



ICAO

Doc 10097

Training Instructors Guide

First Edition, 2021



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION



| ICAO

Doc 10097

Training Instructors Guide

First Edition, 2021

Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Published in English only by the
INTERNATIONAL CIVIL AVIATION ORGANIZATION
999 Robert-Bourassa Boulevard, Montréal, Quebec, Canada H3C 5H7

For ordering information and for a complete listing of sales agents
and booksellers, please go to the ICAO website at www.icao.int

First edition, 2021

Doc 10097, *Training Instructors Guide*

Order Number: 10097

ISBN 978-92-9265-600-3 (print version)

© ICAO 2021

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, without prior permission in writing from the International Civil Aviation Organization.

TABLE OF CONTENTS

	<i>Page</i>
Introduction.....	(vii)
Chapter 1. Preparing for instruction.....	1-1
1.1 Introduction.....	1-1
1.2 Role of the instructor	1-1
1.3 Documentation and training materials	1-4
1.4 Knowledge of the trainee group.....	1-4
1.5 Training facilities and space arrangement.....	1-9
1.6 Organization of training aids.....	1-14
1.7 Preparing for instruction	1-22
1.8 Job aids for course preparation	1-25
1.9 Summary.....	1-29
Chapter 2. Course delivery	2-1
2.1 Introduction.....	2-1
2.2 Role of the instructor	2-1
2.3 Setting expectations	2-4
2.4 Performance objectives	2-6
2.5 Effective classroom instruction	2-8
2.6 Effective training techniques.....	2-17
2.7 Managing trainees.....	2-31
2.8 Conducting exercises	2-33
2.9 Time management.....	2-36
2.10 Evaluating trainee performance.....	2-38
2.11 Summary.....	2-44
Chapter 3. Training course evaluation	3-1
3.1 Introduction.....	3-1
3.2 Role of the instructor	3-1
3.3 Principles of training evaluation	3-3
3.4 Evaluation process in STPs.....	3-6
3.5 Instructor’s evaluation tasks	3-8
3.6 End-of-course reporting.....	3-10
3.7 Summary.....	3-13
3.8 Electronic or web-based reporting.....	3-14
Appendix A. ICAO Adapted Instructor Competency Model.....	App A-1
Appendix B. Checklists 01 and 02	App B-1

INTRODUCTION

ICAO is concerned with the global performance of aviation systems and supports the operation, procedures, and management of these systems. As part of its commitment to achieving optimal performance and meeting its key strategic objectives, ICAO provides training courses and certifies training personnel through its Global Aviation Training (GAT) team.

This training may take many forms, including online training (e-learning), classroom training and on-the-job training (OJT). Many training programmes include elements of all of these types. Like in the aviation industry as a whole, consistent international standards must be achieved. As such, aviation training design must be:

- a) standardized and specific;
- b) strictly regulated;
- c) based on predefined competencies;
- d) strictly evaluated; and
- e) continually updated and revised.

ICAO recognizes the need to train instructors in the competencies required to deliver standardized, competency-based training courses to the required standards. These competencies are manifested and observed through behaviours that bring together the relevant knowledge, skills and attitudes to carry out the activities and tasks associated with instruction, under the specified conditions. Instructors with these competencies will be able to deliver effective training that supports the desired competencies and job performance of aviation professionals, which in turn contributes to the safety and efficiency of air transportation.

This Training Instructors Guide is intended to be used as a reference guide for the ICAO Training Instructors Course, Part 2 (TIC2), and as a reference for aviation training instructors who are working towards or have completed the ICAO instructor qualification process. It will provide instructors with information and guidance to:

- a) achieve the performance criteria contained in the ICAO Adapted Instructor Competency Model; and
- b) effectively deliver ICAO courses (ICAO Training Packages (ITPs), TRAINAIR PLUS Standardized Training Packages (STPs) and conventional courses in the field of civil aviation.

Competency-based training and assessment

Training and assessment are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

It is the role of the instructor to implement the course according to its design, within the framework of all applicable provisions and requirements. The instructor's competencies in preparation, presentation and management of group tasks, practical activities, testing and evaluation will fulfil the potential of the course design. A competent instructor provides an effective learning experience where the trainees acquire the competencies required to address the performance problem originally identified for the training. Standardized, competency-based training is best achieved through standardized, competency-based instruction.

Purpose of the Training Instructors Guide

The following chapters provide instructors with guidance on performing their role at each stage of the training process through reference to the Model's competencies and their associated observable behaviours.

ICAO ADAPTED INSTRUCTOR COMPETENCY MODEL

Instructors completing the ICAO instructor qualification process are required to demonstrate competencies according to the performance criteria contained in the ICAO Adapted Instructor Competency Model. This may be achieved by completing the Training Instructors Course (TIC) or equivalent.

The adapted competency model is a group of competencies with their associated description and performance criteria, adapted from the ICAO Competency Framework, that an organization may use to develop competency-based training and assessment for a given role.

- Instructor Competency 1 — Prepare the training environment
- Instructor Competency 2 — Manage the trainee
- Instructor Competency 3 — Conduct training
- Instructor Competency 4 — Perform trainee assessment
- Instructor Competency 5 — Perform course evaluation; and
- Instructor Competency 6 — Ongoing performance improvement.

The ICAO Adapted Instructor Competency Model may be found in Appendix A.

Each chapter of this guide addresses one of the three main processes for successful course delivery:

- a) Chapter 1 — Preparation;
- b) Chapter 2 — Delivery; and
- c) Chapter 3 — Evaluation.

THE ROLE OF THE INSTRUCTOR

The extent to which instructors perform their role at each stage of the training process will largely determine the success of trainees in achieving the course goal and the effectiveness of the training course as a whole.

Instructors are responsible for:

- a) coordinating with the host training organization to arrange training facilities, administrative support, logistics, accommodation, etc.;
- b) organizing a coordination meeting before the commencement of the course;

- c) preparing for course delivery;
- d) delivering the course by following the course schedule and module plans;
- e) administering tests and conducting trainees' evaluation; and
- f) conducting course evaluation and providing a training report.

This guide will explain the processes, steps, and reference materials required for instructors to:

- a) prepare for instructing a competency-based course;
- b) deliver a materials-based course according to the intended design, so that it meets the goals; and
- c) evaluate trainees and the course according to defined standards.

1. Preparation and planning

Chapter 1 describes the process, actions and considerations covered in Instructor Competencies 1 and 2 of the ICAO Adapted Instructor Competency Model as part of preparation and planning for a course delivery assignment. The preparation stage includes various tasks as follows:

Identifying the course goal and all documentation for the course

For *material-dependent courses* such as STPs or ITPs, the documentation will provide full guidance for both planning and delivering the course materials. STPs and ITPs have been validated and tested. The instructor's role is to ensure that the course is delivered according to the guidance in the package.

For other *conventional courses*, there may be less documentation provided; however, the instructor is responsible for preparing the course delivery to meet the stated course goal to best effect.

Familiarizing with the trainee group

A large part of the instructor's role and key competency area is awareness of trainee characteristics. Linguistic, demographic or cultural aspects may require instructors to integrate relevant local examples, adjust to learning habits, assist with terminology or modify the course schedule, for example. Adjusting to the needs of the trainee group ensures training that is more effective.

Organizing the facilities and training space

Many aviation courses require access to not only a classroom but also to other spaces and facilities, which need to be arranged in advance, appropriate for the learning needs and available within the defined schedule.

Classroom layout and seating space should also be prepared to facilitate learning in the best way for the course design.

Preparing learning materials and training aids

Use of different media, materials and reference sources is commonplace for classroom training. The instructor should be adept at preparing the relevant documents, electronic files, logins and configurations and ensure that the associated equipment and software, Internet, etc. are ready to function throughout the course.

Preparing for instruction

Although an instructor may have taught similar expert material many times before, each course event is unique and requires preparation on the part of the instructor to ensure that the course goal, module activities, tests and evaluation tools are all clearly defined and that any local changes to the schedule are accounted for.

2. Delivering the course

Chapter 2 explains in further detail the role and responsibilities of the instructor in closing the gap between the current level of knowledge and skills of trainees and those needed to perform specific tasks or continue to grow in their careers, as defined by the course objectives. Such responsibilities are covered in Instructor Competencies 2 and 3 of the ICAO Adapted Instructor Competency Model and integrate some aspects of Instructor Competency 4. Competent instructors must adapt to the attitudes and capabilities of trainees and effectively perform the following tasks:

Create a positive learning environment and set realistic expectations

The instructor must make maximum use of the opening session for introductions and to explain the course objectives, content and evaluation methods to the trainees. Trainees are invited to express their expectations as well. This will enable the instructor to gather valuable information that can be used when selecting examples, creating groups and providing feedback.

Manage the trainees

To adapt the delivery style and conduct different types of learning activities effectively, the instructor must have a strong grasp of the trainees' characteristics and know how to manage them to ensure learning.

Present effectively

Instructors come to the training role with extensive expertise in their subject area and are therefore very knowledgeable in their field. However, it is important to manage this expertise by respecting the schedule, teaching in line with the module objectives, responding to the group's energy level, encouraging participation from all trainees, properly emphasizing the main points of the presentation, staying focused on the need-to-know and allowing appropriate time for trial and error and practice. The instructor must be alert to any confusion or lack of understanding among the trainees in order to quickly provide clarification and address any doubts or concerns.

Conduct practice exercises and tests effectively

Instructors should be adept at managing trainee-centred activities and provide clear instructions and objectives as well as appropriate guidance and monitoring. They should also follow up adequately to ensure that the desired learning and performance are achieved during exercises and practice. Instructors should administer tests on time and respect the time for their completion.

Perform trainee evaluation

Just as a pilot constantly observes an aircraft's instruments to know that it is performing, a good instructor should constantly monitor the performance and progress of trainees. The evaluation of trainee progress is an ongoing activity. When a module is being delivered, questions to and from the class enable the alert instructor to spot weaknesses in learning areas or any lack of understanding and to take corrective measures before they become a problem.

The purpose of a test is not to reprimand the trainee but to measure the knowledge obtained through recent training. Tests make it possible for both the trainee and instructor to monitor and receive feedback on the progress that has taken place. The mastery test, which usually takes place upon completion of each course or module, is used to determine if the trainee has met the training objectives.

3. Evaluating course effectiveness

Chapter 3 provides guidance to the instructor on course evaluation, covered in Instructor Competencies 4 and 5 of the ICAO Adapted Instructor Competency Model.

Course evaluation and reporting

In addition to evaluating each trainee, the instructor is responsible for evaluating the course effectiveness as a whole by collecting and tabulating data. Trainees' test results, opinion questionnaires and general feedback and the instructors themselves all contribute to the end-of-course report, which provides valuable feedback to course administrators and course developers in their ongoing work to continually improve the courses offered.

All ICAO courses require test results and opinion data to be recorded through reporting tools available to the ICAO qualified instructor of the specific course. Instructors provide their recommendations for updating the course.

Instructors may also be involved in post-training evaluation, which is conducted two to three months after training when the trainee is on the job. The evaluation measures the extent to which the trainee is demonstrating the competencies acquired in the training course.

Self-evaluation

The ICAO Adapted Instructor Competency Model guides instructors to continually review their own performance and make changes as needed. Information on course effectiveness, provided through trainee feedback, can be useful to gain perspectives on competencies that are performed at or above the set standard, and where further development of competencies is desired.

Self-evaluation is implied in all three main activities of the training process and is covered in Instructor Competency 6 of the ICAO Adapted Instructor Competency Model.

MATERIAL-DEPENDENT COURSES

When implementing material-dependent courses prepared by a specialized course development team, instructors must follow the course design and guidance provided to ensure that trainees have a consistent, standardized learning experience. Instructors may:

- a) build on teaching resources by adding context from regional, local and trainee experiences;

- b) adapt the pace of the course delivery and activities to trainees' abilities and experience (for example, adjust the time required for an exercise based on language abilities, ability to use course tools, software, etc.);
- c) objectively measure the progress of each trainee; and
- d) develop their own skills as instructors by learning from the particularities of each course.

The instructor's primary role is to implement the training package and ensure adequate preparation, design-compliant delivery and evaluation to achieve a standardized, measurable outcome. Subsequent reliable data can be collected to inform course developers and training managers on the effectiveness of the training.

Instructors delivering material-dependent courses should:

- a) conduct the training according to what is prescribed in the instructor's guide of the training package;
- b) comply with the provided course schedule to ensure that all the training material is covered in the optimal way; and
- c) record any changes considered necessary and desirable and the results of each training module in a feedback report for the training manager and course developers. They will use this information and reports from other instructors to review the course material and, if necessary, revise it to make it more effective. Training decisions will be made based on comprehensive reports; therefore, it is critical for the instructor to provide the most accurate and comprehensive results of course evaluations.

SUMMARY

ICAO courses (ITPs, STPs) are designed to meet a performance need and have a specific target audience and clearly stated course goal. ICAO courses are developed using a competency-based training methodology, where course developers work with experts in the field to design a comprehensive standardized training package.

Material-dependent courses consist of a package used by course instructors to deliver the course as it has been designed. The role of the instructor in such courses is not to change or modify the material, but rather to deliver the content and tests effectively by applying instructional strategies to allow the target audience to meet the course objectives.

The instructor's role in delivering material-dependent training courses includes:

- a) preparing fully for the course by identifying the trainee group characteristics, verifying facilities, reviewing instructional materials, confirming local arrangements, etc.;
- b) delivering the course according to its design and drawing on instructor competencies to deliver the material effectively to the target audience, taking into account their characteristics and learning preferences;
- c) evaluating the trainees through effective evaluation and feedback methods and the progress and mastery test tools and materials provided in the package; and
- d) evaluating the course effectiveness using the provided reporting tools and processes to inform future improvements and updates.

Instructors of ICAO courses are required to meet the performance criteria by demonstrating the observable behaviours associated with the six instructor competencies of the ICAO Adapted Instructor Competency Model.

Chapter 1

PREPARING FOR INSTRUCTION

1.1 INTRODUCTION

1.1.1 The success of a training course largely depends on the instructor's preparation before the course begins, including the organization of course materials, arrangement and review of facilities and preparation of learning activities for the trainees. By following the course package, instructors will be sufficiently prepared to deliver effective training events and will therefore enable trainees to attain the competencies required for their jobs.

1.1.2 In the training preparation phase, the instructor is mainly involved in:

- a) documentation and training materials;
- b) knowledge of the trainee group;
- c) training facilities and space arrangement;
- d) organization of training aids;
- e) preparing for instruction; and
- f) using checklists.

1.1.3 These steps apply to a greater or lesser extent across all ICAO courses, whether they are entirely classroom-based, include on-site visits or real-life practice environments or form part of a multi-stage curriculum.

1.1.4 This chapter will guide the instructor through these steps in preparing for classroom course delivery and introduce two checklists that aid in this process.

1.2 ROLE OF THE INSTRUCTOR

1.2.1 The instructor, as the focal point of the course, has a huge influence on the overall success of the course event. Taking the time to fully prepare for all aspects of the course delivery and actual instruction will contribute to the overall success of trainees.

1.2.2 This can be summarized by the 5 P's: Prior Planning Prevents Poor Performance.

1.2.3 Self-preparation

1.2.3.1 Instructors should not only carry out the necessary steps and procedures that are part of the planning and preparation process, but also take the time to prepare themselves personally for the challenge of leading a group of trainees through the learning experience.

1.2.3.2 Instructors may, for example, have to review certain aspects of the content, consider the presentation and style to be used with trainees and ensure that trainees' first impressions of their instructor(s) are positive to create an effective learning environment.

1.2.3.3 Even if instructors have presented the same course many times, each course event is unique and a first time experience for trainees. It cannot be overemphasized that instructors must fully prepare themselves for their role.

1.2.4 Course assignment

1.2.4.1 The instructor's preparation begins when the course is assigned and the course package is received. In preparing the course, the instructor is responsible for:

- a) coordinating with the host training organization concerning training facilities, administrative support, logistics, accommodation, etc.;
- b) organizing a coordination meeting before the commencement of the course; and
- c) preparing for the course delivery using the course package documents.

1.2.4.2 Course preparations begin well before the course's starting date. One or two months prior to the starting date, the training centre's administration enrolls the trainees, plans for lodging, etc. Generally, these tasks do not involve the instructor. Once the administrative steps are finalized, instructors are ready to start the preparations for which they are responsible.

1.2.4.3 When the course is assigned, the instructor should become familiar with the course's overall goal and design. Key questions that should be asked at this stage are:

- 1) What aspects of the trainees' jobs relate to this training? Knowing how the course relates to their specific job will help the instructor to make appropriate connections and bring context to the course material.
- 2) Who are the trainees, and what characteristics do they have that affect their learning and instruction preferences?
- 3) What are the measurable results that should be attained during and at the end of the training process?
- 4) What facilities, resources and support (in addition to course package materials and instructors themselves) are needed to deliver the course? This may include off-site visits, equipment, special tools or computer applications, and reference materials.

1.2.4.4 Instructors should then take the necessary steps to fulfil their required preparation tasks in coordination with training centres and fully prepare for delivering the course by completing the necessary steps outlined in this guide and complying with the relevant competencies in the ICAO Adapted Instructor Competency Model.

1.2.5 Instructor competencies for preparation

ICAO instructors are required to meet all the criteria in the ICAO Adapted Instructor Competency Model. Instructor Competency 1 concerns the preparation of the training facility, a significant part of the instructor's role in preparing for the course. Instructor Competency 2 concerns the management of trainees; careful attention during the preparation phase will enable instructors to deliver material-dependent courses as designed while aligning their strategies to the characteristics of trainees. The observable behaviours in Instructor Competency 2.1 are particularly relevant to the

instructor's course preparation. Regarding Instructor Competencies 3 and 4, the instructor should keep in mind that to demonstrate full competence in the course delivery, careful and methodical preparation using the course documentation is required.

Table 1-1. Instructor competencies for course preparation

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
IC1: Prepare the training environment	The competent instructor ensures that the training environment is conducive to effective learning.			Given the available setting, the instructor delivers the course in a space that promotes learning, with functional equipment and tools.	Classroom training course
	Ensures facilities and equipment are adequate for the course	OB1	Ensures that the facilities are reserved and are adequate to comply with the objectives of the course.		
		OB2	Ensures that the available physical space is adequate for learning.		
		OB3	Ensures that the environment and the existing conditions are adequate for the objectives of the course.		
		OB4	Ensures that the equipment is adequate and ready for use.		
IC2: Manage the trainees	Ensures training is adapted to the trainees			Given collected information on the trainees, the instructor adapts the training strategy to meet the trainees' needs.	Classroom training course
	Understands the trainee	OB1	Identifies trainees' characteristics (experience, language, culture)		
		OB2	Talks about training needs with trainees		
		OB3	When authorized, selects training methods and materials adapted to the needs of trainees		

1.2.6 Preparation tasks

1.2.6.1 Instructors should perform the following tasks to prepare for instruction:

- a) familiarize themselves with the entire course package and documentation;
- b) identify trainee characteristics and determine strategies for delivering the course accordingly;
- c) prepare external and classroom facilities and equipment;
- d) prepare themselves using the schedule, module plans, course materials and appropriate forms; and
- e) coordinate with other instructors, administration and other personnel.

1.2.6.2 Two checklists are provided in Appendix B of this guide to assist instructors with all aspects of the preparation phase. The first must be used one week prior to the training to allow for advance arrangement of facilities and support with the training centre. The second should be used one day prior to the start date for final steps.

1.3 DOCUMENTATION AND TRAINING MATERIALS

Instructors must be aware of the course requirements and schedule to prepare themselves for course delivery. In particular, they need to review the training materials and verify the objectives, tests and instructor's guide to ensure that the training materials are complete and comply with current standards, whether for an STP or other material-dependent course.

1.3.1 Documentation

Courses must be delivered as they were designed. The STP is a standardized package that contains the reference material needed by the trainee, a step-by-step guide for the instructor, audiovisual aids, exercises, tests and a sample test response model. The package has been designed by course developers and subject matter experts (SMEs) and has been validated with the target audience.

1.4 KNOWLEDGE OF THE TRAINEE GROUP

1.4.1 Entry conditions

1.4.1.1 During the enrolment process, it is important to ensure that people who are interested in the course comply with the desired requirements or entry conditions. Specifically, trainees must belong to either the primary or secondary target population. Instructors may or may not be responsible for making decisions on who will enrol in the course. If instructors are responsible, they should make the appropriate decision on whether to accept the trainee by following these steps:

- a) review the target population report and criteria;
- b) analyse the enrolment information provided by or about the trainee;
- c) verify whether each trainee applicant meets the entry requirements; and

d) provide/administer entry tests and make decisions on the results (if applicable).

1.4.1.2 The steps are described below.

Target population

The target population is analysed in terms of the number of people, work area, educational and cultural background, work experience and, mainly, existing competencies.

The instructor may determine if a course applicant belongs to the target population or not. It will also provide context for the level of knowledge and skill that is expected of trainees and thus help the instructor to prepare appropriate strategies for course delivery.

Entry requirements

Course-specific entry requirements are another useful source of information for the instructor since they help to identify the suitability of those interested in the course.

Reviewing these requirements may greatly assist the instructor in selecting future trainees and gauging their level of experience and prior knowledge.

Entry tests

If applicable, entry tests can be used to objectively evaluate whether people interested in the course have the course prerequisites. By definition, an entry test is an evaluation designed to determine if the prospective trainee has the competencies required to take the course.

For some courses, entry tests may be focused on the prospective trainees' fluency in the language of delivery of the course if the trainees are non-native speakers.

1.4.2 Trainee characteristics

1.4.2.1 A key part of the instructor's planning process is to take note of the characteristics of the trainees and factors that may affect their learning.

1.4.2.2 Instructors should refer to all available information on the trainees to obtain as much information as possible about the group. Examples of the type of information that may be included in enrolment documents include: current and past jobs, home State and job location, language preferences, performance in pre-tests (if applicable) and reference letters from managers and sponsors of the training course.

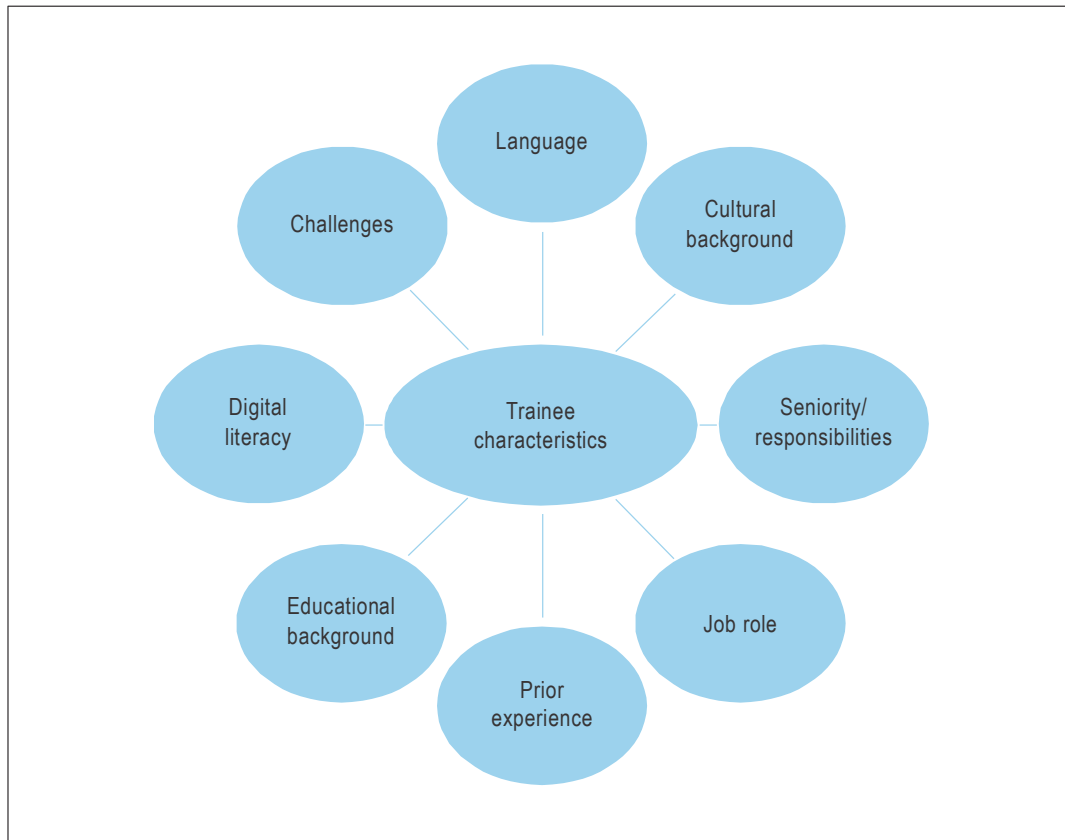


Figure 1-1. Trainee characteristics that may affect learning

1.4.2.3 Table 1-2 provides examples of how instructors can use these characteristics in planning for the delivery of material-dependent courses.

Table 1-2. Trainee characteristics and instructor's role in planning

<i>Trainee characteristic</i>	<i>Instructor's role in planning</i>
Language of instruction	If the language of instruction is not the trainee's first language, more time may be needed for written tests or tasks and for trainees to form questions, present conclusions or contribute ideas. Terminology may have to be defined more clearly.
Cultural and local customs	Cultures respond differently to different learning activities. The instructor should be aware of cultural norms and take these into account when assigning teams and managing trainee-centred tasks. The course schedule may also have to be adapted to local customs.

Seniority/job role	If different levels of seniority and job roles are represented in the trainee group, the instructor should be mindful of how trainees will respond to training activities when working directly with a supervisor or subordinate.
Educational background	A course's target population may include various educational backgrounds. The instructor should take these into account when preparing to deliver course content and may choose to spend more or less time on certain elements depending on the level of familiarity or skill of the trainees.
Physical or learning challenges	The instructor may be notified in advance of any trainees with disabilities and should ensure appropriate access to facilities and a suitable classroom setup. Planning for particular learning activities or external visits may require additional tasks for the instructor.
Previous learning experience	Training methods and technology have changed rapidly over the last two to three decades, and there may be a large disparity in trainees' comfort based on their previous training and learning experiences. For courses that include use of technology or new methods of learning, instructors may need to spend additional time explaining the activities and answering any concerns.
Digital literacy	When new technologies are used in the course, instructors could pair digitally literate trainees with trainees who are less familiar with the technology to ensure that everyone benefits from the course.

1.4.3 "Digital age" trainees

1.4.3.1 Newer professionals in the aviation industry belong to a generation of people that have grown up with technology and therefore have a very different approach to learning. Instructors should be aware that traditional methods of training that have worked well in the past may not necessarily be as effective with "digital age" trainees.

1.4.3.2 Although material-dependent courses are designed based on a target audience, the latter may be considerably diverse in terms of generations and learning preferences. Instructors should be aware of the characteristics of digital age trainees and know how to best integrate their learning preferences.

1.4.3.3 Digital age trainees may be characterized as being:

- a) digitally literate — comfortable using the Web and apps as learning tools;
- b) multitaskers;
- c) collaborative learners; and
- d) keen to perform learning activities involving interaction, gaming and simulation.

1.4.3.4 Integrating digital age trainees into learning groups

1.4.3.4.1 Material-dependent courses should not be altered for any particular group or trainee; however, instructors may use strategies to benefit from technologically-savvy and collaborative trainees in their classes.

1.4.3.4.2 For example, instructors may assign digitally literate trainees to the same teams as trainees who are more challenged by the technology used in the training course to encourage the trainees to learn from each other. In return, more experienced trainees may share their perspectives to enhance the contextual understanding of less experienced trainees.

1.4.3.4.3 This exchange of skills promotes learning from peers and can accelerate trainees' completion of tasks involving technology or computers in course activities.

Courses designed to suit digital age trainees

As technology and target audiences evolve, instructors will likely encounter courses that have been designed to suit digital age trainees. Instructors should consider some of the probable design characteristics of such courses to prepare for the appropriate instructional strategies.

New and technology-driven courses may feature the following design aspects:

- a) *Collaborative activities*: trainees and instructors are a learning team, and more trainee-centred activities will be expected.
- b) *Gamification*: classrooms may become a game centre for competitive, technology-based activities that support learning objectives.
- c) *Digital fluency*: e-learning elements and online tools may frequently be integrated in the training to ensure a well-balanced learning experience.
- d) *Virtual and live instruction*: some of the instruction may be provided through synchronous or asynchronous media streams. Often, remote instructors may contribute using appropriate video technology.
- e) *Data-driven technology*: responds to trainee performance and decisions and adjusts learning experiences to meet the performance goals.
- f) *Other*: artificial intelligence, augmented reality and real-time responsive learning systems may all become commonplace in courses over the next few decades.

Well before delivering their course, instructors should determine whether any of these aspects are part of the course design and should take steps to familiarize themselves with the instructing tasks and skills required.

1.4.4 Trainee characteristics and course planning

1.4.4.1 Since STPs are designed based on the characteristics of the target population, the designed course plan and activities will already be suited to the typical characteristics of the trainees. Thus, the role of instructors in adapting their approach will be to adjust their strategies for delivering the designed courses to best cater to the characteristics of their particular groups, and not to make substantial changes to the course content or activities.

1.4.4.2 It is the responsibility of instructors to make appropriate decisions in preparing for the training to accommodate audience characteristics. Examples are:

- a) *Deciding how to divide trainees into functional teams*: a mix of ages, responsibilities and levels of seniority may be beneficial for sharing experiences and bringing new perspectives to a discussion or team activity.

- b) *Allotting the appropriate time to activities such as tests:* if most trainees are working in their second or third language, for example, it may be necessary to extend the time allotted for written tests, particularly if trainees must write out answers.
- c) *Noting team members' particular roles and experience that may enable them to provide context to some topics:* trainees with a background in security, for instance, may be able to provide examples of real-life scenarios to illustrate the purpose of a particular procedure.

1.4.4.3 These considerations should be made during the preparation phase and planned for in the designed course delivery activities.

1.5 TRAINING FACILITIES AND SPACE ARRANGEMENT

1.5.1 Many aviation courses involve hands-on practice with equipment or in simulation facilities outside of the traditional classroom setting. It is the role of the instructor to adequately make all course preparations in advance for all activities. The instructor must work with administration staff at the training centre and occasionally with other support personnel at airports or other facilities to arrange access to the equipment and facilities needed.

1.5.2 It may be necessary to consider changes to the course schedule or make additional travel or other arrangements to conduct the course activities as designed within the operational constraints of the location.

1.5.3 In preparing the actual classroom or main learning environment, the instructor should be ready to work with the training centre staff to identify and adopt the best way to use the available space, facilities and equipment to deliver the course as it is designed.

1.5.4 The checklists at the end of this chapter are recommended tools that can help instructors to prepare facilities before training courses.

1.5.5 External facilities and logistics

1.5.5.1 Aviation courses target a large range of jobs and operational functions. In order for trainees to develop competencies for such jobs, training will involve practical activities and often include time spent outside of the classroom environment. The instructor, in collaboration with local staff at the training centre and local facilities, is responsible for ensuring that all necessary arrangements are made for such activities.

1.5.5.2 Examples of external facilities used in training are:

- a) air traffic control simulators;
- b) visits to airport operational areas (e.g. security posts, baggage handling areas, airside operations, cargo handling areas, etc.); and
- c) engineering and servicing areas.

1.5.5.3 Most of these activities require special permission and the skills and time of supervisors working in that function. Instructors should plan for:

- a) transport to and from the facility at the appropriate times;
- b) permission/permits for trainees and instructors;

- c) necessary briefings and support by supervisors and operational staff;
- d) availability of appropriate examples, setup configurations, software and equipment for use or demonstration; and
- e) contingencies in the event of last-minute changes due to operational activities.

1.5.5.4 The checklists will help instructors to make all preparations in a timely manner and ultimately achieve the course's learning objectives.

1.5.6 Classroom facilities

1.5.6.1 Trainees learn best when their environment is comfortable and set up in a way that supports learning activities. Typically, when instructors arrive at their training location to prepare, the classroom is not arranged exactly as preferred and may not have the correct equipment or adequate study space. The instructor's flexibility and creativity in making the most of what is available will greatly help to establish a functional workspace. Using tools such as the checklists and STP preparation guidance forms, the instructor will be able to effectively plan for an optimal training environment based on what is available.

1.5.6.2 In addition to the classroom layout and design of the course to be delivered, the instructor should bear in mind various factors to determine whether the provided space is appropriate for learning. Below is a summary such factors:

Table 1-3. Classroom factors and strategies for maximizing effectiveness

<i>Classroom factor</i>	<i>Strategies for maximizing effectiveness</i>
Room size and function	Provide a suitable space where trainees can work. Ensure that trainees do not feel crowded, whether in the classroom or other areas such as breakout rooms or simulation areas. If the number of present trainees is higher than expected, alternative room arrangements may be requested.
Furniture	Be ready to move and arrange tables, chairs and workspaces to suit the course's learning activities, for example from a lecture format to a group configuration. There should be enough surfaces for all trainee materials and equipment, as well as for the instructor. It is helpful to determine and set up the ideal arrangement before starting the course to avoid moving furniture during the training.
Multimedia equipment	Position the projector and any other visual equipment so that all trainees can see clearly. Test the projector, interactive board and any audio equipment in advance. The instructor should be able to easily operate the equipment without restricting movements around the classroom.
Environmental conditions	When possible, ensure that the heating, ventilation and/or air conditioning are set to a comfortable level and that lighting is adequate for the learning environment. Verify that there are no distracting elements in the room. Windows should have protection against excessive light or reflection, and unnecessary noise should be minimized if possible.

Note.— If the course includes a large number of trainees, it may be necessary to reserve an additional room for practice and team activities. Scenarios include group projects or tasks, setting up and conducting practical demonstrations or facilitating team-based simulations involving different stations and stages.

1.5.6.3 When preparing the training space, instructors should consider the experience of trainees, specifically how well they will be able to interact, participate and receive all the elements of instruction. If the ideal conditions or space are not possible, instructors should do their best to create the optimal conditions to enable trainees to meet the course goals.

Setting up audiovisual equipment

Audiovisual materials can be of great assistance in the delivery of a course. Good equipment and audiovisual materials, along with an appropriate arrangement of the classroom, can make the job of the instructor much easier. In practice, however, conditions tend to be less than ideal: audiovisual equipment may be in poor condition and require cleaning, or lamps may burn out during a presentation. Furthermore, trainees working by themselves during individual training may sometimes distort the slides or forget how to recharge projectors or audio equipment.

Instructors must:

- a) position the screen high enough so that there is a clear line of sight from the back of the room and the view is not blocked by the projector itself or shadows on the screen;
- b) try to position the screen so that it is not directly under a light (especially fluorescent light), since direct light reduces contrast and may prevent trainees from seeing all the detail required; and
- c) ensure that the display screen is large enough for trainees furthest away to read the text or diagrams that will be shown.

Room layout and arrangement

The classroom may be arranged in several ways based on the needs of the course. For example, the trainees might need to focus their attention on a screen or demonstration or on the instructor during presentations or discussions. In many cases, trainees may have to participate in group discussions, projects or small group activities, while in other situations, they will be working at their own pace.

Some examples of classroom arrangements/layouts are shown below. It should be noted that these are only examples. There may be multiple alternatives, and instructors will certainly be required to arrange rooms in different environments and with varying dimensions. The goal is to provide trainees with the maximum work space and a good angle for viewing presentations.

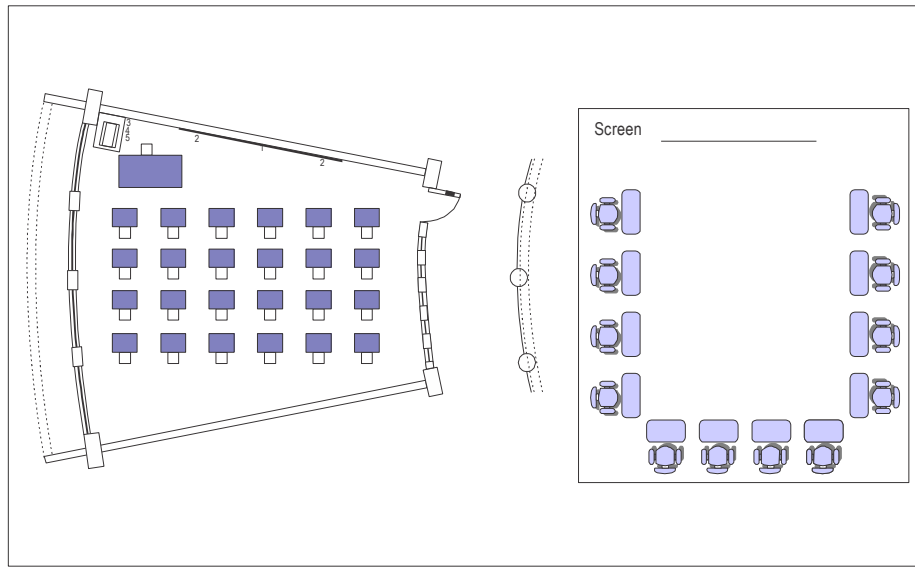


Figure 1-2. Traditional classroom arrangements

Study group arrangements

As illustrated in Figure 1.3, study groups may be arranged in different ways:

- A: For case study techniques (project group work), a large square table consisting of two joined tables may be useful for group exchanges.
- B: This layout may be useful when a class must be divided into subgroups for discussion. The instructor can move freely between the groups and easily capture the attention of the trainees for any demonstration, discussion or audiovisual presentation.

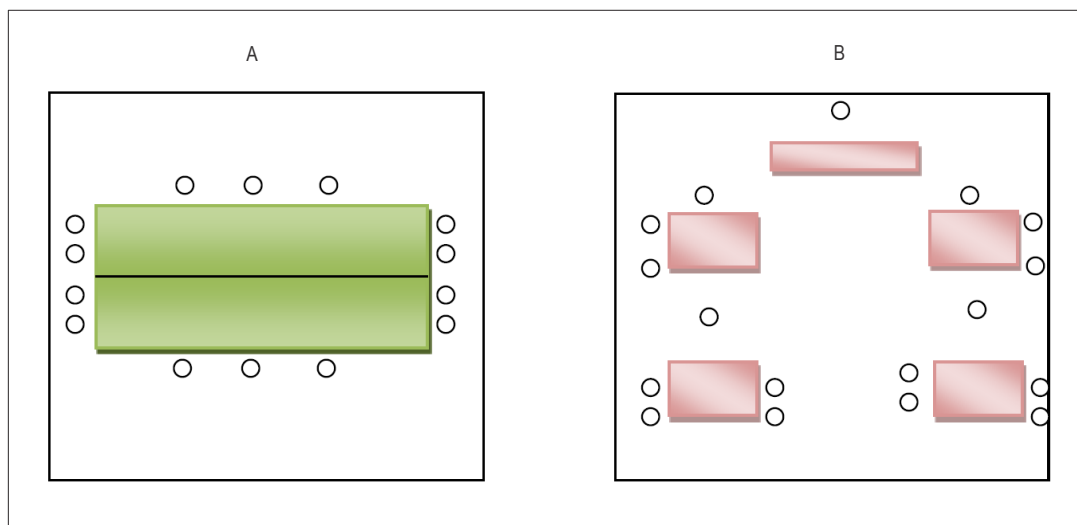


Figure 1-3. Study group arrangements

Individual training

If trainees are working alone, the instructor should distribute the required study materials and texts as well as supervise and assist trainees with any difficulties they may have. The above illustrations show two typical arrangements where trainees work in individual cubicles that provide work areas furnished with the required audiovisual equipment and sometimes a screen. If furniture for individual training is not available, it might be necessary to improvise using areas of the classroom, study rooms or whatever is available.

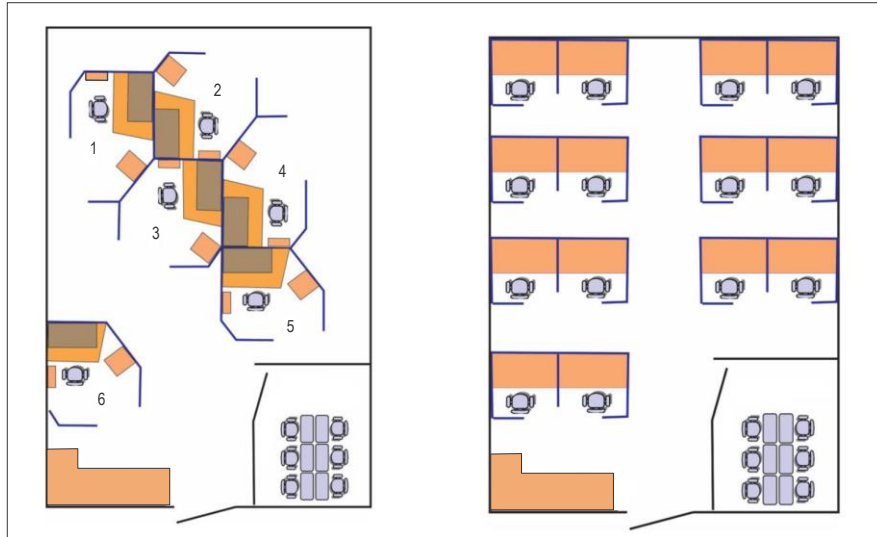


Figure 1-4. Study cubicles with space for audiovisual equipment and practical exercises



Figure 1-5. Work cubicles for individual training

Laboratory arrangements

During laboratory sessions, trainees normally work individually (or in pairs) and the instructor mainly acts as a supervisor. It is often useful to address the entire group and present visual aids.

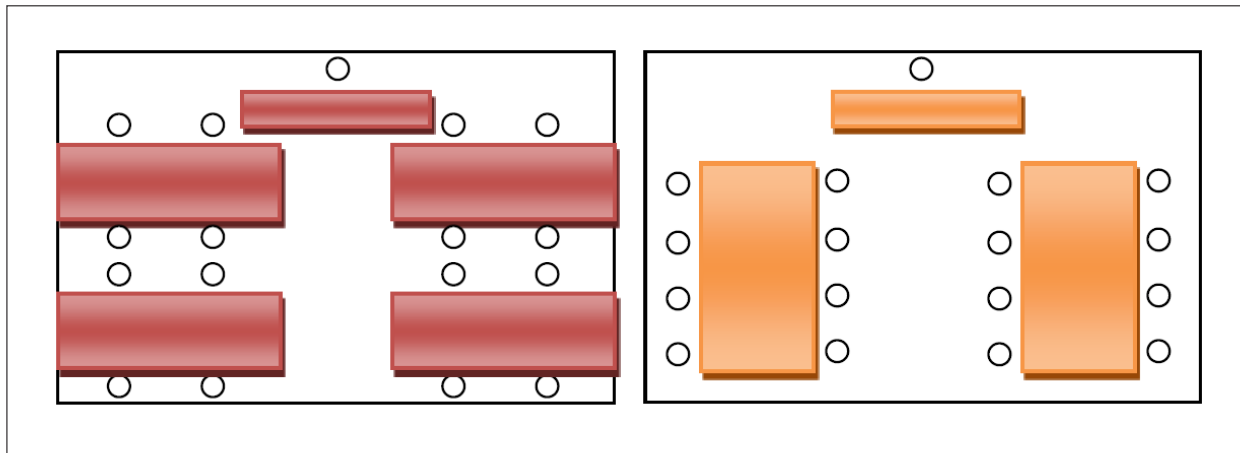


Figure 1-6. Laboratory arrangements

1.6 ORGANIZATION OF TRAINING AIDS

1.6.1 Training aids are prepared based on what has been agreed to in the course documentation. During the course development process, course developers may consider the use of the training aids described below.

1.6.2 Equipment used to achieve performance goals (operational training tools) includes:

- a) real-life equipment (large or portable);
- b) simulators;
- c) training devices; and
- d) computers or tablets.

1.6.3 Aids for delivering training content include:

- a) videos;

- b) images, photos and graphics;
- c) printed texts and study texts not requiring the instructor's assistance;
- d) software or apps (digital technology);
- e) audio; and
- f) a multimedia projector.

1.6.4 In all cases, the instructor must know how to use the equipment and make all necessary arrangements to effectively introduce training aids at appropriate points throughout the course, following the strategies in the table below.

Table 1-4. Strategies for introducing training aids

<i>Instructor's role</i>	<i>Strategies for success</i>
Reserve, prepare and test the equipment	Instructors must ensure that the equipment is available at the right time and is appropriately set up and configured before the activity begins. Test the full operation of the equipment, software or app in advance.
Be familiar with the equipment's operation	Instructors should know how the trainees will interact with the equipment or software. They should conduct a trial run of the tasks to be performed by the trainees and note common difficulties and errors so that trainees may be helped quickly if they have problems completing the task.
Know the trainees' abilities	Awareness of the trainees' likely familiarity with and ability to use the training aid is important for the instructor to introduce the training aid effectively. The instructor should properly explain how the equipment or digital technology functions to ensure the smooth execution of learning tasks.

Note.— If equipment or technology is not working or is unavailable, the instructor should use the documentation as a guide to making appropriate decisions on how to attain learning objectives through alternate means.

1.6.5 Specific elements around this role are described for each type of equipment and resource in the following sections.

1.6.6 Equipment used for operational training

1.6.6.1 Real-life equipment (large or portable)

1.6.6.1.1 For operational and safety reasons, it is essential to master the operation of real-life equipment (large or portable) without errors. The operation of large real-life equipment in training courses will require specialized technicians to oversee the equipment's preparation, technical availability and safety precautions taken.

1.6.6.1.2 The instructor is responsible for organizing and preparing such training elements and must make detailed prior arrangements with relevant personnel to ensure that the equipment and staff are available at the desired time, that equipment is set up for the specific training purpose and that all safety and security elements are compliant.

1.6.6.1.3 Other equipment such as radios and security scanning devices may not require as much organization. All necessary steps, however, should be taken to arrange for its use and to ensure that it will be correctly and safely operated by the instructor or a designated staff member who will be present during the training session.

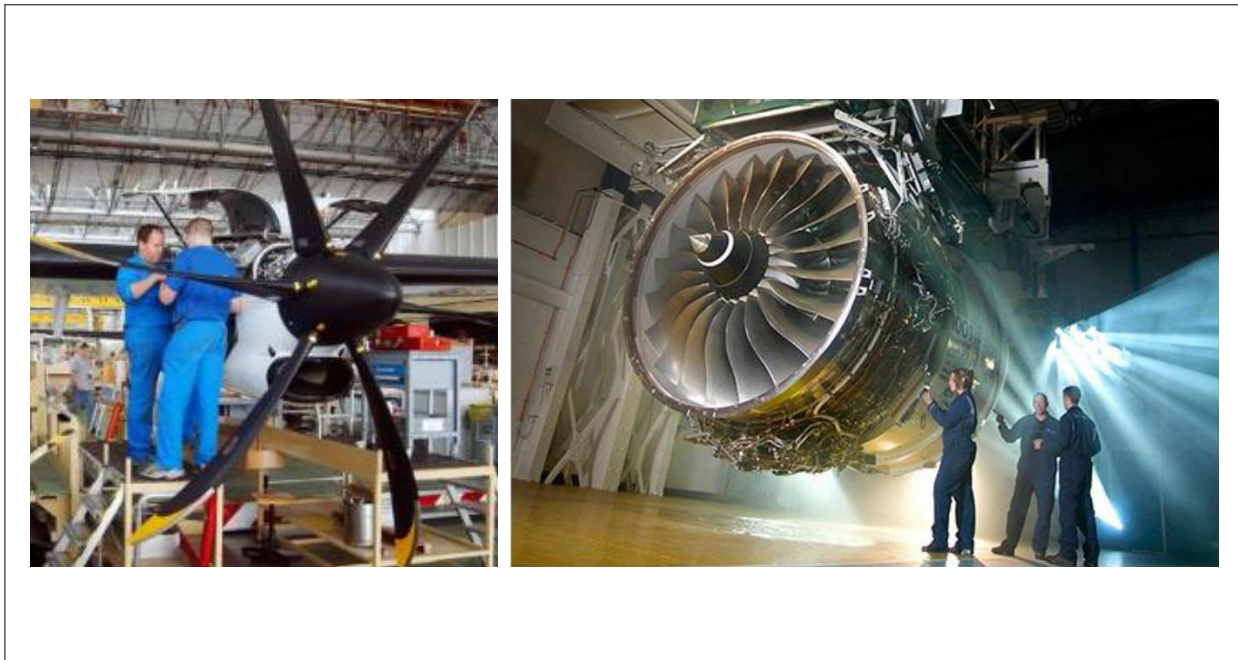


Figure 1-7. Real equipment used in training

1.6.6.2 Simulators

1.6.6.2.1 Depending on their complexity, simulators may be operated without a large or specialized technical staff. The instructor can therefore organize and prepare the training elements with minimal additional input. The training can be more individualized and be based on simulations and exercises covering changes of software, different scenarios and optional or peripheral devices.

1.6.6.2.2 The instructor must ensure that the required programme features or configuration are correctly set up to achieve the training session's learning objectives. If simulators are in demand for other courses, the instructor should ensure that scheduling is arranged well in advance so that the training session fits within the course schedule.

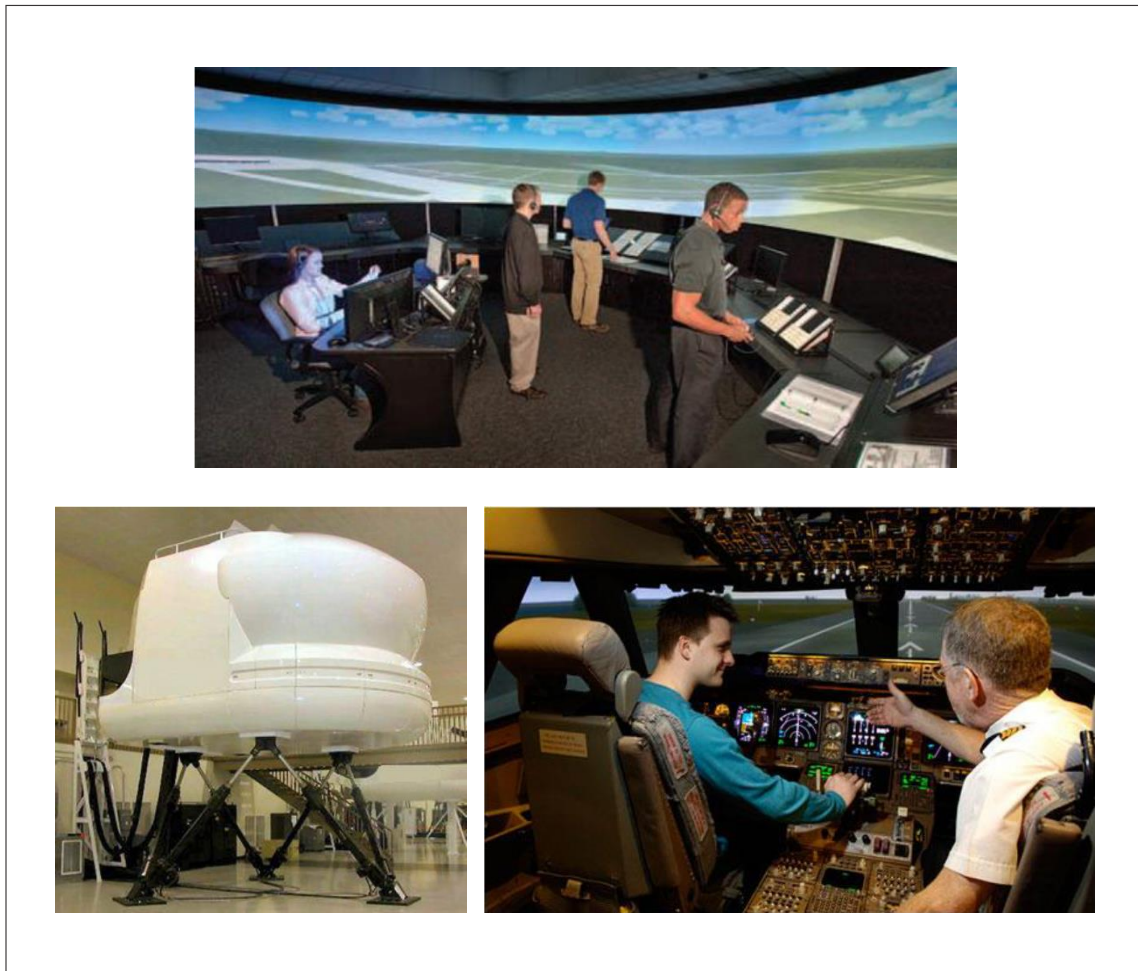


Figure 1-8. Simulators used in training

1.6.6.3 Training devices

1.6.6.3.1 Unlike simulators, training devices do not reproduce the operational characteristics of real equipment. Rather, they enable trainees to practice skills and general procedures in an interactive way by receiving their input and providing the required feedback. One example is a flight training device, which enables trainees to develop simple and practical skills and practice general procedures.

1.6.6.3.2 The instructor must prepare the devices and organize simulation exercises. Depending on the number of trainees, the instructor may have to organize parallel activities for the remaining trainees to complete while the designated trainees are using the training device.



Figure 1-9. Purpose-built training devices

1.6.6.4 Computer-based training using devices or apps

1.6.6.4.1 Computers are used extensively in aviation courses to provide an interactive environment for learning various operational skills. Many courses include training sessions with computer-based instruction, testing and simulations.

1.6.6.4.2 As with simulation equipment, instructors should ensure that computer-based training facilities are reserved at the right time and that enough facilities are available for the trainees to work effectively. In addition, instructors should be familiar with particular programmes, applications, simulations or instruction modules to use their time efficiently when trainees are completing the course.

1.6.6.4.3 Prior to the course, instructors should take time to ensure that all logins, access permissions and other credentials are working correctly, and that they can operate the software programme (or app) in such a way as to be able to offer guidance and support to trainees during the course. If an additional staff member or expert user must be present, arrangements should be made in advance.

Note.— Computer-based training using devices or apps prepared for use by specific trainees in a specific training centre is different from online or e-learning courses, which are disseminated to an audience through a web-based platform.



Figure 1-10. Computer-based training

1.6.7 Training delivery aids

The following technologies are used to assist instructors in their presentations and trainee-centred activities.

1.6.7.1 *Multimedia projector*

1.6.7.1.1 Multimedia projectors or video projectors are used in conjunction with the presenter's computer and display presentation visuals, videos, still images and online content. Projectors show images in a considerably larger size than computer screens or TV monitors and are therefore a mainstay of classroom instruction. If available, a multimedia projector will be used at some point in almost all classroom courses so that essential visual material can be displayed or audio/visual content can be played, usually from the presenter's computer.

1.6.7.1.2 The instructor should be familiar with the projector's setup and operation as well as guidelines for its proper use and maintenance. Projectors may easily be damaged if handled incorrectly.

1.6.7.1.3 Multimedia projector — tips for use

Instructors should:

- a) keep the projector in a dry place and make sure that it is protected when transported, preferably in a case designed for such purpose;
- b) handle the projector with care and refrain from placing objects underneath or on top of it;
- c) take extra precaution with liquids near the projector;
- d) take care not to overheat the lamp. Overheating can be prevented by ensuring that the hot air vent underneath the projector is not obstructed. Storing the projector while it is still hot may cause the lamp to deteriorate. It is advisable to consult the manual for the maximum amount of time the projector can stay on;
- e) be aware that if the projector is moved while turned on, the filament of the lamp may be damaged;
- f) refrain from storing the projector while it is still hot;
- g) avoid placing paper sheets or books underneath the equipment, as this will obstruct its ventilation;
- h) use soft movements when readjusting the image to avoid damaging the equipment; and
- i) verify the connections before turning on the equipment to prevent damage.

1.6.7.2 *Video*

1.6.7.2.1 Videos bring a visual and auditory experience to the learning process and provide insights into operational tasks, environments and people not otherwise possible to bring into the training centre. Videos can be used to demonstrate a complex task, show how equipment is used in the actual environments and demonstrate proper behaviour in complex situations, with the benefit of expert commentary and rich visuals.

1.6.7.2.2 In most modern courses, video clips are provided either as electronic files for downloading onto the presenter's computer from a remote folder or USB drive, or, in some cases, as DVDs that may be played on the computer. Often, videos are played through a direct hyperlink to a specific site or web page on the Internet. The instructor should

ensure that the videos load properly and are ready to play at the appropriate point in the instruction. The instructor should view the videos in advance to verify the visual and audio quality and plan for pauses for discussion points or reflection.

1.6.7.2.3 Videos can make learning more effective when used appropriately within the context of meeting learning objectives. The instructor should use the most relevant clips or files and avoid playing lengthy videos without pauses for interaction and discussion, since trainees may lose focus and concentration.

1.6.7.3 *Images, photos, graphics and interactive whiteboards*

1.6.7.3.1 The instructor may use projected visuals or an interactive whiteboard to illustrate relationships between objects, events or parts of a whole or to build visual concepts through group discussion and then refer to such concepts throughout the course.

1.6.7.3.2 The instructor should know how to use such display and note-taking devices and ensure that the appropriate markers, pens or other tools are available and functional. Flip charts should be mounted on an easel; more than one may be required if group work is involved.

1.6.7.3.3 *Printed graphics:* Pre-prepared diagrams can help clarify the structure and operational flow of complex organizations such as civil aviation authorities. Locally obtained reference materials such as an airport plan may also be used as a reference throughout the course. If such a visual is required but not provided (for example, in the case of a specific item to be obtained locally), the instructor should source the item and arrange for a large format printout, if necessary.

1.6.7.3.4 *Whiteboard and flip charts:* Whiteboards and flip charts are often part of the instructor's classroom equipment. They can be used to record discussion ideas, facilitate trainee presentations and provide ad hoc explanations quickly, informally and efficiently. Course materials may require the instructor to use these items at specific points while delivering the content or as part of an exercise. Alternatively, these items may be used exclusively as support resources.

1.6.7.3.5 *Interactive whiteboard:* An interactive whiteboard is a projection tool connected to a computer or used stand-alone with built-in apps. The advantage to their use is that whatever is displayed or written on the board may be saved electronically for future reference. In addition, standard images may be enhanced with notes or specific markings. Packaged course materials and module plans may require the instructor to use an interactive whiteboard in a certain way, or the instructor may use it to enhance discussions or elaborate on a concept.



Figure 1-11. Interactive whiteboard

1.6.7.4 Printed/digital texts and self-study texts

1.6.7.4.1 Some courses will include key reference materials, handbooks, guides or official documents that will be referred to frequently throughout the course and that will form part of the course itself. Whether used for reference or as part of instruction, such materials must be made available to each trainee in the appropriate format.

1.6.7.4.2 Printed texts and handouts should be prepared in advance. STPs often include guidance on assembling trainee guides in the form of printed binders with various sections. Instructors should prepare electronic reference materials and install or provide the files via USB key, email or other suitable transfer methods at the start of the course or at an appropriate point thereafter, without taking up actual training time.

Note.— Some reference texts issued by ICAO or State governments are not for general distribution, and may not be provided in either printed or electronic (PDF) format to trainees unless explicitly required in the course package. Instructors should always follow these rules when distributing reference materials.



Figure 1-12. Printed or electronically available references and self-study materials

1.6.7.5 Audio

1.6.7.5.1 The use of audio recordings for training purposes can be effective in promoting verbal skills, cognitive development, and may be useful in shaping attitudes toward the competencies being acquired.. Audio-based content may be delivered relatively easily by playing audio files from the presenter's computer. Individual audio training is considered part of computer-based training and may be completed independently by the trainee under the guidance of the instructor.

1.6.7.5.2 In preparing for the course, instructors must ensure that all audio files are ready to be played at the appropriate point during the training. In the case of computer-based training, the training programme must be installed and functional on the workstations to be used. More information on computer-based training is provided in section 1.6.6.4.



Figure 1-13. Audio equipment for individual training

1.7 PREPARING FOR INSTRUCTION

1.7.1 The most important step in preparing for instruction is for instructors to prepare themselves. While many administrative tasks can be completed in collaboration with others at the training centre, the instructor is the sole person responsible for his or her individual preparation. Instructors must keep in mind that credibility and confidence when facing trainees directly depends on how well they have prepared themselves.

1.7.2 To prepare for the delivery of the course, instructors must perform the following main tasks:

- a) confirm the course schedule;
- b) coordinate with training centre staff, other instructors (if any) and other support staff involved in the training; and
- c) fully prepare for the delivery of the course, specifically the strategy to be followed, examples to be used, references and other aspects within the course design.

1.7.3 These steps, along with the completion of the provided checklists, will ensure that instructors are well-informed, organized and ready to deliver a fully-prepared course.

1.7.4 Confirming the schedule

1.7.4.1 A suggested schedule based on course modules, learning flow and activities is provided in the course package. It is preferable if instructors follow the schedule as closely as possible. Instruction is typically divided into one-hour or ninety-minute sessions, and breaks and mealtimes are suggested in line with usual requirements. Local factors may require the instructor to adjust the schedule according to cultural needs, the schedule of the training centre or transport constraints.

1.7.4.2 External visits or use of off-site facilities should respect the recommended schedule to the extent possible; however, adjustments may be necessary for operational reasons. The instructor should work closely with the training centre's administrative staff to confirm a workable schedule for the course.

1.7.5 Conducting a coordination meeting

1.7.5.1 The instructor must work with training centre staff and others to ensure that all course facilities, logistics and materials are prepared. It is advisable to hold an initial coordination meeting a few days prior to the course and another meeting one or two days before the course to confirm final arrangements. Instructors should keep in mind that the number of trainees may only be confirmed at the last minute and may influence the layout and use of classrooms, refreshment arrangements and the number of course material copies to be prepared (e.g. test papers, handouts and USB keys).

1.7.5.2 Instructors must also prepare opening session details on course administration, safety and security aspects, logistics and transportation. All details should be confirmed with training centre staff as part of this preparation.

1.7.5.3 The meetings will enable the instructor to follow up on the progress or completion of all tasks that have been agreed upon and to make final adjustments as needed. If applicable, other initiatives such as a class photo or excursion must also be considered.

1.7.6 Working with other instructors or contributors

1.7.6.1 Some courses require more than one instructor. The lead instructor must liaise closely with his or her co-instructor(s) to agree on tasks and prepare designated sections of the course. For the opening and closing sessions of the course, instructors will often have to arrange for a speaker (usually a senior representative of an organization), who must prepare and deliver a short welcome or closing speech.

1.7.6.2 Operational staff who assist instructors in course activities should also be thoroughly briefed on their expected involvement and must confirm all arrangements prior to the course.

1.7.7 Preparing course materials for instruction

1.7.7.1 Instructors should conduct coordination activities and take time to individually prepare for course instruction. While it is important for instructors to have significant expertise in their subject area, it is necessary that they prepare adequately to deliver the course as it has been designed and according to course package guidance. STPs require that instructors carefully prepare for the course using the course description, module plans, presentations, activity materials and tests.

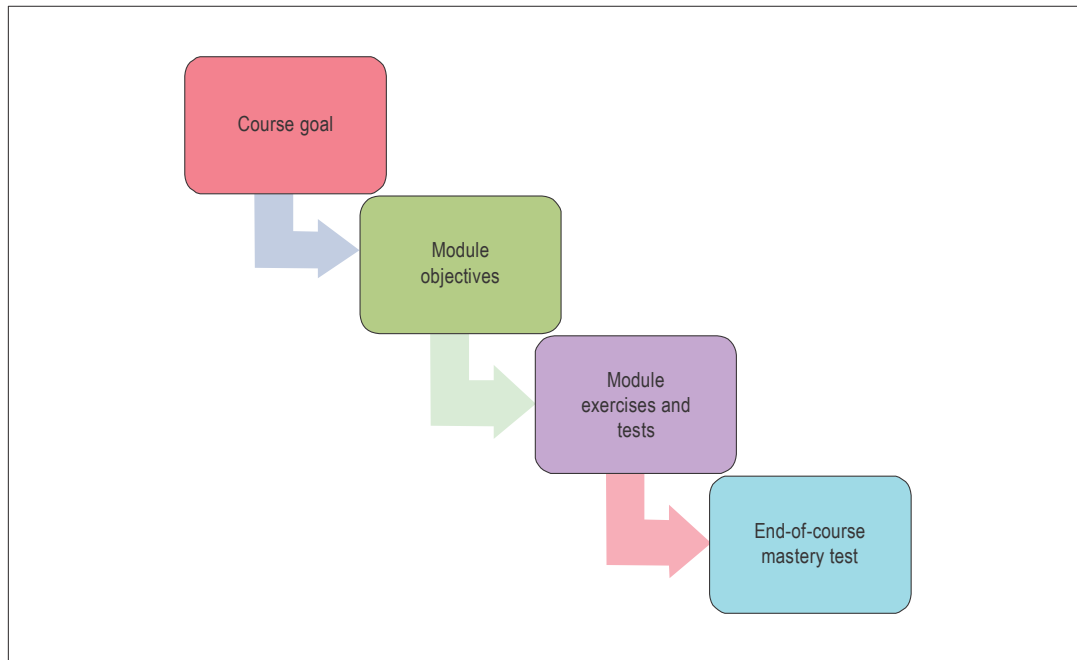


Figure 1-14. Key design elements for meeting competency-based course goals

1.7.7.2 Course goals

Regardless of the challenges in preparing for course delivery, the instructor's ultimate role is to deliver the training to achieve the stated course goals and to help trainees to reach the performance objectives of each module. Any arrangements, changes, strategies and plans should above all be tailored to such goals.

1.7.7.3 Module plans

Module plans, also called the instructor's guide, provide instructors with an overview of the module and detailed breakdown of the content and activities to be presented. Before beginning the course, instructors should take note of the objectives, timing, activities, tests and resources associated with each module and make necessary preparations. For example, instructors should prepare locally obtained reference materials and set up their classrooms for demonstrations or exercises. Using the module plans, instructors can also plan for the effective execution of group exercises or practical activities and prepare themselves for trainees' diverse learning preferences and needs based on their characteristics.

1.7.7.4 Tests

In competency-based courses, tests are carefully designed to evaluate trainees' mastery of performance objectives. Tests should be prepared in advance, and the instructor should be familiar with the nature, duration, and scoring of the tests. All

test materials (e.g. question sheets and reference materials) and scoring guides should be prepared in advance. Instructors are often required to enter scores into a spreadsheet or online tool as the course progresses and should therefore be familiar with such tools in advance.

1.7.7.5 *References and additional items*

1.7.7.5.1 In many cases, instructors must obtain copies of specific reference materials to have on hand during the course. Reference materials include ICAO Annexes, official guidance documents, operational manuals and other regulations or standards documents. The instructor should load electronic versions of documents onto the computer used for presentations or include links to online resources to ensure easy access during instruction.

1.7.7.5.2 If courses require locally sourced reference materials such as an airport plan, the instructor can coordinate with the training centre's focal point and local administration to obtain the relevant information.

1.7.7.5.3 Some additional items may also be required. Module plans and other course documentation will indicate at which point in the course they are needed. Items may include baggage examples for security courses, two-way radios for communication exercises or examples of equipment and tools required for specific jobs. Instructors should arrange to obtain these items in advance.

1.7.7.6 *Contextual experiences and examples*

A good instructor will be able to engage the trainees by using their examples and experiences to illustrate key learning points throughout the course. In preparing each module, the instructor should ensure that context can be added at appropriate points if the material is generic. However, to achieve the course goals, it is also important to manage the time for sharing additional perspectives.

1.7.8 Other considerations in preparing for instruction

1.7.8.1 Instructors should know if the classroom course is part of a larger training programme or the trainees' learning path.

1.7.8.2 Instructors should:

- a) acknowledge previous stages of the training programme, including online modules;
- b) check the completion status of previous stages and/or verify scores;
- c) refer to key learning points from prior learning stages;
- d) keep in mind preparation for later stages (e.g. OJT); and
- e) acknowledge that trainees must pass the course tests to continue the programme or attain their career development goals.

1.8 JOB AIDS FOR COURSE PREPARATION

1.8.1 A job aid is a tool designed to facilitate the efficient execution of a task. In general, job aids are used in daily situations where an additional tool can help a worker to perform and apply what they have learned during training. Some examples are provided below:

- 1) *Safety and security considerations*: Passengers feel safe on flights because they know that pilots use checklists to ensure that all the necessary tasks for take-off and landing have been completed. In training situations, checklists may prompt instructors to make necessary arrangements so that trainees obtain security passes granting them access to restricted areas as part of their course.
- 2) *When extensive, complicated information is provided*: When following a process, it is usually easier to follow a diagram or map than a long written explanation. Flow charts are used extensively for decision-making in different situations that a worker may face. Instructors may require job aids to set up equipment such as a projector or simulator.
- 3) *When tasks are performed infrequently and may be forgotten*: Step-by-step processes may be defined in a standard operating procedure (SOP) document so that details are not forgotten during the performance of the task.

1.8.2 When delivering training, instructors use lesson plans or module plans, handouts, visuals and checklists as job aids to facilitate delivery.

1.8.3 Job aids for trainees

Job aids can also be useful for trainees. Examples include course orientation materials with practical and logistical information about the course location. Transportation schedules, course schedules, dress codes and behavioural codes can also help trainees to engage in the learning environment.

1.8.4 Checklists for course preparation

1.8.4.1 Specific checklists for instructors may be provided at the training centre or in the course package. Instructors will most often use checklists belonging to the following two categories:

- a) *Administrative checklists* are used to manage the facilities, equipment and materials needed to conduct a course. Such checklists include training centre procedures and administrative regulations and are often specific to each training centre.
- b) *Training-related checklists* help instructors to prepare training and activity materials and remind them to make final changes and updates to schedules, gather local materials and adapt the course to the particular situation, environment or training group, where appropriate.

1.8.4.2 Checklists help instructors to manage several tasks in an organized and systematic way. They are designed to remind instructors about activities that must be performed *before*, *during* and *after* the delivery of a course. They may have the following benefits if used appropriately:

Instructors

- a) avoid embarrassing situations in front of the class;
- b) save time and increase efficiency;
- c) do not rely on memory alone and therefore do not forget essential tasks;
- d) are provided with standards for activities and classroom preparation;

- e) have a record of agreed commitments and evidence of what they have done or planned; and
- f) have a clear mind and can focus on course content.

1.8.4.3 Course preparations begin well before the starting date of the course. In this guide, two checklists are provided in Appendix B:

Checklist 01 — recommended to be completed at least *one week prior* to the course; and

Checklist 02 — intended as a list of final tasks to be completed *one to two days prior* to training.

1.8.5 Checklist 01: one week prior to training

1.8.5.1 To be adequately prepared, instructors should begin planning their course when the course is assigned to them. Several tasks should be addressed at least one week prior to the course's start date.

1.8.5.2 Checklist 01 is used to verify whether organizational requirements have been met. It reminds instructors to perform essential tasks for establishing a successful learning environment and to check if all arrangements are made.

1.8.5.3 By checking this form at least one week before the start date, instructors should have adequate time to obtain any missing items or complete any tasks before the course begins. Instructors should update and complete the checklist the week before the start date to keep track of all required arrangements.

1.8.5.4 The seven sections are:

- 1) *Generalities and overview* — this section contains administrative details of the course.
- 2) *Classroom and facilities checklist* — this is where considerations on equipment, environment and space are noted.
- 3) *Tools and equipment verification checklist* — this section contains a list of all required equipment. Instructors may note any equipment that has not been provided prior to the course (they should refer to specific course package forms).
- 4) *Training materials verification checklist* — any printed items, resources, handouts etc. should be noted. Furthermore, instructors should take action to ensure that missing items are provided.
- 5) *Safety and security standards verification checklist* — any security- or safety-related items, equipment or access should be noted and obtained.
- 6) *Preparation of information of interest to the trainees* — this section will help the instructor to prepare for the course's opening session and confirm logistical, administrative and behavioural elements.
- 7) *Additional information* — this section describes any other preparation requirements. Elements covered in the present chapter that are not included this section may be considered and noted in the section as needed.

Note.— Instructors who have given the course many times must nevertheless pay close attention to logistical preparation tasks to ensure that preparations are made for the particular location, situation and trainee group. For example, the time of year, number of trainees and schedule for out-of-classroom activities are all factors that are specific to each course event.

1.8.6 Checklist 02: one to two days prior to training

1.8.6.1 Checklist 02 contains four main sections:

- 1) *Generalities and overview* — this section contains administrative details of the course.
- 2) *Verification of pending items from Checklist 01* — instructors may verify any pending items from Checklist 01 and indicate the steps taken to immediately address them.
- 3) *General aspects checklist* — instructors may verify all essential elements related to classroom layout and equipment.
- 4) *Additional information* — instructors may note any specific considerations and actions, including last-minute decisions based on staffing changes, scheduling issues or the availability of facilities.

1.8.6.2 Instructors should use this form to check and confirm all final preparations based on all last-minute information.

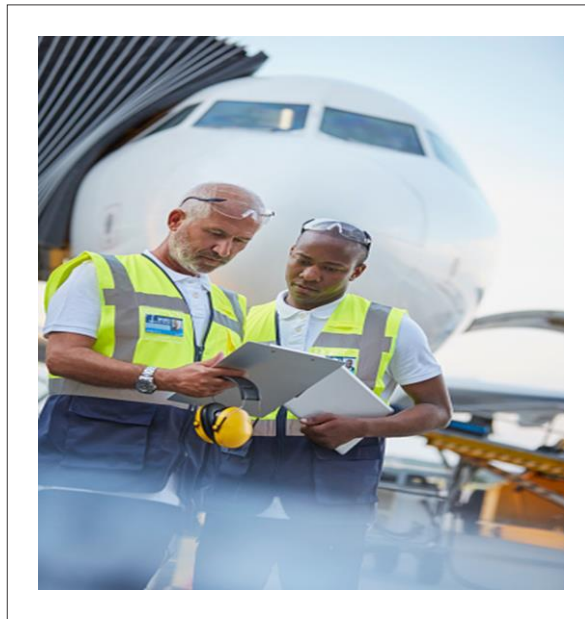


Figure 1-15. Using checklists

1.9 SUMMARY

The instructor's tasks begin when he or she is assigned to teach the course. The preparation phase continues until the course's start date. Effective preparation is essential to successfully deliver a competency-based course as it has been designed.

The course materials package provides a starting point for instructors to prepare for the course. It provides detailed information on how the course objectives should be met through activities, presentations and assessments. Material-dependent courses should not be adapted or changed by instructors, who must use their expertise and instructional competencies to deliver the course to the best effect.

Instructors should be familiar with the characteristics and learning preferences of their trainees and should know whether they are part of the target population. Any necessary strategies should be planned in advance when possible. Digital age trainees have particular skills and preferences, and courses will be increasingly adapted to this new generation.

Instructors should make proper arrangements for on-site and off-site training facilities individually or in coordination with training centre staff. Training room layouts should be set up in such a way that trainees can benefit as much as possible from different activities.

Simulators, equipment and training aids should all be prepared sufficiently in advance. Instructors should understand how such tools relate to course goals and performance objectives and ensure that they are fully set up and prepared before the training begins. If equipment becomes unavailable, instructors should use their knowledge of the training goals to adjust the course in such a way that its objectives can still be met.

Self-preparation is essential for instructors to deliver a successful course, even if they have delivered the course many times before. Instructors should confirm the specific course arrangements and schedule, coordinate with co-instructors and others in the training centre and determine how each course section or module will be delivered.

Instructors are strongly encouraged to use checklists as job aids in preparing to deliver a course. Checklist 01 should be completed at least one week prior to the training, and Checklist 02 should be completed one to two days prior to the training.

Chapter 2

COURSE DELIVERY

2.1 INTRODUCTION

2.1.1 The last chapter discussed the importance of careful preparation for material-dependent courses. Once the course begins, the most important factor in determining its success is the ability of the instructor to deliver all of the training elements needed for the target audience to acquire the competencies for their jobs.

2.1.2 Classroom training is useful in the following circumstances:

- a) trainees cannot easily acquire the required competencies via other means alone. Activities such as on-the-job training and online learning may provide additional support, but cannot replace the advantages of learning from a competent instructor when explanation, discussion, practice and feedback are required for learning;
- b) trainees require a context-based approach in order to learn and a safe environment involving practice, demonstration or simulated tasks under the close supervision of a competent instructor to develop their skills; and
- c) competencies are best acquired through case studies and problem-solving activities during which additional information or demonstrations are provided.

2.1.3 The instructor's role is to ensure that the trainees' learning experience is consistent with the reasons for which classroom training has been selected during the course analysis and development phases. An effective learning experience enables trainees to integrate what they have learned into their jobs.

2.1.4 This chapter will provide instructors with guidance on the skills, principles and tasks required to deliver a material-dependent course according to its intended design and meet the course's stated goal(s).

2.2 ROLE OF THE INSTRUCTOR

2.2.1 In the course delivery phase, ICAO instructors are responsible for:

- a) conducting the training according to the instructor's guide in the training package;
- b) complying with the provided course schedule to ensure that all the training material is covered in the optimal way;
- c) evaluating trainees' performance according to the prescribed methods and materials.

2.2.2 As stated in this guide's introduction, the instructor may be compared to a virtuoso musician who brings his or her own interpretation and talent to the music but does not feel obliged to deviate from the score.

2.2.3 A skilled instructor will be able to deliver the course as designed, maximize the advantages of classroom training and minimize the known disadvantages.

Table 2-1. Advantages and disadvantages of classroom training

<i>Advantages</i>	<i>Disadvantages</i>
Classroom training is an effective and relatively inexpensive way to deliver competency-based training to large groups of trainees.	Trainees can become partially passive unless the instructor uses strategies requiring their active participation and provides a supportive learning environment.
It enables instructors to synthesize information in a variety of contexts or reinforce key principles or concepts learned outside of the classroom.	Instructors who are experts in their field may present information over and above the required level at the expense of other course activities. As a result, trainees may not deliver the desired performance.
It encourages trainees in the target group to share experiences and perspectives.	Trainees may not fully participate, especially if they do not see the relevance or benefit to their own situation or are unfamiliar with the learning structure, culture or language of instruction.
Up-to-date and relevant information on technical subjects enables trainees to acquire knowledge and skills.	Training courses extended over several days may be tiring for trainees, who may find it difficult to attend the entire course.
Classroom training provides a safe and supportive environment for learning complex tasks that would be difficult or unsafe to learn in the working context.	Many courses require different facilities and additional support for practical or simulated exercises, which may cause logistical problems for the training venue.
Classroom training enables trainees to learn directly from a skilled instructor who can present new information and foster learning based on their characteristics and needs.	Poor preparation or lack of essential materials or facilities can lead to ineffective training and dissatisfied trainees.

2.2.4 Instructor competencies for delivering classroom training

2.2.4.1 If a well-designed course is poorly delivered, trainees will not fully benefit from the targeted design and packaged materials provided. It is up to instructors to apply their subject expertise, enthusiasm for the topic, and most importantly, instructing skills in an effective manner to ensure that the benefits of the training experience are translated into actual performance by trainees.

2.2.4.2 The ICAO Adapted Instructor Competency Model provides detailed key performance criteria for effective delivery of classroom training, specifically under Instructor Competency 2 (manages the trainees), Instructor Competency 3 (conducts training) and some elements of Instructor Competency 4 (performs trainee assessment). Evaluation will be addressed in more detail in Chapter 3.

Instructor Competency 2 <i>Manage the trainees</i>	<ul style="list-style-type: none">• Understands the trainees• Trains the trainees• Uses an effective training strategy
Instructor Competency 3 <i>Conducts training</i>	<ul style="list-style-type: none">• Establishes and maintains credibility• Shows effective presentation skills• Provides an effective training delivery• Creates and maintains realism• Manages time
Instructor Competency 4 <i>Performs trainee assessment</i>	<ul style="list-style-type: none">• Uses evaluation methods• Monitors the performance of trainees during the class sessions• Makes objective evaluations• Provides feedback that is both understandable and usable• Creates training and evaluation reports

Figure 2-1. Course delivery competencies

2.2.4.3 The overall role of instructors is to use their expertise, interest and training experience to *bring the course content to life*. To achieve this, they must apply the competencies and observable behaviours described in the ICAO Adapted Instructor Competency Model and enrich the learning experience by referring to real-world examples and experiences that relate to the specific audience.

2.2.5 Course delivery tasks

2.2.5.1 This chapter provides instructors with guidance on the key tasks required for effective delivery of material-dependent, competency-based training courses. They are as follows:

- a) setting expectations and establishing a positive learning environment;
- b) using course documentation effectively to conduct the course while respecting adult learning principles;
- c) demonstrating effective presentation techniques;
- d) using various training methods and activities as per the course design;
- e) conducting practice exercises, group activities and tests effectively;
- f) managing trainees as adult learners;
- g) managing time so that the objectives of each module can be achieved in the allotted time; and
- h) evaluating performance and providing useful feedback.

2.2.5.2 Instructors who perform these tasks and demonstrate the relevant competencies will be able to deliver courses that are both effective and stimulating.

2.3 SETTING EXPECTATIONS

When instructors and trainees first meet, instructors must recognize that their role as designated leaders is to move the trainees from a disorganized group of individuals to a cohesive group to achieve the common goal of learning. Establishing personal credibility, being fully prepared and organized and clearly introducing the course and its objectives are all essential to setting appropriate expectations and building an environment where trainees feel that they are supported and able to learn.

2.3.1 Establishing credibility

2.3.1.1 The instructor's credibility is established when trainees trust the instructor's approach to delivering the course. Credibility is gained in various ways and should be established among trainees at the beginning of the course. The way in which instructors present themselves, and specifically their actions, responses to social cues and manner of communication, are all factors in building (or losing) credibility.

2.3.1.2 For the overall course to be successful, it is vital that the instructor gains the trust of trainees. Trainees must be confident that the instructor is sufficiently motivated, competent and knowledgeable to deliver an effective training experience. A lack of such confidence may negatively affect other aspects of the course.

2.3.1.3 Instructors must prepare themselves before their courses begin to make a good first impression on trainees. In particular, instructors should have all the materials required for the first session of training to appear organized and ready to train. Conforming to the dress code and respecting other social norms (for example, regarding the use of cell phones) will set an example for trainees. At the beginning of the course, trainees will naturally expect instructors to take the lead and demonstrate appropriate conduct.

2.3.1.4 Instructors often engage in individual interaction with trainees as they enter the classroom. Instructors should keep in mind that, at that moment, trainees are already forming their first impressions. It is advisable to keep the conversations brief and professional, bearing in mind the importance of credibility.

2.3.1.5 As trainees form their impressions of the instructor, the instructor should likewise get to know the trainees and decide how to conduct certain course activities to meet the group's specific characteristics. Taking an active interest in the trainees as adult learners is also an important part of establishing an effective learning environment.

2.3.2 The opening session

2.3.2.1 It is crucial that instructors appreciate the value of a well-executed introductory session. During this session, trainees develop a first impression not only of the instructor, but also of the training experience and course requirements. The instructor should provide accurate and relevant information as well as the opportunity for trainees to introduce themselves and get to know their peers, the instructor and other personnel involved in the course. It is also important to create an open and supportive learning environment during this session, for example by inviting trainees to contribute and ask questions at appropriate points in the presentation.

2.3.2.2 Material-dependent course packages such as STPs contain the materials and module plans to be used in the introductory session. The elements that are usually included in the session, important points on their relevance and the ways in which instructors can fully benefit from the session, are described below.

Note.— As when preparing other modules throughout the course, the instructor should prepare for the introductory session sufficiently in advance using the available documentation and instructor guides to ensure that all the required points are covered. It is not advisable to rush through the opening session to start the first module.

2.3.2.3 Opening statements and introductions

2.3.2.3.1 Instructors should carefully plan their opening statements according to the module plan. It is important to project a friendly and welcoming attitude and to be aware of how movements and gestures may be interpreted. Using their prior knowledge of the trainees, instructors should be sensitive to trainees' cultural expectations, language abilities and comfort level in a classroom. Instructors should plan what they will say about themselves, their background and experience.

2.3.2.3.2 A senior representative of an organization may also participate in the opening session to talk to the trainees. Instructors should introduce guest speakers appropriately and thank them after their presentation.

2.3.2.4 Icebreaker and familiarization activities

2.3.2.4.1 It is essential that trainees are given opportunities to introduce themselves and learn about their fellow trainees. Such opportunities are important for trainees to form a group and to build a spirit of openness for team activities and supportive exchanges.

2.3.2.4.2 A common way to carry out trainee introductions is through icebreaker activities whereby trainees are invited to introduce themselves or to discuss in pairs or groups. Course packages may include descriptions of such activities and/or questions for trainees to introduce themselves.

2.3.2.4.3 Instructors should allow sufficient time for icebreaker activities so that all trainees have time to complete their introductions and should leave time for a brief follow-up question. Instructors may have to cut short a lengthy introduction or ask open-ended questions to obtain relevant information from trainees. This should be done with sensitivity since the atmosphere of trust is still being established.

2.3.2.4.4 Instructors should be attentive to trainees' introductions and take notes to later be able to draw on trainees' particular experiences or establish teams of trainees with different job roles, seniority, experience, etc. who could work together in subsequent modules.

2.3.2.5 Administrative information

2.3.2.5.1 Administrative information is prepared prior to the course. Instructors should present this information in a logical way so that trainees clearly understand where and when activities will take place and what is expected of them.

2.3.2.5.2 Adult learners have to feel that their needs are met and usually like to know the logistical aspects of their learning experience and when they will have downtime to answer messages and calls. It is important that the instructor commits to respecting the daily schedule to retain the trust of trainees and ensure their continued cooperation. Instructors should take time to answer questions and note any details that they cannot answer immediately.

2.3.2.6 Introducing the course

2.3.2.6.1 This part of the opening session is essential for the rest of the course to run smoothly. It is not advisable to rush through this step, even if the class is behind schedule. Trainees need to know exactly how their course will be run, what to expect of the instructor and their peers and what they must do to succeed.

2.3.2.6.2 The course package should include essential details to be provided during the course introduction. They include:

- a) course goal and performance objectives;
- b) course structure, including module titles and objectives;
- c) course schedule, including times for breaks and meals and start/end times;
- d) course activities and learning methods;
- e) test and performance assessment requirements (criteria for passing the course, as applicable); and
- f) learning materials and resources.

2.3.2.6.3 Instructors should answer any questions, clarify points and ensure that trainees feel ready to proceed.

2.3.2.6.4 By the end of the opening session, the trainees should feel as though they have started to build a rapport with the instructor. They should also be aware of the logistics of their learning experience and feel prepared to begin learning.

2.4 PERFORMANCE OBJECTIVES

2.4.1 Competency-based training addresses specific performance needs that have been identified through job and target population analysis. Courses have an *overall goal* prescribing how trainees should be able to perform in their jobs after the training. Course modules will also have clearly defined *performance-based objectives* describing the performance to be assessed throughout the course.

2.4.2 Performance objectives are *specific, measurable statements of performance* that are used to define the purpose, methods and testing approach of each module or section of the course. In contrast, training goals are *descriptors of performance* expected after the training, in the context of the job role relevant to the course.

Table 2-2. Training goals and objectives

<i>Training goals</i>	<i>Training objectives</i>
a) Describe what learners will be able to do on the job after training as a result of training interventions aimed at resolving an identified problem	a) State what learners will be able to do at the end of a course or module
b) Are consistently met on the job and repeated over time (enduring)	b) Clarify the intention of your instruction
c) Include observable behaviours for measuring performance	c) Specify the behaviour or performance to be demonstrated
	d) Indicate to instructors whether learning is taking place
	e) Include criteria for measuring acquired knowledge or skills

2.4.3 Performance-based objectives are composed of three components. In STPs, a performance-based objective is provided for each module. All aspects of the module, including its content, activities, practice or progress tests and the module mastery test, align with the objective. Figure 2.2 illustrates the components of an end-of-module objective.

2.4.4 Communicating the overall course goal and specific module objectives is an essential part of setting expectations for the course. If the course goal and module objectives are clearly communicated at the beginning of the course, trainees will better understand the relevance of the course content and activities.

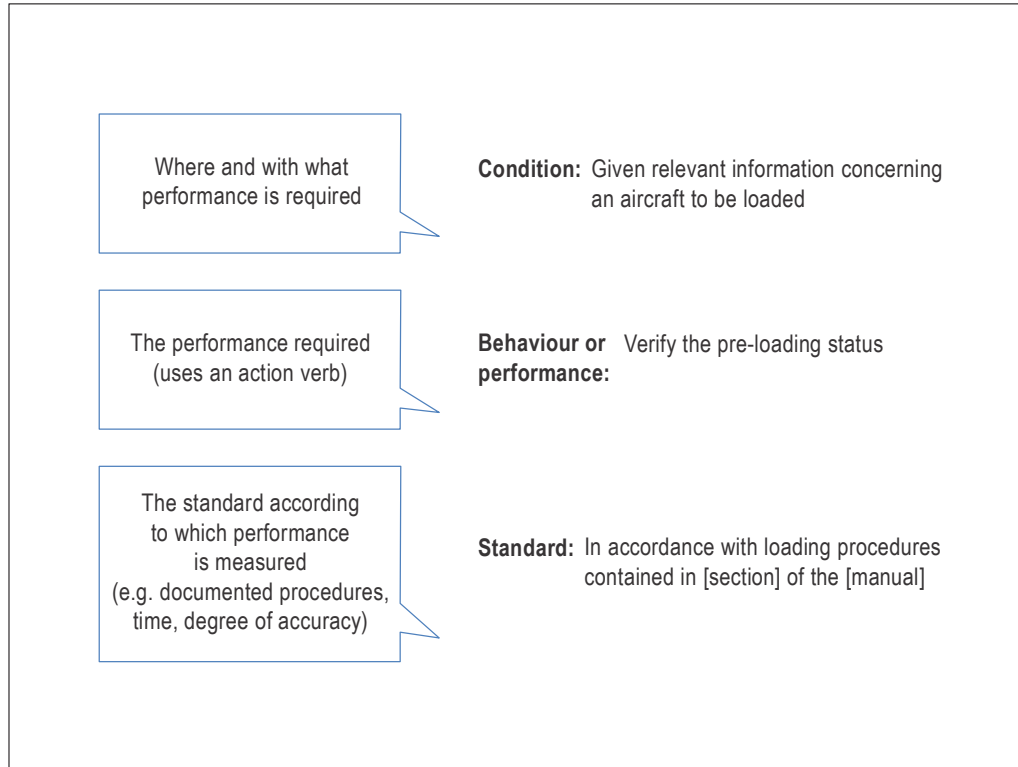


Figure 2-2. Components of a performance objective — example

2.4.5 The end-of-module mastery tests and, if applicable, end-of-course tests provided in competency-based courses are directly aligned with the course and module objectives. Therefore, it is advisable to describe the nature of the tests when introducing the course and modules.

Note.— Competency-based training objectives describe what trainees will be able to do upon completion of the training (or module). They do not state what is expected by the instructor or training programme. It is crucial that instructors are familiar with the course objectives and therefore deliver the course content and activities in such a way that trainees can master the specific performance tasks.

2.5 EFFECTIVE CLASSROOM INSTRUCTION

2.5.1 Instructors should have a variety of competencies to deliver courses smoothly and meet course objectives. Instructor competencies 3.2 and 3.3 are described in the ICAO Adapted Instructor Competency Model:

Table 2-3. Competencies 3.2 and 3.3 of the ICAO Adapted Instructor Competency Model, showing specific performance criteria related to effective course delivery

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)	Competency assessment		
			Final competency standard	Conditions	
IC3: Conduct training	Ensures the training methodology is varied, and is adapted to the trainees' needs			Given collected information on the trainees, the instructor applies a variety of training strategies to meet the trainees' needs.	Classroom training course
	3.2 Shows effective presentation skills	OB1	Stimulates and sustains the interest of the trainees.		
		OB2	Maintains the sequence of training materials in the appropriate way.		
		OB3	Uses voice effectively.		
		OB4	Uses eye contact effectively		
		OB5	Uses gestures, silence and body language effectively.		
		OB6	Uses work aids effectively.		
		OB7	Shows effective questioning skills.		
		OB8	Provides effective feedback, answers questions from the participants, and improves delivery by incorporating relevant experience and/or examples.		
		OB9	Presents an effective introduction, states the objective(s), presents a plan, provides a clear explanation of the different steps and presents an effective summary.		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)	Competency assessment		
			Final competency standard	Conditions	
3.3 Provides an effective training delivery		OB1	Communicates effectively, both verbally and non-verbally.		
		OB2	Listens actively and reads non-verbal messages correctly.		
		OB3	Asks appropriate questions to promote learning or to confirm understanding.		
		OB4	Provides opportunities for trainees to ask questions, treats wrong answers in a positive way.		
		OB5	Uses a variety of questions (expository, inductive, rhetorical, trouble-shooting), employs various techniques for asking questions, manages course participation.		
		OB6	Maintains trainee discussions within the topics of the course by starting them, monitoring, and concluding them.		
		OB7	Answers questions clearly and adequately.		
		OB8	Generates content by questioning, redirecting, balancing participation, etc.		
		OB9	Maintains debates focused on key topics.		
		OB10	Provides instruction and regularly confirms understanding by paraphrasing, summarizing, etc., links training activities, summarizes key points and activities related to the course objectives.		
		OB11	Uses appropriate communication skills (listens, does not interrupt the other party, brings clarity to interventions to prevent conflicts from arising).		
		OB12	Establishes clear goals and clarifies the roles in the training or evaluation performed.		

- 2.5.2 The key skills may be summarized as the ability to:
- a) deliver the training in line with principles of adult learning;
 - b) use the course package documentation for effective delivery;
 - c) employ best practices when covering a course module or topic; and
 - d) teach effectively.
- 2.5.3 Such skills are described in more detail in the sections below.

2.5.4 Adult learning principles

2.5.4.1 Competency-based courses are designed according to the target audience and are aimed at developing essential competencies for specific jobs or competencies stated in the course goal. The course's activities and structure should therefore be designed based on key principles of adult learning.

2.5.4.2 Respecting such principles is also a major responsibility of the instructor, who must find suitable ways of introducing, presenting and concluding content and activities. In other words, instructors should be aware of such principles and actively adhere to them when delivering a course.

1. Instructors should recognize and build on the prior experience and expertise of trainees.

When adults acquire knowledge or skills, they build on previous knowledge or experience. Although trainees usually meet target audience criteria, they will differ from one another in terms of relevant experience.

Instructors can help less experienced trainees by placing greater emphasis on additional readings and references included in the course materials. Instructors should also recognize that trainees with extensive experience may contribute to the course by bringing context and real-world examples to the material. By acknowledging this experience, instructors can enrich learning for all trainees and keep experienced trainees engaged.

2. Trainees learn best in a respectful and supportive learning environment, without fear of being judged

In order to succeed, trainees should have a positive attitude towards their learning process. Most training courses require trainees to take some risks; a supportive learning environment is essential for them to maintain their self-esteem and learn from their experience.

Instructors should be attentive to trainees' attitudes and should be open to their questions, requests for clarification and comments. The contributions made by trainees should be respectfully acknowledged, and responses should be given in a constructive, non-judgemental and supportive manner. Criticism regarding performance should be clearly linked to performance objectives (with reference to the competencies being developed) and expressed in order to guide improvement.

3. To acquire skills and knowledge, trainees need opportunities to apply and practice what they have learned, receive feedback and reflect on experiences

Competency-based training is designed in such a way that trainees can apply new knowledge and skills throughout their training. When instructors have to give lengthy presentations, they should frequently pose questions, invite comments and input from trainees and provide examples of scenarios to link the concepts to real-life situations, in preparation for actual practice.

Even if time is limited, instructors should ensure that adequate time is given for practice exercises, including subsequent reflection, feedback and follow-up discussion. Without these steps, trainees may not fully achieve performance objectives and are less likely to perform as required later in the work setting.

4. Trainees should be aware of the course benefits, and content should be relevant to their needs

Adult learners are motivated by courses that meet their individual goals. If material is presented in such a way that the objectives will clearly benefit them — for example, if the course leads to certification or an opportunity for promotion, then trainees will be more motivated and capable of applying what they have learned. Conversely, if trainees do not see the relevance or benefits of the course, they may rapidly lose interest.

Instructors should provide clear contextual information for each topic and explain the relevance and benefits of learning the new skill. Discussions on specific situations that are relevant to the trainee group are especially useful in helping trainees to recognize such benefits and increase the likelihood that they will apply the skill afterwards.

5. Trainees should have a sense of control over their learning experience — they should follow a logical structure, receive feedback, make choices and have realistic expectations

Giving trainees opportunities to reflect on information, provide interpretations and ask for clarification are all ways for trainees to participate in their learning and to give them a sense of control.

Instructors should introduce their courses and course modules in a thorough manner. Clear indications of sections and subtopics are essential for trainees to follow the logical sequencing of course content.

The instructor's ability to provide feedback and conduct debriefing activities is fundamental to keeping trainees motivated and involved in their training experience.

2.5.2 Using course documentation for effective delivery

2.5.2.1 Competency-based courses are designed to meet specific performance objectives and are developed as training packages containing detailed guidance to instructors on how to deliver course sections or modules. For example, STPs generally include a comprehensive package of materials including a detailed instructor's guide with references to other package materials to be used at particular points in the course.


2.5.2.2 As they are very knowledgeable in their subject matter, instructors may be tempted to present additional details or refer to examples and personal experiences that are relevant to the topic, which may take up training time. Although such information may be interesting and stimulating for trainees, instructors run the risk of delaying the course and leaving no time for trainees to practice key skills or apply principles in exercises later in the course, which is essential for achieving performance objectives.

2.5.2.3 Module or lesson plans

2.5.2.3.1 Material-dependent training packages include presentation materials that must be shown or distributed to trainees as well as a detailed plan describing how instructors must deliver each section of the course. STPs include course presentation and trainee materials as well as a module plan, which is the instructor's guide to delivering the module. Module plans include the following components:

- a) module name, number, duration and version;

- b) end-of-module objective and intermediate objectives;
- c) preparation notes for the instructor;
- d) a detailed guide on how the module's content should be presented, including:
 - 1) duration of each section or topic;
 - 2) slide title and number (or details of other content or media used);
 - 3) presentation notes relating to each slide or series of slides, including prompts to invite discussion or input from trainees;
 - 4) indications of where additional materials or handouts should be referred to;
 - 5) instructions for conducting exercises, including additional materials, guidelines on assigning groups and their setup, information on timing and debriefing points; and
 - 6) summary points.

		H.2.1
MODULE PLAN (Administrator/Instructor Guide)		
STP No.: 133/194/ATSFPPL	Location: CIAC	Date: 2014
Completed by: CDU TRAINAIR PLUS		Page 1 of 4
Module Title: Flight plan structure		Module No.: 2
Function No.: 1	Task No.: 1.2	Sub-Task No.: 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5
End-of-Module Objective: Conditions: Given the checklist to assess the data content of the Flight Plan Performance: Evaluate the data content of the Flight Plan Standard: Doc. ICAO 4444, 8400, 7910, 8643, 8585, Annex 10 Following the procedures for Flight Plan data content evaluation.		
General Notes for the Instructor: Before starting this module, ensure that all the module material is displayed in the classroom and that the latter is adequately arranged. Try to establish an environment of trust and cooperation between trainees and course administrators. The module will be delivered in a practical manner, providing exercises and a Progress Test and a final Mastery Test. Ensure there are enough copies of the Training Manual, which will be handed out at the beginning of the module. Make sure all the required job aids are available to you.		


		H.2.1
MODULE PLAN (Administrator/Instructor Guide)		
Completed by: CIAC		Page 2 of 4
		Module No.: 2
Time:	Main units/Steps/Aids	Contents: Summary of activities, points to be emphasized, etc.
10 minutes	Introduction PPT 2.1 — PPT 2.3	Present the objectives of the module about Flight Plan Structure and inform the trainees that the Mastery Test will be related to the module objectives. Present the content of the module. Distribute copies of Module 2. Distribute the copies of the slide summary for Module 2.
10 minutes	Introduction PPT 2.4 — PPT 2.6	Explain what the Standardized Flight Plan consists of, its standardized structure, and the sequence of logical information that it contains. Hold a discussion about this structure with the trainees.
10 minutes	General Overview PPT 2.7	Explain the accuracy, knowledge and integrity of the data contained in the Flight Plan. Perform a group reading of the Training Manual, direct trainees to page 20-23 of the manual and debate the meaning and importance of the data integrity. Highlight the characteristics of the Flight Plan Form and emphasize the importance of this document in operational safety.
10 minutes	Addressee(s) Section PPT 2.8	Explain the meaning of Addressee(s) Section. Perform a group reading of the Training Manual, direct trainees to page 70-76 of the manual and debate the meaning and importance of the data integrity.
10 minutes	Flight Plan — Part 1 PPT 2.9	Explain the meaning of Part 1 of the Flight Plan; highlight fields 7,8,9,10,13 and 15 emphasizes the care required in the process of filling out these fields. Perform a group reading of the Training Manual, pages 81 to 82 and have a debate about the meaning and importance of Part 1.
10 minutes	Flight Plan — Part 1 PPT 2.10	Explain the meaning of Part 2 of the Flight Plan. Highlight fields 16 and 18 and emphasizes the care required in the process of filling out these fields. Perform a group reading of the Training Manual, pages 90 to 94 and have a debate about the meaning and

Figure 2-3. Module plan example

2.5.2.3.2 By keeping to the recommended timing and using prompts to encourage the participation of trainees, instructors will be able to apply their skills in delivering the course and bring the course's content to life. At the same time, instructors will be confident that all topics will be covered and that activities to enhance trainee engagement will not be left out. Trainees will remain engaged in the material and achieve performance objectives within the allotted time.

Note.— Instructors should not follow the module plan as if it were a script. They should instead use it for guidance in determining the specific points, level of complexity and duration of each teaching point within the module.

2.5.2.4 Presentation materials

2.5.2.4.1 Many courses include sessions whereby a series of slides or visuals are used to accompany presentation content. Instructors should review all slide files in advance and ensure that they are familiar with the flow of the subject matter and key visuals.

2.5.2.4.2 Additional materials used to support presentation content may include official documentation (often provided in PDF format), video clips or other media files. It is important that the instructor is familiar with when and how to display these additional items and able to explain their relevance to meeting the training objectives.

Note.— Some documents or locally obtained reference materials may not be provided in the course documentation but are required in the classroom. Instructors should be able to use these appropriately when presenting course activities, according to the instructor's guide provided.

2.5.2.5 Including relevant examples and scenarios

2.5.2.5.1 Although the content, duration and activities of material-dependent courses are prescribed, every course event is unique; it is the instructor's responsibility to bring specific relevance and context to the particular group of trainees.

2.5.2.5.2 The instructor's experience, skills and expert knowledge may serve as additional training resources, as can the experience, skills and knowledge of trainees. The inclusion of examples and scenarios is described in Instructor Competency 3.4 of the ICAO Adapted Instructor Competency Model (Creates and maintains realism).

2.5.2.5.3 Below are some ways to introduce real-world examples and scenarios:

- a) providing a scenario or problem from actual experience to exemplify how a principle or concept should be applied (e.g. handling a security threat at an airport);
- b) asking trainees to provide examples based on their knowledge or experience when referring to a specific heading or category (e.g. list of restricted articles for cabin baggage);
- c) introducing a topic with a question or situation to explore the topic's relevance in solving real-world challenges;
- d) sharing stories that illustrate the application of principles, processes and other elements covered in the course in real-life situations and the outcomes of their application; and
- e) using local examples that are relevant to the location of the course or trainees' work location (e.g. using a plan of the local airport to illustrate key points such as airspace boundaries, ground facilities, etc.).

2.5.3 Best practices for delivering a course module or section

2.5.3.1 Delivering a topic or activity as part of a course module or section is most effective if the topic or activity is divided into an introduction, the main content delivery and a conclusion. By doing so, instructors will incorporate the following six best practices for instruction:

Introduction	<ol style="list-style-type: none"> 1. Create readiness 2. Engage prior learning
Content delivery	<ol style="list-style-type: none"> 3. Invite interaction 4. Provide opportunities for practice 5. Reinforce
Conclusion	<ol style="list-style-type: none"> 6. Debrief and summarize

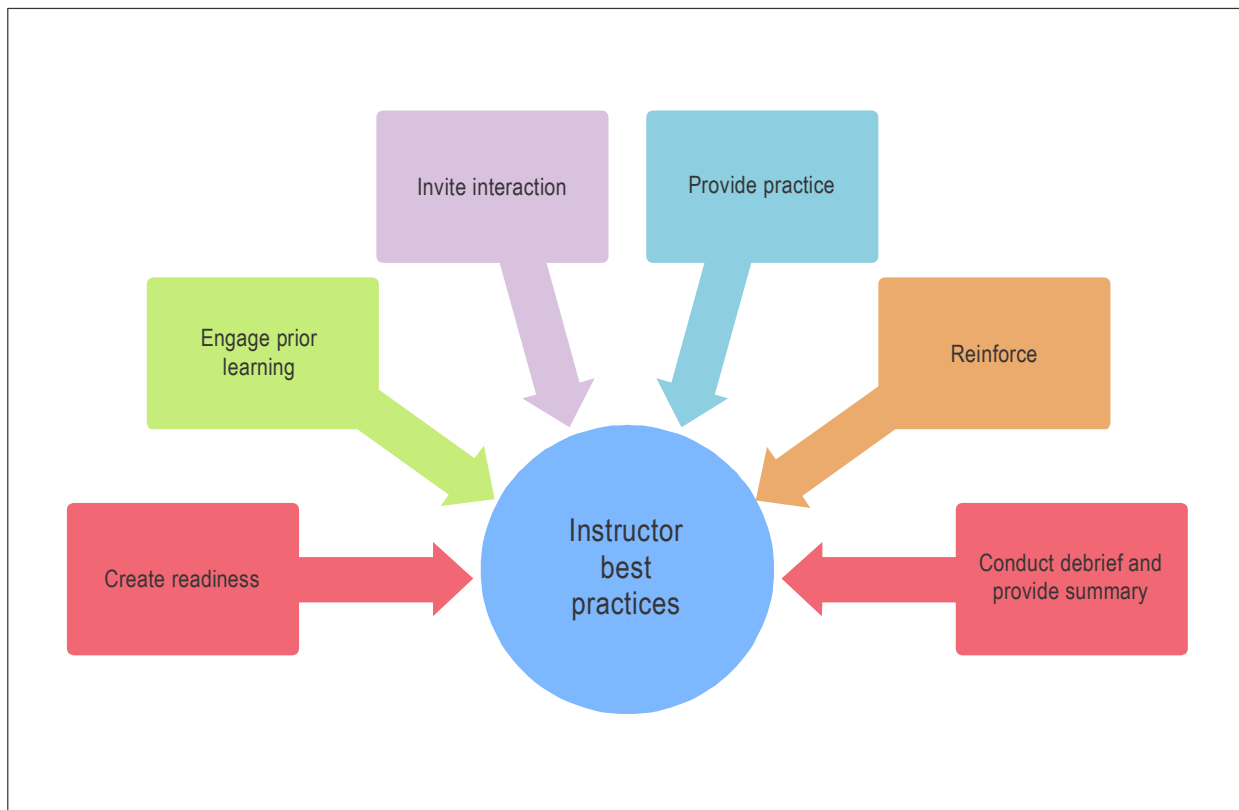


Figure 2-4. Six instructor best practices for effective instruction

2.5.3.2 These are described below in more detail.

2.5.3.3 Introduction

At the start of each section, day or module of the course, the instructor should provide an introduction to set trainees' expectations for learning. The purpose of the introduction is to:

- a) *Create readiness.* This may be achieved by:
 - 1) presenting the objectives and content sections to be covered throughout the course so that trainees may follow the module's structure and logic and determine to what extent the objectives and sections are relevant to them;
 - 2) presenting a meaningful problem to frame the content and/or describing how the module relates to the trainees' jobs or required competencies (e.g. if they perform more effectively, they will have fewer accidents); and
- b) *Draw on previous knowledge.* Instructors should determine what trainees must recall or use from previous readings, pre-work or modules in order to better understand the current topic.

2.5.3.4 Content delivery

2.5.3.4.1 The main part of the module is the content delivery itself, or an exercise or activity in the case of practical sessions. When delivering the content, the instructor must focus on covering relevant content at the appropriate level as described in the module plan and materials. For example, if trainees must solve problems using course material later in practice or to pass tests, instructors should give them opportunities to solve the same type of problem or situation during training.

2.5.3.4.2 As experts, instructors can bring the content to life by citing particular examples or experiences that are most relevant to their trainees. Real-life elements enrich the content and help trainees to later transfer what they have learned to their jobs. Soliciting and including trainees' prior knowledge and experience enriches learning and motivates them to learn more.

2.5.3.4.3 Maintaining an appropriate pace based on the module plan is essential to achieve the desired balance between presentation and activity, to maintain engagement and complete all elements of the module in the allotted time.

- a) *Invite interaction.* To retain trainees' attention, instructors should mix delivery methods (e.g. oral or visual) and conduct inclusive activities that require trainees to take note of important items, brainstorm or answer open-ended questions in pairs or groups, for example.
- b) *Provide opportunities for practice.* Trainees become more engaged when instructors periodically ask questions or present scenarios for consideration. Practice may be incorporated into the module either during presentations or as part of activities.
 - 1) Questions should reflect the form in which the information will be used in real life. For example, instructors may ask case-based questions.
 - 2) If group or individual activities and tasks are indicated in the module plan, the instructor should carry out such activities and tasks according to the guidelines so that trainees have adequate time to practice, reflect on and discuss application of the information.
- c) *Reinforce learning.* When trainees provide input, the instructor should respond with constructive feedback to motivate them, confirm the accuracy of the information and clarify any confusing issues.

2.5.3.5 Conclusion

2.5.3.5.1 The conclusion helps to reinforce skills and knowledge acquired throughout the course and to clarify any doubts or misunderstanding. Even if time is limited, instructors should not omit this important step in the learning process.

- a) *Debriefing*: Instructors should pause to allow for trainee reflection before closing the session. This step provides an important opportunity for the trainees to clear up any confusion and express their reaction to the training experience. Verbalization in this way supports learning and retention. When questions are raised, instructors should return to the relevant parts of the presentation and reiterate points as necessary.
- b) *Summarizing content*: An effective conclusion containing key statements or relevant points summarizing each subtopic will help to reinforce the main elements of the course. All of the points in the conclusion should have been covered earlier in the course, making them recognizable to trainees. Summaries should be brief and concise.

2.5.3.5.2 The final part of the conclusion should be to connect the learning points to previous and future modules or courses and to the course or module goal. Trainees can assess for themselves how successful they have been in achieving these goals. Their actual performance will be tested in the appropriate course tests.

2.5.4 Skills required for instruction and presentation

2.5.4.1 To use course documentation and deliver competency-based training effectively, instructors require various skills. These skills, together with the techniques described in previous sections, are included in the observable behaviours under Instructor Competencies 3.2 and 3.3 of the ICAO Adapted Instructor Competency Model.

2.5.4.2 To deliver courses effectively, instructors require skills related to body language, voice, listening and asking questions. Relevant strategies are described in Table 2.4.

Table 2-4. Instructor presentation skills

<i>Skill category</i>	<i>Behaviours and strategies</i>
Body language	<ul style="list-style-type: none"> a) Instructors should maintain an open and confident attitude; they should move around the room and avoid getting stuck behind physical barriers such as desks or equipment. b) Eye contact can help the presenter to establish credibility and gain the audience's trust. Friendly and positive facial expressions can help to reinforce a positive attitude among trainees. c) Natural hand gestures and body movements can help to build credibility and maintain engagement; however, distracting movements should be identified and minimized.
Voice	<ul style="list-style-type: none"> a) Instructors should speak with a clear, positive tone and vary inflection and emphasis to give more meaning and character to the content. They should speak at an appropriate volume so that trainees who are furthest away can hear clearly. b) Instructors should speak at a slower pace than in normal conversation so that trainees can absorb the information.

	<p>c) Instructors should ensure that there is adequate silence and pause while speaking to enable trainees to process concepts and form questions if needed. Instructors should be careful not to speak too soon and should encourage reflection among trainees.</p> <p>d) Instructors should be careful when using local expressions, slang and technical terminology and abbreviations, as some trainees may not fully understand them. Cultural differences should be considered when using humour or expressions that may not translate across different trainee backgrounds.</p>
Effective listening	<p>a) Instructors should frequently ask trainees for their input and listen to them without interrupting. Trainees will feel more confident to ask for clarification, provide input and answer questions when they feel included and respected in the communication process.</p> <p>b) Instructors should paraphrase trainees' statements or questions so that the problem or question raised is clear to other trainees. Paraphrasing also enables instructors to check whether the question and context were correctly understood before answering it.</p> <p>c) Instructors should respond to questions promptly, honestly and appropriately. They should leave complex or out-of-context questions for later in the course so that trainees stay focused on the topic and feel confident that they have been heard.</p>
Asking questions	<p>a) Asking trainees questions is an effective way to maintain relevance and engagement throughout a presentation. Questions may be prescribed as part of the designed course materials or asked on an ad hoc basis to include participants in a topic or scenario discussion.</p> <p>b) Open-ended questions provide opportunities for instructors to invite comments, suggestions, ideas and reactions regarding a topic or challenge. Before providing feedback, instructors should acknowledge trainees' answers or comment on their value or correctness.</p> <p>c) Questions can help trainees to recall and make connections with previously learned materials. They enable instructors to identify trainees' experiences that are relevant to the topic and verify their understanding or mastery of a concept.</p>

2.6 EFFECTIVE TRAINING TECHNIQUES

2.6.1 Bloom's taxonomy

2.6.1.1 In the 1950s, educational psychologist Benjamin Bloom developed a hierarchical taxonomy that describes the learning process as a series of levels ranging from the retention of simple knowledge to the creation of new ideas and theories. This system, known as Bloom's taxonomy, is widely used to design courses and match training objectives and methods to required performance.

2.6.1.2 The levels of learning may be represented as a pyramid containing knowledge at its base. Each level consists of associated behavioural competencies and the associated action verbs according to which competency-based training courses are designed.

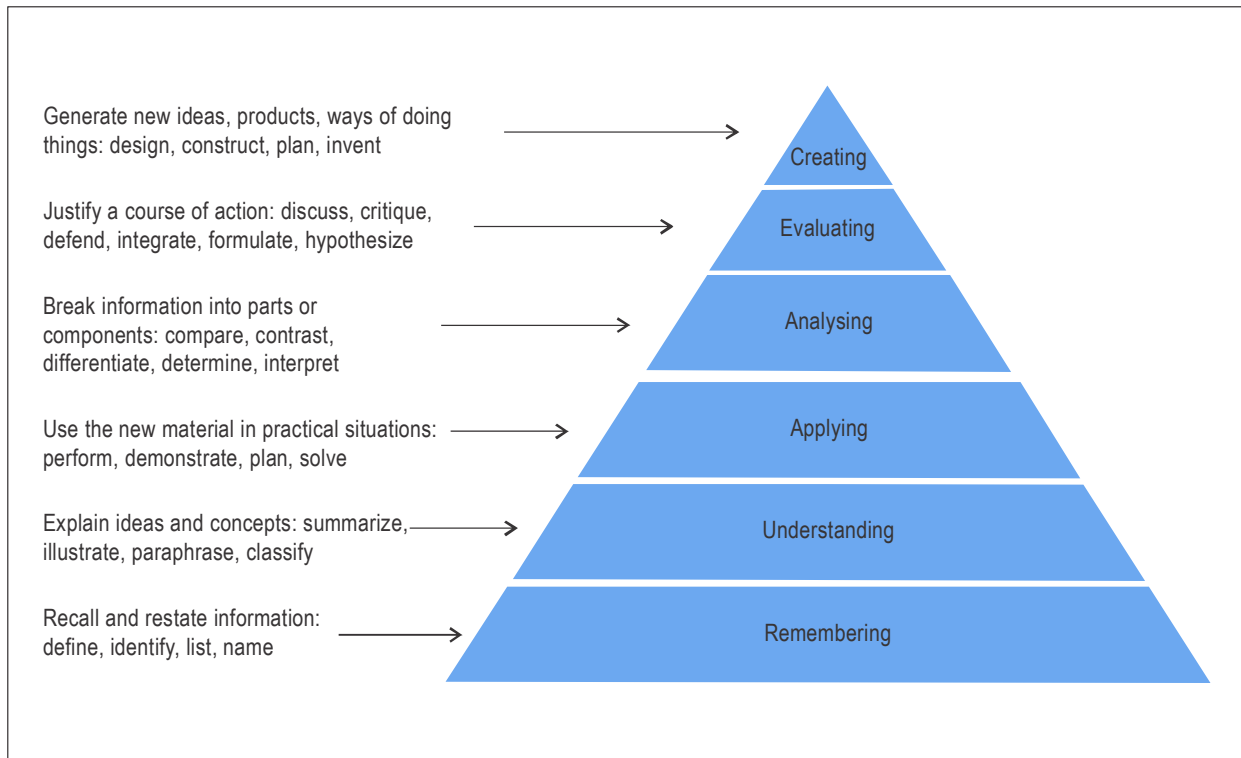


Figure 2-5. Representation of Bloom's taxonomy, showing levels of learning and associated specific competencies

2.6.1.3 Training techniques are designed based on trainee performance objectives and integrated into the course. Such techniques must help trainees to develop skills at the appropriate level and to use such skills in both the training environment and real world.

2.6.1.4 For this reason, competency-based training typically includes a variety of teaching and learning techniques that are largely determined by performance objectives, required competencies, audience-related factors, training environment constraints and other logistical factors. Instructors should be fully cognizant of the benefits and applications of these techniques in order to meet the course's objectives.

2.6.2 Competency-based training techniques and methods

2.6.2.1 The table below lists commonly used classroom training techniques, classified into Bloom's taxonomy.

Table 2-5. Behavioural competencies and classroom training techniques

<i>Learning process</i>	<i>Training techniques</i>
Remembering	Background reading Presentation
Understanding	Presentation Demonstration Discussion/deliberation
Applying	Demonstration Role play Case studies Scenario-based exercises
Analysing	Case studies Business and serious games (games intended to educate, rather than simply entertain) Laboratory/simulations
Evaluating	Case studies Business and serious games Group dynamics exercises
Creating	Case studies Problem-solving scenarios

2.6.2.2 Course development teams determine which specific techniques and equipment must be used based on detailed analyses of training needs and target audiences. Instructors must implement the training using the prescribed techniques to the extent possible and ensure that trainees meet course and module objectives.

2.6.2.3 Many of these methods were discussed in Chapter 1 with regard to course preparation. By following appropriate preparatory steps, instructors should be able to implement training techniques as per the course plan and deliver an effective course. The following section provides an overview of commonly used techniques and guidance on how instructors can use them to their best advantage.

Note.— Many instructors have experience with and preferences for certain techniques and methods with which they feel comfortable. When instructors encounter new or updated techniques, it is important that they understand the rationale and benefits of each technique in order for trainees to succeed.

2.6.3 Presentation

Presentation is probably the most widely known and commonly used method for sharing knowledge. This method is usually characterized by the instructor presenting information to the audience. Often, the instructor will also refer to visuals on prepared slides or use documents, images or diagrams to illustrate key points. This method is suitable for presenting a large amount of material in a short time. Audiences may be large provided that the instructor can be seen and heard by all trainees, and that trainees can also see the visuals.

Table 2-6. Potential pitfalls and best practices of presentation

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Trainees are in a passive role and will quickly stop paying attention if not actively engaged. b) Instructors may present for too long or in too much detail if they are experts in the topic. Such pitfalls may compromise other course activities owing to time constraints. c) Visuals may not be presented in a way that enhances learning. 	<ul style="list-style-type: none"> a) Instructors should present information systematically: they should provide a clear introduction, well-defined section/topic breaks and a meaningful conclusion. b) Instructors should continually monitor engagement and encourage participation by asking questions and putting aside time for discussion, brainstorming, etc. c) Instructors should keep to the prescribed level of detail and timing so that the presentation does not take up too much time. d) Instructors should use the visuals provided to illustrate key points at the right moments and enhance learning through auditory and visual channels.



Figure 2-6. Presentation

2.6.4 Discussion/deliberation

2.6.4.1 This method is often used during presentations as it encourages trainees to participate, consider the presented concepts using examples or apply the concepts to scenarios. This method is especially useful for problem-solving, generating relevant contexts for new concepts and drawing on trainees' prior learning or experience. Discussion and deliberation helps trainees to retain knowledge and transfer what they have learned after the course.

2.6.4.2 Discussions may involve the entire group or take place in small subgroups or pairs. Opposing views and lively discussion are common and, when handled professionally, can help trainees to build relationships and explore ideas beyond their own experiences within the context of the learning topics.

Table 2-7. Potential pitfalls and best practices of discussion/deliberation

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Discussions may go off-topic and take up time that would otherwise be used to meet course objectives. b) A single point may generate detailed discussion between certain trainees and the instructor. c) Some topics give rise to disagreements and conflicts, which may damage team relationships. d) If trainees are unfamiliar with the topic, they may be reluctant or unable to contribute ideas. 	<ul style="list-style-type: none"> a) Instructors should plan the discussion topic and process in advance, provide instructions and an objective for the discussion exercise and monitor points and topics to keep the group focused on relevant topics or learning points. b) Instructors should suggest discussing complex or controversial topics at a later point in the course or outside of class hours. c) Instructors should manage different perspectives in a manner that is non-judgemental and that encourages trainees to explore new ideas and build relationships. d) Instructors should provide guidance and feedback in a way that is conducive to learning.

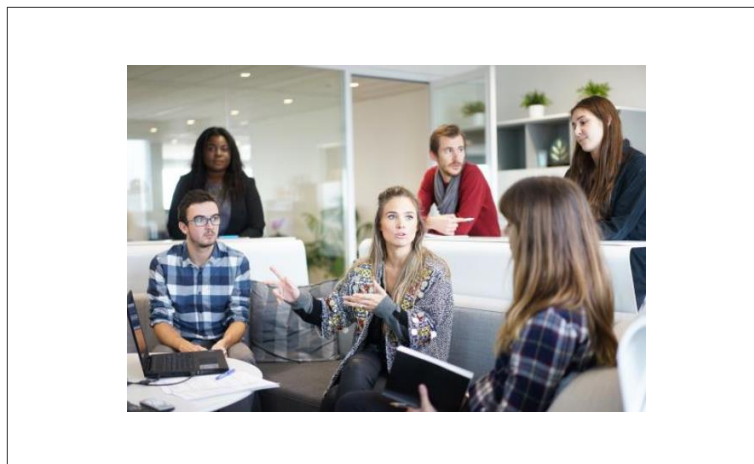


Figure 2-7. Discussion

2.6.5 Case studies

Case study activities are built around a story of an event or set of circumstances and contain pertinent details. Case studies may require trainees to identify the causes of a particular problem or to find solutions. When trainees work through a problem or set of circumstances in a safe environment free of pressures and the possible consequences of poor decisions, they can explore broader solutions to problems that may potentially arise in the work setting. By exchanging ideas, trainees gain knowledge and experience in job-related tasks as well as experience in solving problems in a team.

Table 2-8. Potential pitfalls and best practices of case studies

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) During the case study, trainees may lose focus of the objectives. b) Outcomes and decisions may vary considerably between trainees and groups, and key learning points may be lost. c) Instructions and tasks may not be closely followed, especially if the exercise opens different avenues of thought. 	<ul style="list-style-type: none"> a) Instructors should clearly introduce the case study and its objectives and tasks. b) Instructors should monitor progress to ensure that trainees are on track towards reaching a conclusion that is relevant to the learning points. c) Instructors should use the evaluation and scoring guides provided to evaluate performance. d) If necessary, instructors should present a model answer to emphasize the learning points.

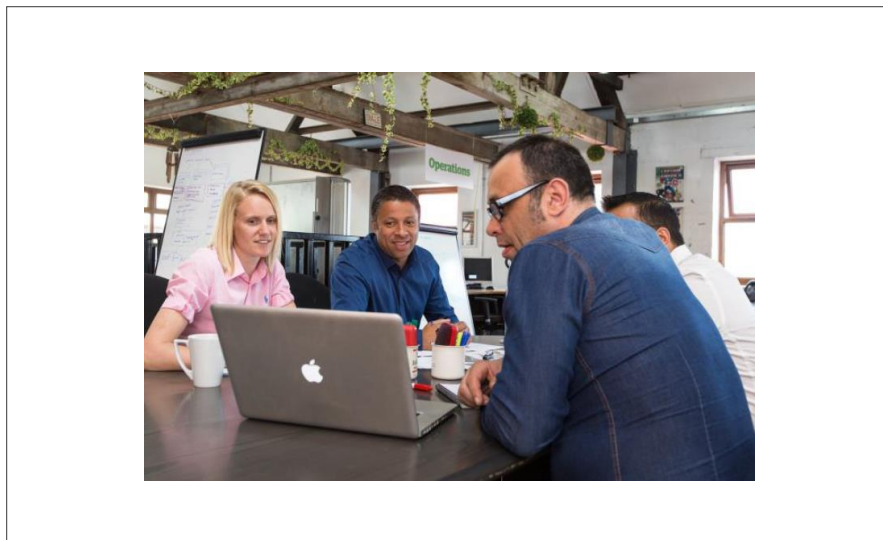


Figure 2-8. Case study group

2.6.6 Demonstration

Demonstration is a common technique for teaching a specific physical manipulation process or manual procedure. Demonstrations of specific tasks are often provided in training software and computer applications. During a demonstration, the instructor performs a task exactly as it should be learned and explains each step along the way. Trainees can see the technique in a live setting and ask questions before attempting it themselves. Performing live demonstrations, whenever possible, provides a more direct learning experience than descriptions, images or videos.

Table 2-9. Potential pitfalls and best practices of demonstration

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Demonstration software or equipment may malfunction or experience errors and therefore prevent trainees from completing the task. b) Some trainees may not clearly see the demonstration. c) Instructors may encounter problems that they cannot resolve. d) Trainees may be confused or lose interest if too much information is presented at once. 	<ul style="list-style-type: none"> a) Instructors should prepare thoroughly and rehearse processes to be demonstrated to ensure that they are confident during the demonstration. b) Instructors should anticipate problems or errors and plan for how to or resolve or compensate for them. c) Complex procedures should be broken down into smaller steps so that trainees can absorb the relevant information. d) Instructors should keep demonstrations as simple as possible to meet the needs of trainees.



Figure 2-9. Software demonstration

2.6.7 Role play

Role play can help trainees to develop specific decision-making or face-to-face conversational skills, including interviewing techniques and negotiation skills, for specific situations. Using a typical work scenario or other real-life situation, trainees perform an assigned role and gain feedback from their instructor and peers. The trainees feel the pressure of real-life situations in a safe learning environment.

Table 2-10. Potential pitfalls and best practices of role play

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Trainees often feel uncomfortable to take on an unfamiliar role and may be reluctant to participate. b) Trainees may be intimidated by having to show acting skills. 	<ul style="list-style-type: none"> a) Instructors should ask trainees to observe role play interactions and to provide feedback and encouragement. b) Instructors should clearly introduce the exercise's objectives and performance criteria. c) Instructors should promote a safe environment where trainees can make mistakes and provide feedback in a constructive and non-judgemental way.



Figure 2-10. Role playing

2.6.8 Business and serious game/simulation

This activity is often conducted in management-related courses or to develop skills in project management or decision-making, for example. Trainees are initially presented with data and information about an organization or departmental process and are given roles and an objective. During the activity, decisions are made and tasks may be executed. The results of these decisions are then evaluated, occasionally with the help of a software programme or computer application. This activity is useful for evaluating trainees' performance in different scenarios and their ability to apply principles that have been taught throughout the course.

Table 2-11. Potential pitfalls and best practices of business games/simulation

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Trainees may be afraid to share ideas if they are not confident in the topic area. b) Trainees may draw conclusions too quickly and omit important steps. c) Outcomes can vary and may be difficult to relate to learning points and module objectives. 	<ul style="list-style-type: none"> a) Instructors should clearly introduce the activity and its objectives and tasks. b) Instructors should continually monitor progress to evaluate the process and working methods used by trainees. c) Instructors should use the evaluation and scoring guides provided to evaluate performance. d) If necessary, instructors should present a model answer to emphasize learning points.

2.6.9 Training aid — multimedia

2.6.9.1 Presentations and other learning activities can be enhanced by videos, websites, podcasts, software applications and audio clips.

2.6.9.2 Media files or links may be included in a presentation or loaded onto the presenter's computer and presented using appropriate equipment. It is increasingly common for trainees to use or view media on their mobile devices or laptops.

2.6.9.3 Media can help trainees to understand complex ideas requiring more than a verbal explanation. Media are also used when objects or real equipment or facilities cannot be made available to trainees.

Note.— Various media and applications are part of the everyday experience of many digital age trainees and are rapidly becoming part of their expectations for training. Instructors must be able to use and integrate different media in their training to maintain engagement and interest.

Table 2-12. Potential pitfalls and best practices of multimedia presentations

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Media may be out of context with regards to the overall learning objectives. b) Media may be overused, causing trainees to grow tired or show a lack of engagement. c) Technical issues may prevent media from running smoothly and inhibit the flow of information. 	<ul style="list-style-type: none"> a) Instructors should give context and relevance to the media by linking the media with course/module objectives. b) Instructors should provide a clear introduction and time for post-discussion to ensure that the learning points are received and retained. c) Instructors should test the operation of the media in advance and be prepared to move to the next course section if technical issues arise. d) Instructors should provide links or access to media materials (if applicable) so that trainees can explore the materials on their own outside of class hours.

**Figure 2-11. Multimedia**

2.6.10 Training aid — computer-based training

2.6.10.1 In computer-based training, trainees interact with training materials that are either locally installed or available via an internet link on a computer or mobile device. The trainees interact with the material by making choices, performing tasks and completing tests. The trainee's understanding and development of skills are measured and evaluated through the responses provided.

2.6.10.2 The training applications can be as simple as presenting the trainees with a series of multiple-choice questions for exercises or practice sessions, or as advanced as simulations of highly complex equipment. Computer-based training is used extensively for individual training in cases where trainees are in different locations. Nevertheless, it is often a component of classroom courses, and instructors should be fully conversant with the training programme's operation and purpose.

Table 2-13. Potential pitfalls and best practices of computer-based training

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Trainees may not be comfortable operating the computer if it is not familiar to them (e.g. inexperienced trainees, use of different operating systems). b) Trainees may spend more time learning how to navigate through and interact with the training programme than completing the instructional tasks. c) Trainees may scroll through their screens without reading or viewing all the material. d) The completion of tasks may take longer than expected. 	<ul style="list-style-type: none"> a) Instructors should provide guidance on the operation and navigation of the programme in advance. b) Instructors should consider pairing inexperienced or less confident trainees with those who are more proficient with the programme. c) Instructors should monitor progress and encourage trainees to fully explore the content. d) Instructors should prompt trainees to move to subsequent sections so that trainees have the chance to complete all tasks.



Figure 2-12. Computer-based training

2.6.11 Training aid — laboratory or simulation

2.6.11.1 In this training technique, a real-life situation is provided and usually involves the use of simulators, which imitate real work situations without the real risks. Simulators are designed to operate in the same way as real equipment and give trainees the feeling of being in a real work situation.

2.6.11.2 Laboratory/simulation training is a safe way of providing training for high-risk tasks such as flying aircraft or providing air traffic control. This technique can simulate regularly encountered scenarios for foundation training and provide effective training for emergencies without fear of consequences. It also can be used in summative evaluation to test whether the trainee has reached the level of competency that he or she needs to follow other methods of training.

Table 2-14. Potential pitfalls and best practices of laboratory or simulation exercises

<i>Potential pitfalls</i>	<i>Best practices</i>
<ul style="list-style-type: none"> a) Trainees may not be fully aware of their roles in the laboratory or simulation. b) Trainees may focus on less important aspects and miss key performance items. 	<ul style="list-style-type: none"> a) Instructors should plan carefully and monitor progress throughout the activity. b) Instructors should introduce the specific goal of the laboratory or simulation and ensure that trainees know the evaluation criteria. c) Instructors should make sure that trainees know their roles in the simulation activity and which resources they have access to.

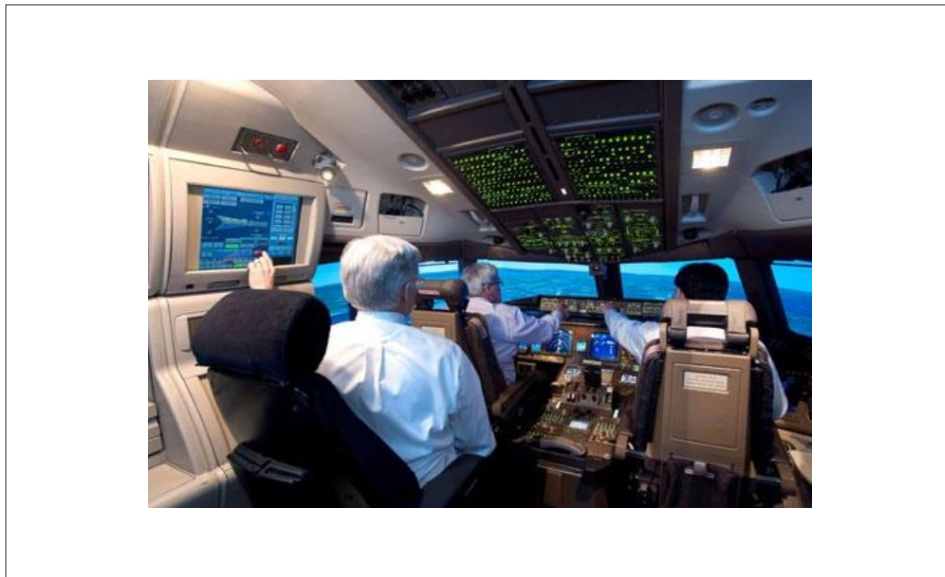


Figure 2-13. Simulation laboratory

2.6.12 Videoconference

2.6.12.1 Videoconferencing is a web-based service that enables interaction between remotely located people or work groups. Videoconferencing may be used in classroom courses for certain purposes, for example, to invite live contributions from expert speakers who are located off-site, perhaps in an airport building or area relevant to the training. Videoconferencing usually facilitates audio and visual communication by enabling participants to share on-screen materials and software.

2.6.12.2 Videoconferencing can serve as a training tool during a classroom course as long as the training has been designed accordingly. Most platforms also enable collaborative functions such as text chat/commenting, raising hands and document sharing/editing, all of which can be used to design engaging training experiences using this medium. Some also enable participants to form virtual breakout groups for small group discussions.

2.6.12.3 Web-based videoconferencing is also becoming a popular alternative to off-site training since it provides a way to deliver synchronous, expert training to a classroom trainee group, thereby making the expert accessible while saving costs and resources related to logistics and transport for site visits.

Note.— In all cases, the instructional goal, learning methods, instruments and technical aspects must be considered in order for this delivery method to be successful. Successful training via videoconferencing requires a clear objective, identification of constraints (trainee audience, technology, instructor's competence, etc.) and suitability of the training objectives for this method.

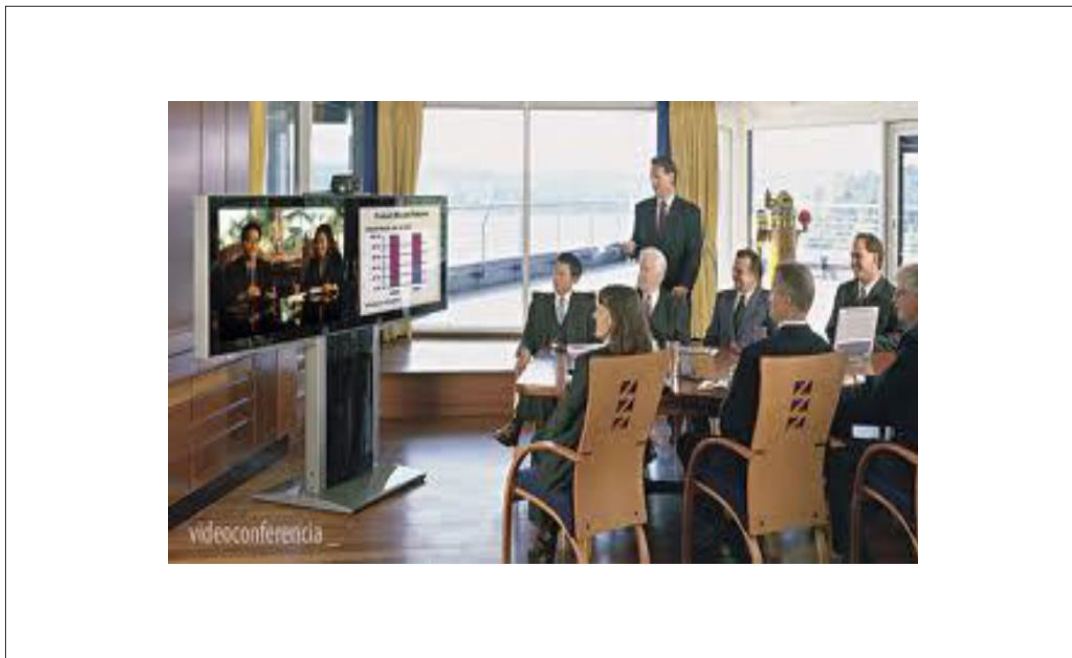


Figure 2-14. Videoconference

2.6.13 New learning technologies

In today's age of connectivity, emerging technologies such as artificial intelligence, machine learning and augmented/virtual reality are all making their way into training design. Examples are:

- a) wearable technologies such as smart glasses and activity-tracking devices;
- b) virtual reality devices such as VR goggles;
- c) adaptive learning systems using machine learning technology;
- d) gamified learning that uses a game structure to provide a rich, interactive learning experience with embedded feedback; and
- e) mobile-based technologies providing short, targeted learning elements as part of a larger training programme.



Figure 2-15. Emerging technologies that may be used as part of a training experience

Note.— Although this guide does not provide details on the use of these technologies in classroom-based training courses, instructors should be aware that they may be introduced as part of the design of future courses. They must be as familiar as possible with the purpose, operation and benefits of such technologies in meeting training goals.

2.7 MANAGING TRAINEES

2.7.1 As discussed in Chapter 1, trainees arrive to the course with a diverse set of characteristics. Although they all may meet the criteria for the course's target audience, there are factors that the instructor will need to take into account when delivering the course.

2.7.2 Instructor competencies related to trainee management are described under Instructor Competency 2 of the ICAO Adapted Instructor Competency Model. Instructors must identify trainee characteristics, recognize different needs that affect trainees' ability to participate and learn, and make appropriate adjustments to their training strategies to make their courses as effective as possible.

2.7.3 As adult learners, trainees bring their own wealth of experience, preconceptions, attitudes and concerns to the training course. Their approach to the learning experience is therefore unique and may be motivated by various factors, both positive and negative. For example, if a trainee is required to complete a course but does not have a clear idea of how it will be beneficial, the trainee's motivation to participate will be negatively affected.

2.7.4 Trainee characteristics

Table 2-15 provides some examples of trainee characteristics and the potential challenges that they may bring to instructors, as well as strategies to address them. Experienced instructors may have encountered these and many other examples of trainee characteristics that have an impact on learning. Competent instructors will be able to recognize the significant learning factors and make adjustments to deliver the course accordingly.

Table 2-15. Trainee characteristics, learning factors and instructor strategies

<i>Trainee characteristics and learning factors</i>	<i>Instructor strategies</i>
Trainees have been asked to complete the course but do not believe that it will benefit them or their careers.	Instructors should identify these trainees early in the course, make efforts to engage them in discussions and identify elements of the course that resonate with their interests and experience. They should help them to understand how the competencies covered in the course will benefit them in their future job or career.
Trainees may be attending in a managerial capacity or in place of technical staff that cannot be released from their operational duties. In such cases, trainees may not meet all the target audience criteria.	Instructors should invite trainees to share their experience and perspectives to provide additional context to the training. These trainees may need support in the more technical areas of the training if they are not involved in the job that the training is targeting.
Trainees may be unfamiliar or uncomfortable with certain course activities, depending on their experience (e.g. older trainees who are taking dynamic, trainee-centred courses or digital age trainees attending traditional, presentation-based courses).	Instructors should identify these trainees early on and, when possible, pair them with trainees with the opposite profile so that their skills complement each other and trainees can support and teach one another.
Trainees may be attending the course without prior knowledge or experience in the job to which it relates and so will not be able to gauge how the course is relevant and beneficial to them specifically.	Instructors should ensure that these trainees have exposure to others with relevant experience, for example by assigning groups with a mixed level of experience. All trainees will have something unique to offer.

<p>Trainees may struggle to keep up with the course material due to language difficulties (either spoken or written) and therefore may quickly lose motivation and interest.</p>	<p>Trainees should be given sufficient time to orally express their thoughts. Instructors should not put them on the spot if they are unwilling to speak in front of the group. For written tests and tasks, instructors should consider giving trainees extra time to complete their assignments.</p>
<p>A trainee's confidence or personality may have a negative effect on the participatory elements of the course. The trainee may either be quiet and less confident or be very outspoken.</p>	<p>Instructors should use diplomatic skills to ensure a balance of input from different trainees. Occasionally, they should respectfully invite input specifically from quieter trainees. It may be necessary to ask the enthusiastic contributors to allow others to speak.</p>
<p>Trainees that work together but in a reporting hierarchy may be reluctant to behave as equals in the training context, which can limit their ability to participate and learn effectively for fear of losing credibility among their managers or subordinates.</p>	<p>Instructors should encourage safe, judgement-free discussions and reiterate that every trainee has the right and responsibility to meet the course expectations through appropriate participation. If possible, instructors should separate trainees into different groups for activities so that they are working with others who are not directly in their reporting line.</p>

Note.— For material-dependent courses, instructors should follow the designed training programme and materials as closely as possible. They should make appropriate adjustments to the delivery strategies as needed while delivering the course as designed. Slight adjustments to the duration of topics and activities and to discussion topics, debriefing points and the timing of tests are acceptable as long as the instructor is always conscious that performance-based objectives must be met. Such an approach will help trainees to master the desired competencies.

2.7.5 Managing trainees as adult learners

As discussed earlier in this chapter, instructors must respect the principles of adult learning. In particular, they should adhere to the following strategies:

- a) keep in mind that the course is for the trainees and that the end goal is to learn, not teach;
- b) make trainees responsible for their learning — provide expectations and guidelines for effective participation and successful completion and expect trainees to meet the requirements. If problems become apparent, invite trainees to discuss challenges directly;
- c) be sensitive to trainee characteristics that influence how trainees interact with the instructor and each other (for example, differences in seniority, cultural backgrounds, language, etc.) and provide support to promote interaction and cooperation;
- d) encourage questions and participation throughout the course;
- e) moderate contributions from the most outspoken trainees and encourage more reserved trainees to voice their ideas;
- f) allow trainees to formulate their own interpretations of the material and apply them to new scenarios or applications;
- g) allow trainees to teach each other through group presentations, competitive activities, brainstorming, team tasks, etc.; and

- h) ensure that feedback on performance is constructive, related to the performance goals and clear to trainees — feedback is intended to motivate and encourage, not to point out areas of failure.

2.7.6 Group dynamics

2.7.6.1 It is important for instructors to be aware of group characteristics as well as learners as individuals. The behaviour of each trainee will have an effect on the entire learning group. Instructors should make every effort to encourage full participation by all. This may mean giving quiet trainees the opportunity to share their ideas while using strategies to limit input from others who have a more dominant style of participation.

2.7.6.2 Instructors should be able to adapt to personalities and characteristics that become clearer as the course progresses and may have to manage the composition of working teams for the best learning outcomes.

2.7.6.3 It is important to remain non-judgemental, acknowledge negative or unhelpful comments and, if necessary, address them at a later time during the course. Instructors should reiterate positive points, feedback and observations to keep the group focused on the progress achieved in reaching the learning goals.

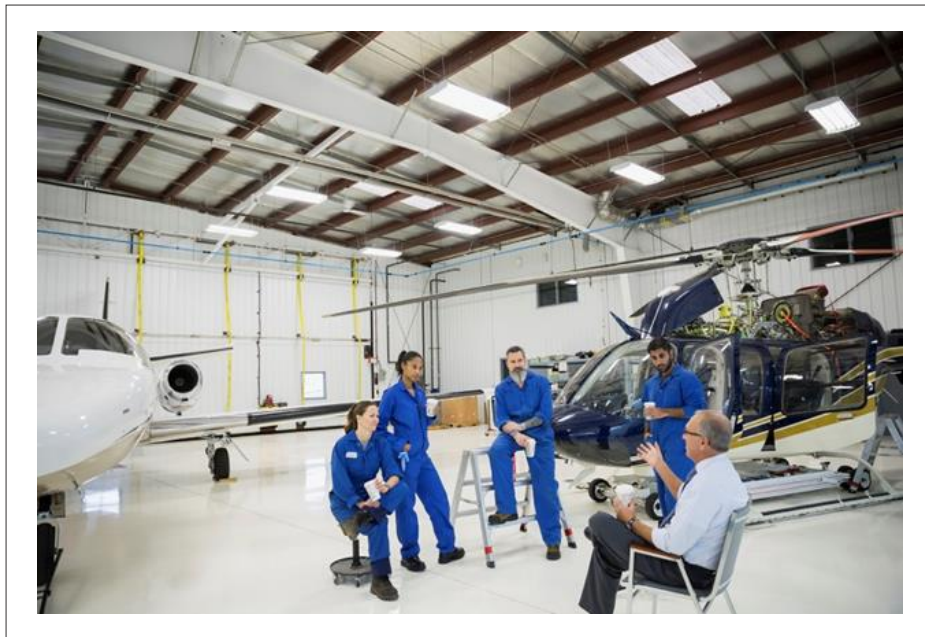


Figure 2-16. Group dynamics

2.8 CONDUCTING EXERCISES

2.8.1 As discussed in previous sections, it is important to include a strong element of practice, application and feedback into any competency-based course so that trainees can acquire not only essential knowledge, but also the skills required for their jobs.

2.8.2 Instructors must be fully competent in and comfortable with introducing, conducting, monitoring and concluding each kind of exercise or activity included in the courses they are delivering. Effective execution of these will provide instructors with a valuable measure of the training's success and may help instructors to adjust the style of the remainder of the course to give trainees the best chance for success.

2.8.3 Exercises and activities are usually described in course module documentation and may range from informal discussions to fully designed and structured activities with accompanying resources such as reference materials, worksheets and evaluation tools.

2.8.4 Conducting practical exercises

2.8.4.1 Trainees are often most engaged during learner-centred activities, which provide a valuable opportunity to apply principles and information learned in contexts similar to those in real life. Working in pairs or teams to share ideas and consider others' perspectives enriches the learning experience and falls in line with adult learning principles. Having a greater sense of relevance, actively practicing skills and learning from others are all essential ingredients for effective adult learning and are all present in a well-executed learning exercise.

2.8.4.2 Although during an exercise or activity, the trainees are focused on each other and not the instructor, the instructor should provide appropriate information and monitor and follow up with trainees to ensure learning. Instructors should *not* use exercises and activities as opportunities to leave the trainees to their own devices and take a break. Exercises that are poorly executed or given too much or too little time can demotivate trainees.

2.8.4.3 The instructor's role is to make sure that trainees feel in control of their learning, know what is expected of them and are confident that they will receive appropriate feedback on their performance *at all times*.

2.8.4.4 In the training environment, exercises may include one or several of the training techniques that were presented earlier in this chapter. Instructors should be well-prepared for their use and introduce the trainees to any concepts or technology with minimal disruption to the learning flow.

2.8.4.5 Whatever the nature of the exercise, the instructor will be responsible for effectively implementing the following elements:

1. Introduce the exercise

The exercise should be introduced in the context of the current module. This could be achieved by referring to the module objective, previously presented content or a previous exercise that is related to the current one.

The instructor should provide clear objectives and details on the logistics and expectations of the exercise regardless of whether they are provided in written form.

2. Organize logistics

Many exercises are conducted in pairs or groups. The instructor should manage how trainees are assigned to groups as necessary or as prescribed in the module plan. Matters such as timing, stages of the exercise and expected outputs (e.g. a report, presentation or chart) should be clearly articulated before the trainees commence the exercise tasks.

3. Distribute resources

Most exercises require at least an instruction sheet and often require additional information and resources such as reference documents, online materials or case study information. Instructors should prepare these items in advance and ensure that trainees have all the information they need before starting the exercise.

Some exercises require information to be made available at specific stages in the exercise, which should also be carefully managed.

4. Monitor activities

Although instructors may be tempted to take breaks while trainees are working together, it is vital that they actively monitor exercises from beginning to end. Clarifying instructions, monitoring progress in the completion of tasks and providing appropriate hints where needed are all important aspects.

Active monitoring enables the instructor to gain valuable insight into the trainees' level of comprehension. The instructor may use this information to prepare eventual debrief comments and, if necessary, include an additional summary of material to ensure that learning is achieved.

During this phase, instructors should also monitor the effectiveness of the groups and trainees and take action to address conflicts or any group distributions that may be detrimental to learning.

5. Ensure a supportive environment for producing outputs

The reports, presentations or information produced by the groups should be regarded by the instructor as providing an opportunity for all trainees to learn, reflect, provide their own feedback and receive feedback from the instructor. Peer evaluation of exercise outputs is a powerful component of adult learning.

Feedback should be related to the exercise objectives, and the performance evaluation should be positive and constructive. By using active listening and evaluation skills, the instructor will be able to use the exercise outputs to formulate a meaningful recapitulation of the activity.

Instructors and assistants should use provided scoring or evaluation schemes to ensure that performance is evaluated in an objective and balanced manner and to guide feedback points.

6. Debrief trainees on the activity

To conclude the exercise, the instructor should *always* provide relevant comments recapitulating key feedback points and learning points as they relate to the module and associated performance objectives.

Even if time is limited, this step should never be omitted since it provides a link between the experience of completing the exercise and overall goals of the training.

Note.— It is often a significant challenge for instructors to keep to the prescribed timing for completing exercises. Trainees may take more or less time than stated in the course design to complete tasks, and discussions may include significant recapitulation of previously presented material or new points that are interesting as added context. Instructors should use their skills in time management and their awareness of the remaining content in the module to judge timing and keep the module and course on track.

2.8.5 The purpose of feedback in the learning process

2.8.5.1 Feedback is information given in response to an action, question or statement. Exercises and tests provide a structured way for instructors to gauge learning and the level of performance of trainees. During exercises, feedback is expected by trainees and provided by the instructor in reaction to the exercise's outputs (report, presentation, performance log, etc.). Results from progress tests are also a form of feedback for trainees.

2.8.5.2 Feedback throughout the module is essential for trainees to monitor their own progress, remain engaged and stay motivated. When trainees are aware of their strengths and weaknesses concerning the competencies related to the module, they can improve their performance to attain the course goals.

2.8.5.3 Providing effective feedback to trainees is an essential skill and should be part of any module exercise or practical activity. Feedback comments may express positive or negative evaluations of performance but should always be provided with the goal of helping and motivating trainees.

2.8.5.4 When giving feedback, instructors should observe the following principles:

- a) feedback should be relevant and specific to the task, performance or topic;
- b) feedback should describe how the trainee's performance relates to the stated objectives of the exercise, test or module;
- c) instructors should avoid giving comments that may be interpreted as character judgements (for example, saying "you are quick to draw conclusions" versus "you made your decision quickly");
- d) feedback should not focus only on shortfalls in performance; it is also important to highlight areas of good or exceptional performance; and
- e) where performance is lacking, comments should focus on the measured/observed performance, which should be compared with the expected/desired performance. Trainees should be clear about what aspects they must change to attain the desired level of performance.

2.9 TIME MANAGEMENT

2.9.1 One of the most common pitfalls of course instruction is running out of time or having to shorten important course elements due to poor time management. Depending on the individual situation, this may have a varying impact on trainees' perception and has the potential to have a strongly negative impact on trainees' eventual performance in the final tests or in their ability to demonstrate their knowledge of the course material .

2.9.2 Poor time management is often a result of having an enthusiastic, knowledgeable and charismatic instructor and a highly engaged group of trainees — all of which are good things. However, the competent instructor should recognize the importance of staying on time during course delivery and have the skills to steer the training activities such that all of the designed course elements are executed in the allotted time frame.

2.9.3 Some common scenarios of time management issues and their impacts on course outcomes are listed in Table 2-16.

Table 2-16. Time management scenarios and impacts on course success

<i>Time management scenario</i>	<i>Impact on course success</i>
A highly experienced instructor takes time to explain scenarios or experiences in detail to describe a particular topic, providing a rich context to the material. However, this reduces the time available for a practice exercise, leading the instructor to rush through the follow-up and discussion at the end of the session.	Trainees experienced a memorable and rich learning session but did not have time to practice and reflect on their own performance and struggled to gain essential skills to apply the knowledge to meet course objectives.
During a practice exercise, trainees generated a more detailed report of the task than required, which generated a lot of discussion on peripheral points during the follow-up. As a result, the overall exercise time was extended by 20 minutes.	Although trainees gained contextual insights into the topics, the lack of a structured follow-up and conclusion and the overtime impeded the appropriate link to, and reduced the time available for, the next module.
An instructor who had previously taught a similar course without extensive materials and design documentation presented the module topics without considering the time required for the progress test and summary discussions prior to the mastery test. Trainees had to remain in the classroom a further 30 minutes at the end of the day to complete the tests.	Trainees missed their transportation to return to their hotels, which caused undue stress during the test and incurred costs to be covered by the training centre.

2.9.4 Strategies for managing time during course delivery

2.9.4.1 It is the role of the instructor to deliver all course elements within the recommended duration provided in the course package. Naturally, minor deviations will be necessary because of local schedules, conditions and the specifics of the trainee group. Taking these into account, the instructor should plan, execute and monitor the time throughout the course to ensure that the trainees benefit from all the learning activities and tests.

2.9.4.2 The following strategies are recommended for instructors to improve their time management:

- a) plan the overall timing of each module or section (including practice activities or exercises) and monitor timing regularly;
- b) keep discussions focused on the topic at hand and leave peripheral questions for later;
- c) closely monitor trainee-centred activities and move to the next stage of the exercise at the appropriate time;
- d) when delivering modules, avoid omitting reviews, summaries and follow-up sections, which enable trainees to absorb key learning points;
- e) if necessary, make minor adjustments to the course schedule (in collaboration with the training centre) to provide additional time to complete tests or practical activities;
- f) keep in mind the overall course and module objectives when making any changes to the course schedule;

- g) enlist the help of co-instructors or other staff to assist with time management. For example, a co-instructor could prepare or score a test while the principal instructor continues to deliver the course; and
- h) use mobile devices or a computer to display the time when delivering course sessions to ensure that sessions remain within the stated duration.

Note.— Major changes in course or module schedules should not be necessary since instructors are required to follow the recommended timing for material-dependent courses. If course activities significantly exceed the stated durations, or an unforeseen event arises and impacts the schedule, a note should be included in the course report at the end of the course.

2.10 EVALUATING TRAINEE PERFORMANCE

2.10.1 Monitoring trainees' progress throughout the course is a key part of the instructor's role in delivering a competency-based course. Various techniques and tools are used both formally and informally to assess trainees' learning, based on the stated module and course objectives.

2.10.2 This section discusses the evaluation tasks and tools relevant to course delivery. This should not be confused with evaluating course effectiveness, which is covered under Instructor Competency 5 of the ICAO Adapted Instructor Competency Model and discussed in the following chapter of this guide.

2.10.3 Instructor Competency 4 of the ICAO Adapted Instructor Competency Model concerns trainee evaluation and includes five competencies. Table 2-17 shows Instructor Competencies 4.1 to 4.4, which cover the specific techniques used within the realm of course delivery.

2.10.4 During course delivery, evaluation of trainees' performance may be conducted in various ways and may focus on the trainee group as a whole or on individual trainees.

2.10.5 Trainee evaluation, in whatever form it takes, involves the instructor assessing the degree to which the trainees are meeting the specific performance objectives for the module or course.

Table 2-17. Instructor Competency 4 of the ICAO Adapted Instructor Competency Model, with elements concerning course delivery

Name of the competency	Description	Performance Criteria		
		Observable behaviour (OB)	Competency assessment	
			Final competency standard	Conditions
IC4: Perform trainee assessment	The competent instructor must appropriately, objectively and correctly evaluate the trainees.		Given the trainee's performance, and using a variety of evaluation methods, the instructor evaluates the trainee and provides relevant feedback on performance.	Classroom training course

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
4.1 Uses varied evaluation methods		OB1	Selects the events and activities with which he/she will evaluate the performance of the trainees.		
		OB2	Clarifies the regulations of the evaluation procedure to the trainees.		
		OB3	Communicates to the trainees the criteria that will be implemented during the performance evaluation.		
4.2 Monitors the performance of trainees during class sessions		OB1	Interprets observed behaviours and comments on them adequately.		
		OB2	Allows trainees to correct themselves at the opportune moment.		
		OB3	Identifies individual differences in learning styles and adjusts the course strategy whenever possible.		
4.3 Makes objective evaluations		OB1	Compares performance results of the trainees with established objectives.		
		OB2	Applies performance criteria fairly and consistently.		
		OB3	Observes and encourages self-evaluation of performance with regard to the established performance criteria.		
		OB4	Makes decisions based on task results.		
4.4 Provides feedback that is understandable and usable		OB1	Ensures that trainees understand the entire feedback and assessment.		
		OB2	Applies adequate corrective measures.		
		OB3	Uses facilitation techniques when deemed appropriate in each different case.		
		OB4	Provides positive reinforcement.		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
OB5	Encourages mutual support.				
OB6	Creates and proposes how to reach an agreement about plans for improvement or rehabilitation.				

2.10.6 Purpose of evaluation

2.10.6.1 As discussed earlier in this chapter, module objectives comprise three components: the *conditions*, the *performance* and the *standard*. Performance must be evaluated using these elements of the stated performance objective to measure attainment.

2.10.6.2 The evaluation of trainees during the course provides information to different stakeholders, who use the evaluation outcomes in various ways:

Table 2-18. Stakeholders involved in evaluation and evaluation purposes

Stakeholder	Evaluation purpose
Instructor	<p>To enable instructors to monitor the progress of trainees throughout the course and make necessary adjustments to delivery strategies.</p> <p>To provide impartial information that, together with objectives, serves as the basis for feedback to trainees throughout the course.</p> <p>To provide an impartial measure of whether trainees have attained performance objectives (or whether they have successfully completed the course, in the case of pass/fail courses).</p> <p>To monitor the success of the overall course and inform course report requirements.</p>
Trainees	<p>To enable trainees to gauge their progress and take ownership of their learning.</p> <p>To provide certification of successful course completion.</p>
Other trainers providing subsequent training	Provides a measure of achievement throughout the course to be used as information for the next stage of training, including OJT.
Course developers and sponsors	Provides a measure of the overall performance of the trainees that can be useful for course updates and modifications, and informs supervisors.

2.10.6.3 Instructors can use both formal and informal evaluation measures to prepare an overall course evaluation to be included in the end-of-course report. The principles of course evaluation are discussed in the next chapter of this guide.

2.10.7 Formative and summative evaluation

2.10.7.1 Evaluation of performance may take many forms and be either formal or informal. Competent instructors generally use one or more techniques while delivering courses to continuously monitor trainees' performance.

2.10.7.2 Evaluation techniques fall into two categories:

Formative evaluation — this is the task of evaluating trainees while delivering the course. Formative evaluation is an ongoing process that may involve informal techniques such as asking questions and observing, or more structured activities such as reviews, quizzes and exercises. These elements of evaluation provide information on trainee performance at key points during the training and may be scored to provide objective feedback.

Summative evaluation — this represents the formalized evaluation methods that are provided as part of the course design to test the trainees' performance against stated module and course objectives. Evaluation methods may take the form of scored exercises, simulations or formal tests. The scores for each trainee are recorded.

2.10.7.3 Examples of formative and summative evaluation methods are provided in Table 2-19.

Table 2-19. Formative and summative evaluation methods

<i>Formative evaluation</i>	<i>Summative evaluation</i>
Questions posed by the instructor to trainees during presentations for review/application of presented content (directed at the group or at an individual)	Results of an exercise, simulation or activity (conducted either individually or in a group) where performance is objectively assessed using an evaluation tool or scoring guide
Observation of behaviours and approach to tasks in exercises	Progress tests during or at the end of a module. They may be in the form of written tests, short tasks, group tasks, presentations, etc.
Observation of the quantity and quality of questions asked by trainees during presentations or demonstrations	Module mastery tests. In STPs, module mastery tests are designed to assess mastery of the stated end-of-module objective.
Review of questions to conclude a section or topic	End-of-course exam with a final passing grade
Observation of the trainees' approach to tasks or problems during an exercise (individual or group) — applicable when the performance objective to be attained is related to problem-solving and decision-making	

2.10.8 Use of course documentation for evaluating trainees

Instructors use various materials and documents from course packages to conduct both formative and summative evaluation in an effective manner. An STP, for example, builds in evaluation activities throughout the course and provides the instructor with various tools to ensure that trainees are evaluated appropriately. Such tools include:

- a) module plan — instructions for conducting and monitoring activities and debrief points to be used in forming feedback comments;
- b) presentation materials — review questions, application scenarios and discussion topics are provided in presentation materials;
- c) activities and exercises with evaluation tools and scoring sheets included;
- d) progress tests with scoring guides;
- e) mastery and end-of-course tests with scoring guides; and
- f) scoresheet for all course tests and formal evaluations of activities.

2.10.9 Instructor's role in evaluating trainees

1. Preparation

Instructors should identify the relevant materials and tools provided in the course package for formative and summative evaluation and prepare for their use. It is important that they explain how and when performance will be evaluated and what criteria will be used during course or module introductions.

2. Continuously evaluate and give feedback

When delivering the course, the instructor should regularly monitor indicators of learning and skill acquisition through a variety of methods, provide trainees with an opportunity to reflect on their learning and give feedback to attain the course goals. Tools, information and guidance material provided in the course package should be used to facilitate effective and timely feedback to trainees and objective assessment of performance. Feedback should be provided in the context of course and module objectives and align with the principles discussed earlier in this chapter.

3. Conduct and record scored tests

All summative evaluations should be performed according to the provided scoring guidance. Where applicable, results should be communicated back to the trainees to motivate them and provide them with an opportunity to focus their efforts on meeting the course objectives. In addition, instructors should retain test scores for subsequent inclusion in the end-of-course report.

4. Self-evaluation by the instructor

Instructors should also be aware of the how their evaluation of trainees can be a measure of their own personal self-development and provide valuable feedback for ongoing skill development.

2.10.10 Administering tests

2.10.10.1 Progress tests within modules and final mastery tests are always incorporated into courses. They enable the instructor, trainees, managers and course developers to assess trainees' level of performance for each stated performance objective.

2.10.10.2 Competency-based training usually includes both progress and final (mastery) tests as objective tools for measuring the attainment of performance objectives. It is the role of the instructor to ensure that these tests are administered according to the course design to maintain the efficacy and reliability of the course.

2.10.10.3 When administering a test, the instructor should follow the following steps:

1. Prepare all documentation

Instructions and question documents as well as resources or reference materials should be prepared in advance. If hard copies are required, they should be printed, collated and ready for distribution. For electronic files or online tests, location or login details must be ready for use.

2. Set up the testing environment

Some tests simply require trainees to sit at desks or tables with adequate space to write or operate a computer. Others will require equipment or a setup in advance, often at multiple stations. If trainees need to complete their tests according to a schedule, instructors should prepare the schedule ahead of time so that the test period will run smoothly.

3. Provide test information and resources

Instructors must distribute or provide access to the relevant testing documents. They should explain the format and duration of the test and ensure that trainees are clear about what is expected of them.

4. Monitor the test

Instructors should start the test and monitor the time to ensure that the test is being conducted according to the module plan's stated design. They should make sure that trainees finish working by the specified time.

5. Collect and score test responses

Instructors should collect all responses, ensuring that all trainees have provided their test responses and that they are properly identified. Instructors should use the answer key, evaluation sheet or scoring guide to score the tests and record all scores for each trainee. A spreadsheet or similar document may be provided in the course package for this purpose.

6. Provide feedback to trainees

For most tests, it is possible to provide trainees with their scores, immediate feedback on their performance against the objectives and an opportunity to clarify any aspects they need to work on to achieve the course objectives.

2.11 SUMMARY

The instructor must conduct the training according to the designed course format, documentation and tools. The instructor applies learning principles and appropriate training techniques to achieve the training objectives. Combined, the instructor's subject matter expertise and skills in delivering the training generate an effective learning experience.

Instructors must create a positive learning environment by establishing their credibility, providing time for introductions and presenting a clear and accurate opening session describing the training environment, logistics and course information.

Module performance objectives for competency-based courses comprise three components: conditions, performance and a standard. This ensures that what is learned in each module is measurable and relevant to the overall course goal.

Instructors should apply the principles of adult learning to their delivery style. Adult learners are active participants in their learning, and trainees' motivation is greatly influenced by the instructor's ability to include participation, practice and reflection in course activities and to provide a safe environment for taking risks and receiving meaningful and constructive feedback.

Use of the course package documents and tools is essential for the effective delivery of competency-based courses. Instructors should be familiar with and use all provided tools so that trainees experience the course as it has been designed and so that tests and activities meet the intended purpose.

Many training courses require the use of technology or facilities or equipment outside of the classroom setting. The instructor should be aware of the benefits and potential pitfalls of all the training methods included in the course, link the training methods to trainees' required performance and skills and make effective decisions as needed for each training course.

Trainees as adult learners need to feel safe and motivated to learn effectively. Recognizing and addressing the trainees' characteristics and preferences and adapting to group dynamics is essential for both promoting trust and enabling course activities to have maximum learning impact.

Activities and practice exercises and tests are vital elements of adult learning; conducting such trainee-centred activities is a key competency for instructors. Clear introductions, active monitoring of activities and use of provided evaluation tools are essential to support the attainment of skills. Providing supportive, clear feedback is essential to building skills as well as maintaining motivation.

Managing time is an essential skill for the success of competency-based courses. Instructors need to be aware of the duration and time constraints of all training activities to ensure that course modules are completed without omission of important learning activities such as exercises, summaries/reviews and follow-up discussions.

Evaluating trainees is a required function in the delivery phase of training. Formative evaluation enables the instructor and trainees to monitor their progress and make adjustments to their approach, while summative evaluation provides an objective record of attainment for instructors, trainees and other stakeholders. All summative evaluations should be scored and recorded for the end-of-course report.

Chapter 3

TRAINING COURSE EVALUATION

3.1 INTRODUCTION

3.1.1 The previous chapters discussed the preparation and delivery of competency-based classroom courses. The goal is for trainees to gain the intended competencies as a result of having taken the course. If this is achieved, the trainees have had an effective learning experience, and the course has been successful.

3.1.2 During and following course delivery, an important part of the instructor's role is to collect and document information to determine the effectiveness of the course. Chapter 2 discussed the methods and tools used to evaluate *individual trainees* both during and at the end of a course. This chapter is concerned with evaluating the *overall course*.

3.1.3 For the course's learning goals and objectives to be achieved, a systematic evaluation process using well-designed tools and documents is required. Collecting evaluation information at the right time, in the right way and from the right individuals or groups enables instructors to produce a meaningful end-of-course report. This report can in turn be used by course developers, managers and other teams with an interest in keeping the course relevant and effective for the target audience. Without such reports, it is possible that changes and updates will be planned based on inadequate information, leading to ineffective changes and inefficient use of resources.

3.1.4 This chapter is intended to provide instructors with the guidance needed to conduct an effective course evaluation and produce an actionable end-of-course report. It gives an overview of training evaluation using a well-known industry model, discusses various methods of collecting evaluation data and introduces a format for end-of-course reports that may be used for competency-based aviation courses.

3.2 ROLE OF THE INSTRUCTOR

3.2.1 Nobody is better placed to provide an overall report on a single course than the course instructor. As an integral part of the planning, preparation and delivery of the course, the instructor can use first-hand experience to judge how successful the course has been considering all factors.

3.2.2 As shown in the training process diagram below, the instructor's role in providing an end-of-course report is essential to completing the feedback loop that can positively influence subsequent course events.

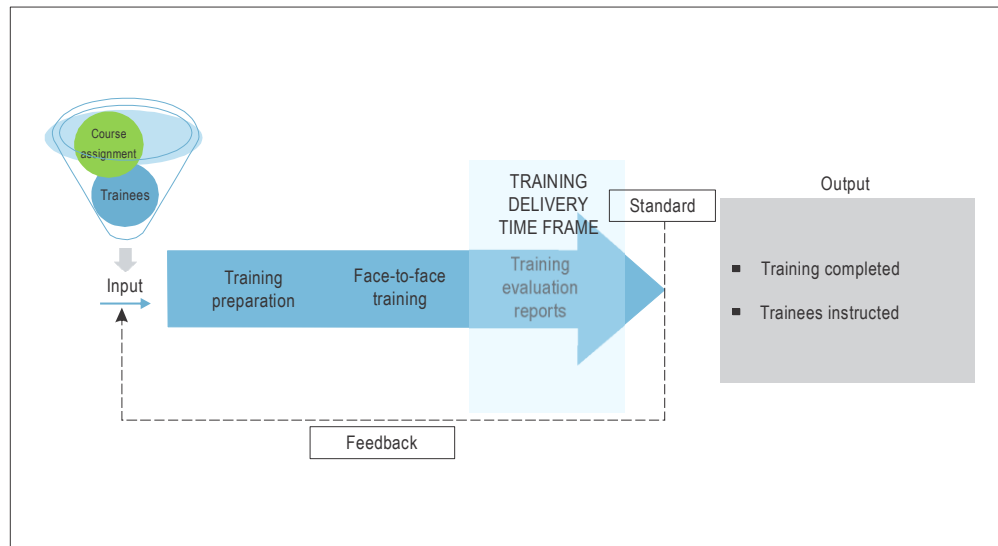


Figure 3-1. The training delivery process showing the evaluation stage and incorporation of feedback in evaluation activities for continual improvement

3.2.3 The responsibilities of ICAO instructors with regard to evaluation and reporting are:

- a) administering tests and evaluating trainees; and
- b) conducting a course evaluation and providing a training report to the TRAINAIR PLUS programme manager.

3.2.4 In addition, senior instructors may be responsible for:

- a) conducting assessments of instructors for continuous oversight and recurrent training; and
- b) supporting the Global Aviation Training (GAT) Office and ICAO programme managers in the development and delivery of ICAO training programmes.

3.2.5 These responsibilities are an essential part of the continuous improvement of ICAO competency-based courses, training programmes and instructors.

Instructor Competency 4 <i>Perform trainee assessment</i>	<ul style="list-style-type: none"> • Creates training and evaluation reports
Instructor Competency 5 <i>Perform course evaluation</i>	<ul style="list-style-type: none"> • Evaluates the effectiveness of the course • Presents information on course evaluation

Figure 3-2. Performance criteria related to course evaluation under Instructor Competencies 4 and 5 of the ICAO Adapted Instructor Competency Model

3.2.6 The final performance criteria under Instructor Competency 4 of the ICAO Adapted Instructor Competency Model require instructors to create a training evaluation report. Instructor Competency 5 of the ICAO Adapted Instructor Competency Model provides further performance criteria on evaluating the overall course, which can be used when preparing the course report.

3.2.7 In addition to evaluating trainees' performance, using evaluation tools and gathering feedback, the instructor may also report on other factors that might influence the overall outcomes of the course and that should be taken into account when considering the effectiveness of a single course. Factors that may be important in contextualizing the evaluation report include:

- a) the trainee group (in particular, if any trainees were not part of the defined target population);
- b) the facilities and learning environment;
- c) the level of support provided (instructor assistance);
- d) any unforeseen circumstances that affected training delivery; and
- e) logistical factors that may have affected trainees' ability to learn.

3.2.8 To fulfil their role in evaluation, instructors should be prepared to complete the following tasks:

- a) distribute and collect evaluation questionnaires (module and course level);
- b) conduct a feedback session;
- c) record results of all tests;
- d) gather information from other sources;
- e) make recommendations; and
- f) produce a report.

3.2.9 Knowing the principles of training evaluation will enable instructors to confidently gather relevant information and provide meaningful recommendations to other stakeholders in the course development process.

3.3 PRINCIPLES OF TRAINING EVALUATION

3.3.1 The success of competency-based training depends on its alignment with the overall performance goals that must be attained by the target population. Any aspect of the course design, content or logistics may have a positive or negative impact on the overall effectiveness in meeting such goals.

3.3.2 In the course evaluation process, the instructor must take a broad view of the course as a whole to identify how these factors contribute to the course's end result in measurable terms.

Once the evaluation information is collected and analysed, it may be used to make relevant, specific and measurable changes to ensure future effectiveness.

3.3.4 Purpose of evaluation in competency-based training systems

Evaluation is part of a continuous process of monitoring and course improvement. For many courses addressing operational needs, processes and systems change over time, and courses must be adaptable to remain relevant and effective in meeting the performance needs of specific jobs. Course evaluation data make it possible to objectively identify when and where changes are required and determine a method for measuring the impact of such changes. The evaluation cycle is shown in Figure 3-3.

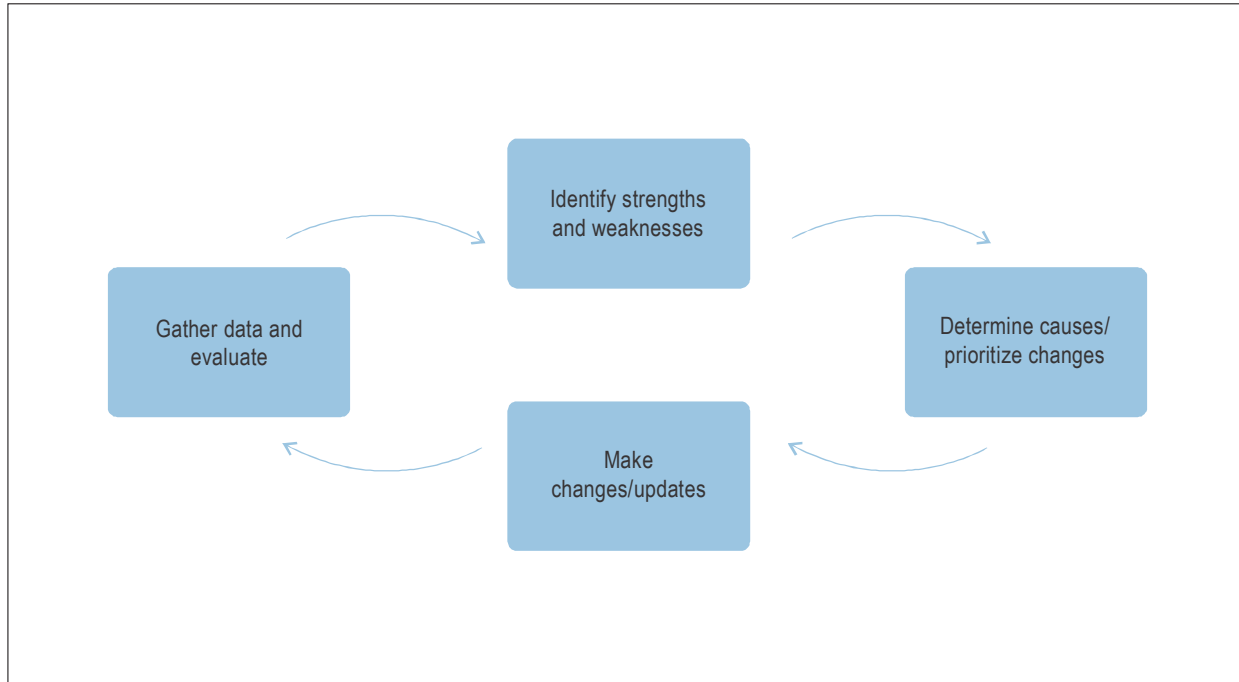


Figure 3-3. The training evaluation cycle

Note.— Course design updates may be made on a long-term basis as part of the general cycle of evaluation and improvement. However, instructors may also take such steps during their courses to address any perceived shortfalls in trainee performance based on their formative evaluations. Minor changes in the delivery strategy, timing or instructional approach may help trainees to attain performance objectives.

3.3.5 The Kirkpatrick evaluation model

3.3.5.1 The Kirkpatrick evaluation model has been used by trainers and learning organizations for many years and is a well-known industry tool for evaluating training effectiveness. The model comprises four distinct levels of training evaluation. Each level is aimed at answering a key question about the training and applies to a typical group of stakeholders who have an interest in such data.

3.3.5.2 By taking a systematic approach to evaluation using suitable tools and processes for each level, course developers, sponsors and organization managers can make relevant decisions about the effectiveness of a course and about whether, when and how to make changes or upgrades to the course.

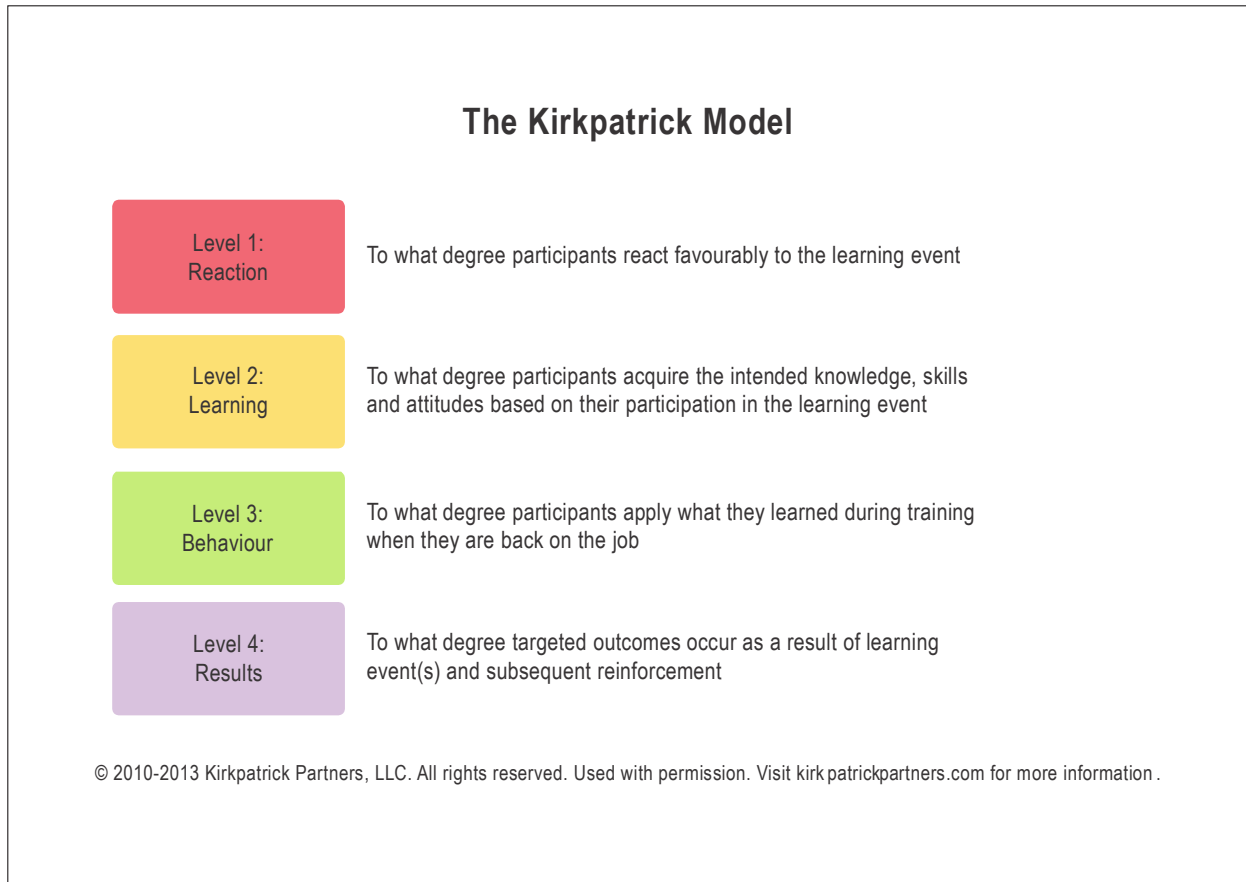


Figure 3-4. The four levels of the Kirkpatrick model

Level 1: Did they like it?

This gauges the trainees' reactions to the training. Information is collected directly from trainees, usually via opinion or satisfaction questionnaires at the end of a module or course. Reactions are also assessed during feedback discussions usually held at the end of training events.

The trainees' reactions and feedback will usually relate to course content, activities and instruction. Their opinions on other factors such as the training environment, schedule and facilities are also often collected.

Data at this level is of interest to instructors, trainees and training facility staff.

Level 2: Did they learn it?

Well-designed learning objectives that are aligned with relevant and reliable tests provide the basis for measurable evaluation of learning. The results of all tests taken by trainees make it possible to measure the degree to which the course has enabled trainees to demonstrate the performance described in the learning objectives. In many cases, a final test or exam is taken by trainees. The number of trainees attaining the passing grade is used as a measure of Level 2 effectiveness.

This level is of most interest to instructors, course developers and training managers.

Level 3: Did they apply it?

A good Level 2 result does not always mean that skills will be transferred to the work setting. Level 3 consists of assessing recent trainees' job performance using specific and measurable criteria. In most cases, assessment takes place at least a few weeks after training and is conducted in the workplace. If job performance is measured effectively, it can provide useful insights into how course activities may help trainees to transfer what they have learned to the work setting.

This level is of interest to the course provider, training teams (if they are involved at that stage), supervisors and department managers.

Level 4: Did it solve the problem?

Competency-based training is developed based on an initial performance gap or need defined at the organizational level. If an organization has invested in training so that workers can gain and apply new skills and knowledge, it ultimately wants to see a measurable improvement in the performance of a whole department or work function. Level 4 evaluation involves gathering performance data at the departmental or organizational level. Performance can be measured by productivity, error rates, reduced delay times or any other measure that could ultimately be expressed in terms of budget or resource time.

Although many other factors may affect overall performance, evaluating a course at this level makes it possible to gauge whether the course was worth the investment in effort and time by an organization or team.

Note.— Some course evaluation models also include a fifth level, return on investment (ROI), which aims to measure the benefits of the course with respect to the overall performance of a group or organization in financial terms. In practice, it is often omitted due to the complexity of analysing the financial effect of training alone and of quantifying the benefits of training in financial terms.

Evaluation levels relevant to instructors

The instructor's role during and following delivery of a course is to evaluate the course at Levels 1 and 2. It is not possible for instructors to evaluate courses at Level 3 since such evaluation requires trainees to demonstrate their new competencies in their jobs, which takes place after the course ends.

The previous chapter discussed the evaluation of individual trainees using both formative and summative methods. This is the process for evaluating the course at Level 2.

Instructors are provided with various tools and processes to gather meaningful evaluation data, which are necessary for producing the end-of-course report.

3.4 EVALUATION PROCESS IN STPs**3.4.1 Kirkpatrick's levels in the STP context**

Kirkpatrick's four levels of evaluation are integral to the development of an STP:

- a) Before designing the course, course developers analyse the performance need and set a measurable goal for the organization or department, which is usually expressed in terms of reduced delays, increase in productivity or decrease in error rates, accidents, etc. Measuring these outcomes after the course is an example of level 4 evaluation.

- b) The competencies that trainees should demonstrate in their jobs after the training has been delivered are defined as part of the course development process and may be measured as part of an OJT programme. Measuring competencies in this context is an example of level 3 evaluation.
- c) When course curricula and modules are designed, learning objectives are formulated in such a way that their attainment can be measured through well-designed tests. Tests serve as tools for evaluating learning at level 2.
- d) STPs include not only learning and presentation materials, but also various tools specifically designed to gather reaction and opinion data from trainees and others as part of level 1 evaluation.

3.4.2 STP evaluation tools and documents

STPs include several forms and tools to be used when evaluating a course. They are summarized in Table 3-1.

Table 3-1. Evaluation tools used for Levels 1 and 2 of Kirkpatrick's model

<i>Kirkpatrick evaluation level</i>	<i>Evaluation tools</i>
Level 1 evaluation — completed by trainees	Opinion questionnaires: <ul style="list-style-type: none"> a) module; b) integral course questionnaire; and c) instructor.
Level 2 evaluation — completed by instructor	<ul style="list-style-type: none"> a) Progress and mastery tests b) Scoresheet and answer key to record test scores
Level 1 and 2 evaluation results	End-of-course report (Excel or web-based tool)

3.4.2.1 A validation run is a specific kind of course evaluation performed when the course is being run for the first time following the development of the full training package. This stage is essential for course development and takes place before the course is offered to a wider audience. The purpose of the validation run is to test the full course design and, specifically, whether intended goals have been achieved with the intended target audience.

3.4.2.2 Course development teams use specific processes and tools to identify aspects of the course design or delivery that need modifying. They include:

- a) *a course validation questionnaire* — a more in-depth course opinion questionnaire distributed to trainees in place of the standard integral course evaluation form;
- b) *a detailed feedback discussion at the end of the course* — there may also be discussions held at the end of each module or each training day to gather immediate feedback. Feedback is recorded by the instructor team as well as observing course developers; and

- c) *observation by one or more member(s) of the course development team* — course developers usually attend and observe the entire validation run and make detailed observations on all aspects of the course in order to identify any areas requiring adjustment.

3.4.2.3 Instructors invited to deliver course validation runs must be aware of the importance of the evaluation process and must execute all tasks as well as provide verbal feedback during discussions after the course.

3.5 INSTRUCTOR'S EVALUATION TASKS

Instructors must gather all relevant evaluation information using the provided tools and other suitable techniques in order to complete the end-of-course report and make meaningful comments and recommendations.

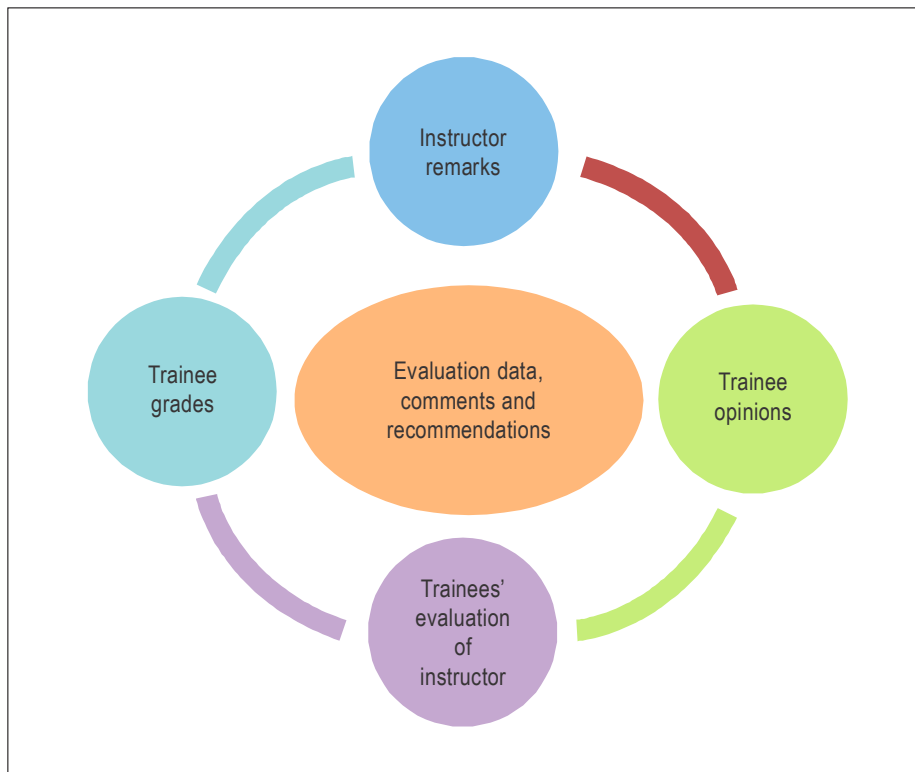


Figure 3-5. Schematic diagram of the different sources of evaluation data that instructors should collect to complete a report

3.5.1 Distribute and collect evaluation questionnaires

3.5.1.1 One of the easiest and most used evaluation techniques is the distribution of questionnaires for collecting trainees' opinions on the course experience. In STPs, opinion questionnaires are used at the end of each module and at the end of the course. In many cases, trainees answer a separate questionnaire to evaluate each instructor.

3.5.1.2 The instructor should prepare the questionnaires for distribution either in printed or electronic format, or familiarize trainees with the online process, if applicable, and should do so in advance to ensure that the evaluations are conducted without delay.

3.5.1.3 To ensure the quality of responses, it is essential that time is given for the proper completion of the questionnaires at the appropriate point in the course. Completion of the questionnaires should not be an afterthought, but an integral part of the module.

3.5.2 CONDUCT A FEEDBACK SESSION

3.5.2.1 At the end of a course, it is recommended that instructors hold an informal discussion session with trainees to gauge their overall satisfaction with the course or section that they have covered and to enable the trainees to verbalize take-away points or their commitment to action following the course. This is an opportunity to gather feedback not only on specific learning-related issues such as structure and content, but also factors such as the learning environment.

3.5.2.2 Instructors should take note of any common opinions or areas of concern. Such points may explain anomalous test scores or provide important information that may back up recommendations in the course report.

3.5.3 Record results of all tests

3.5.3.1 Each progress and mastery test throughout the course should have a clear evaluation scheme so that objective and reliable scores may be determined for each trainee. As discussed in Chapter 2, tests should be administered according to the instructions provided in the course package to ensure that results serve as valid and reliable measures of learning.

3.5.3.2 The scores should then be recorded in the provided Excel tool or web-based process.

3.5.4 Gather information from other sources

3.5.4.1 Other sources can be useful for obtaining a full picture of the course's success. Training facility staff, local experts who may have been involved with aspects of the course, and co-instructors may all provide useful input, particularly regarding logistical and facilities-related issues.

3.5.4.2 Another source of information could be course reports from previous deliveries of the same course.

3.5.5 Make recommendations

3.5.5.1 This is the instructor's chance to distil gathered information into recommended action. Instructors' remarks should be as detailed and comprehensive as possible so that any improvements or corrective actions can be carried out.

3.5.5.2 One example is when instructors discover logistical issues that impede learning (e.g. lodging proximity to the training centre or order of learning activities). Instructors can then make recommendations that are backed up by trainee comments or other sources of information.

3.5.5.3 Recommendations should be relevant, meaningful and actionable — they are *not* opportunities to complain about a situation without providing suggestions for future improvement.

3.5.6 Complete a report

It is important to compile all this information, using the recommended tool, into a clear, logical report that can be subsequently reviewed by relevant stakeholders. The report format and requirements are usually described in the course package, with instructions for completion.

3.6 END-OF-COURSE REPORTING

3.6.1 A comprehensive report on the course's delivery provides valuable information to all stakeholders, including course administrators, instructors and course developers. Stakeholders can use this information to maintain or improve the quality of the training and for future planning.

3.6.2 The course report describes the instructional experience and incorporates all of the evaluation data and comments gathered. It helps future instructors to deliver courses effectively and course organizers to ensure that facilities and logistics are optimal for the course. Course developers use the report, along with other reports from different course events, to identify and prioritize improvements to the course design.

3.6.3 Format and components of end-of-course reports

3.6.3.1 The end-of-course report may be produced using a template provided by software such as Microsoft Word or Excel, or may be generated based on a guided online system where the instructor is required to enter raw data, which is then processed by the system to produce a completed report, which may then be reviewed.

3.6.3.2 An end-of-course report should have enough information to be a fully self-contained document describing the full course experience. It is the instructor's responsibility to ensure that it is complete and accurate. Regardless of the format or template used, the report should cover the following aspects:

- a) introduction and administrative information (location, training centre, instructor's name);
- b) delivery conditions and facilities;
- c) participants list including organization and contact information;
- d) summary of all test results;
- e) summary of course opinion questionnaires;
- f) summary of feedback and comments;
- g) instructor's comments; and
- h) recommendations.

3.6.3.3 The following descriptions relate to a recommended report structure, such as the one used in STPs. The same information should be included regardless of whether the report is produced as a written document, in electronic format or via an online system.

3.6.3.4 Report introduction

The first section of the report contains all relevant course details (name, location, dates, instructors, etc.) as well as a list of course participants and a log of their attendance.

3.6.3.5 Course participants and profiles

In addition to listing the participants and their relevant background details in the first section, the instructor should provide an overview of the participant group, highlighting details pertinent to course effectiveness. Such aspects may include:

- a) total number of participants compared to the recommended group size and any impact (positive or negative) that this may have had;
- b) a note of how many participants did not belong to the target population — this may have had a bearing on learning outcomes and should be taken into consideration when evaluating results;
- c) trainee profiles (age, previous training, work experience) — variations in these factors may have also affected the success or failure of certain aspects of the training, particularly group tasks and practical activities; and
- d) entry test results (if applicable) — the extent of trainees' knowledge of relevant topics prior to the course may have also influenced course effectiveness.

3.6.3.6 Delivery conditions

The report must contain a description of the environment in which the course was delivered. It should include the layout and arrangement of the classroom or study rooms and note any deviations from the requirements stated in the course package. Other aspects such as additional rooms, equipment, off-site visits and facilities as well as trainee logistics should be considered in this section. This section may include:

- a) description of the training centre and facilities and any aspect that may have negatively affected course outcomes;
- b) availability of training materials and equipment;
- c) description of any off-site visits or activities and how well they met expectations; and
- d) any other challenges or limitations that affected the instructors, the delivery of the course or the ability to meet module objectives (logistical, environmental, scheduling, etc.).

3.6.3.7 Recommendations on course organization, facilities or logistics

Instructors may put forward practical recommendations for delivering the course in the future. Suggestions regarding the required facilities, setup, equipment, training materials, support or any other aspect related to the delivery of the course should be noted so that future instructors and administrators can avoid issues.

3.6.3.8 Summary of test results

3.6.3.8.1 Test results are among the most important items in the report. They are essential to determining whether the learning objectives have been met by most or all of the trainees. In this section, the instructor or administrator must provide individual and average scores for each module or test and for the overall course.

3.6.3.8.2 If a formal pass/fail test is administered, the percentage of passing grades should be reported so that it can be compared with the expectations of course developers. This step will also provide a record of the individuals who have been issued with a certificate of successful completion.

3.6.3.8.3 Instructors should include comments on any tests or modules that showed an overall difficulty in meeting course objectives and highlight mitigating factors. They should also note any limitations regarding test delivery and make corresponding suggestions.

3.6.3.9 *Summary of opinion questionnaires*

The instructor must interpret and draw conclusions from the trainees' ratings and comments regarding:

- a) degree of satisfaction with each module;
- b) score trends (e.g. any aspects consistently scored lower than others);
- c) degree of satisfaction with the overall course;
- d) degree of satisfaction with the instructor(s); and
- e) any additional comments considered relevant or that support other observations made by the instructor.

3.6.3.10 *Instructor feedback and comments*

3.6.3.10.1 After providing data from opinion questionnaires and test scores, instructors may leave additional comments in the instructor feedback section to provide context and meaning to such data. This section should also include a summary of feedback discussions, trainees' written comments and information gathered from other sources.

3.6.3.10.2 The instructor should make clear evaluation comments based on preceding data to generate substantiated conclusions and important points about the course delivery.

3.6.3.11 *Recommendations and conclusions*

3.6.3.11.1 Using all of the data and evaluation comments as a basis, instructors should provide *relevant and actionable* recommendations that may be implemented in future courses or suggest changes to the course design.

3.6.3.11.2 Instructors should clearly state how implementing the recommendations could help to meet course objectives and, if possible, provide some indication of the urgency or importance of each recommendation. Recommendations may relate to course organization and logistics, scheduling, course design and structure, content, activities or testing procedures.

Note.— As technology becomes more advanced, requirements for the report's format and input methods may change. Nevertheless, the above information is always required.

3.7 SUMMARY

Instructors must evaluate their courses using provided instruments and tools and give valuable contextual information in order to produce meaningful and actionable course reports. This step is essential to the cycle of ongoing course improvement.

Effective evaluation of various specific aspects of the training will help to prioritize improvements and updates. Training managers and course developers use evaluation data to identify areas for improvement, such as course design, facilities, equipment or support.

Kirkpatrick's four levels of training evaluation are used in the evaluation of competency-based training courses and are taken into consideration in the development of STPs. Instructors are directly involved in collecting data and making recommendations based on Levels 1 and 2.

Reporting tools and data sources include trainee questionnaires, discussions, test results and other inputs from support staff involved in delivering the course. Validation runs of new courses require a more rigorous evaluation approach using enhanced versions of the tools.

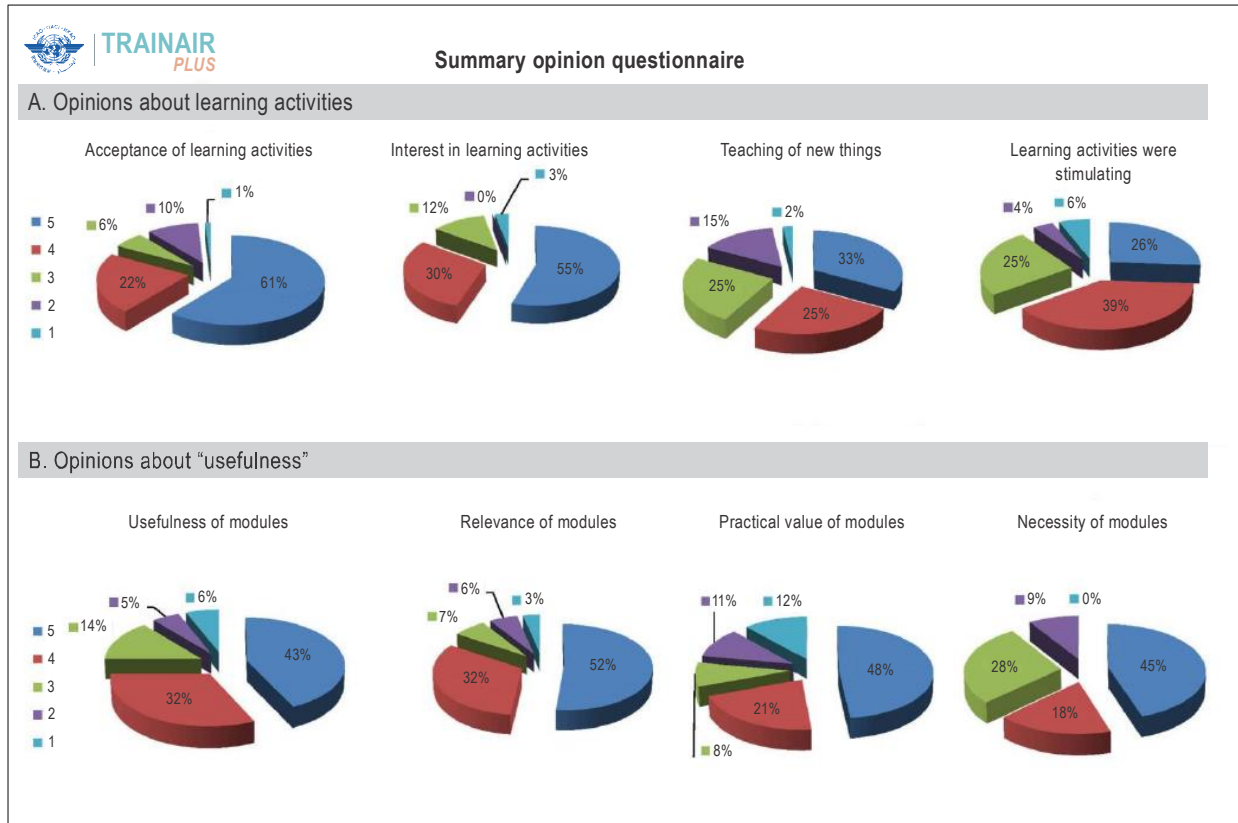
The instructor's tasks include gathering evaluation data using the provided tools and providing additional input and comments in a formatted end-of-course report. Specific, actionable recommendations are valuable for ongoing course improvement.

End-of-course reports comprise specific sections so that all pertinent information is recorded in a logical format. Instructors' comments and recommendations are provided for course managers and developers. End-of-course reports may be generated entirely electronically and may involve the use of a specially designed online portal.

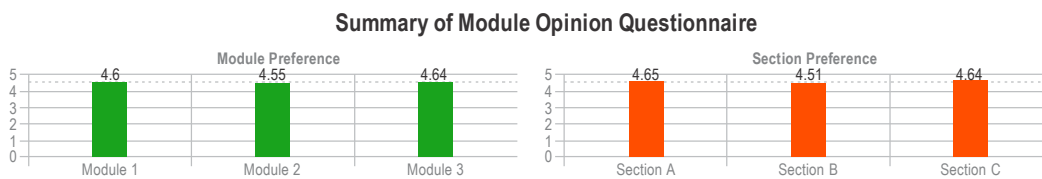
3.8 ELECTRONIC OR WEB-BASED REPORTING

3.8.1 Instructors have access to an electronic tool (Excel file) or a web-based process for completing course reports.

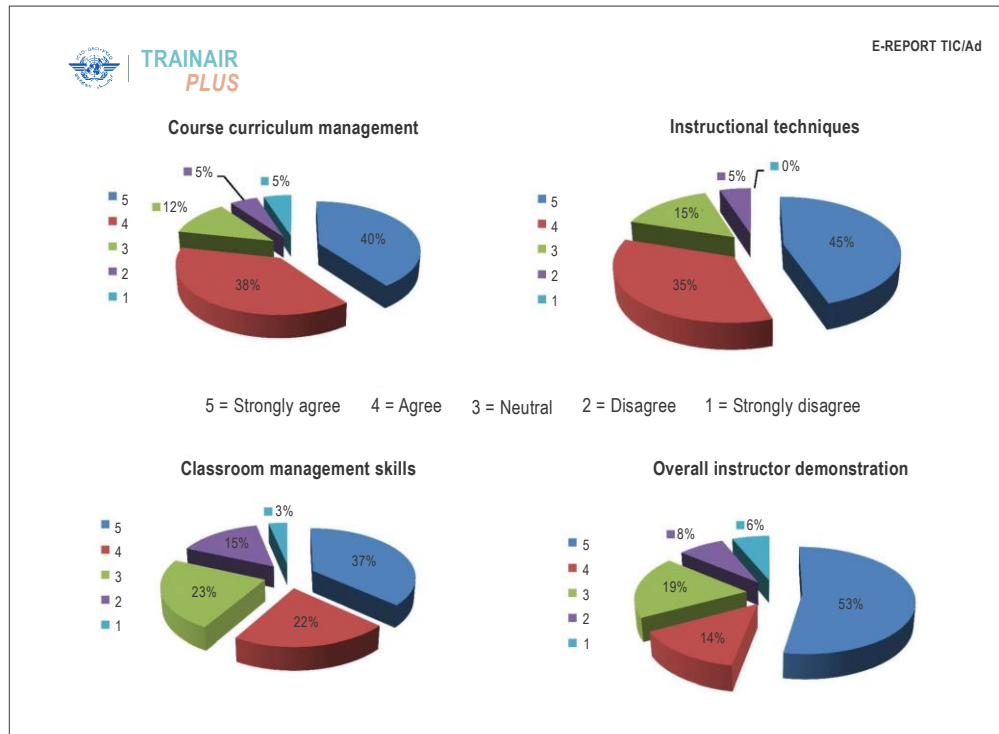
3.8.2 The following formats provide useful representations of the data for interpretation by the instructor:



Feedback on modules extracted from Excel spreadsheet

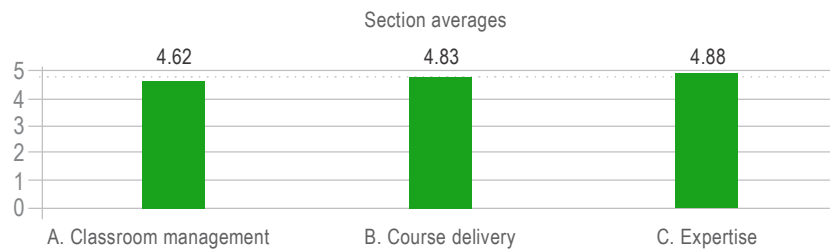


Sourced from web-based TRAINAIR PLUS Electronic Management System (TPEMS)

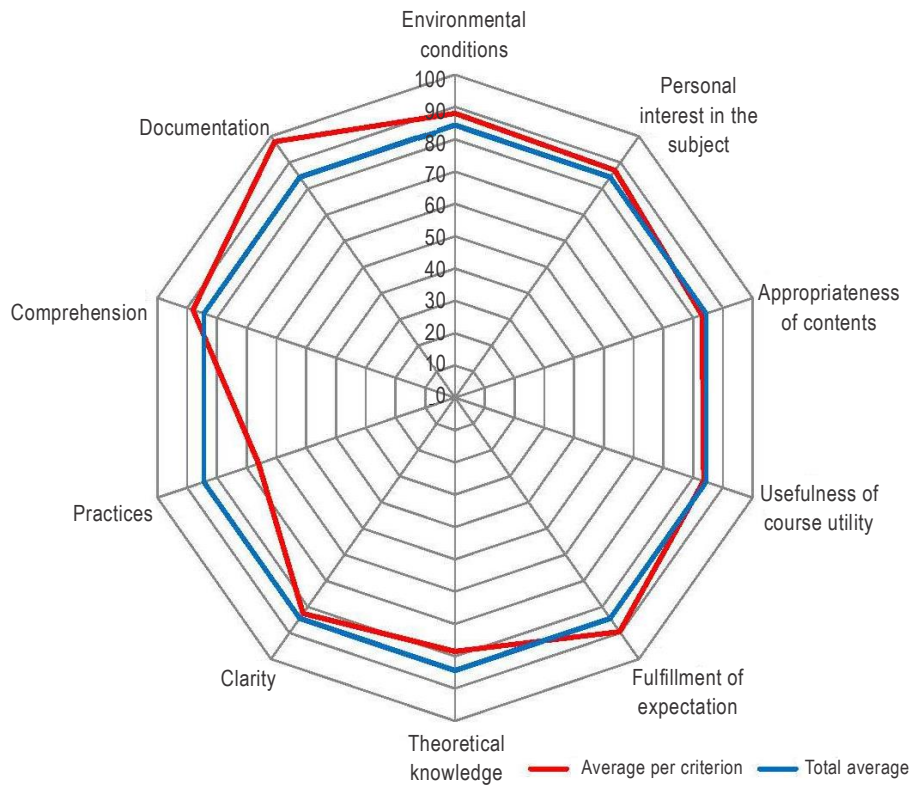


Opinion results

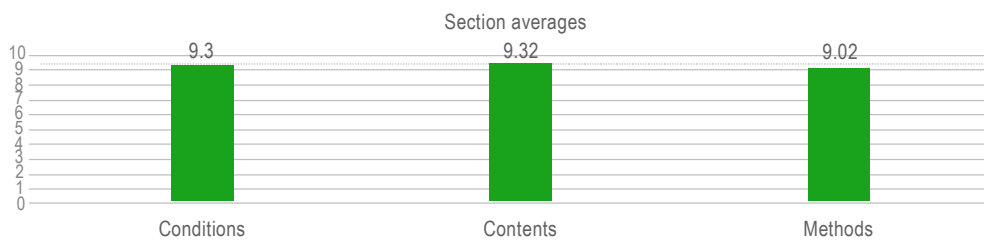
Summary of instructor evaluation questionnaire



Instructor competencies



Summary of integral course evaluation



Integral course evaluation



Appendix A

ICAO ADAPTED INSTRUCTOR COMPETENCY MODEL

<i>Name of the competency</i>	<i>Description</i>	<i>Performance Criteria</i>			
		<i>Observable behaviour (OB)</i>		<i>Competency assessment</i>	
				<i>Final competency standard</i>	<i>Conditions</i>
IC1: Prepare the training environment	The competent instructor ensures that the training environment is conducive to effective learning.			Given the available setting, the instructor delivers the course in a space that promotes learning, with functional equipment and tools.	Classroom training course
	1.1 Ensures facilities and equipment are adequate for the course	OB1	Ensures that the facilities are reserved and are adequate to comply with the objectives of the course.		
		OB2	Ensures that the available physical space is adequate for learning.		
		OB3	Ensures that the environment and the existing conditions are adequate for the objectives of the course.		
		OB4	Ensures that the equipment is adequate and ready for use.		
IC2: Manage the trainees	Ensures training is adapted to the trainees			Given collected information on the trainees, the instructor adapts the training strategy to meet the trainees' needs.	Classroom training course
	2.1 Understands the trainee*	OB1	Identifies trainees' characteristics (experience, language, culture)		
		OB2	Talks about training needs with trainees		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
		OB3	When authorized, selects training methods and materials adapted to the needs of trainees		
	2.2 Trains the trainee*	OB1	Demonstrates a flexible approach to supporting the development of the trainees.		
OB2		Generates a relationship of cooperation with the trainees.			
OB3		Creates and maintains motivation between the trainees and the topic of the course.			
	2.3 Uses an effective training strategy	OB1	Quickly evaluates the average level of the group and reviews training strategies accordingly		
OB2		Encourages participation in group discussions.			
OB3		Poses questions to the entire group.			
OB4		Poses individual questions. Poses questions of a variety of knowledge levels.			

*Associated knowledge with the competency listed below:

2.1 Understands the trainee	<ul style="list-style-type: none"> Shows knowledge of different learning styles.
2.2 Trains the trainee	<ul style="list-style-type: none"> Shows knowledge of any indicators that measure the readiness of the trainees for the course (as possible).

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)	Competency assessment		
			Final competency standard	Conditions	
IC3: Conduct training	Ensures the training methodology is varied, and is adapted to the trainees' needs			Given collected information on the trainees, the instructor applies a variety of training strategies to meet the trainees' needs.	Classroom training course
	3.1 Establishes and maintains credibility	OB1	Displays exemplary role model behaviour (meaning the expected behaviour in the technical role of the course in accordance with competencies and the corresponding knowledge, skills and attitudes).		
		OB2	Shows respect for specific organizational characteristics (procedures, dress code, personal image, acceptable personal behaviour, etc.).		
		OB3	Complies with the established legal and ethical standards.		
		OB4	Establishes and maintains an environment of respect.		
	3.2 Shows effective presentation skills	OB1	Stimulates and sustains the interest of the trainees.		
		OB2	Maintains the sequence of training materials in the appropriate way.		
		OB3	Uses voice effectively.		
		OB4	Uses eye contact effectively		
		OB5	Uses gestures, silence and body language effectively.		
		OB6	Uses work aids effectively.		
		OB7	Shows effective questioning skills.		
		OB8	Provides effective feedback, answers questions from the participants, and improves the delivery by incorporating relevant experience and/or examples.		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
		OB9	Presents an effective introduction, states the objective(s), presents a plan, provides a clear explanation of the different steps and presents an effective summary		
	3.3 Provides an effective training delivery	OB1	Communicates effectively, both verbally and non-verbally.		
OB2		Listens actively and reads non-verbal messages correctly.			
OB3		Asks appropriate questions to promote learning or to confirm understanding.			
OB4		Provides opportunities for trainees to ask questions, treats wrong answers in a positive way.			
		OB5	Uses a variety of questions (expository, inductive, rhetorical, trouble-shooting), employs various techniques for asking questions, manages course participation.		
		OB6	Maintains trainee discussions within the topics of the course by starting them, monitoring, and concluding them.		
		OB7	Answers questions clearly and adequately.		
		OB8	Generates content by questioning, redirecting, balancing participation, etc.		
		OB9	Maintains debates focused on key topics.		
		OB10	Provides instruction and regularly confirms understanding by paraphrasing, summarizing, etc., links training activities, summarizes key points and activities related to the course objectives.		
		OB11	Uses appropriate communication skills (listens, does not interrupt the other party, brings clarity to interventions to prevent conflicts		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
			from arising).		
		OB12	Establishes clear goals and clarifies the roles in the training or evaluation performed.		
	3.4 Creates and maintains realism	OB1	Ensures realism in the script options provided and shared examples.		
		OB2	Links the content with case studies and professional experience.		
		OB3	Provides clarification and feedback.		
	3.5 Manages time	OB1	Allots the appropriate time to activities.		
		OB2	Adjusts the allotted time for activities to ensure that the objectives are accomplished.		
		OB3	Implements contingency plans for situations in which the activities should be eliminated, reduced or replaced.		
IC4: Perform trainee assessment	The competent instructor must appropriately, objectively and correctly evaluate the trainees.			Given the trainee's performance, and using a variety of evaluation methods, the instructor evaluates the trainee and provides relevant feedback on performance.	Classroom training course
	4.1 Uses varied evaluation methods	OB1	Selects the events and activities with which he/she will evaluate the performance of the trainees.		
		OB2	Clarifies the regulations of the evaluation procedure to the trainees.		
		OB3	Communicates to the trainees the criteria that will be implemented during the performance evaluation.		
	4.2 Monitors the performance of	OB1	Interprets observed behaviours and comments on them adequately.		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
	trainees during class sessions	OB2	Allows trainees to correct themselves at the opportune moment.		
		OB3	Identifies individual differences in learning styles and adjusts the course strategy whenever possible.		
	4.3 Makes objective evaluations	OB1	Compares performance results of the trainees with established objectives.		
		OB2	Applies performance criteria fairly and consistently.		
		OB3	Observes and encourages self-evaluation of performance with regard to the established performance criteria.		
		OB4	Makes decisions based on task results.		
	4.4 Provides feedback that is understandable and usable	OB1	Ensures that trainees understand the entire feedback and assessment.		
		OB2	Applies adequate corrective measures.		
		OB3	Uses facilitation techniques when deemed appropriate in each different case.		
		OB4	Provides positive reinforcement.		
		OB5	Encourages mutual support.		
		OB6	Creates and proposes how to reach an agreement about plans for improvement or rehabilitation.		
	4.5 Creates training and evaluation reports	OB1	Keeps performance records and training reports in an adequate manner.		
		OB2	Reports clearly and accurately on the performance of trainees using only observed behaviours, which reflect competencies.		
		OB3	Follows up on corrective actions.		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
		OB4	Informs trainees about known training opportunities within the Training System with the intention of improving the process.		
		OB5	Respects confidentiality.		
IC5: Perform Course Evaluation	The competent instructor must evaluate the effectiveness of the training system.			Given the completion of the course delivery and using a variety of evaluation methods, the instructor evaluates the effectiveness of the course.	Completion of classroom training course
	5.1 Evaluates the effectiveness of the course or course stage	OB1	Evaluates the feedback of the trainees in the training process.		
		OB2	Evaluates the trainees' mastery of the end-of-course objectives.		
		OB3	Evaluates the effect that the facilities have on the performance of the trainees.		
		OB4	Evaluates the effect of the equipment on the performance of the trainees.		
		OB5	Evaluates the effect of the training materials on the performance of the trainees.		
		OB6	Evaluates the effect of the programme schedule on the performance of the trainees.		
	5.2 Presents information about course evaluation	OB1	Identifies strengths and weaknesses of the training course.		
		OB2	Identifies the barriers to knowledge transfer and learning.		
		OB3	Makes recommendations for the improvement of the course design, content, exercises, etc.		
		OB4	Makes recommendations for the improvement of the course		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
			documentation.		
		OB5	Makes recommendations for the improvement of tools and training facilities.		
		OB6	Shares information with other instructors and directors.		
IC6: Ongoing performance improvement	The competent instructor must show a positive and proactive attitude to improve his/her performance.			Given the completion of the course delivery and using a variety of evaluation methods, the instructor self-evaluates their effectiveness as an instructor	Completion of classroom training course
	6.1 Self-evaluates the effectiveness of his/her role as instructor	OB1	Evaluates his/her communication skills.		
		OB2	Evaluates his/her skills as presenter.		
		OB3	Evaluates his/her skills as facilitator.		
		OB4	Evaluates his/her skills in the use of training tools.		
		OB5	Evaluates his/her skills for using training materials.		
		OB6	Evaluates his/her skills as trainee's evaluator.		
		OB7	Evaluates his/her performance as instructor and learns from the results.		
	6.2 Seeks feedback on his/her performance	OB1	Encourages and accepts feedback about performance as instructor.		
		OB2	Actively seeks feedback about the course from trainees and colleagues.		
	6.3 Maintains personal development	OB1	Maintains the required qualifications.		
		OB2	Makes an effort to increase knowledge and skills and keep		

Name of the competency	Description	Performance Criteria			
		Observable behaviour (OB)		Competency assessment	
				Final competency standard	Conditions
			knowledge and skills up to date.		
		OB3	Displays ongoing improvement of competencies as instructor.		

Appendix B

CHECKLISTS 01 AND 02

CHECKLIST 01 (One week prior to the training)

1. Generalities and overview		
Name of the training/module event:		
Assigned classroom/space:		
Start date:		
Number of participants:		
Checklist verification date:		
Verifying trainer:	Name:	Signature:
Mark the options that apply with an "X" :		
2. Classrooms and facilities verification checklist		
For the first day of training, check the availability of:		
1. Study rooms and/or classrooms for the training	Yes	No N/A
2. Sufficient number of chairs and tables for the participants	Yes	No N/A
3. Adequate lighting for the type of training	Yes	No N/A
4. Air conditioning/heating of the classroom	Yes	No N/A
5. Curtain systems to adjust existing lighting conditions	Yes	No N/A
6. Noise level acceptability	Yes	No N/A
7. Scheduling and coordination for activities outside of the classroom	Yes	No N/A
<u>If "NO" is checked, specify here the actions and the date agreed for solution:</u>		

3. Tools and equipment verification checklist		
For the first day of training check the availability of:		
1. Laboratory equipment (including tools, meters, etc.)	Yes	No N/A
2. Audiovisual (AV) equipment (multimedia projector, screen, etc.)	Yes	No N/A
3. Audio equipment (speakers, microphones, etc.)	Yes	No N/A
4. Software for the tools/aids	Yes	No N/A
5. Sufficient number of computers for the participants	Yes	No N/A
6. Extension cords, additional power outlets	Yes	No N/A
7. Writing board, markers, erasers, etc.	Yes	No N/A
<u>If "NO" is checked, specify here the actions and the date agreed upon for solution:</u>		
4. Training materials verification checklist		
Check the availability and provision of materials for the first day of classes:		
1. Instructor's Manual	Yes	No N/A
2. Instructor's PowerPoint presentations	Yes	No N/A
3. Trainee's Manuals	Yes	No N/A
4. Exercises	Yes	No N/A
5. Tests	Yes	No N/A
6. Handouts	Yes	No N/A
7. Evaluation forms.....	Yes	No N/A
8. Reference/supporting documentation	Yes	No N/A
<u>If "NO" is checked, specify here the actions and the date agreed upon for solution:</u>		

5. Safety and security standards verification checklist	
Check compliance and provision of:	
1. Security standards	Yes No N/A
2. Official identification of restricted areas	Yes No N/A
3. Marking of the location of firefighting tools/equipment.....	Yes No N/A
4. Marking of evacuation routes	Yes No N/A
5. Location of safety tools	Yes No N/A
<u>If "NO" is checked, specify here the actions and the date agreed upon for solution:</u>	
6. Preparation of information of interest to the trainees	
Gather and present information regarding:	
1. Standards of behaviour and attendance	Yes No N/A
2. Transportation availability	Yes No N/A
3. Dress code	Yes No N/A
4 Training schedule	Yes No N/A
5. Scheduled breaks and meals	Yes No N/A
6. Centre facilities (library, study lounges, etc.)	Yes No N/A
7. Accessibility for disabled persons	Yes No N/A
8. ID access to restricted areas	Yes No N/A
<u>If "NO" is checked, specify here the actions and the date agreed upon for solution:</u>	

7. Additional information (Additional information , follow-up or solutions to consider))

CHECKLIST 02
(One-two work days prior to the training)

1. Generalities and overview		
Name of the training/module event:		
Assigned classroom/space:		
Start date:		
Number of participants:		
Checklist verification date:		
Verifying trainer:	Name:	Signature:
Mark the options that apply with an "X" :		
2. Verification of pending items from CHECKLIST 01		
Be sure to check and note the solution of outstanding items in the following categories:		
<ol style="list-style-type: none"> 1. Classrooms and facilities 2. Tools and equipment 3. Training materials 4. Security standards 5. Information of interest to the trainees 6. Transportation schedules 		
Specify here the steps taken for immediate solution of outstanding items:		

3. General aspects checklist

Be sure to check:

1. The final participation list and course schedule, needed to make adjustments to the pace of the class if necessary
2. The availability of the materials identified in the Training Instructor's Manual
3. The availability of the trainees' handout materials
4. The operational status of audiovisual or other equipment or software being used
5. Classroom layout to allow complete view by the trainees of the instructor, screen, and other trainees
6. Classroom lighting and lighting controls
7. Adequate preparation has been applied to deliver exercises, practical activities, and leading discussions.

4. Additional Information

Enter here any additional information of interest to consider.

— END —



ICAO

International Civil Aviation Organization
999 Robert-Bourassa Boulevard
Montréal, Quebec, Canada H3C 5H7
www.icao.int/trainairplus

ISBN 978-92-9265-600-3



9 789292 656003