



JWG Education about Standardization

Model Curriculum for Training on Standards in Vocational Education and Training (VET)

Introduction

CEN, CENELEC and ETSI have formed a Joint Working Group on Education and Standardization (JWG-EaS), which is preparing material to support this policy. The European Standardization Organizations, CEN, CENELEC and ETSI, have prepared an overall policy statement on Education about Standardization, as an informative document for them and their national members.

The first element of the policy consists of “developing elements of a model standardization curriculum for specific educational levels, focusing on the specific characteristics of education – whether academic, vocational or “life-long learning” – in technical, business, engineering and scientific fields without excluding the social and general education”.

The present document contains such a model curriculum for vocational education and training. The document has taken into account some earlier academic work by Henk de Vries and Dong Geun Choi about the best practices on this issue across the world and published in as “*Standardization as emerging content in technology education at all levels of education*”.

Comments on the document – especially in terms of “missing elements” that are considered essential – would be very welcome and will be considered by the JWG-EaS, which intends to develop it appropriately, particularly in discussion with circles new to standardization.

Please send observations on this document to the CEN CENELEC Management Centre (inno@cencenelec.eu).

Vocational Education and Training (VET)

Due to the very different educational systems across Europe, it is necessary to proceed first to a rough identification of the educational levels. The following partition is proposed:

- a) primary education (up to 10/11 years old)
- b) secondary education (up to 16/18 years old)
- c) vocational education
- d) higher education (colleges and universities, incl. engineering and business schools)
- e) post-formal education

The curricula proposed in this document concern vocational educational and training. Vocational Education and Training (VET) aims to equip and train people with knowledge, know-how, skills and/or competences required in particular occupations or more broadly on the labour market.

Factors influencing the proposed curricula

Academic higher education is more harmonised in Europe than its vocational counterpart. The vocational system is much more diverse, as aside the different requirements within the different Member States, vocational training - by its very nature - is very sectorial. The curriculum proposed here is merely indicative, and should be adapted to the specificities of the vocational educational system.

The factors that may influence curriculum design at national and sectorial level, and therefore may determine the possibility and degree of applicability of a unified standardisation curriculum across Europe, could be summarised in the following:

- *Different types of labour market regimes*: curricula operating in labour markets that are highly regulated, unregulated and transitional.
- *Different modes of VET*: curricula that are delivered via vocational schools, alternance (apprenticeship) and alongside general education in upper secondary institutions. Curricula differentiate between systems on the basis of whether a workplace or school focus is dominant. This institutional differentiation is likely to be an important variable in the nature of the applied curriculum.
- *Different degree of autonomy in curriculum design*: there are systems which permit the institutions that deliver VET some scope to determine the curriculum (giving local or regional autonomy) as well as systems where the curriculum is defined centrally/nationally. The relationship between central and local government autonomy within countries, may also vary between economic sectors within countries.
- *Different types of curricula*: there are curricula which have a more 'regulative' and/or 'didactic' function; curricula which are granular and holistic in relation to defined learning outcomes and those which are narrowly focused on occupational competences. One may also find a mixed approach.
- *Different modes of stakeholder involvement in curriculum design*: systems which have high or low stakeholder involvement in curriculum design. In general terms, one may observe three broad types of regulation: (i) lightly regulated market-led systems where structured organisation of dialogue around curricula is left to individual sectors, and hence where voluntarism is an important characteristic; (ii) state-regulated systems where there are structured mechanisms in place for continual dialogue about qualifications and curricula, (iii) 'transition' economies where, with some exceptions like Slovenia, mechanisms for social dialogue are still in a state of development, and hence social partner involvement in curriculum design is limited.
- *Entry requirements to VET*: due regard should be given to what comes before in terms of how many years individuals will have been studying within VET as opposed to general tracks, and also the range of possibilities available to them since this affects the curriculum content. For example, curricula and expected learning outcomes at upper secondary level may take a different form in contexts where individuals have until recently been taking a common

(general/academic) curriculum compared to those that have been in a VET track since the age of 10 . [1. Cedefop 2010 . Learning outcomes approaches in VET curricula A comparative analysis of nine European countries. Available at: http://www.cedefop.europa.eu/EN/Files/5506_en.pdf and 2. ongoing study on 32 European countries on curriculum policies and practices (not published yet)]

Content modules

Referring to the “Model Standardization Curriculum for Educational Establishments” (JWG-EaS, June 2011), the proposed teaching contents are gathered into 6 modules:

- **Module 1: Examples in every day** life to raise a general **awareness about the existence and importance of standards** (e.g. paper sizes, country codes, book codes, credit cards, exc.)
- **Module 2: Factual/fundamental contents** to raise a **general understanding of main concepts** (see Table A)
- **Module 3: Academic/theoretical aspects** to learn and develop **academic aspects of standardization**, particularly standardization within disciplines such as business administration, law, engineering
- **Module 4: Case studies**_to learn about the **impact of standardisation in business practice** (e.g. ISO 9001 quality management, ISO 14001 environmental management implementation, standards enabling compliance with legal requirements, etc.)
- **Module 5: Skill related contents** to learn how to **carry out a standardization-related task**. They mainly provide communications skills about chairing and moderating a meeting, and managing consensus and negotiation also across different cultures
- **Module 6: Application of specific standards**_to learn **how to implement or use specific standards** (see Table B)

Relevant Modules

Module 1 provides basic contents and is considered part of any level of education.

Module 2 is again a module common to all educational levels, and, as with any educational system, in the particular case of VET, should focus on those aspects which relate directly to the VET topic: certification of gas appliances, mandatory requirements for testing,...

Module 3 deals with the academic/theoretical aspects of standardisation. One of the key properties of Vocational Education and Training is that it is highly practical, with direct links to the related professional skills. Priorities should therefore focus on the transfer of knowledge of the practical effects of standardisation, rather than the legal background

Module 4 is normally provided by higher education even if some simplified contents are present at secondary education.

Module 5 covers mainly the standard-drafting process. Here again, as with Module 3, it should not be considered a priority in a VET-curriculum.

Module 6 will be the main focus for VET, in particular covering the specific set of standards directly related to the skill/profession related to the VET.

List of topics for selected Modules

The following tables show possible topics of teaching materials for Modules 2 and 6.

Some examples for Module 1 “standards in every day life” and 4 “case studies” are listed above and of course they are open to unlimited permutations.

Table A – Module 2: Factual/Fundamental contents

Major classification	Sub-classification
General	General introduction, orientation
Definitions	Concepts and definitions
Functions	Needs or objectives, functions and effectiveness
History	General history, evolution
Types/ classifications of standards	General, by who, by how, by what
Conformity assessment	Legal requirements, certification, testing
Consumers	Users and consumers
Government	Government and standardization, technical rules and standards, market surveillance

Table B – Module 6: Application of specific standards

Major classification	Sub-classification
Standards directly related to the VET topic	
A-standards (General), ex. Safety of Machinery	Scope, content and provisions of the most relevant standards
B-standards (common technologies), such as Hydraulics	Concepts and definitions
C-standards (Product specific)	Used as examples, as fitting within the existing curriculum
Horizontal standards (Quality, CSR, Environment)	General introduction, orientation