



## Präsentation des Projektes vor geladenen Experten des CEDEFOP



Education and Culture DG

### Lifelong Learning Programme

Dieses Projekt wurde mit Unterstützung der Europäischen Kommission finanziert. Die Verantwortung für den Inhalt dieser Veröffentlichung (Mitteilung) trägt allein der Verfasser; die Kommission haftet nicht für die weitere Verwendung der darin enthaltenen Angaben.

Universität Bielefeld

ITB INSTITUT TECHNIK UND BILDUNG

## EASA Part 66 CAT A - Experiences with units within the dual system in aeronautics



ECVET AEROVET  
Andreas Saniter, ITB, Uni HB

CEDEFOP-WS: ECVET 30./31.5.11

14.07.2012

Universität Bielefeld

ITB INSTITUT TECHNIK UND BILDUNG

## Agenda

1. Motivation
2. EASA, Part 66, CAT A1: modules
3. EASA <=> ECVET
4. EASA <=> German regulations
5. Proposed reorganisation
6. Lessons learnt

CEDEFOP-WS: ECVET 30./31.5.11

14.07.2012

Universität Bielefeld

ITB INSTITUT TECHNIK UND BILDUNG

### 1: AEROVET: Frame

- Co-financed by the  , key activity ECVET.
- Running from 2009 to 2012.
- Participating countries: Germany, France, United Kingdom, Spain.
- Participating institutions: Research centres, Competent institutions.
- Supported by Airbus.

CEDEFOP-WS: ECVET 30./31.5.11

14.07.2012

Universität Bielefeld

ITB INSTITUT TECHNIK UND BILDUNG

ZDH

### 1. Motivation: Pilots: Experiences

- Learning outcomes (qualitative dimension) ✓
- Units (structuring element) ✓
- Credits (quantitative dimension) ?
- Memorandum of Understanding (institutional regulation) ✓
- Mobility passes (individual learning aims) ✓
- Transcript of records (individual achievement) ✓
- Accumulation, obligatory assessment (institutional regulation) ?

© Dr. Christian Sperle, own translation

Universität Bielefeld

ITB INSTITUT TECHNIK UND BILDUNG

### 1. Motivation

According to the actual regulations it is impossible that skilled workers, who graduated in a brilliant vocational training of 42 month in Germany, are allowed to work on an airplane in operation. This means they are very skilled but not allowed to do anything. And possibly somewhere else workers do know a lot, are allowed to work – but have no vocational skills.

(Speaker department Education & Human resources, German Aerospace Industries Association BDLI, own translation)

CEDEFOP-WS: ECVET 30./31.5.11

14.07.2012

Universität Bielefeld

ITB INSTITUT TECHNIK UND BILDUNG

### 2. The EASA-Modules

- Part 66, the licence for **Aviation Maintenance** consists of 17 modules
- 12 of those are relevant for the basic category A1 "**Line Maintenance Certifying Mechanic**"
- The modules are divided into sub-modules (partly into sub-sub-modules) each one with
  - time to be spend on this sub-module
  - a division between theory and practice,
  - and a level (1-3) of complexity.
- Mode of assessment is regulated for all member states: Multiple-Choice (75% to be solved) & three essays

CEDEFOP-WS: ECVET 30./31.5.11

14.07.2012

Universität Bremen IT3 INSTITUT FÜR TECHNISCHE BILDUNG

## 2. The EASA-Modules

Level of complexity - taxonomy

**LEVEL 1**

- A familiarization with the principal elements of the subject. (...)

**LEVEL 2**

- A general knowledge of the theoretical and practical aspects of the subject.
- An ability to apply that knowledge. (...)

**LEVEL 3**

- A detailed knowledge of the theoretical and practical aspects of the subject.
- A capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner. (...)

=> CAT A: For most of the sub-modules is level 1 sufficient.

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bremen IT3 INSTITUT FÜR TECHNISCHE BILDUNG

## 2: CAT A1: Modules

12 Modules:	800 hours:
Mathematics	20
Physics	45
Electrical Fundamentals	22
Digital Techniques	6
Materials & Components	126
Maintenance Practices	183
Basic Aerodynamics	16
Human Factors	17
Aviation Legislation	22
Aerodynamics, Structures & Systems, Turbine Airplanes	264
Gas Turbine Engines	72
Propeller	7

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bremen IT3 INSTITUT FÜR TECHNISCHE BILDUNG

## 2: Tear CAT A1

Module Description	(800 h)			
	level	Theory Expect ed (h)	Practice Expect ed (h)	Quant um. MIC
<b>11a Aerodynamics, structures &amp; systems, turbine airplanes</b>				
11.1 Aviation theory				
11.1.1 Aerodynamics & steering	1	1		3
11.1.2 High-speed flight	1	1		3
11.2 structures of segments – general concepts				
a) segments: stability	2	1	2	5
b) Construction techniques: body, segment, stringer, formers.	1	1	8	3

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bremen IT3 INSTITUT FÜR TECHNISCHE BILDUNG

## 3: Are the EASA-Module in-line with ECVET?

- Yes,
  - Accepted by the competent institutions (National Aviation Agencies)
  - Referring to European Standards
  - Assessment & Recognition assured
  - Independent of training systems (even online: <http://www.easa-66.eu/> - you can buy the modules and be assessed – but have to show evidence of the practice)
  - Supporting permeability: the 800 h spent by license CAT A holders are fully exempted in the CAT B-programs
  - No double assessment
  - Credits (relative weight) in terms of hours spent

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bremen IT3 INSTITUT FÜR TECHNISCHE BILDUNG

## 3: EASA-Module <=> ECVET?

→ No,

- The modules are input-based (detailed analysis of the curricula)

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bremen IT3 INSTITUT FÜR TECHNISCHE BILDUNG

## 4: EASA <=> Regulations, Delta report FGM

Zielgruppen u. Voraussetzungen	Erhebung in Jahren	Module															Stunden ges.	Tage ges.	Lg.-Nr.	
		1	2	3	4	5	6	7	8	9	10	11a	11b	12	13					
Flugplatzmechaniker* - einbinder bei IFR-Abbruch an einer Part 147 zugelassenen Schule (siehe Ausbildungsplan)	1						X	X	X	X	X	X	X	X	X	X	X	55	9	FA4003-03
Flugplatzmechaniker* - einbinder bei IFR-Abbruch	1						X	X	X	X	X	X	X	X	X	X	X	305	50	FA4002-03
Flugplatzmechaniker* - einbinder bei IFR-Abbruch	1						X	X	X	X	X	X	X	X	X	X	X	589	90	FA4001-03
Flugplatzmechaniker* - einbinder bei IFR-Abbruch	1						X	X	X	X	X	X	X	X	X	X	X	800	123	FA4000-03
Flugplatzmechaniker* - einbinder bei IFR-Abbruch	1						X	X	X	X	X	X	X	X	X	X	X	291	46	FA41-02-03

X = Abschluss mit Prüfung in diesem Modul

1 Die praktischen Erfahrungen können nach dem Grundbesuchungsbericht anzufragen werden

2 Für andere technische als bodenständige Bereiche mit IFR-Abbruch enthalten die Module 1 und 2.

Source: Lufthansa Technical Training (2009)

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bielefeld **IT3** INSTITUT FÜR TECHNISCHE UND BERUFLICHE BILDUNG

## 5: Proposed reorganisation (NO)

Responsible: Social partners, officially started: 04/2011

**Motivation**

Integration of the content of the EASA part 66 CAT A1 in the curricula  
 Actually training providers are certified twice:

- By the ministry of education/economics (as VET-provider)
- By the ministry of transport (LBA/EASA)

⇒ "Mutual trust" between these two competent institutions!

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bielefeld **IT3** INSTITUT FÜR TECHNISCHE UND BERUFLICHE BILDUNG

## 5: Proposed reorganisation (NO)

**Approach**

- Based on the transnational (FR, UK, ES, DE) units of the AEROVET-Project (common for schools & companies!)
- Common core of all profiles, part of the core: the EASA-modules as a minimum requirement (but not as standard!), accepted by the National Aviation Agency (LBA)
- Following the "Berufsprinzip" by additional units/more impact on the core units
- Recognition of the equivalence (at least) of the final exams with the assessment of the EASA-modules

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bielefeld **IT3** INSTITUT FÜR TECHNISCHE UND BERUFLICHE BILDUNG

## 5: Draft: the new German occupational group: Aircraft technicians

**Profile: Electrician** (Units 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22)

**Profile: Mechanic: Production & Maintenance** (Units 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

**Profile: Turbine (Maintenance/AEROVET)** (Unit 11)

Part of all profiles: Unit 11

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bielefeld **IT3** INSTITUT FÜR TECHNISCHE UND BERUFLICHE BILDUNG

## 6: Lessons learnt

**Recommendations on the ECVET-recommendation**

- Use the revision clause ["create the necessary conditions and adopt measures, as appropriate"] by
  - ⇒ allowing a range of credits for each unit and
  - ⇒ adopting the assessment regulations (level of legal relevance) to the national requirements.

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bielefeld **IT3** INSTITUT FÜR TECHNISCHE UND BERUFLICHE BILDUNG

## Units: Mechanic

1	Production of metallic components for aircraft or ground support equipment
2	Production of components of plastics or composite materials for aircraft or ground support equipment
3	Operating and monitoring of automated systems in the aircraft production
4	Joining and dissolving of structural components and aircraft airframes
5	Assembly and disassembly of equipment and systems in/at the aircraft airframe
6	Functional checks and tuning at the aircraft
7	Maintenance and inspection of the aircraft
8	Analysis and recondition of malfunctions at system components
9	Analysis and reconditioning of damage on structure components
10	Reconditioning of accessory equipment
11	Independent quality inspections

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

Universität Bielefeld **IT3** INSTITUT FÜR TECHNISCHE UND BERUFLICHE BILDUNG

## Units: Electric

11	Independent quality inspections
12	Production of bunched circuits for aircraft systems
13	Production or modification of electric devices
14	Passing bunched circuits in aircraft systems
15	Assembly and disassembly of subsystems and devices at aircraft systems
16	Modification of aircraft systems
17	Functional checks and system audit of supply units and control systems
18	Functional checks and system audit of information and communication systems
19	Analysis and repair of malfunctions at bunched circuits in aircraft systems
20	Analysis and repair of malfunctions at supply units and control systems
21	Analysis and repair of malfunctions at information and communication systems
22	Maintenance and inspection of aircraft systems

CEDEFOP-WS: ECVET 30./31.5.11 14.07.2012

The



Network:



&



HH

Visit: [www.pilot-aero.net](http://www.pilot-aero.net)  
Contact: [asaniter@uni-bremen.de](mailto:asaniter@uni-bremen.de)

Supported by:

