DG Training under
Competency-based training & assessment (CBTA) approach.

A driver for change

ICAO Provisions related to Competencies

Multi-Crew Pilot Licence 2006		Designated Medical Examiners 2008		2011 (Pilots) Evidence-based training		Cabin Crew 2014		AIM, CASI, DG, Remote Pilots **Ongoing**
	2007 Flight Procedure Designers		2010 Aircraft Maintenance Personnel		Flight Validation Pilots 2012		2015 Air Traffic Controllers & ATSEP	

Source: ICAO – Accumulated Experience CBT Trend

Where are we today for DG?

↗ Oct. 2017 DGP/26th agreed on the new provisions and the guidelines materials.

↗ Feb. 2018 ANC delayed the implementation TI 2021-2022.

↗ DGTWG supports the CBTA approach.

↗ DGB endorsed development of IATA guidelines materials (Appendix H, H.2 of the DGR 60th Edition)

Streams of work

↗ Training requirements
  - ↗ Adoption of regulatory requirement.
  - ↗ Regulation – DGR 1.5
  - ↗ ICAO/Board responsibility

↗ Standard of training
  - ↗ Implementation guidelines - benchmark
  - ↗ Application of min. requirements
  - ↗ Training W.G.

Compliance - Benchmark - Mutual recognition

Benefits → Focus on customers needs → Standard for design and develop → Flexibility for delivery methods → Benchmark for industry

DGR 60th – Appendix H Training provisions under CBTA

1. H.1 The revised provisions - agreed by ICAO DGP/26
2. H.2 DG training program guidelines – under de CBTA approach

   ➢ Definition of the methodology, basic concepts

   ➢ Implementation guide

   ➢ Benchmark - TNA for well established functions
3. Survey for feedback - available until February 15th 2019

Appendix H
high level details

1.5.7 Competency-Based Training and Assessment

Competency-based training and assessment should be used in accordance with the general provisions contained in Chapter 2 of the ICAO *Procedures for Air Navigation Services—Training* (PANS-TRG, Doc 9868).

TABLE 1.5.A Minimum Requirements for Training Curricula (1.5.2)

Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum	Shippers and packers		Freight forwarders		Operators and ground handling agents							Security screeners
	Category											
	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	X	X	X	X	X	X	X	X	X	X	X	X
Limitations			X	X	X	X	X	X	X	X	X	X
General requirements for shippers						X						
Classification	X	X	X			X						X
List of dangerous goods	X	X	X			X				X		
General packing requirements			X	X		X						
Packing instructions			X	X		X						
Labelling and marking	X		X	X		X	X	X	X	X	X	X
Shipper's Declaration and other relevant documentation	X		X	X		X	X					
Acceptance procedures						X						
Recognition of undeclared dangerous goods	X	X		X		X	X	X	X	X	X	X
Storage and loading procedures						X		X		X		
Pilots' notification						X		X		X		
Provisions for passengers and crew	X	X	X		X	X	X	X	X	X	X	X
Emergency procedures		X			X	X	X	X	X	X	X	X

CATEGORY

1. *Shippers and persons undertaking the responsibilities of shippers', including operator's staff acting as shippers, operator's staff preparing dangerous goods as Company Materials (COMAT)*

2. *Packers*

3. *Staff of freight forwarders involved in processing dangerous goods*

H.1.5 Training Requirements

H.1.5.1 Dangerous Goods Training Programmes

H.1.5.1.1 Establishment and Maintenance

Note:
A training programme includes elements such as design methodology, assessment, initial and recurrent training, instructor qualifications and competencies, training records and evaluation of the effectiveness of training.

H.1.5.1.1.1 The employer must establish and maintain a dangerous goods training programme for personnel performing any function described in these Regulations.

H.1.5.1.1.2 The employer [must/should] establish and maintain a dangerous goods training program for personnel who may not perform any function described in these Regulations but do perform functions related to the movement of cargo, baggage, passengers, or mail. The aim of the program is to ensure personnel are competent to perform functions aimed at preventing undeclared dangerous goods or dangerous goods not permitted from being carried on an aircraft.

Note:
Security personnel who are involved with the screening of passengers and crew and their baggage and cargo or mail are required to be trained irrespective of whether the operator on which passenger or cargo is to be transported carries dangerous goods as cargo.

H.1.5.1.1.3 All operators must establish a dangerous goods training programme regardless of whether or not they are approved to transport dangerous goods as cargo.

H.1.5.1.1.4 Training courses may be developed and delivered by or for the employer.

Note:
The objective of a dangerous goods training programme is to ensure that persons are competent to perform their assigned functions. An approach to achieving this objective is provided in Appendix H.2: "Dangerous good training programs guidelines - Competency-based training and assessment (CBTA) approach."

H.1.5.1.2 Objective of Dangerous Goods Training

H.1.5.1.2.1 The employer must ensure that personnel are competent to perform any function for which they are responsible prior to performing any of these functions. This must be achieved through training and assessment commensurate with the functions for which they are responsible. Such training must include:

(a) general familiarization training—which must be aimed at providing familiarity with the general provisions;

(b) function specific training—which must provide detailed training in the requirements applicable to the function for which that person is responsible; and

(c) safety training—which must cover the hazards presented by dangerous goods, safe handling and emergency response procedures.

Note:
General information on the provisions for dangerous goods carried by passengers and crew (see 2.3) should be included in training courses, as appropriate.

H.1.5.1.2.2 Personnel who have received training but who are assigned to new functions must be assessed to determine their competence in respect of their new function. If competency is not demonstrated, appropriate additional training must be provided.

H.1.5.1.2.3 Personnel must be trained to recognize the hazards presented by dangerous goods, to safely handle them and to apply appropriate emergency response procedures.

• **Safety training** — to provide the student with an understanding of the hazards presented by dangerous goods, as well as safe handling and emergency response procedures to be followed.

The ideal size of a dangerous goods course is 10 to 15 participants, enabling the instructor to give personal attention to all students. The maximum number of students should never exceed 20.

Each course should be limited to one category of personnel. The level of competence in the language of the course should be as uniform as possible. Students taking a refresher course should not be mixed with those taking the introductory or initial course for the first time.

ABOUT THE STANDARD OF TRAINING

The standard of training should be measured by the competency of the students on completion of the course. The criteria for a course is the level of the course's final test, and the way it can demonstrate the ability of the students to perform their job function and the ability to extract the required information from the regulations.

Evaluation criteria for initial and refresher courses are covered in Chapter 1 - Objectives and Test Criteria section of these Guidelines. The final test should be designed to enable the participant to demonstrate an understanding of all the subjects covered in relation to their job function. The difficulty level should be such that the final test challenge the ability of the participant to perform their specific job function in compliance with the Regulations.

Clear objectives must be stated at the start of each part of the course, and the course must include sufficient exercises to demonstrate achievement of these objectives.

The following schedules are typical schemes for the allocation of time spent on each subject for the various groups of participants. They are offered as guidance for instructors and may be amended as necessary to fit the needs of the group. For example, some instructors have increased the duration of the initial course from one week to two weeks because of language difficulties.

Course Duration by Category of Personnel (Initial)

The duration of each initial DGR course must be for a period of not less than twenty four (24) hours for Categories 1, 2, 3, and 6 personnel.

Category No.	Category of Personnel (Primarily Based on DGR, Table 1.5.A)	Recommended Course Duration in hours	
		Including Radioactive Materials	Not Including Radioactive Materials
1	Shippers and persons undertaking the responsibilities of shippers, including operator's staff acting as shippers, operator's staff preparing Dangerous Goods as Company Materials (COMAT)	40	32
2	Packers	32	24
3	Staff of freight forwarders involved in processing dangerous goods	40	32
4	Staff of freight forwarders involved in processing cargo or mail (other than dangerous goods)	8	N/A
5	Staff of freight forwarders involved in handling, storage and loading of cargo or mail	4	N/A
6	Operator's and ground handling agent's staff accepting dangerous goods	40	32
7	Operator's and ground handling agent's staff accepting cargo or mail (other than dangerous goods)	4	N/A
8	Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail and baggage	8	N/A
9	Passenger handling staff	4	N/A
10	Flight crew members, loadmasters, load planners and flight operations officers/flight dispatchers	16	N/A
11	Crew members (other than flight crew members)	4	N/A
12	Security staff who deal with the screening of passengers and crew and their baggage and cargo or mail, e.g. security screeners, their supervisors and staff involved in implementing security procedures.	4	N/A

Notes:

1. For the purpose of the definition of training one (1) day is consider to equal eight (8) classroom hours, local applicable legislation should be consider.

2. N/A stands for Not Applicable.

Guidelines for Instructors of Dangerous Goods Toolkit (DGIGKIT)

Effective 1 January–31 December 2018

13th Edition AM1 v13.1.0.1

Based on the IATA Dangerous Goods Regulations 59th Edition 2018.

9273-13

H.2 Dangerous Goods Training Program Guidelines - Competency-Based Training and Assessment (CBTA) Approach

H.2.1 Competency Based Training and Assessment Philosophy

H.2.1.1 Introduction

ICAO introduced the Procedures for Air Navigation Services—Training (PANS-TRG, Doc 9868) in the form of guidance as a first step towards implementation of competency-based training in 2006. Since then, competency-based training assessment guidance has been developed for several aviation functions including aircraft maintenance personnel, designated medical examiners, flight procedure designers, flight validation pilots, air traffic controllers and air traffic safety electronics personnel.

Most recently the ICAO Dangerous Goods Panel (DGP) undertook the development of guidance on a competency-based approach to dangerous goods training. These guidelines aim to assist operators and other entities involved in the transport of dangerous goods to implement a competency-based approach to dangerous goods training.

Aligned with the principles and the main responsibilities described in the previous part, responsibility is given to the employer to determine the competencies needed by the employee and to be able to assess the level of proficiency prior to them performing a specific function or functions and maintain it according to the regulations.

This responsibility implies that the employer must either be in the position to design and develop the appropriate training program or chose a training provider able to satisfy the regulatory and corporate needs identified for safety and compliance.

In order to assist the employer, these guidelines for dangerous goods training programs under the CBTA approach provide the IATA framework for design and development of training programs summarized in the following simple list of steps to be followed:

1. define the training methodology;
2. design the training program;
3. design trainee (employee) assessment process;
4. develop the training program;
5. trainer/instructor qualifications and competencies;
6. training and assessment records;
7. evaluation of the training program effectiveness.

Additionally, this document includes tools recommended for use during the various phases of design, development and implementation of a training program.

TRADITIONAL	COMPETENCY – BASED
▪ Based on job tittle ▪ Subject-matter driven ▪ Wide scope of knowledge evaluated by a test.	▪ Based on job function ▪ Aims to reach performance ▪ Focused content & assessments

Objectives of DG Training Program Guidelines (DGTPG)

Aims to **propose** to the DG training community a benchmark for quality and a consistent approach.

To ensure that employees are competent to perform their assigned functions. This must be achieved through training and assessment.

Shared useful tools for design and development of training programs.

CBTA framework - design and development of DG training programs

1. Define the training methodology (CBTA);

2. Design the training program (based on TNA);

3. Develop trainee assessment process;

4. Develop the training program;

5. Instructor qualifications and competencies;

6. Training and assessment records;

7. Evaluate training program effectiveness;

Methodology - concept and principles

CBTA is a systematic training methodology which provides focus training supporting the objective to create and maintain competent workforce.
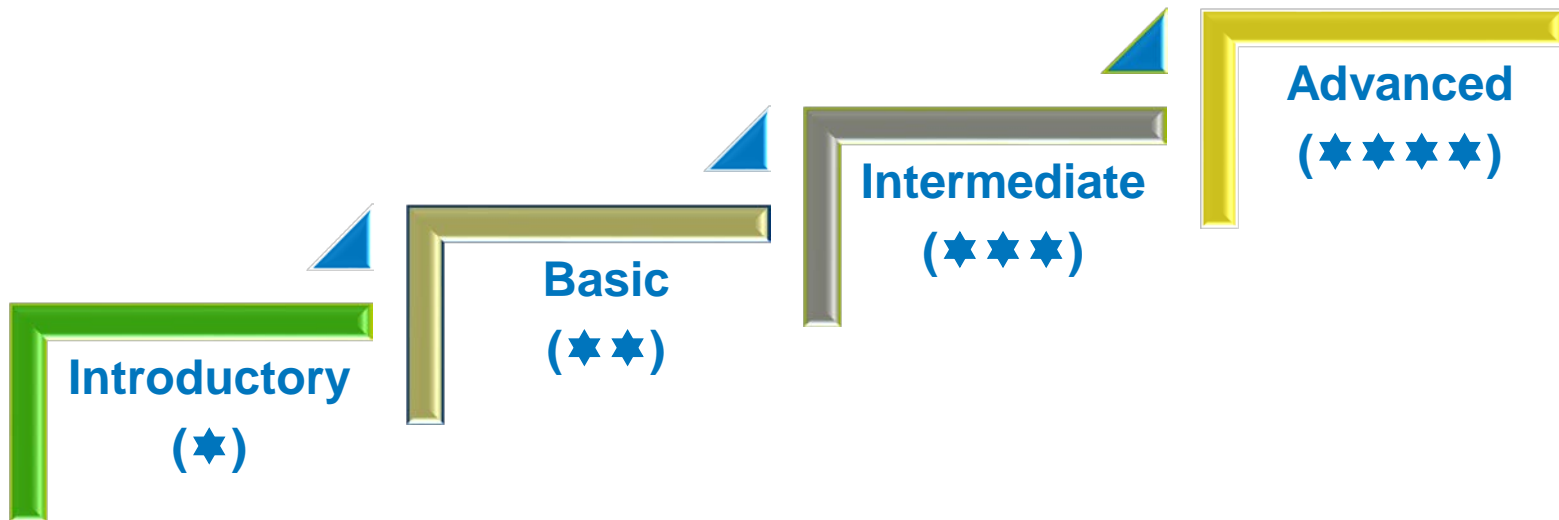
Competency = combination of a specific desired level of proficiency and 4 competency factors.

Competency factors

Knowledge – Theory and practice

Skills – training or on the job application

Experience* - individual application

Attitude – commitment and engagement

Levels of proficiency

Introductory
(★)

Basic
(★★)

Intermediate
(★★★)

Advanced
(★★★★)

CBTA framework - design and development of DG training programs

1. Define the training methodology (CBTA);
2. Design the training program (based on TNA);
3. Develop trainee assessment process;
4. Develop the training program;
5. Instructor qualifications and competencies;
6. Training and assessment records;
7. Evaluate training program effectiveness;

Step 1 Functions mapping - Flow Chart

0 – Understanding the basics of dangerous goods;

1 – Classifying dangerous goods;
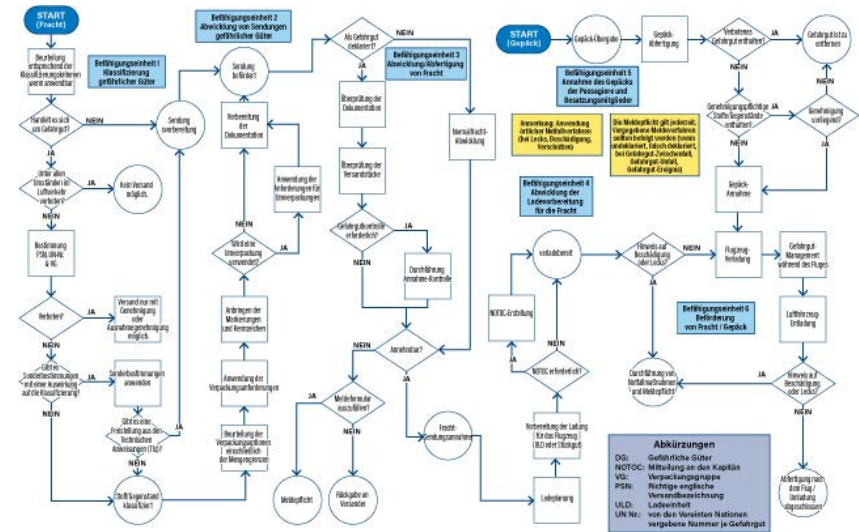
2 – Preparing a dangerous goods shipment;

3 – Processing/accepting cargo;

4 – Managing cargo pre-loading;

5 – Accepting passenger and crew baggage;

6 – Transporting cargo/baggage; and

7 – Collecting safety data.

Step 2 TNA – Competencies/Level proficiency

Function

Task

Activity

Task

Major Tasks

Performance Criteria

TABLE H.2.2
Dangerous Goods Task List - Example *(continued)*

Function: Personnel responsible for processing or accepting dangerous goods consignments			Knowledge Base	Classifying dangerous goods	Preparing dangerous goods shipment	Pro-cessing/ accepting cargo	Managing cargo pre-loading	Accepting passenger and crew baggage	Trans-porting cargo/ baggage	Collecting safety data
1	Classifying dangerous goods									
	1.1	Evaluate substance or article against classification criteria								
		1.1.1	Determine if it is dangerous goods							
		1.1.2	Determine if it is forbidden under any circumstances							
	1.2	Determine dangerous goods description								
		1.2.1	Determine class or division							
		1.2.2	Determine packing group							
		1.2.3	Determine proper shipping name and UN number							
		1.2.4	Determine if it is forbidden unless approval or exemption is granted							
	1.3	Review special provisions								
		1.3.1	Assess if special provision(s) is applicable							
		1.3.2	Apply special provision(s)							
2	Preparing dangerous goods shipment									
	2.1	Assess packing options including quantity limitations								
		2.1.1	Consider limitations (de minimis quantities, excepted quantities, limited quantities, passenger aircraft, cargo aircraft only, special provisions, dangerous goods in the mail)							

Function

Function: Personnel responsible for precessing or accepting dangerous goods consignments			Processing/ accepting cargo
Understanding the basics of dangerous goods			
0.1	Recognizing dangerous goods		★
	0.1.1	Understand the definition	
	0.1.2	Recognize the legal framework (global, local, training legal requirements)	
	0.1.3	Identify the application scope	
0.2	Identifying the general limitations		★
	0.2.1	Develop a sense of potential hidden dangerous goods	
	0.2.2	Recognize the difference between hidden vs undeclared dangerous goods	
	0.2.3	Familiarized with passenger provisions vs cargo provisions in various situation (examples)	
0.3	Positioning different roles and responsibilities		★
	0.3.1	Clarify the individual and collective role of the supply chain stakeholders	
	0.3.2	Understand the passengers responsibilities	
	0.3.3	Recognized the role and impact of State & operators variations	
0.4	Understanding the criticality of classification & packaging		★
	0.4.1	Differentiate between hazard vs risk	
	0.4.2	Identify the general information about classes, divisions	
	0.4.3	Understand general principles of Packing Groups	
	0.4.4	Consider multiple hazards	
0.5	Interpreting the hazard communication		★
	0.5.1	Recognize the different marking basic requirements	
	0.5.2	Recognize the variety of labeling and their meaning	
	0.5.3	Identify the required documentation for DG shipments and their role in the process.	
0.6	Familiarizing with basic Emergency Response		★
	0.6.1	Create awareness about general emergency procedures	
	0.6.2	Recognize country specific emergency procedures including exemptions and approvals	
	0.6.3	Apply the employer emergency response requirements	

Function: Personnel responsible for precessing or accepting dangerous goods consignments			Processing/ accepting cargo
3	Processing/accepting cargo		
	3.1	Review documentation	★★★
		3.1.1 Verify dangerous goods transport document	
		3.1.2 Verify other transport documents (e.g. air waybill)	
		3.1.3 Verify other documents (exemptions, approvals, etc.)	
		3.1.4 Verify State/operator variations	
	3.2	Review package(s)	★★★
		3.2.1 Verify marks	
		3.2.2 Verify labels	
		3.2.3 Verify package type	
		3.2.4 Verify package conditions	
		3.2.5 Verify State/operator variations	
	3.3	Complete acceptance procedures	★★★
		3.3.1 Complete acceptance checklist	
		3.3.2 Provide shipment information for load planning	
		3.3.3 Retain documents as required	
	3.4	Process/accept cargo other than dangerous goods	N/A
		3.4.1 Check documentation for indications of undeclared dangerous goods	
		3.4.2 Check packages for indications of undeclared dangerous goods	
7	Collecting safety data		★★
	7.1	Report dangerous goods accidents	★★
	7.2	Report dangerous goods incidents	★★
	7.3	Report undeclared/mis-declared dangerous goods	★★
	7.4	Report dangerous goods occurrences	★★

CBTA framework - design and development of DG training programs

1. Define the training methodology (CBTA);
2. Design the training program (based on TNA);
3. Develop trainee assessment process;
4. Develop the training program;
5. Instructor qualifications and competencies;
6. Training and assessment records;
7. Evaluate training program effectiveness;

Next steps

1. Encourage to review and discuss in details H.2

2. Provide your feedback to help us continue development of the Guidelines

   https://www.iata.org/whatwedo/cargo/dgr/Pages/index.aspx

3. No immediate changes are required, however pilots recommended.

Contacts

Thanks!

More questions?

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