

Training Needs Analysis Process: User Guide for Applicants

Step 1: define the course characteristics

Define as precisely as possible the parameters of the course including:

- the “base aircraft” (e.g. B747-400 (PW 4000), passenger version) and,
- all the models or variants that will also be covered by this course.(e.g. B747-400F (PW 4000), freighter version)

The description should include the airframe, engines, avionics and any major modifications (e.g. Cargo door) that will be addressed.

Define the category (B1, B2 or B1/2) and the level of the course (level 1, 2 or 3). Define if this will be a full course, a difference or reduced course.

If applicable, define a target audience and the associated pre-requisites.

Step 2: define the detailed course syllabus

Analyse the subject aircraft characteristics, and determine which (Part 66) Appendix III chapters are applicable to this aircraft¹.

Also determine if additional areas of training which are not listed in the (Part 66) Appendix III should nevertheless be considered, for instance to describe newly introduced systems or technologies which may have not yet been captured by the regulation.

Produce the training syllabus.

Note: The syllabus should be detailed to a level of depth corresponding to the learning objectives associated to each chapter and defined by Appendix III training levels (i.e. a level of knowledge that should allow to troubleshoot the particular system, etc...).

A structured and recognised referencing system can be used to achieve this (e.g. for “level 3” chapters the descriptions will reflect ATA 104s down to the 4th digit, etc..).

¹ A particular attention is required during the “transition period” that follows an amendment to Part 66 Appendix III and when the manufacturer’s documentation may still be organised in a manner that does not reflect the new distribution of Part 66 Appendix III chapters (e.g. creation of new chapters/ sub chapters).

Step 3: define the training duration

After having developed the course, determine the duration necessary to cover the descriptions that will be included into each applicable chapter.

The course development process remains an organisation's internal process not being part of the TNA itself. However, as it conditions the TNA outcomes and in particular the training duration, the surveyor should be able to have a reasonable understanding of the development process and how the aircraft and maintenance documentation are analysed for determining the required descriptions of structure, systems, sub-systems & components and presenting their design, operation, condition monitoring, documentation and maintenance².

This can be achieved through a simple report supporting the estimated duration³ allotted to each subject/ chapter such as:

ATA – 35

Subject – Oxygen

Required Level – 3

Time – 1.5 hours

Training Methods – Instructor-led plus desktop simulation to perform functional test

Comments: The system is a gaseous system with independent compressed air tanks for the pilots and the passengers. There are passenger service units in the lavatories and cabin walk-around bottles for the flight attendants. No new technology is incorporated in this system.

completed by a reference to aircraft definition and the written training materials (e.g. AMM Part 1/System Description Section).

After consolidation, the durations should be representative of the A/C complexity and maintenance.

² Existing ADs or service letters having resulted in a significant change of the aircraft design, operation & maintenance since its entry into service should also be considered. When available to the training organisation, the descriptions of maintenance tasks should also take into account the feedback received from maintenance organisations or operators, such as known human factor issues, reported significant incidents or maintenance errors etc.

³ Training methodologies or training tools can be considered to adjust the duration; for instance the use of interactive learning systems or the blending of theoretical and practical trainings could result in a shorter allotted duration than the one expected for a classroom lesson. Criteria related to the audience could also pay a contribution and for instance a homogeneous class could possibly reduce the duration as compared to a course "open to all". The TNA process should in this case clearly link the duration to pre-requisites or such compensative measures as support courses organised to help the less receptive trainees to follow the path of the course.

Step 4: Validate the TNA outcomes

The detailed training syllabus and the duration shall be internally validated in order to check that:

- it effectively covers the course perimeter as defined in step 1,
- it satisfies all the applicable requirements of Appendix III in terms of content and level of description,
- the allotted durations are appropriate for the course to be delivered in its entirety and at a normal pace.

In some cases it may be necessary to build the complete course material and to deliver a test run in order to assess the correct duration.

Where the syllabus and duration can be defined by Subject Matter Experts (SME), it would be beneficial that, while remaining under the Quality Assurance control, the validation phase involves experienced instructors and maintenance staff with actual experience in the maintenance of the aircraft type.

Where necessary, adjustments to the detailed training syllabus and pre-determined durations will be performed.

Step 5: monitor the course performance (on-going process after initial course approval)

A monitoring mechanism should be in place to ensure that the training syllabus & durations are periodically adjusted in order to reflect the evolution of the aircraft, the technology, the maintenance practices or the regulatory requirements.

It may at some point be necessary to redefine the base aircraft that was determined at step 1.

A normal growth of the course content and duration should also occur with the aircraft growing in-service experience and available maintenance/ incident feedback.

Additionally, a mechanism should be settled in order to analyse the feedback received from trainees (eventual customers), instructors and examiners and recommending an adjustment of training content and duration.

Additional guidance can be found in the AMC to Paragraph 3.1(d) of Appendix III to Part-66 “Aircraft Type Training and Examination Standard”