

Engineering Council of South Africa

Comment on:

A Framework for Qualification Standards in Higher Education, Council on Higher Education, November 2011



Approved by the Education Committee and the Engineering Standards Generating Body: 21 February 2012

Background

The need for the Council on Higher Education (CHE) *Framework for Qualification Standards in Higher Education* arises from legislative changes which assign to the CHE the responsibility of developing standards for all higher education qualifications. The comments of the Engineering Council of South Africa (ECSA) are recorded here.

General Comment

The Consultation Document is a fundamental exploration of standards for higher education qualifications. ECSA respects this approach as it recognizes that different fields in higher education have different levels of maturity in engaging with qualification standards. ECSA has the advantage of having resolved many of the debates about engineering qualification standards. ECSA also has the advantage of being involved in international benchmarking of standards and standards development practices. The comments made in this submission are therefore based on experience within the field of engineering. We recognize the diversity of requirements across fields and trust that these comments are of assistance in the CHE's qualification standards initiative.

Section-by-section Comments

Section 1.1: Legislative Background

Reference is made to the Higher Education Qualifications Framework (HEQF) here and at other places in the document. We record that ECSA has expressed broad support for the proposal for a revised HEQF that is also out for comment at present.

While supporting the philosophy of standards being a developmental guide for programme design, we expand on this notion by observing that:

- In professional fields it is necessary to have a ruling standard at any point in time; and
- The standard must specify the outcomes that the programme must produce to fulfill its purpose and must not specify how the providers must implement the programme.

Section 3: Qualification Standards

ECSA is clear that **qualification standards** – as opposed to the other types listed in the document - are required that can be used in the design, implementation and quality assurance of programmes that lead to the qualification.

In our professional field, there is no longer debate about the level (in the sense used in this section) of the standard: it must be a **threshold** standard, that is, the minimum achievement appropriate to the purpose of the qualification.

Section 4: Principles and Characteristics of Standards in Higher Education

The principles enumerated in the four bullets are strongly supported. Similarly, with one reservation, the eight numbered characteristics are strongly supported. The reservation is about the lack of clarity on the possible future *self-accreditation status* referred to in point 3. In our professional field, it would not be possible, for example, to accept a declaration from a provider that a qualification meets a standard, as judged by an unknown internal process.

Section 5: What can, and cannot, be expected of standards

This is an extremely useful section of the document and is supported, particularly the list of things that a standard is not.

Section 6: Standards in the Context of Related Higher Education Frameworks

Sections 6.1 and 6.2: Level Descriptors

The concept of the level descriptors being the outermost layer of the qualifications specification is accepted as a broad principle. We understand that SAQA is the custodian of the level descriptors and has published the document “Level Descriptors for the South African National Qualifications Framework”, which appears still to be a public comment document. We also understand that the level descriptors are “broad qualitative statements against which more specific learning outcomes can be compared and located”. The level descriptors are not useful until contextualized in a field.

ECSA has the experience of developing standards for qualifications at NQF Levels 5, 6, 7 and 8 and has used outcomes and level descriptors that are internationally benchmarked for engineering professional qualifications. Our observations when comparing our standards with NQF level descriptors are the following:

- a) The level of demand in the knowledge categories A-C of the NQF level descriptors at levels 6 to 7 is greater than we have found to be warranted in practice. Without detailed comparison, the level 5 descriptors may also be pitched at too demanding a level. For example it is unlikely that the graduate of a level 5 exit qualifications is able to “demonstrate knowledge of

the main areas of one or more fields, disciplines or practices, including an understanding of the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice”

- b) There are notions that may be valid in some fields but are inappropriate in others. With reference to category B, level 7, knowledge is not regarded as contested in our field. There is, for example, a substantial body of fundamentals on which engineers rely absolutely.
- c) The level of problem solving indicated in category D is in excess of that in our standards at levels 6 and 7.
- d) The level descriptors cover ten categories A to J. Some of these are particularly applicable in educational programmes while other are more suited to occupations and professions. For example, the level of responsibility and accountability and the expectation of a student to take responsibility for the learning of others are excessive for educational qualifications. For example, does one expect a level 7 graduate to take accountability for the decision and actions of others (category J)? An education qualification cannot have all the attributes A to J, nor could an occupational qualification.

We conclude that the NQF Level Descriptors in their present form may be problematic when locating the standards for actual programmes that, by all other measures, are fit for purpose. Contextualisation is necessary in developing standards at the designator level.

Section 6.3 HEQF Accreditation of Programmes

The discussion in this section is generally supported. The linking of HEQC Criterion 1 to the relevant qualification standard will be a useful aid to evaluators looking at new programmes in the Candidacy Phase evaluation.

The following account of the interplay of standards and quality assurance in engineering elucidates the preferred model. Qualification standards specify the purpose, overall size, the exit level, the outcomes and the broad knowledge profile of the programme. The standards for the particular type of programme “plug into” the accreditation criteria. For example, the curriculum design must lead the student to the exit-level outcomes and these outcomes must be assessed. Accreditation criteria that do not refer to the qualification standard are those relating to the quality of teaching and learning and the resourcing of the programme.

Section 6.4: Professional Body Approval/Registration

The second paragraph is the key to this matter. The profession should be clear on the required higher education qualifications and their standards and the standards for obtaining a professional designation.

Pragmatically, the CHE does not have the expert capacity to develop all the required standards, especially in the professions. The professions have the necessary peer expertise. The CHE may be able to approve standards for compliance with general guidelines but will have to rely on the professions for expert approval. In due course, it will be necessary to formulate a relationship between the CHE and the professions that recognizes this reality.

Section 7: A Framework for Developing Standards

The logic of this section and Figure 2 in particular, is based on a simple model where different forms of learning (at a given level) are located on a one-dimensional spectrum. At one extreme there are “trades and occupations in which procedural knowledge and work-based skills are paramount” (contextual). At the other extreme, “formative programmes ... emphasize declarative or conceptual knowledge” (conceptual). The implication that there is a simple tradeoff between theory and practice can be misleading.

Three pathways are proposed based on the location on the contextual-conceptual axis, namely vocational, professional and general. This classification is acceptable provided that it is regarded as having porous boundaries and does not result in bureaucratic rules for different types.

The reality is that no qualification is purely conceptual or purely contextual and that the combination of conceptual and contextual demand is not a simple tradeoff. The discussion of the NQF level descriptors above is relevant. We noted that ten competencies are defined at each level, ranging from knowledge oriented (conceptual) to acceptance of responsibility in a real situation (contextual). We also noted that an academic qualification could not realistically be expected to satisfy all ten outcomes. At a given level, there is a complex tradeoff between different categories of outcomes.

The conceptual model is improved by expanding figure 2 (page 16) to two dimensions and locating areas in which a qualification may have its centre of gravity, gives the model in Figure 1 below.

We therefore caution against using Figure 2 in the CHE Framework to arrive at the “obvious” and “significant” implications at the top of page 17. For example the following assertions in the text may prove wrong in significant fields:

- Certificate qualifications are not envisaged on the professional pathways;
- The professionally-oriented 240 credit diploma will be mainly vocational; and
- The 360 credit bachelors variant would be offered mainly in general fields.

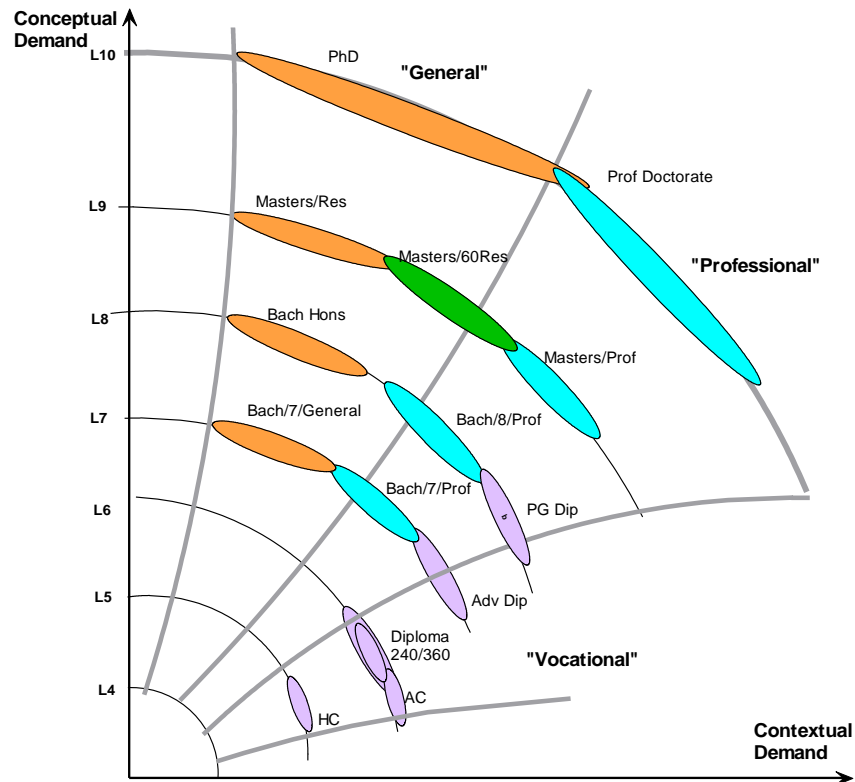


Figure 1: Revisualization of Figure 2 in CHE Framework

Section 8: What Should Standards Comprise?

Given that the agreed purpose of qualification standards stated above is that providers should not be told how to implement programmes, the following are inappropriate constituents of standards: student progression (within the programme), graded student achievement, detailed curriculum, pedagogy and assessment criteria.

We specifically exclude assessment criteria for the following reason. It would be true to say that in a unit standard at a low level of the NQF (e.g. Tighten a left-hand thread nut to a prescribed torque) can and should have well-defined, unique assessment criteria (e.g. measure torque to within 1Newton-metre). However, at the upper levels of the NQF, for example level 8, it has been our experience that valid assessment methods and criteria for a particular outcome can take on several forms (for example, there are several valid approaches to problem solving). Prescribing assessment criteria therefore violates the principle that the standard must specify what must be achieved and leaving to the provider the decision on how to achieve it (including how the students learn and demonstrate that they have met the exit level outcomes).

ECSA has moved the scrutiny of assessment criteria to the quality assurance process. We ask the provider to identify the course(s)/module(s) in which an exit-level outcome is assessed, how the

outcome is assessed and what constitutes acceptable performance. The provider determines the assessment criteria and the quality assurance process scrutinizes what the provider has implemented.

The schema on page 19 is, presumably, proposed as a way of approaching the development of standards, where this has never been done before. The steps on page 20 may prove useful. However, it has been our experience, and the experience of our international partners, that the outcomes expected of an engineering qualification form a set of graduate attributes that are relevant to the professional purpose of the qualification.

Given the principle enunciated earlier of not enforcing a “one-size-fits-all” model, this process should not be forced on all academic communities.

As indicated previously, we cannot support the approach of a range of standards depicted in figure 4: threshold standards suffice.

Section 9: How will this approach affect higher education institutions?

A useful addition to the bulleted list is a statement: *Providers are accorded freedom to design programmes that will develop students to meet the exit level requirements laid down in the standards.*

Section 10: How Many Layers Should the Standards Address?

It has already been argued in the document (and supported in these comments) that the NQF level and HEQF qualification type (and variant) description are inadequate as standards. As a general principle the level of detail chosen should not encourage an explosion in the number of standards. The sensible level (at least for undergraduate qualifications) therefore seems to be the HEQF designator (e.g. Diploms, Bachelors Degree) in a broad field.

This agrees with our experience in engineering. For example, we have a single standard for the Bachelor of Engineering professional bachelors degree. Providers offer programmes in traditional engineering areas (Civil, Electrical, etc.), cross-disciplinary fields (e.g. Mechatronics and Bio-Medical Engineering) or even emerging fields. These conform to a baseline knowledge profile and must all meet the defined exit-level outcomes. No disciplinary content is specified. The appropriateness of the detailed content is a quality assurance issue carried out by peer evaluators with disciplinary knowledge. Not following this approach would result in a plethora of standards and regimentation of providers.