new UTP:

As in the majority of cases, within your unit, learners are already being trained with a view to attaining an ATC licence with valid rating and unit endorsements. It is therefore a good idea to compare the new UTP against what was being done previously in order to confirm or improve training.

The following questions may help you in terms of comparing what is actually being done at your unit with the unit training structure proposed in these guidelines:

Knowledge acquisition training / transitional training

- Does your unit training already have a phase which concentrates on knowledge acquisition?

- What are the objectives covered in this part of training? (Have they been written down?)

- How does this compare with the knowledge-based objectives established through the process described thus far in this document?

Skill acquisition training before OJT / pre-OJT

➕ Does your unit devote a part of its training to training learners in skills-based objectives prior to OJT?

➕ What are the objectives covered in this part of training? (Have they been written down clearly?)

➕ Are there any additional objectives which are currently being realised during OJT which could be realised during pre-OJT?

OJT

➕ Which objectives are currently being realised during OJT? (Have the objectives been written down clearly?)

➕ Could OJT time be shortened by including some of the objectives in pre-OJT?

In general

➕ Is the transition between the different parts of training smooth or have you identified gaps or unnecessary repetitions?

➕ How could your training be improved (better description of the objectives, smooth transition between parts, shorter OJT, etc.) when fitting the unit training framework as described in this document around your current training?

It will often be a valuable exercise to compare what is currently being done, in terms of unit training at your unit, with what you establish through the above process. It will give you a better understanding of what needs to be improved and/or incorporated elsewhere in the training.

It will also confirm which have been done well and which should thus be maintained.

Note on scaling the UTP according to requirements.
{scaling = adapting the size of the UTP according to the size of the ATC unit}

- In the UK CAA guidelines for developing UTPs, it is stated that it is possible to scale a UTP according to 2 levels. In short, level 1 would be appropriate for smaller units where the whole unit training is managed by OJTIs and level 2 would be appropriate for larger units.

- A level 1 UTP would consist of transitional training and OJT.
  Transitional training will usually consist of guided self-study and briefings from an OJTI.

  In this case, an outline structure of the unit training would be required, together with a description of the training, how it will be accomplished, its objectives and how they will be assessed.

- Level 2 unit training plans would consist of transitional training, pre-OJT and OJT or just transitional training and OJT (no pre-OJT is allowed where hi-fi simulator is not available).
  The transitional training is expected to be more structured than for level 1 UTPs and will consist of classroom instruction, formal written and oral assessments and, where appropriate, simulator training and the assessment of the application of ATC procedures.

The final decision as to how you and your operational unit structure your UTP rests with you and final approval of your UTP rests with your designated authority in this respect.

While understanding that the size of the unit and the resources available need to be taken into account while developing a UTP, we believe that the best results are achieved when a fair balance is reached between the unit training framework and the size and complexity of the unit and unit training.

We strongly recommend that if after considering size, complexity, requirements, resources, etc, you decide to scale down your UTP you justify the reasons behind your choice within the UTP. In this way, the designated authority will be in a position to better understand the reasons behind your choices.

Note Box 7

3.3.1 Further ideas on phasing

Output of this part: To get further ideas on how to incorporate objectives in one or the other training phases.

Description: This sub-section will discuss each phase individually, giving examples of objectives which could be included:

Transitional

The main objective of transitional training is to be fully conversant with unit procedures before starting the next phase.

Transitional training generally consists of classroom sessions or guided self-study during which time the learner gains knowledge of the unit, its environment, associated airspace and ATC procedures. Training and assessment in the application of ATC procedures may include the use of part task and full task training on simulators that do not replicate the operational environment to a high level of reality. The success of this training that is, the results of written or oral assessments and, where appropriate, practical exercises, should be assessed before progressing to the next phase of training.

Teaching local ATC procedures (theory and practice)

⬥ Although it is convenient to teach learners all the local ATC procedures during transitional training, it is unrealistic to expect them to retain this theoretical knowledge if they do not practise its application using simulation. It may be appropriate to phase in the training of ATC procedures with practical simulation training - e.g. simulation exercises which emphasise the procedures just learned. Additional theoretical training (or refresher briefings) could be organised during OJT. Where additional theoretical training is conducted during OJT, it should be noted in the UTP.

Hint Box 11

Pre-OJT

The main objective of pre-OJT training is to prepare learners to be able to work safely and, under supervision, control live traffic in normal unit conditions.

Pre-OJT will relate to application and demonstration of the ATC procedures learned during transitional training in a simulated environment. During pre-OJT, learners will integrate all procedures and routines learned previously, including national ATC procedures, into the decision-making process and learn to allocate priority.

For the two phases discussed above, the following items could be considered:

Transitional and pre-OJT

As discussed earlier, the unit will need to analyse what learners must know and be able to do before they are allowed to start OJT. This analysis will determine which training objectives need to be covered during transitional and pre-OJT.

The objectives of these 2 phases of training must be documented for a number of reasons:

🞣   To ensure that the learners are aware of what they have to achieve before commencing OJT.

🞣   To enable the training staff involved to know what they have to teach and how they need to train the learners to achieve these objectives.

🞣   To avoid differences in the quality and content of training between different courses.

🞣   And to enable the OJTIs to be confident about what learners know and are able to do when they start OJT.

Some of the objectives which you would need to consider covering during these phases (again, the knowledge-based part during transitional training and the skills-based part during pre-OJT) are as follows:

a)   Skills required to operate equipment including:

    I.   Data input

    II.   Radar

    III.   Ground movement

       surveillance

    IV.   Information systems

    V.   Communication systems

    VI.   Basic fallback systems

    VII.   Etc.

b)   Tasks including:

    I.   Local and adjacent environment

    II.   Local ATC procedures

    III.   Co-ordination within the unit and with other ATC units or

       agencies

    IV.   The level of decision making and negotiation skills required

    V.   Requirement for specialist controlling techniques

    VI.   The tolerance of the environment to controlling errors

VII. Unusual situations and emergencies

VIII. Working within a team

IX. Etc.

Some of the conditions you need to consider while developing the objectives during these phases (more appropriate to pre-OJT) are:

c)   The traffic levels:

I. The periods during which traffic levels are appropriate to introduce learners to OJT - so that pre-OJT will aim towards these traffic levels.

II. Acceptable loss of expedition in the live environment - so that pre-OJT aims towards these levels of efficiency.

The environment which needs to be taken into consideration while developing these phases is:

d)   The training environment:

I. Facilities for monitoring and intervention

II. Availability and types of simulations

III. Availability of other resources - classes, computers, teaching aids, etc.

IV. Opportunities for retraining (see pass/fail scenarios in Part 1 of this document)

V. The training commitment (number of learners engaged in OJT)

OJT

The main aim of OJT is to help learners to integrate all the performance objectives which are necessary to perform the necessary tasks competently in the relative rating endorsement / unit endorsement. This will, in turn, bring the learner to a level where a check is carried out with a view to attaining the appropriate ATC licence / rating / rating endorsement / unit endorsement.

In particular, in this phase, the learners will be expected to integrate performance objectives learned previously and to learn those others which are necessary and which have not been covered in previous phases of training.

In the next section, we will see how each training phase can be organised.
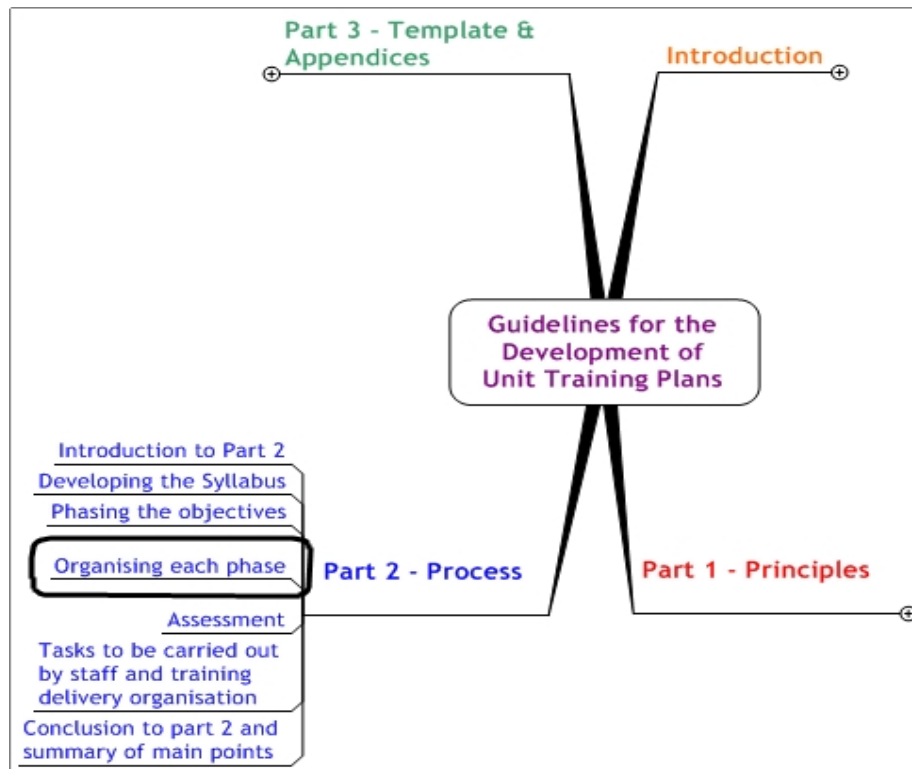
3.4 Organising each phase within unit training

Output of this part: To link timing, resources and sequence to the objectives within each phase.

Description: Once the objectives have been grouped into the 3 phases, the next step is to consider how to organise each phase.

3.4.1 Introduction

This process proposes that training events should be developed for transitional and pre-OJT and that OJT is organised into a set of assessment levels.

For the transitional and pre-OJT phases, training events should be formulated:

A **training event** is a set of actions identified in the training plan as the smaller unit of training. The training event may be described by the association of a training technique, media, a rate of learning and a mode of delivery.

The training event plan is the document to be used by the instructor when preparing and providing the training. It gives a timeframe, indicates material references and provides additional advice for the performance.

For OJT, the objectives need to be organised into stages so that the learners' progression can be monitored and assessed more easily. These stages are called assessment levels.

A description of how to develop training events and an assessment level table will be given in the sub-sections below.

3.4.2   Transitional

Output of this part: To describe how a training event for the transitional phase may be developed.

Description:

1.   Developing the training event table step by step:

1   Gather all the performance objectives which were identified earlier and which you decided should be realised during transitional training.

2   Write down the overall objective for transitional training for the rating/unit endorsement in your unit.

3   Organise them according to subjects, topics and sub-topics.

4   For each subject, create a training event table. This may consist of the following columns:

Event Name / Subject						
Objectives	Training Content	Level	Type of Training Event	Reference Material	Link to Task and Sub-Task	Time (in periods)

5   This table will link the objectives with

- the content which needs to be used to train it;
- the level of mastery of the objective which needs to be achieved;
- the type of event which will be used to train the objective;
- the material from which the information will be given;
- a link to the tasks and sub-tasks identified earlier through task analysis;
- a time element needed to teach this objective.

6   In this way the elements of timing and training planning (event, content and material) have been incorporated in the syllabus.

For example:

3.4.2.1 NAVIGATION						
Objective	**3.4.2.1.1.1.1 Content**	**L**	**Type of event**	**Reference Material**	**Link to task**	**Periods**
1. Applied navigation						
Students shall appreciate the information on maps and charts, navigational aids within XXXX FIR, area of operation and limitations.						
1.1 Local maps and charts						
1.1.1 Obtain information from the local maps and charts	Routes, navigational aids, identification of aids, reporting points, holdings, restricted areas, magnetic variation;	3	*Hands on* GTMD Sup. Pract. Rstd *3.4.2.1.1.1.1.1 eal / Txt*	AIP Maps and charts; AIP GEN 2.3; AP GEN 3.2;	CT5.1, 5.4, 7.1 DST 2.5	1
1.2 Local navigational aids						
1.2.1 Describe the types and location of the navigational aids within XXXX FIR	VORs, DMEs, NDBs, ILS …	2	*Lesson:* GTMD Lesson Rstd Av	AIP GEN 2.5; ENR 4.1; ENR 4.3;	CT5.1, 5.4, 7.1	0.5
1.2.2 State the area of operation of local navigational aids	Position, range and coverage of the aids;	1	*Lesson:* GTMD Lesson Rstd Av	AIP GEN 2.5; ENR 4.1; ENR 4.3;	DST 2.5	0.2
1.2.3 Describe the operational limitations of the local navigational aids	Sectors where the aids are unusable or unreliable;	2	*Lesson:* GTMD Lesson Rstd Av	AIP GEN 2.5; ENR 4.1; ENR 4.3;	CT5.1, 5.4, 7.1	0.3
1.2.4 Appreciate the behaviour of aircraft according to the operational status of ground-based navigational systems	VORs, DMEs, NDBs, ILS …	3	*Lesson:* GTID Lesson Rstd Av	Training notes;	DST 2.5	0.5
1.2.5 Appreciate the behaviour of aircraft according to the operational status of airborne navigational systems	BRNAV;	3	*Lesson:* GTID Lesson Rstd Av	Training notes;	CT5.1, 5.4, 7.1	0.5

Notes:

1   The objectives originate from a level of detail which was identified using the task analysis → performance objectives process described in section 3.2.

2   Since a logical organisation is necessary when developing a training event plan, these can be organised by subjects, topics and sub-topics (as with the common core content for ATCO training).

3   The same objective can be trained to fulfil a number of tasks and sub-tasks (e.g. see link column in the example above).

4   The action verbs used were part of taxonomy of action verbs - each verb corresponding to a level of skill/knowledge mastery. More details can be found in the EATM Training Progression & Concepts document (1st Edition, March 2004 pgs 13-24).

5   The event types are coded. A list of event types (non exhaustive) is also available in the EATM Training Progression & Concepts document.

6   The reference material column contains the documentation (or other sources, where information can be found relating to fulfilment of the objectives).

7   The figures given in the last column are the periods needed to cover the objective. The duration of one period needs to be defined at the beginning of the section where the event plans are introduced. (For example, a period in the simulator (practical training) should not be shorter than 45 minutes and not longer than 1 hour. A period of theoretical training should last for 1 hour.)

8   Following the creation of this table, instructors can proceed by developing their training notes and period plans (i.e. plans on how they will manage the periods assigned to them and how they would cover the objectives assigned to them). These training notes and period plans are not considered to be part of the UTP.

9   The above table was reproduced for illustration purposes only.

More tips for developing training events:

➕ Do not forget to include the end objective for each phase within the UTP:

For example: at the end of pre-OJT, the learner should be able to safely control 30 Aircraft per hour under medium complex conditions with 1 emergency/unusual situation from the list provided within this section…

➕ A plan needs to be developed for every rating endorsement / unit endorsement for which training needs to be provided.

Hint Box 12

2.   Next step: Overview table of subjects against events:

Once the exercise of organising all the objectives which need to be trained during transitional training into subjects and developing the training event tables has been completed, an overview of how the subjects will be covered will be helpful in order to plan your resource requirements (for example, how many instructors do you need, how many classes, what is the total duration of transitional training, etc.)

This may be developed in the following manner:

Event Type→ ↓Subject	Hands On	Lesson	Case	CBT	WBT	…	Total Period Per Subject
Introduction		2					2
Local Procedures	2	8					10
Met		2	1		2		5
Navigation	1	3	1	1			6
…							
Total Periods per Event	3	15	2	1	2		Total duration: 23 periods

Example of an overview table

Event types – Linking training method with media

While the objectives indicate what is expected from the learner, the indication of how to train him/her to achieve the objectives is done via the choice of training events.

By means of training events, the training designer indicates to the instructor which method and media are the most appropriate to teach a given objective.

The choice of main media and method does not exclude the use of additional media and methods within the same training event, provided these suit its quality and efficiency.

A list of training events is available in Appendix 4. This list includes those events currently used in Common Core Content for ATCO training and is not exhaustive. Other events appropriate to your local environment can be added.

For further information, the reader may refer to the document entitled 'Specifications on Training Methods and Tools' (EATMP, 2000b – T16) and 'EATM Training Progression and Concepts' (EATMP, 2004 – T38).

It should be noted that some topics have been added or updated since the publication of this reference document.

Note Box 8

3.4.3   Pre-OJT

Output of this part: To describe how training events are developed in a practical training context.

Description: This part will take you step by step through how to develop training events for pre-OJT Training:

In pre-OJT, the approach is slightly different because the nature of the training is more practical. For practical training purposes, a number of conditions regarding the simulated environment need to be specified. These are the steps that may be followed:

1. Gather all the performance objectives which were identified earlier and which you decided should be realised during pre-OJT (skills-based).

2. Write down the overall objective for pre-OJT training for the rating/unit endorsement in your unit.

3. Organise the objectives according to subjects, topics and sub-topics.

4. Define the simulator environment (see below) and indicate the similarities and differences with the real environment as clearly as possible.

5. Decide whether you will need to progress the training by level of difficulty - e.g. into Beginner, Intermediate and Advanced (see next point).

6. Define the conditions for each level of difficulty (or for each training event if you decide not to define levels of difficulty). For example:

   a. In terms of the number of aircraft per hour,

   b. the number of aircraft on the frequency at a given moment,

   c. the number of conflicts at a given moment (or a factor of complexity),

   d. weather phenomena on/off,

   e. the number of emergency/unusual situation occurrences,

   f. etc.

7. For each subject, create a training event table. This may consist of the following fields:

Event Name / Subject: Becoming familiar with the functions at the working position				
Number of Periods				5
Type of Event				Simulation
Objectives	**Content**	**Level**	**Reference Material**	**Link to Task and Sub-Task**

8. This table will link the objectives with
   - the type of event which will be used to train the objective;
   - the content which needs to be used to train it;
   - the level of mastery of the objective which needs to be achieved;
   - the material from which the information will be provided;
   - a link to the tasks and sub-tasks identified earlier through task analysis;
   - a time element needed to cover the event / subject (slightly different from the transitional phase).

9. Develop a number of training event tables, equal to the number of subjects you need to cover during this phase.

10. Develop a table which helps you to identify the number of periods you need to cover the pre-OJT phase.

The following is an example of how this may look:

Conditions of work in the simulated environment *(this corresponds to point 4 above)*
Specifications for simulation in rating endorsement / unit endorsement:

- The working environment and the operational equipment and aids should reflect the real-life operational position.
- Simulated airspace should be the same as the real-life operational airspace.
- Sectorisation should correspond to the prescribed real-life sectorisation.
- ATS routes, holdings, restricted areas and other airspace elements should correspond to the real-life operational environment.
- Aircraft types and performances should be similar to those most common to the real-life environment.
- Co-ordination procedures, contingency procedures, FLAS and any other operational procedure should be identical to the prescribed real-life operational procedures.
- Neighbouring unit frequencies should be identical to the real-life operational frequencies.
- Each exercise should last approximately 45 minutes.

Conditions for each level of difficulty: Level: Beginner *(corresponds to point 6 above)*

At Beginner, pre-OJT level, the learner shall be able to manage an exercise which consists of:

- a maximum of 18 aircraft (*this would be based on a fraction of the threshold of the sector being trained on),*
- a maximum of 1 conflict at any given time,
- a minimum of 2 aircraft on one frequency at any given time,
- a maximum of 4 aircraft on one frequency at any given time,
- no unusual/emergency situation,
- no system degradation.

Example of a training event table within 'Beginner' Level (corresponds to point 7 above)

Event Name / Subject: Becoming familiar with the functions at the working position					
Number of Periods					5
Type of Event					Simulation
Objectives		**Content**	**Level**	**Reference Material**	**Link to Task and Sub-Task**
1	In General				
1.1	Check, update and monitor flight progress information		3		CT 1.4, DST1.1
1.2	Use standard phraseology		3	AIP…	CT 3.1, 3.3
1.3	Etc.				
2	Use appropriately				
2.1	Menu functions associated with Main Menu Area (MMA)		3	Consoles User Manual…	DST1.2
2.2	Functions associated with the ESB, NSA and the electronic strips		3	Consoles User Manual…	DST1.2
2.3	Functions associated with dynamic lists	FLDI, ARR, DEP, DIAL, SIL, CDW, RDPA, PNG, SEL, SQN);	3	Consoles User Manual…	DST1.2
2.4	Etc.			…	

Notes:

1   This table is incomplete and is only presented as an example

2   A table like this would need to be developed for each event (which concentrates on a particular topic) and for each level of difficulty (if this option is pursued)

Hint: Specify what a learner would be expected to perform alone and where he/she would need the assistance of the instructor for a particular event.

In order to achieve some of the objectives, a simulation exercise should contain items which have not yet been covered by the learner but which have to be performed in order to train for other objectives. For example, in a basic exercise where the learner is practising R/T in a particular situation, traffic would still need to be changed to different levels. In this case, the training event should specify that the objective which the learner should learn to perform without assistance from the instructor is R/T, while he/she should receive assistance in giving higher/lower level to aircraft.

These items could be specified in special sheets accompanying the training events. A template is available in Appendix 5.

Hint Box 13

In order to have a more global view of the duration of pre-OJT, a table which represents the periods per event may be developed (*corresponds to point 10 above).*

Level	Event Name	Periods
Beginner	Introduction to the simulator	2
	Becoming familiar with the functions at the working positions	5
	FLAS with Adjacent sector 1	3
	…	
Total Per Beginner	Total Events Beginner X	Total Periods Beginner XX
Intermediate	…	
	…	
	…	
Advanced	…	
	…	
	…	
Grand Total	Total Events	Total Periods

Conclusion: Pre-OJT

Once you have a list of objectives you have decided to train for during pre-OJT, you could construct the training events in the following way:

🔸 Define the environment

🔸 Define the conditions

🔸 Write down the event tables

🔸 Write down the sub-phase overview table.

Note regarding the process of developing training events

Developing training events for transitional and pre-OJT may be a long process but it will provide you with a very good plan and an idea of what is being covered during the phases, how this is done, and how long will it take. It will also help you identify staffing requirements and will assist you in the assessment of the objectives.

Instructional staff need to use these training events to formulate training notes and to organise their periods.

Note Box 9

3.4.4   OJT Phase

Output of this part: To describe how training can be organised during OJT.

Description: Since on the job training cannot be controlled in the same way as training in a simulated environment, the approach in terms of defining what needs to be trained is different.

Another difference between the two previous phases and OJT is that, in principle, while the first two mainly train the learners to achieve new objectives, OJT primarily aims to integrate and consolidate the skills and knowledge which was previously acquired by the learners in order to guide them towards becoming competent ATCOs in the rating/unit endorsement they are training for.

Assessment levels

Assessment levels is a way of organising the objectives during OJT according to when they will be assessed.

One way of doing this is by:

1.   Identifying all the tasks and sub-tasks which need to be performed by a learner who wants to obtain the ATCO licence / rating / rating endorsement / unit endorsement. This would already have been done at a task analysis level;

2.   Writing objectives for each sub-task (already described in section 3.2.2);

3. Defining the overall duration of OJT under normal conditions (a range in this case is more appropriate, including minimum and maximum time allowed);

4. Deciding which sub-tasks are more basic than others and assigning them to an assessment level (read next point);

5. Dividing the overall OJT into a number of levels at the end of which an assessment will be made on a number of sub-tasks. Each level will be assigned a range of hours within which the assessment should be completed. The number of assessment levels will be dependent on the nature and complexity of the unit and it is up to you to determine it.

Example of how this is done (the numbering will follow the numbers above):

1. The following is an extract of the list of tasks and sub-tasks a unit has decided a learner needs to realise during OJT for a particular rating/unit endorsement. (Note that the reference to the tasks and sub-tasks is not the same as in Appendix 3 because this unit has already adapted the tasks to its environment).

Task	Description
P-CT1	**Maintain situational awareness**
P-CT1.1	Scan traffic displays
P-CT1.2	Consider current weather situation
P-CT1.3	Monitor and check compliance with ATC clearances and instructions
P-CT1.4	Analyse traffic situation continuously
P-CT1.5	Be aware of any factors limiting operations
P-CT2	**Make decisions for control actions**
P-CT2.1	Consider pilots' requests for changes in flight profile
P-CT2.2	Allocate priority to actions and select appropriate action
P-CT2.3	Allocate priority to flights
P-CT2.4	Consider expedition of air traffic in the most competent manner
P-CT2.5	Consider environmental requirements
P-CT3	**Conduct communication**
P-CT3.1	Conduct communication by telephone / intercom
P-CT3.2	Conduct communication by means of electronic data transfer systems
P-CT4	**Provide planning and co-ordination actions**
P-CT4.1	Ensure the safe entry and exit of aircraft entering or leaving the AoR
…	…

2.   Performance objectives (unit-specific) were linked to these tasks and sub-tasks:

Objective 1: Scan traffic displays continuously.

For ACS/RAD/XXXACC Planning Controller this means:

Scan GRP;

Scan flight data display (electronic and paper strips);

Ensure all relevant traffic is included;

Organise displays in a manner appropriate to the situation;

Objective 1 Links to:
Task   P-CT1   Maintain situational awareness.
Sub-task   P-CT1.1   Scan traffic displays.

Objective 2: Consider current weather situation.

For ACS/RAD/XXXACC Planning Controller this means:

Obtain appropriate weather information (METAR, SPECI, SIGMET, TAF, AIREP);

Objective 2 Links to:
Task   P-CT1
         Maintain situational awareness.
Sub-task   P-CT1.2   Consider current weather situation.

Objective 3: Monitor and check compliance with ATC clearances and instructions.

For ACS/RAD/XXXACC Planning Controller this means:

Recognise deviation of compliance with ATC clearances and/or instructions;

Consider and record relevant information and reports from pilots;

Update flight data display with all relevant information in a manner so as to achieve the most

precise presentation of the traffic situation (electronic and paper strips);

Objective 3 Links to:
Task   P-CT1   Maintain situational awareness.
Sub-task   P-CT1.3   Monitor and check compliance with ATC clearances and
instructions.

Objective 4: Analyse traffic situation continuously.

For ACS/RAD/XXXACC Planning Controller this means:

Consider past, present and future traffic situations;

Evaluate traffic for planning and co-ordination actions;

Evaluate traffic for control actions;

Support the executive controller analyses for control action;

Consider aircraft performance capabilities;

Objective 4 Links to:
Task   P-CT1   Maintain situational awareness.
Sub-task   P-CT1.4   Analyse traffic situation continuously.

Objective 5: Be aware of any factors limiting operations

For ACS/RAD/XXXACC Planning Controller this means:

Be aware of possible influence of ATM regulations and procedures (ATFM, RVSM, Restricted / Prohibited areas...);

Be aware of internal and external workload and requirements;

3.   The unit defined the overall duration of OJT under normal conditions with the following range:

"The minimum duration of OJT for ACS/RAD/XXXACC/Planner Controller shall be 50 hours.

The maximum duration shall be 80 hours or 10 months, whichever is achieved earlier…

If the maximum limit is attained and the learner is still not judged as being ready for final

assessment, a training extension may be given. This extension shall only be given after

sufficient justification is provided, in writing, by the OJTI responsible for the learner's training

and shall not exceed an agreed duration…"

In the example above, the minimum and maximum durations are specified and a scenario of what happens in case the objectives are not attained by the time the upper limit is reached is also dealt with.

4.   Dividing the overall OJT into a number of levels at the end of which an assessment will be made on a number of sub-tasks.

ACS/RAD/XXXXACC/Planner controller OJT shall be divided into 3 assessment levels:
Level A - Introduction =   10 hours
Level B - Advanced =   30 hours
Level C - Consolidation = 10 hours
Total   50 hours

5.   Assigning sub-tasks to an assessment level.

Taking the above table, the result would be as follows:

Task	Description	Assessed at level		
		A	B	C
P-CT1	**Maintain situational awareness**			
P-CT1.1	Scan traffic displays	X	X	X
P-CT1.2	Consider current weather situation	X	X	X
P-CT1.3	Monitor and check compliance with ATC clearances and instructions	X	X	X
P-CT1.4	Analyse traffic situation continuously		X	X
P-CT1.5	Be aware of any factors limiting operations			X
P-CT2	**Make decisions for control actions**			
P-CT2.1	Consider pilots' requests for changes in flight profile	X	X	X
P-CT2.2	Allocate priority to actions and select appropriate action	X	X	X
P-CT2.3	Allocate priority to flights	X	X	X
P-CT2.4	Consider expedition of air traffic in the most competent manner		X	X
P-CT2.5	Consider environmental requirements		X	X
P-CT3	**Conduct communication**			
P-CT3.1	Conduct communication by telephone / intercom	X	X	X
P-CT3.2	Conduct communication by means of electronic data transfer systems	X	X	X
P-CT4	**Provide planning and co-ordination actions**			
P-CT4.1	Ensure the safe entry and exit of aircraft entering or leaving the AoR	X	X	X
…	…			

Further notes on OJT

Accumulative assessment of sub-tasks: Once a sub-task has been introduced, the performance objectives associated with it should continue to be assessed at all further levels. (In the example above, CT1.1 will be assessed in levels A, B & C while CT1.4 will only be assessed in levels B & C and CT1.5 only in level C). Sub-tasks which have already been attained in previous levels are assessed so that there is a guarantee that the learners are continuing to satisfy these sub-tasks.

Professionalism and team-related tasks: Since, in principle many of the tasks and their corresponding objectives have been trained for during pre-OJT and other previous phases, everyday experiences with learners during OJT show that one thing they lack most is the appreciation of team work and a general professional code of conduct (this is especially true for ab initio students who have never worked in an operational environment before). It would be a good idea if a number of the sub-tasks relate to these areas during OJT.

Performing sub-tasks with assistance from the OJTI: It is very important for all the OJTIs dealing with a particular learner to know what he/she should know and do and what they should perform only with assistance from the instructor. This is not only a training issue (it gives confidence to the learner and helps him/her concentrate on what they are expected to learn) but could also be a safety issue. Information sheets should be prepared and distributed to OJTIs in this respect.

Emergency training during OJT sub-phase: As discussed in part 1 of this document, some of the emergency/unusual situation training could be planned to be covered during the OJT phase using dedicated simulation sessions. These events should be planned in the same way as the events during pre-OJT. It is important to thoroughly plan when the learners are expected to spend a period of time outside the operations room to perform simulation exercises.

Note Box 10

Conclusion: OJT

The OJT phase within the UTP can be developed using the 5 steps above.

3.4.5 Conclusion: Organising each phase

This section described a methodology of how to organise unit training for each phase. The main elements to remember are that:

- Training events need to be developed for transitional and pre-OJT.

- Tasks and sub-tasks during OJT may be divided into assessment levels in order to enhance control over training during this phase.

The following section will deal with the next point in the process: Assessing unit training.
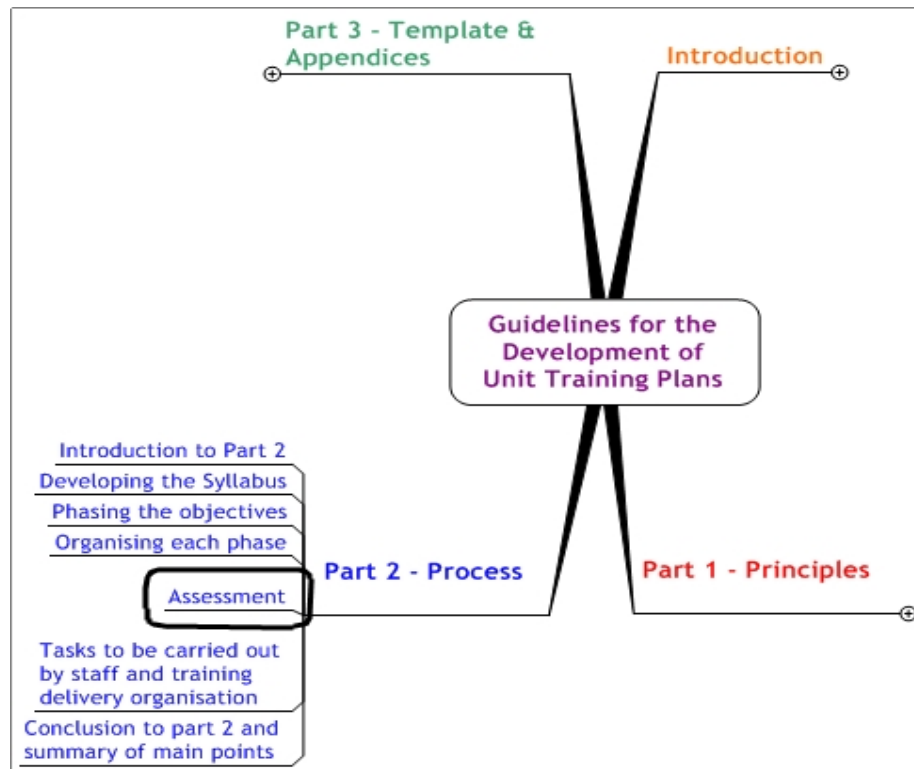
3.5 Assessment

Output of this part: Decisions on aspects related to assessment within the UTP.

Description

3.5.1 Introduction

By way of a reminder of what was discussed in part 1:

- A set of assessment points should be defined.
- A decision needs to be taken on what will be assessed and how.
- A decision needs to be taken on who will carry out the assessment.
- Pass/fail scenarios need to be considered.
- All the above points need to be documented.

Minimum number of assessments:

Learners should be assessed at least at the end of transitional training and at the end of pre-OJT. Failure to reach a satisfactory standard should stop progression to the next stage of training. During OJT, they should be assessed at each assessment level. In the event they do not reach a satisfactory standard in one of the levels, it is up to the unit to decide whether or not to allow learners to continue OJT. On the other hand, should the unit decide to allow the learner to continue OJT, the actions that will be taken to bring about this situation, how this will be assessed the next time and what would happen in case of a second failure should be clearly documented.

Note Box 11

The following section will discuss each phase of unit training and explore how assessments could be developed.

3.5.2 Transitional training

What we have so far in transitional training is a set of objectives organised into training events. We also have an overview of how many periods a learner needs to follow during transitional training (see section 3.4.1).

In order to have an assessment mechanism, the following needs to be realised:

1. Decide on the assessment points within transitional training:

   - Will there only be one at the end or will there be a number of intermediate assessments?

2. What method(s) will be used to assess the learners on every assessment point?

3. Which subjects will be assessed? (All of them? A fixed selection? A random selection?)

4. How will the learners and the instructors be informed of an assessment? (before and post assessment)

5. Who will assess the learners on every assessment point? - Is it the instructor teaching the subjects or someone else - and, if so, who?

6. What will be the pass mark at every assessment point?

7. What happens if a learner fails an assessment point (pass/fail scenarios)?

The answers to these questions need to be documented in the UTP.

3.5.3   Pre-OJT

What we have so far in pre-OJT training is a set of objectives organised into training events and corresponding descriptions of simulator environment and conditions. We also have an overview of how many periods a learner needs to follow during this phase (see section 3.4.3).

In order to have an assessment mechanism, the following needs to be realised:

1. Decide on the assessment points within pre-OJT:

    ♣ Will there only be one at the end or will there be a number of intermediate assessments?

2. What method(s) will be used to assess the learners on every assessment point? (See 2.8.2)

3. Formative Assessments: How will the learners be briefed at the end of a period and training event? And how will this briefing then be translated into written material?

4. Develop templates for the instructors.

5. Will these formative reports later be used as indirect evidence of the learner's performance - yes/no?

6. Summative assessments: How will the learners and the instructors be informed of an assessment (before and post assessment)? And are they briefed on how the assessment will be conducted and what will be assessed?

7. Who will assess the learners on every assessment point? - Is it the instructor teaching the subjects or someone else - and, if so, who?

8. Will the assessment result in a satisfactory/unsatisfactory rating or will there be a different result scale?

9. What happens if a learner fails an assessment point (pass/fail scenarios)?

The answers to these questions need to be documented in the UTP.

Tips on assessment

- Do you have forms on which instructors can compile their formative reports at the end of a period? Do you have this for both pre-OJT and for OJT? Have a look at Appendix 5 where there is a specimen form. Adapt it to your needs and consider including it in the UTP.

- Do you have guideline sheets on which an assessor can base his/her assessment during a practical exercise – both at pre-OJT and OJT? Have a look at Appendix 5 where there is a specimen form. Adapt it to your needs, and consider including it in the UTP.

- **Supplementary oral questioning** could be used as part of the assessment during OJT to test understanding of the applicable techniques and rules governing them. Understanding can be tested orally during pre-briefing and debriefing of practical training sessions or at different dedicated sessions. It is advisable to use oral testing for probing understanding, where it is more appropriate. On the other hand, if the assessors would like to assess knowledge, then the better form would be a written exam. In a written exam, it is easier to control the aspects on which you would like to assess your learner, especially when what you are looking for is knowledge. In an oral exam, this is harder to achieve (or the technique is harder to master) and knowledge-based questions can easily drift to unwanted terrain. On the other hand, oral questioning is a very good method for probing understanding.
  Each assessment method should be used appropriately.

Hint Box 14

3.5.4 OJT

Using the guidelines so far in OJT training, we have a set of tasks and sub-tasks which are linked to objectives and which are organised into assessment levels (see section 3.4.4).

In order to have an assessment mechanism, the following needs to be realised:

1. Define the method(s) used to assess the learners on every assessment point (see 2.8.2).

2. Formative Assessments: Define how the learners will be briefed at the end of a period and how this briefing will then be translated into written material (read the reporting hint box below).

3. Develop reporting templates for the OJTI.

4. Will these formative reports later be used as indirect evidence of the learner's performance - yes/no?

5. Define how the learners and the instructors will be informed of an assessment (before and post assessment) and how they will be briefed on how the assessment will be conducted and what will be assessed.

6. Decide who will assess the learners on every assessment point? - Is it the instructor teaching the subjects or someone else?

7. Decide on the possible assessment result (e.g. is it satisfactory/ unsatisfactory, or will you have a different result scale?).

8. Provide a template to be used in a summative assessment.

9. Define what happens if a learner fails an assessment point (pass/fail scenarios).

All this needs to be documented in the UTP.

Tips on reporting during OJT

A report of the learner's performance should be completed after each training

session and should be sufficiently detailed to enable other OJTIs to determine

his/her strengths, weaknesses and level of competence. Units may find it useful to

complete progress reports at regular intervals, separate from any formal

assessments, which indicate how the learners are progressing with their training.

Hint box 15

3.5.5 Conclusion: Assessment

At the end of this exercise, you should have an assessment scheme within your UTP. Together with most of the other elements within the process, the assessment scheme should be reviewed within the periodical review mechanism and improved as necessary (based on prior experience).

This is the end of the section within the process regarding the establishment of an assessment mechanism. The last part of the description of the process will describe how you could assign the tasks to be carried out to the staff that would need to perform them.
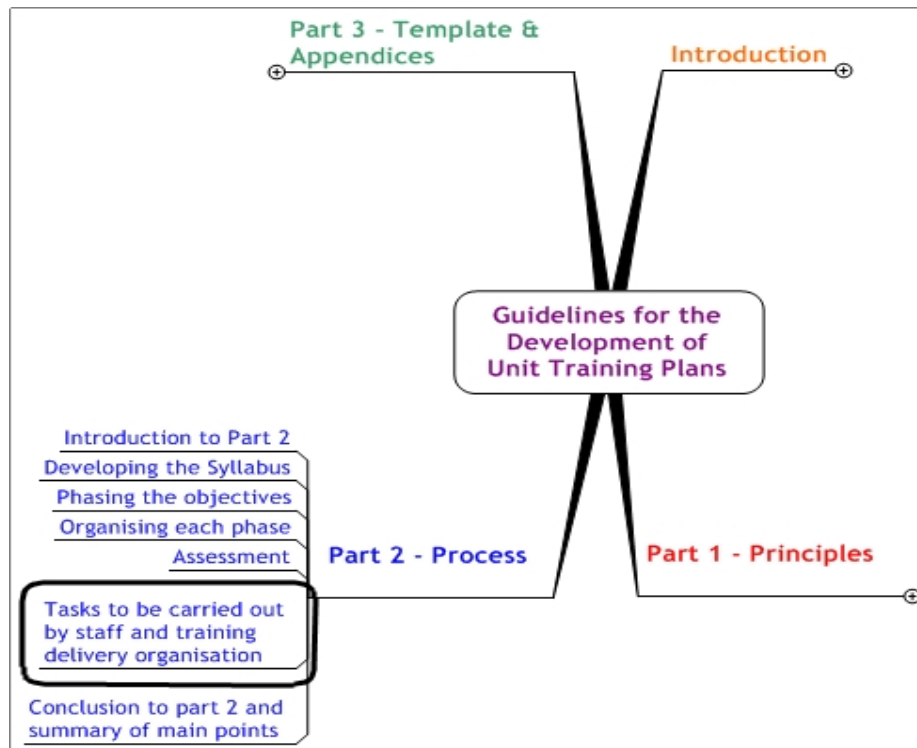
3.6 Tasks to be carried out by staff and training delivery organisation

Output of this part: A definition of what tasks are expected from the staff and how training delivery is organised.

Description: This part will help you identify the tasks which need to be carried out and to identify staffing needs and how to organise training delivery for unit training.

By now, you:

- have your unit training organised into 3 phases,

- have training events (including theoretical subjects and practical exercises) and assessment levels for OJT organised,

- know how many periods of training you have and in which subjects,

- know what type of events (methods and media) you will use to address your objectives.

The assessment mechanism has been defined. The following are some items which should assist you in identifying your staffing needs.

In General

- Who will be ultimately responsible for the UTP?
- Who will endorse the UTP?
- Who will be ultimately responsible for the learners going through UTP?
- Is there a training organisation in place within the unit? Where does unit training fit in?
- Are there a maximum number of learners a person can be responsible for at any given time?
- Have the responsibilities of this (these) person(s) been defined?

Transitional phase

Staffing requirements and organisation issues

Who will deliver each training event?

> To whom do they report?

> What qualifications should these persons have in relation to the subject(s) they will teach and to classroom / simulation instruction (as applicable).

Who will assess on every assessment point?

> To whom do they report?

> What qualifications should these persons have in relation to the subject(s) they will assess?

Who will be responsible for the learners during the transitional phase?

To whom would these person(s) report?

Depending on the number of learners during this phase, would these be organised in groups?

What would be the size of these groups?

Pre-OJT

Staffing requirements and organisation issues

Who will be responsible for the learners?

To whom do they report?

What are their responsibilities?

Who instructs?

To whom do they report?

Qualifications and responsibilities?

How many students per instructor?

Who will design the simulator exercises?

To whom do they report?

Qualifications?

Who will validate the exercises?

To whom do they report?

Qualifications?

Who assesses? Different from who instructs?

To whom do they report?

Responsibilities - e.g. assessment exam (exercise)?

Qualifications?

In the event of failure, if you decide that another opportunity should be given, stipulate who will take care of training and assessment.

OJT

Staffing requirements and organisation issues

Who will be responsible for the learners?

    To whom do they report?

    What are their responsibilities?

Who instructs? - OJTIs

    To whom do they report?

    Qualifications and responsibilities?

How many learners per instructor?

Who assesses? Different from who instructs?

    To whom do they report?

    Responsibilities?

    Qualifications?

In the event of failure, if you decide that another opportunity should be given, stipulate who will take care of training and assessment.

Identifying the staff necessary to manage the unit training and their respective responsibilities and qualifications is crucial in the smooth running of this training. Otherwise, the risk may be that grey areas may appear where no one is assigned to a task identified in the UTP and no one wants to take responsibility for the task. The end result is that training does not proceed in an efficient and effective way and all the efforts made to design a good UTP would be somewhat spoilt because of these problems.

One final task, but which comes outside the scope of the UTP, is to assign persons to the tasks and responsibilities defined, inform them of their tasks, and obtain agreement.

Depending on the structure of your organisation, this may be the task of someone else within the unit's or the service provider's management levels.
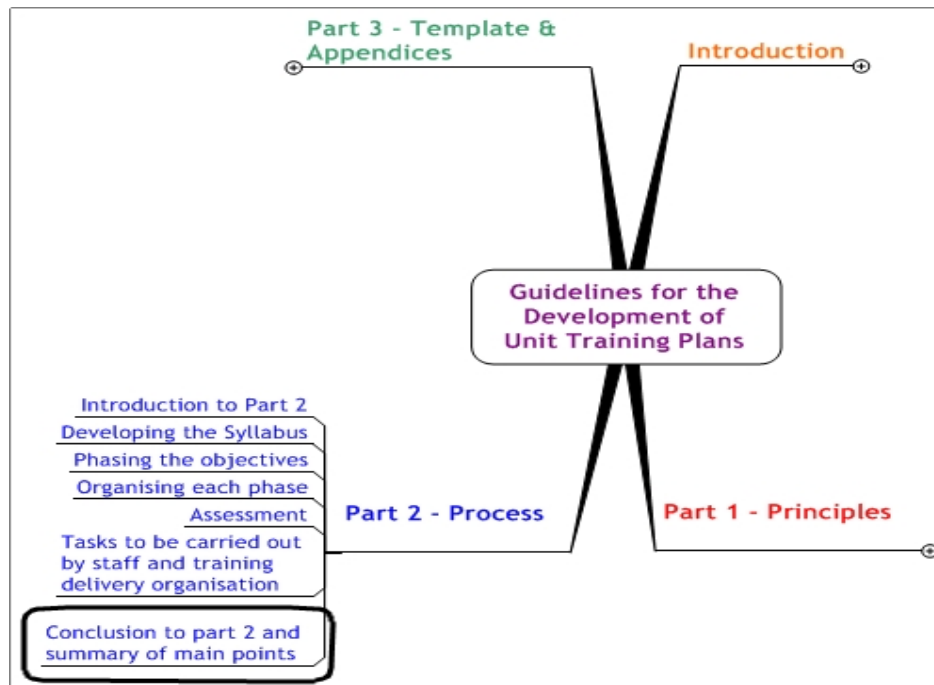
3.7 Conclusion to part 2 and summary of main points

This concludes the second part of these guidelines. This part described a process to develop a UTP.

In short, the process is as follows:

1. Syllabus development

    a)   A task analysis

    b)   The identification of unit-specific tasks and sub-tasks (for each rating / rating endorsement / unit endorsement as applicable in your unit)

    c)   A gap analysis to see what training has not yet been provided during initial training

    d)   Writing down objectives

2. Organising these objectives into sub-phases (transitional, pre-OJT and OJT) and into training events

3. Developing the assessment mechanism

4. Assigning tasks and responsibilities and considering the qualifications staff would need to fulfil the training requirements defined in the UTP.

This process should help you in developing a good UTP which will deliver effective and efficient unit training.

The last part of these guidelines proposes a template which could be used as a basis for writing your UTP.

Difference between developing and writing down your UTP

➕ Developing is when, using a process (like the one proposed in part 2) and linking it to a number of principles (part 1), you arrive at a plan on how to deliver unit training – a UTP.

➕ Writing down means putting what you have developed into a structure with which you will communicate to all the parties involved what your plan is all about.

➕ For developing, use parts 1 and 2. For writing down, use part 3.

Note box 12
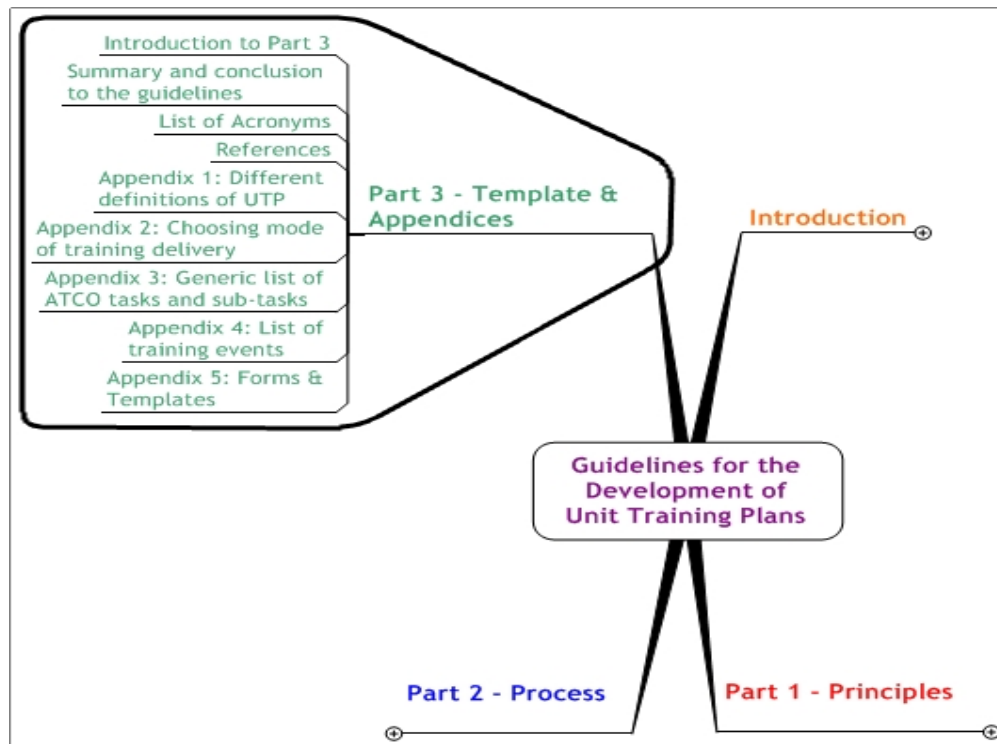
4.   UNIT TRAINING PLAN TEMPLATE (Part 3)

4.1   Introduction to part 3

The third part of these guidelines will propose a template which could be used as a basis for writing your UTP.

This template, as with many other templates, needs to be adapted to your own specific needs. However, it may serve as a starting point:

Legend:

- Space between square brackets [ ] indicates a space where content needs to be provided.

- Words between square brackets are descriptions of the nature of the content.

- Words between curly brackets { } are comments regarding what is being suggested.

Title: Unit Training Plan for [enter name of operational unit]

Version: [enter version number]

Date: [enter date]

Document Identification

Document Title:	[enter title of document]
Document Identification code:	{if your operational unit uses similar codes}
Edition:	[enter Edition]
Date of Edition:	[enter the date when the current edition was published]

Approvals {see sections 2.11.1; 2.11.2}

[enter here the list of persons who approved (endorsed) the unit training plan]

[

Authority	Name and Signature	Date

]

Document Change Record {see section 2.11.6}

[enter here the complete history of successive editions of the document]

[

Edition Number	Date	Reason for Change	Pages affected

]

Table of Contents

[enter here the table of contents for the document]

Acknowledgements

[enter here the list of entities and persons who have participated in the development of the UTP and who you would like to thank]

Executive Summary

[enter here a short summary (+/- 1 page) of the main items which will be found in the document]

Chapter 1: Introduction

{The aim of this chapter is to set the context for the main part of the document. The following are some items which may be found in this chapter}

[enter here a short description of the document]

Objective(s) of the UTP

[enter here a statement regarding the objectives of the UTP document]

Definitions

[enter here the list of definitions of key terms which will be used in the document]

Scope of Document

{the scope describes what will and will not be covered in the document.

For example in the case of a UTP, a training plan for unit training is included, while a training plan for initial training is not. This section does not need to be detailed}

[enter here what is covered by the document and what is not]

Relationship with other plans, documents and schemes within the operational unit

{see section 2.4}

{a diagram showing the relationship with other schemes could help the reader incorporate the UTP within the system}

[enter diagram here]

{a table with a list of UTP-related documents would also help the reader incorporate the UTP within the context}

[

Document Name	How it relates to UTP

]

Structure of the document

[Introduce the structure of the UTP here]

Chapter 2: General Provisions

{This part will deal with the general items relating to the UTP}

Overall responsibility for the UTP

{see sections 2.10.1; 2.11.1; 2.11.2}

[enter here the function which is responsible for the UTP within the operational unit]

Phases of training covered during unit training

[enter here the nature of the training covered in the UTP]

{this could include an introduction to the 3 phases within unit training: Transitional, pre-OJT and OJT. It may also include a description of how unit endorsement-specific emergency / unusual situations training will be covered during unit training}

Rating endorsements / unit endorsements covered

[enter here the unit endorsements (& rating endorsements if applicable) covered in the UTP]

{as discussed in part 2, the UTP has to include a different syllabus for every unit endorsement practised at the operational unit}

Audience

[enter here who will use the UTP]

{include the cases, as applicable, for ab initio students and for conversion trainees}

Quality Issues

> **Review Mechanism** {see section 2.11.5}
>
> [enter here how the review mechanism is organised]

[enter other quality issues that need to be mentioned in the UTP] {see section 2.11}

Reaching the end of unit training {see section 2.14}

{this section would be dedicated to a general description of what would be considered as the end of unit training for learners. For the majority, it would be the successful completion of all the training laid down for them and the formal application for an ATCO licence; for some others, it would be termination of training at one of the various assessment points}

[define here what happens upon successful completion of unit training]

[enter here the procedure to be followed in case a learner is unsuccessful in relation to a given assessment point]

Chapter 3: Staff and Organisation

Staff {see sections 2.1; 3.6}

{in this part define all the roles of persons who are involved with unit training, for example head of operational unit, head of training section, training officers/supervisors, classroom instructors, simulator instructors, OJTIs, simulator exercise designers, etc. Define the responsibilities for each.

In the case of instructional and exercise design staff, the required qualifications should also be mentioned}

[enter role here]

           [enter responsibilities here]

           [enter qualifications required, as appropriate]

[enter role here]

           [enter responsibilities here]

           [enter qualifications required, as appropriate]

…

Organisation

In this part, elements relating to the organisation of unit training should be defined. These could include (just by way of example), the size of groups of learners per course, the media which will be used for the different training events, etc…

These should be organised on the basis of one item per sub-section and defined as clearly as possible}

Chapter 4: Training

{*this part should deal with the description of training:*

for every unit endorsement covered

for every phase of training (transitional/pre-OJT/OJT}

Introduction

[enter here an introduction of how this part will be structured and mention the different unit endorsements which will be covered]

4.1 [enter name of Unit Endorsement 1]

{see section 2.5}

{*regarding the syllabus (tasks/sub-tasks/performance objectives) for every unit endorsement, you could either put it at the beginning of this section or, since it would only be used as reference, in an Appendix. To aid readability, the second option would be preferable*}

Total Duration of Training

[enter here the total duration of unit training for unit endorsement 1]

Transitional

General Objective

[enter general objective for transitional training here]

Duration {see sections 2.6; 2.6.1; 3.4.1}

[enter duration of transitional training for unit endorsement 1]

Training Events

[enter the training event tables]

[enter main objective(s) for every training event]

Pre-OJT

General Objective

[enter general objective for pre-OJT here]

Duration {see sections 2.6; 2.6.1; 3.4.1}

[enter duration of pre-OJT training for unit endorsement 1]

Training Events

[enter the training event tables]

[enter conditions] {see section 2.7.1}

OJT

General Objective

[enter general objective for OJT here]

Duration {see sections 2.6; 2.6.1; 3.4.1}

[enter duration (range) of OJT for unit endorsement 1]

Assessment Levels {see section 2.7.2}

[define the assessment levels]

[define duration (timeframe) for each assessment level]

Emergency Training within OJT {see section 2.12}

{if the option to integrate part of the emergency training during OJT is chosen, then the details need to be specified here. These should include: When during OJT will these objectives be covered.

4.2   [enter name of Unit Endorsement 2]

{same as in 4.1, above}
{repeat for the number of unit endorsements provided at the operational unit}

Chapter 5: Assessments and Reporting

{see sections 2.8; 3.5}

Introduction

[enter here an introduction of how this part will be structured and mention the assessments and reports which will be included]

{The description of the assessment and reporting scheme could be the same for all the unit endorsements }

Transitional {see section 3.5.2}

Summative assessments

[enter assessment points (by way of example, for transitional training, assessment at the end of the phase)]

[for every assessment point:

define what will be assessed

define the method of assessment

define the pass score

define the assessor(s) {see section 1.10.4}

define the assessors' responsibilities

define the information which needs to be imparted:

before the assessment:

to the learners

to the instructors

to the assessors

to management (as applicable)

post assessment

to the learners

to the instructors

to the assessors

to management (as applicable)

define the acceptable pass/fail scenarios {see section 2.9}

define any forms or templates to be used]

Formative Assessments

[define how often these formative assessments will take place

define the manner in which they will be done (e.g. oral briefing + formative report]

define any forms or templates to be used]

[define how formative reports will be used (as appropriate)]

Pre-OJT {see section 3.5.3}

{*similar structure to the transitional training - content will differ*}

OJT {see section 3.5.4}

Summative assessments

{for each assessment level:}

[define what will be assessed

define the method of assessment

define what is a pass and what is a fail

define the assessor(s) {see section 2.10.4}

define the assessors' responsibilities

define the information which needs to be imparted and the reporting which needs to be carried out:

before the assessment:

for the benefit of the learners

for the benefit of the OJTIs

for the benefit of the assessors

for the benefit of management (as applicable)

post assessment

for the benefit of the learners

for the benefit of the OJTIs

for the benefit of the assessors

for the benefit of management (as applicable)

define the acceptable pass/fail scenarios {see section 1.9}

define any forms or templates to be used]

Formative Assessments

[define how often these formative assessments will take place

define the manner in which they will be done (e.g. oral briefing + formative report]

define any forms or templates to be used]

Archiving of reports and assessment results {see section 2.11.7}

{another important aspect which needs to be defined within the UTP concerns the archiving of reports and assessment results. In this sub-section, one should specify which reports should be archived and for how long}.

Who is responsible for the archive?

[enter who is responsible for maintaining the archive]

Who is eligible to consult the archive?

[enter who is eligible to consult the archive and define the conditions if applicable]

Reports to be archived and duration

[enter reports to be archived and respective duration]

Archiving of Assessment Results

Appendices

Appendix 1: List of Acronyms and Abbreviations used in the UTP:

[enter list of acronyms and abbreviations and what each one stands for]

Appendix 2: Syllabi

[Enter the syllabus (one per sub-section) for every unit endorsement covered in the UTP]

Appendix 3: Forms and Templates

[enter relevant forms and templates]

END OF PART 3 OF THE GUIDELINES for the DEVELOPMENT of UTPs

5.   SUMMARY AND CONCLUSION TO THE GUIDELINES

The objective of these guidelines was to assist those persons who have been tasked with writing their unit's UTP or refining their existing one.

This document was divided into three parts.

- Part 1 is about the principles to be borne in mind while developing a Unit Training Plan

- Part 2 is about a process which could be followed to develop and organise the UTP.

- Part 3 presents a template which could be used in writing this plan.

What follows is a list of acronyms and abbreviations and a list of references used in these guidelines. Thereafter, a number of appendices are included:

Appendix 1:   Different definitions of UTP

Appendix 2:   Choosing between team, group or individual delivery of training:

Appendix 3:   List of generic ATCO tasks and sub-tasks

Appendix 4:   List of training events

Appendix 5:   Forms and templates that may be used

It is hoped that these guidelines have attained their objective and that they really assist you in your UTP development and/or review.

For feedback, comments and questions on Unit Training Plans, do not hesitate to contact:

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LIST OF ACRONYMS AND ABBREVIATIONS

ANSP	Air Navigation Services Provider	EU	European Union
ATC	Air Traffic Control	FLAS	Flight Level Allocation Scheme
ATCO	Air Traffic Control Officer	Hi Fi Sim	High Fidelity Simulator
ATM	Air Traffic Management	IANS	Institute of Air Navigation Services (EUROCONTROL)
ATS	Air Traffic Services	OJT	On the Job Training
CAA	Civil Aviation Authority (UK)	OJTI	OJT Instructor
CBT	Computer Based Training	SRC	Safety Regulation Commission
CCC	Common Core Content	SRU	Safety Regulation Unit
CT	Core Task	TDH	Training and Development Harmonisation Unit (within IANS)
DAS/ HUM	Human Factors and Manpower Unit within EATM	UK	United Kingdom
ESARR	European Safety Regulatory Requirements	UTP	Unit Training Plan
EATM	European Air Traffic Management (within Eurocontrol)	WBT	Web Based Training
EC	European Commission		

REFERENCES

A.   CAA; CAP 624 series, SRG, UK, March 2003

B.   CAA; The UK ATCO Licence; "A guide to the development of Unit Training Plans", SRG, UK, April 2003

C.   EUROCONTROL l EATM "Glossary of Terms", EUROCONTROL, June 2004

D.   EUROCONTROL; EATM "Training Progression and Concepts, 1st Edition, EUROCONTROL, March 2004

E.   EUROCONTROL; EATMP "Air Traffic Controller Training at Operational Units", 2nd Edition, EUROCONTROL, June 1999

F.   EUROCONTROL; EATMP "European Manual of Personnel Licensing - Air Traffic Controllers" EATMP Human Resources Team, September 2000

G.   EUROCONTROL; EATCHIP: "Model for Task and Job Description of Air Traffic Controllers", March 1996

H.   EUROCONTROL; ESARR 5: "Safety Regulatory Requirement for ATM Services' Personnel", 2nd Edition, SRC/SRU, April 2002

I.   EUROCONTROL; Guidelines for ATCO CCC initial training, 3rd Edition, Draft Issue, EUROCONTROL, June 2004

J.   EUROCONTROL [HUM_OJTI_E] Training Programme for the "OJTI" - Distance learning version.

K.   EUROCONTROL; Slides on Lesson Training Objectives, IANS, Luxembourg, 2004

L.   EUROCONTROL; Slides on Simulation Job analysis, IANS, Luxembourg, 2004

M.   European Commission: Proposal for a Directive of the European Parliament and of the Council on a Community Air Traffic Controller Licence - European Commission, Brussels, October 2004

Note: most of the EATM(P)/EATCHIP documents may be downloaded from the internet from:

http://www.eurocontrol.int/humanfactors/public/site_preferences/display_library_list_public.html

APPENDIX 1: DIFFERENT DEFINITIONS OF UTP

As mentioned in section 1.3, a number of different definitions concerning UTP which originated from four reference documents were identified.

The four reference documents are:

1. European Commission; Proposal for a Directive of the European Parliament and of the Council on a Community Air Traffic Controller Licence, October 2004

2. EATM European Manual of Personnel Licensing - Air Traffic Controllers, Edition 2.0, June 2004

3. EATM European Manual of Personnel Licensing - Air Traffic Controllers: Guidance on Implementation, 1st Edition, November 2001

4. EUROCONTROL, ESARR5; 'EUROCONTROL Safety Regulatory Requirement 5, ATM Services' Personnel, 2nd Edition, April 2002

The first reference document defines a unit training plan as

"An approved plan detailing the processes and timing required to allow the applicant for an air traffic control licence to apply the unit procedures to the local area under the supervision of an on-the-job-training instructor."

According to the abovementioned proposal, the part concerning the maintenance of competence should be found within a unit's competence scheme(s):

"An approved scheme indicating the method by which the unit maintains the competence of its licence holders."

Page 45 of the second reference document describes the UTP as follows:

"…which will detail the processes by which student air traffic controllers and/or trainee air traffic controllers are trained. Additionally, the plan should detail the standards which will enable the objective of providing a safe air traffic control service to be met."

According to this document, a UTP describes the processes for covering Unit Training (i.e. Transitional, pre-OJT and OJT) and also contains all the standards (performance objectives) which describe how safe and reliable ATC service will be provided by the Unit.

The third reference document, ESARR 5, defined a Unit Training Plan (pg 24) as:

A plan required by the State, created by an operational ATC unit and approved by the Designated Authority, to provide structured objective-based training so that personnel may achieve and maintain validation standard, thus satisfying the requirements of the unit competence scheme.

Therefore, according to ESARR 5, a UTP covers training for both initial achievement and maintenance of an ATC licence. Also, in ESARR 5, a UTP needs to satisfy the unit competence scheme. In the EC directive, it seems that the UTP and the Competence Scheme ("responsible for the processes, manning and timing necessary to provide for the appropriate continuation training and to demonstrate competences.") should simply complement and interact with one another.

The fourth and final reference document: EATMP "European Manual of Personnel Licensing - Air Traffic Controllers: Guidance on Implementation", EATMP Human Resources Team, 2001, states that the purpose of a UTP is to:

> "…provide structured objective-based training so that a controller may achieve and maintain validation standard. The UTP should develop the generic training provided by an initial training centre (institute or college) into the specific requirements of an individual unit."

Conclusion

The first two reference documents above take the approach that a UTP should deal with training up to achieving a valid ATC licence, while the final two documents take a different approach and include both attaining a valid ATCO licence and the maintenance of this licence.

Having obtained feedback from a number of persons responsible for training within their ATC units and having read a number of unit training plans, there are indications that one of the reasons for the difficulty in writing a UTP and the lack of harmonisation between ATC units in the composition of these plans is the result of the difference in definition in the abovementioned reference documents of what is expected of a UTP.

APPENDIX 2: CHOOSING BETWEEN TEAM, GROUP OR INDIVIDUAL DELIVERY OF TRAINING

A brief discussion follows, as introduced in section 2.13, on the modes of delivery of training.

This section is divided into 3 parts: group training, team training and individual training.

Group training could be used for knowledge acquisition training. For example, during the transitional phase, where a lot of knowledge is transferred to the learners (regarding the areas of responsibility, letters of agreement, etc.), group training (in a classroom) could be ideal.

The main disadvantage of group training is that all the participants have to follow the same pace of learning.

In terms of knowledge acquisition, this does not seem to pose a problem. On the other hand, in terms of skill acquisition, experience in various ATC training areas has shown that the rate of learning of different learners varies considerably.

This means that if group training is used for skill acquisition, then the length of time needed to acquire the skill(s) needs to be taken into account within the training plan.

Team training: In this context, a team, according to EATM Training Progression and Concepts (pg 34)[11], is defined as a group of two or more persons who interact dynamically and interdependently within assigned specific roles, functions and responsibilities [to reach a common objective]. Therefore, instructing the learners to be part of a team is crucial in ATC. Objectives concerned with teaching how to achieve common objectives while working as a team should use this mode of training delivery.

The best example where this mode of delivery should be used is in the pre-OJT phase where a Hi-fi Simulator is used to imitate operational work as closely as possible. In this case, the learners need to train how to perform and achieve objectives as part of a team as they would do in the real environment.

Individual training is mostly used during the OJT phase (but could also be used in the other phases). In this mode of delivery, the instructor and the learner interact with one another and the teaching is adapted in relation to the responses and feedback provided by the learner.

It is important to note that receiving individual training should not be confused with the content of the training. In OJT, although one–to-one training is what is advocated, a good number of the training objectives which need to be delivered deal with team work. It is for the OJTI to encourage and train the learner to interact with the other members of the team in a way which is required by the task at hand.

The main advantage of this mode of delivery is that the learning is customised for the individual learner. Once the instructor diagnoses certain areas which

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[11] EUROCONTROL; EATM Training Progression and Concepts, 1st Edition, EUROCONTROL, March 2004

require further explanations or training, he/she can concentrate on them immediately. On account of its relationship with safety and the complexity of training during OJT (where every learner is obtaining a different experience depending on the nature of live traffic which he/she is confronted with), the individual learning mode should be utilised.

Self-pacing is another important advantage of individualised learning. Even though the training should be governed by a minimum and maximum timeframe based on previous experience of the time needed for learners to achieve the objectives, learners normally find it very advantageous to pace the training according to their rate of learning. This is particularly the case with skill acquisition where certain people require more time to assimilate certain skills than others.

The disadvantages of this mode of delivery are as follows:

Firstly, even though all learners need to learn the same objectives, they would do so independently from other learners. In this case, the objectives need to be very clear, thereby guaranteeing that every learner learns the same objectives.

Secondly, this mode of delivery is very resource demanding. You need a pool of OJTIs to train the learners on OJT.

Conclusion on the mode of delivery

As has been discussed above, each mode of delivery, if used appropriately, has its benefits over training.

In the UTP context, it is important to decide within each training event and during OJT which mode of delivery to use.

It is also important to plan for the particular choice (resources, etc.) and to take into account the disadvantages the choices may entail (for instance, the length of time needed for skills acquisition training effected in group mode).

APPENDIX 3: LIST OF GENERIC ATCO TASKS AND SUB-TASKS

Extracted from: EUROCONTROL; EATCHIP: "Model for Task and Job Description of Air Traffic Controllers", March 1996

The following list contains the 23 task cluster and associated sub-tasks which were identified by the Task Force. The sub-tasks are not comprehensive and fully consistent and should only be used to understand how the Task Force deduced the definition of the task cluster headings.

CORE TASKS

CT1	**MAINTAIN "SITUATIONAL AWARENESS"**
CT1.1	Keep scanning traffic displays
CT1.2	Maintain visual contact with aerodrome traffic
CT1.3	Consider current weather situation
CT1.4	Continuously analyse the traffic situation
CT1.5	Continuously scan actual and expected traffic
CT1.6	Assess traffic for control action
CT1.7	Monitor compliance with the ATC clearance
CT1.8	Be aware of possible abnormal situations
CT1.9	Be aware of possible equipment failure

CT2	**MAKE DECISIONS FOR CONTROL ACTIONS**
CT2.1	Comply with operational regulations
CT2.2	Select appropriate separation
CT2.3	Anticipate potential conflict
CT2.4	Allocate priorities to particular aircraft
CT2.5	Expedite traffic in the most competent manner
CT2.6	Respond to requests for climb and descent clearance
CT2.7	Offer aircraft alternative clearances

CT3	**CONDUCT R/T COMMUNICATION**
CT3.1	Conduct R/T clearly and concisely using standard phraseology
CT3.2	Communicate with ground operators
CT3.3	Communicate with pilots

CT4   **PROVIDE SEPARATION**

CT4.1   Maintain separation between A/C

CT4.2   Maintain separation between A/C and surface obstacles

CT4.3   Separate surface aircraft from obstacles on the aerodrome

CT5   **PROVIDE PILOTS WITH RELEVANT INFORMATION**

CT5.1   Respond to pilots request for advice

CT5.2   Provide airport information

CT5.3   Provide weather information

CT5.4   Provide navigational information

CT5.5   Provide traffic information

CT5.6   Acknowledge information given

CT5.7   Provide delay information

CT5.8   Provide information on abnormal situations (migrating birds, weather balloons, etc.)

CT5.9   Relay messages

CT6   **PROVIDE ASSISTANCE TO A/C IN ABNORMAL SITUATIONS**

CT6.1   Recognise abnormal situation

CT6.2   Allocate priorities

CT6.3   Notify pilots of abnormal situations

CT6.4   Notify controllers of abnormal situations

CT6.5   Apply special procedures immediately if required

CT6.6   Assist A/C

CT7   **PROVIDE TACTICAL AIR TRAFFIC MANAGEMENT**

CT7.1   Maximise tactical use of the airspace

CT7.2   Ensure proper sequencing of the traffic

DIRECT SUPPORT TASKS

DST1   **CHECK TECHNICAL EQUIPMENT AT WORKING POSITION**

DST1.1   Maintain the integrity of the working position

DST1.2   Select and adjust technical equipment

DST1.3   Notify any technical failure to maintenance

DST2   **BUILD UP "MENTAL PICTURE" OF AIR TRAFFIC SITUATION**

DST2.1   Ensure that comprehensive handover is performed

DST2.2   Check and analyse traffic situation prior to taking over control

DST2.3   Familiarise yourself with weather conditions

DST2.4   Familiarise yourself with aerodrome conditions

DST2.5   Familiarise yourself with airspace conditions

DST3   **HANDLE AND PROCESS FLIGHT PLAN INFORMATION**

DST3.1   Check flight plans

DST3.2   Collate relevant information

DST3.3   Relate radar data to other visual display unit

DST3.4   Evaluate information

DST3.5   Update flight plan information

DST3.6   Check the updated flight plan progress information

DST4   **ENSURE CORRECT CO-ORDINATION**

DST4.1   Co-ordinate within terms of agreed and prescribed procedures

DST4.2   Notify controllers on abnormal situations

DST4.3   Delegate urgent co-ordination functions

DST4.4   Co-ordinate flight data in the same area of responsibility

DST4.5   Co-ordinate with other areas of responsibility (sectors/units)

DST4.6   Consider team workload

DST4.7   Perform external co-ordination

DST4.8   Co-ordinate with other airspace users and agencies

DST5   **MANAGE AIR TRAFFIC WITHIN AREA OF RESPONSIBILITY**

DST5.1   Evaluate airspace capacity

DST5.2   Balance capacity against demand

DST5.3   Regulate the flow of air traffic

DST6　　　**UPDATE WORKING KNOWLEDGE**

DST6.1　　　Obtain adequate briefing prior to assuming operating position

DST6.2　　　Be aware of all procedures

DST6.3　　　Be aware of airspace categories

DST6.4　　　Know the emergency procedures

DST6.5　　　Be aware of system limitations

DST7　　　**CONFORM WITH MEDICAL REQUIREMENTS**

DST7.1　　　Maintain required physical condition

DST7.2　　　Adhere to regulations against substance abuse

INDIRECT SUPPORT TASKS

IST1　　　**PREPARE OPERATIONAL DOCUMENTATION**

IST1.1　　　Prepare local ATC procedures

IST1.2　　　Prepare national ATC procedures

IST1.3　　　Prepare letters of agreement

IST2　　　**CO-ORDINATE WITH CUSTOMERS/USERS**

IST2.1　　　Solve operators ATC difficulties

IST2.2　　　Co-operate with airport operations

IST3　　　**SUPERVISE CONTROL ROOM**

IST3.1　　　Check your team's fitness levels

IST3.2　　　Work to maintain good team spirit

IST3.3　　　Ensure integration of team activities

IST3.4　　　Manage air traffic control team

IST3.5　　　Monitor sector traffic load

IST3.6　　　Sectorise as appropriate or necessary

IST3.7　　　Select ATC technical resources

IST3.8　　　Liaise with ATS technical unit on technical matters

IST3.9　　　Check technical equipment at ATC unit

IST3.10　　　Notify maintenance of any technical failure

IST4   **REPORT ON ACTIVITIES**

IST4.1   Keep the supervisor informed

IST4.2   Notify any technical failure

IST4.3   Provide relevant information on incidents/accidents

IST4.4   Enter information into logbook

IST5   **PROVIDE UNIT TRAINING**

IST5.1   Supervise trainee Air Traffic Controllers

IST5.2   Participate in pre on-the-job training

IST5.3   Participate in on-the-job training

IST5.4   Provide theoretical training for licensed controllers

IST6   **DETERMINE THE OPERATIONAL COMPETENCE OF CONTROLLERS**

IST6.1   Determine minimum competence standards

IST6.2   Determine retraining requirements

IST6.3   Evaluate competence of Air Traffic Controllers

IST6.4   Examine Air Traffic Controllers' qualifications

IST7   **CO-OPERATE IN INCIDENT AND ACCIDENT INVESTIGATION**

IST7.1   Collect relevant information on incidents and A/C accidents

IST7.2   Analyse information on incidents and A/C accidents

IST7.3   Recommend actions

IST8   **PARTICIPATE IN ATC DEVELOPMENT & IMPLEMENTATION PROGRAMMES**

IST8.1   Provide operational expertise for the development and implementation of new ATC procedures

IST8.2   Recommend more appropriate ATC procedures

IST8.3   Provide assistance as regards the ergonomic design of the ATC working environment

IST8.4   Provide advice to the designers of ATC equipment

IST9   **PARTICIPATE IN ATC EVALUATIONS**

IST9.1   Participate in the evaluation of new ATC procedures

IST9.2   Participate in the evaluation of new ATC equipment

APPENDIX 4: LIST OF TRAINING EVENTS

Extracted from EATM training progression and concepts document

Definitions of Training Events Used in Common Core Content

Case (Case)

Training event based on the case study method (in which a real or fictional situation or series of events are presented to learners for their analysis and proposal of possible solutions). Most of the time, this is a group session with the support of texts, visual aids and multimedia computer; sometimes, it involves individual training.

Computer-based Practical Exercises (CBPE)

The exercises are presented to the group by an instructor using visual aids who decides, based on the answers given by the trainees, when and how to move to the next exercise.

Computer-/Web-based Training (CWBT)

The provision of knowledge and skills by means of a computer with numerous interactions, learner response analysis and individual pace of learning (self-paced). The data-source is local or accessed through a network (Intranet or Internet).

Group Work (GrW)

The instructor facilitates the discovery of problems and the study of reference solutions by a group of learners, with the help of text or visual aids.

Hands On (HO)

Supervised practice on real equipment that is not in operation. Emulation on multimedia computer occasionally suffices. Text is used as additional data (instructions, operating manual, questionnaire, etc.).

Multimedia or sound Laboratory (Lab)

Lessons or exercises are provided in a room equipped with a set of individual positions. Instructor can monitor learners individually. Rhythm of learning is self-paced or restricted according to training material and instructor interventions.

Lecture (Lec)

A straight talk or exposition, possibly using visual or other aids, but without group participation other than questions, usually at the end.

Lesson (Les)

A training technique incorporating a number of instructional techniques designed to ensure the participation of the learners in reaching the specified behavioural objectives. The instructor is able to ascertain whether material is being assimilated.

Part-Task Practice (PTP)

Pre-simulation which allows restricted or real-time practice of a part of the skills that are necessary for the operational task in a realistic environment (PTT or Sim).

Skill Acquisition (SA)

Pre-simulation, which allows self-paced, restricted or real-time practice of a part of the skills necessary for the operational task in a possibly non-realistic environment (e.g. 2D aerodrome).

Individual Simulation (ISimul)

Real-time, full-task simulation involving one single learner.

Team Simulation (TSimul)

Real-time, full-task simulation involving an individualised cell consisting of several learners. A team consists of two or more learners who are required to work together on related or interacting tasks.

Group Simulation (GSimul)

Real-time, full-task simulation involving several individual or team simulations simultaneously.

Structured Briefing (StBf)

The StBf (Structured Briefing) training event is a planned group introduction for a simulation (or a series of simulations) stating the objectives of the exercise, the simulated operational procedures, the operation of the simulator, the expected role of each team member, including the instructor, and possibly demonstrations of simulation exercises. The StDf (Structured Debriefing) training event is a planned group review and discussion of the outcome of a simulation (or a series of simulations). The discussion is centred on the strategies chosen and their results. At training plan level, StBf includes both StBf and StDf. Differentiation is effected at the implementation stage.

Supervised Practices (Sup Pract)

Equipment handling where the instructor provides the necessary feedback.

Visit (Vis)

Is regarded as individual when each learner has the opportunity to formulate questions and initiate discussions, and to practise handover individually. If this activity is not considered important enough, the visit is considered a group activity.

Virtual Classroom (VC)

Distance training of a group of persons connected in synchronous mode and facilitated or lectured by an instructor.

APPENDIX 5: FORMS AND TEMPLATES THAT MAY BE USED

Formative report

Mainly for pre-OJT

Unit Training/Pre-OJT Phase **[Name Rating Endorsement / Unit Endorsement]**

Training Event	Level: (Beginner/Intermediate/…)
Learner:	Date:
Course Supervisor:	

PERFORMANCE INDICATORS

Performance is assessed in relation to the objectives listed and based on the following indicators:

G   -   Good   The learner has achieved the requirements of this stage of training, in accordance with the objectives.

S   -   Satisfactory   The learner has reached an overall passable standard in relation to the objectives but additional development is desirable.

I   -   Insufficient   The learner has failed to reach a passable standard. There are indications, however, that the objectives could be reached within the time limits of the Module.

U   -   Unacceptable   The learner has failed to achieve the objectives for this stage of training. The performance was less than acceptable and/or erratic. There are severe doubts that the learner will be able to rectify his/her performance within the time limits of the Module.

Any performance resulting in an insufficient or unacceptable assessment should be substantiated clearly and explained under "Remarks".

At the end of the form, suggestions shall be put to the learner regarding his/her further development, indicating areas where extra attention may be required.

OBJECTIVES: The learner shall:	Assessment (P.I.)	Remarks
▪ Include here performance objectives relative to the training event which he/she should realise with a view to performing them individually		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
With limited support from the instructor, the learner shall:		
▪ Include here performance objectives relative to the training event which he/she should perform with support from the instructor		
Ideas and recommendations for improvement:		

SIGNATURES

Course Supervisor: Instructor: Learner:

[End of formative assessment report for pre-OJT]

Formative assessment report:

Mainly for OJT

Unit Training / OJT Phase
[Name Rating Endorsement / Unit Endorsement]

Next Assessment Level:	
Learner:	Date:
OJTI:	Traffic Load*: H/M/L
Number of Hours Grouped in this report:	Traffic Complexity~: H/M/L

* Traffic Load should be defined in the UTP where H/M/L should be fractions of the sector's capacity threshold
~ Traffic complexity should be defined in the UTP where H/M/L should consist of defined factors
(e.g. number of conflicts, etc.)

PERFORMANCE INDICATORS

Performance is assessed in relation to the objectives listed and based on the following indicators:

G - Good   The learner has satisfied the requirements of this stage of training, in accordance with the objectives.

S - Satisfactory   The learner has reached an overall passable standard in relation to the objectives but additional development is desirable.

I - Insufficient   The learner has failed to reach a passable standard. There are indications, however, that the objectives could be reached within the time limits of the Module.

U - Unacceptable   The learner has failed to achieve the objectives for this stage of training. The performance was less than acceptable and/or erratic. There are severe doubts that the learner will be able to rectify his/her performance within the time limits of the Module.

Any performance resulting in an insufficient or unacceptable assessment should be substantiated clearly and explained under "Remarks".

At the end of the form, suggestions shall be put to the learner regarding his/her further development, indicating areas where extra attention may be required.

Tasks and Sub-Tasks:	Assessment (P.I.)	Remarks
▪ Enter the sub-tasks which will be assessed at the next assessment level		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
With limited support from the OJTI, the learner shall:		
▪ Enter sub-tasks which will not yet be assessed at the next assessment level		
Ideas and recommendations for improvement:		

SIGNATURES

OJT Supervisor: OJTI: Learner:

[End of formative assessment report for OJT]

Summative assessment report pre-OJT

Unit Training: Pre-OJT
[Rating Endorsement / Unit Endorsement]

[Name of Assessment Point]

Learner: Date:

Assessor:

Course Supervisor:

General Assessment   in relation to Assessment Objectives
                                       Overall Performance Indicator

Remarks:

PERFORMANCE INDICATORS

Performance is assessed in relation to the assessment objectives and based on the following indicators:

G - Good   The learner has fulfilled requirements with an overall good standard.

S - Satisfactory   The learner has reached an overall passable standard in relation to the objectives.

I - Insufficient   General Assessment:
                            The learner has failed the Course.
                            Assessed item:
                            The learner has failed to reach a passable standard.

U - Unacceptable   General Assessment:
                            The learner has failed the Course.
                            Assessed item:
                            The learner has failed to achieve the objective. The performance was less than acceptable and/or erratic.

Any performance resulting in an insufficient or unacceptable assessment should be substantiated clearly and explained under "Remarks".

ASSESSED ITEMS

	Assessment
[Task / Sub-Task] ▪ [Enter objectives]: ▪ For example, create and maintain an orderly and expeditious flow of traffic with a minimum of 25 aircraft / 45 minutes and ensure the prescribed separation between aircraft by the use of headings, rates of climb/descent and/or speeds as appropriate, while keeping aircraft within the assigned airspace	
Remarks:	

Task/Sub-Task ▪ [Enter objectives]: ▪	
Remarks:	

SIGNATURES:
Course Supervisor: Assessor: Learner:

[End of summative assessment - pre-OJT]

Summative assessment report OJT

Unit Training: OJT
[Rating Endorsement / Unit Endorsement]

[Name of Assessment Level]

Learner: Date:
Assessor:
Course Supervisor:

General Assessment   in relation to Assessment Objectives   Overall Performance Indicator Remarks:

PERFORMANCE INDICATORS

Performance is assessed in relation to the assessment objectives and based on the following indicators:

G   -   Good   The learner has fulfilled requirements with an overall good standard.

S   -   Satisfactory   The learner has reached an overall passable standard in relation to the objectives.

I   -   Insufficient   <u>General Assessment:</u>
                                    The learner has failed the Course.
                                    <u>Assessed item:</u>
                                    The learner has failed to reach a passable standard.

U   -   Unacceptable   <u>General Assessment:</u>
                                    The learner has failed the Course.
                                    <u>Assessed item:</u>
                                    The learner has failed to achieve the objective. The performance was less than acceptable and/or erratic.

Any performance resulting in an insufficient or unacceptable assessment should be substantiated clearly and explained under "Remarks".

ASSESSED ITEMS		
Task	**Description**	**Assessment (P.I)**
P-CT1	**Maintain situational awareness**	
P-CT1.1	Scan traffic displays	
P-CT1.2	Consider current weather situation	
P-CT1.3	Etc…	
P-CT1.4	…	
P-CT1.5	…	
P-CT2	**Make decisions for control actions**	
P-CT2.1	Consider pilots' requests for changes in flight profile	
P-CT2.2	Allocate priority to actions and select appropriate action	
P-CT2.3	Etc…	
P-CT2.4	…	
P-CT2.5	…	
P-CT3	**Conduct communication**	
P-CT3.1	Conduct communication by telephone / intercom	
P-CT3.2	…	
P-CT4	**Provide planning and co-ordination actions**	
P-CT4.1	Ensure the safe entry and exit of aircraft entering or leaving the AoR	
…	…	

{Notes: For the benefit of the assessors, provide additional documentation which relates the above tasks to the performance objectives (see section 2.4.3)

Also provide additional space where the assessor can write comments during the assessment}

Final Note: These templates were reproduced (with adaptation) courtesy of the IANS ATC Unit.

[End of Guidelines]