ENGINEERING COUNCIL OF SOUTH AFRICA *Standards and Procedures System*			ECSA
Qualification Standard for Bachelor of Engineering Technology Honours: NQF Level 8			
Status: Approved by Council			
Document : E-09-PT	**Rev 4**	**24 March 2016**	

Background: The ECSA Education System Documents

The documents that define the Engineering Council of South Africa (ECSA) system for accreditation of programmes meeting educational requirements for professional categories are shown in Figure 1 which also locates the current document.

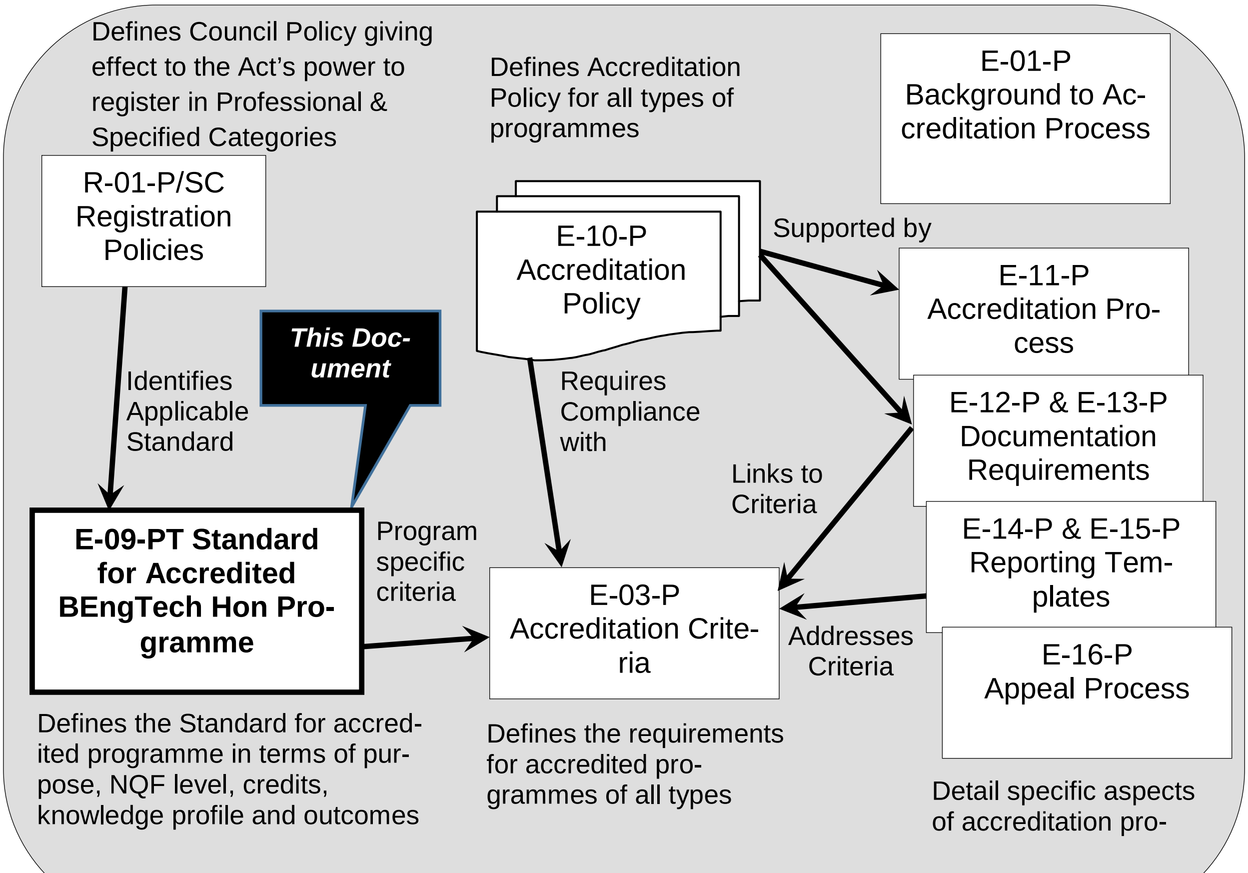

Figure 1: Documents defining the ECSA Accreditation System

Purpose

This document defines the standard for accredited Bachelor of Engineering Technology Honours-type programmes in terms of programme design criteria, a knowledge profile and a set of graduate attributes. This standard is referred to in the Accreditation Criteria defined in ECSA document E-03-P.

QUALIFICATION TYPE AND VARIANT

Bachelor of Engineering Technology Honours

GENERAL CHARACTERISITCS

> The Bachelor Honours Degree is a postgraduate specialisation qualification, characterised by the fact that it prepares students for research-based postgraduate study. This qualification typically follows a Batchelor's Degree, and serves to consolidate and deepen the student's expertise in a particular discipline, and to develop research capacity in the methodology and techniques of that discipline. This qualification demands a high level of theoretical engagement and intellectual independence. In some cases a Bachelor Honours Degree carries recognition by an appropriate professional or statutory body
>
> Bachelor Honours Degree programmes must include conducting and reporting research under supervision, worth at least 30 credits, in the form of a discrete research component that is appropriate to the discipline or field of study.
>
> (The Higher Education Qualifications Sub-Framework, CHE, 2013)

Preamble

The Bachelor of Engineering Technology Honours Degree enhances the application of research and development as well as specialist and contextual knowledge to meet the minimum entry requirement for admission to a cognate Masters Degree. The Master's Degree programme is usually in the area of specialisation of the Bachelor Honours Degree.

Characteristic Profile of the Graduate:

1. Consolidates and deepens the graduates expertise in a specialised area of a particular discipline and develops research capacity in the methodology and techniques of that discipline;
2. Work independently and responsibly, applying original thought and judgment to technical and risk-based decisions in complex situations; and
3. Have a broad, fundamentals-based appreciation of engineering sciences, with depth in specific areas, together with knowledge of financial, commercial, legal, social and economic, health, safety and environmental matters

Note

Words and phrases having specific meaning are defined in Section 11 of this document or in Engineering Council of South Africa (ECSA) Document E-01-P. The method recommended for calculating credits is detailed in ECSA Document E-01-P available at www.ecsa.co.za**.**

1. HEQSF specification

HEQSF Qualification Type	Bachelor Honours Degree	
Variant	Professionally-oriented	
NQF Exit Level	**Minimum Total Credits**	**Minimum Credits at Exit Level**
8	140	120

2. Qualification title

Designators: Bachelor of Engineering Technology Honours

Qualifiers: The qualifier(s) must contain the word *engineering* and be consistent with the engineering science content of the programme. Disciplinary or cross-disciplinary identifiers include but are not limited to: Agricultural, Aeronautical, Chemical, Civil, Computer, Electrical, Electro-mechanical, Electronic, Environmental, Industrial, Extractive Metallurgical, Information, Materials, Mechanical, Mechatronic, Metallurgical, Mineral(s) Process, Physical Metallurgical and Mining.

3. Purpose statement

The Bachelor of Engineering Technology Honours Degree is a postgraduate qualification, characterised by the fact that it prepares students for industry and research. This qualification typically follows a Bachelor's Degree, Advanced Diploma or relevant level 7 qualification and serves to consolidate and deepen the student's expertise in a particular discipline and to develop research capacity in the methodology and techniques of that discipline.

In some cases a Bachelor of Engineering Technology Honours Degree carries recognition by an appropriate professional or statutory body. This qualification demands a high level of theoretical engagement and intellectual independence. The Bachelor of Engineering Technology Honours Degree may form part of a combination of qualifications to meet the educational requirements for registration in the category candidate engineer.

This qualification provides:

1. Preparation for careers in engineering itself and areas that potentially benefit from engineering skills, for achieving technological proficiency and to make a contribution to the economy and national development; and
2. Entry to NQF level 9 Masters programmes e.g. MSc/MEng

Engineering students completing this qualification will demonstrate competence in all the Exit Level Outcomes contained in this standard.

4. Normal duration of study

Programmes have normal duration of one year with not less than 140 Credits.

5. Standard for the award of the qualification

The *purpose* and *level* of the qualification will have been achieved when the student has demonstrated:

- the knowledge defined in section 6 and
- the skills and applied competence defined in section 7.

6. Knowledge

Knowledge demonstrated by the graduate has the following characteristics:

6.1: At least the number of credits in the knowledge areas shown:

Knowledge area	Minimum Credits
Mathematical Sciences	7
Natural Sciences	14
Engineering Sciences	42
Engineering Design and Synthesis	28
Computing and IT	7
Complementary studies	7

Note 1: These credits total 105. Credits in selected knowledge areas must be increased to satisfy the 140 minimum total credits

Note 2: The programme leading to the qualification shall contain a minimum of 140 credits including a research project of no less than 30 credits. Not less than 120 Credits shall be at NQF level 8. Credits shall be distributed in order to create a coherent progression of learning toward the exit level.

6.2: The programme shall have a coherent core of mathematics, basic sciences and fundamental engineering sciences that provides a viable platform for research and development, further studies and lifelong learning. The coherent core must enable development in a traditional discipline or in an emerging field. The coherent core includes fundamental elements. The provider may allow elective credits, subject to the minimum credits in each knowledge area and the exit level outcomes being satisfied for all choices.The level of knowledge of mathematics, natural sciences and engineering sciences is characterized by:

- A knowledge of mathematics using formalism, and oriented toward engineering analysis and modelling; deep knowledge of natural sciences: both as relevant to discipline;
- A deep knowledge of a broad range of fundamental principles of an engineering discipline or cross-disciplinary field that is coherently and systematically organized;
- In-depth, theoretically based knowledge in limited specialist area(s), informed by current developments, and emerging issues and
- The use of mathematics, naturals science and engineering sciences in formal analysis and modelling of engineering situations, for reasoning about and conceptualizing complex engineering problems.

6.3: A programme shall contain specialist engineering study at the exit level. Specialist study may lead to elective or compulsory credits. Specialist study may take on many forms including further deepening of a theme in the core, a new sub-discipline, or a specialist topic building on the core. It is recognized that the extent of specialist study is of necessity limited in view of the need to provide a substantial coherent core. Specialist study may take the form of compulsory or elective credits.

6.4: In the Complementary Studies area, it covers those disciplines outside of engineering sciences, basic sciences and mathematics which are relevant to the practice of engineering in two ways: (a) principles, results and method are applied in the practice of engineering, including engineering economics, the impact of technology on society and effective communication; and (b) study broadens the student's perspective in the humanities or social sciences to support an understanding of the world. Underpinning Complementary Studies knowledge of type (b) must be sufficient and appropriate to support the student in satisfying Graduate Attributes 7 and 10 in the graduates specialized practice area.

6.5: This standard does not specify detailed curriculum content. The engineering fundamentals and specialist engineering science content must be consistent with the designation of the degree.

7. Skills and Applied Competence

The graduate is able to demonstrate competence in the graduate attributes 1 to 10. The Graduate Attributes are stated generically and may be assessed in various engineering disciplinary or cross-disciplinary contexts in a provider-based or simulated practice environment. Words and phrases having specific meaning are defined in this document or in the ECSA document E-01-P.

Note:

General Range Statement: The competencies defined in the ten graduate attributes may be demonstrated in a provider-based and / or simulated workplace context.

Graduate Attribute 1: Problem solving
Identify, formulate, analyse and solve complex engineering problems creatively and innovatively.

Level Descriptor: ***Complex Engineering Problems****:*
a) require in-depth fundamental and specialized engineering knowledge;
and have one or more of the characteristics:
b) are ill-posed, under- or over specified, or require identification and refinement;
c) are high-level problems including component parts or sub-problems;
d) are unfamiliar or involve infrequently encountered issues;
and their solutions have one or more of the characteristics:
e) are not obvious, require originality or analysis based on fundamentals;
f) are outside the scope of standards and codes;
g) require information from variety of sources that is complex, abstract or incomplete;
h) involve wide-ranging or conflicting issues: technical, engineering and interested or affected parties.

Range Statement: Engineering problems are characterized by some or all of the following attributes:

- Problems require identification and analysis, and may be concrete or abstract, may be divergent and may involve significant uncertainty;
- Problems may be infrequently encountered types and occur in unfamiliar contexts;
- Approach to problem solving needs to be found, is creative and innovative;

- Information is complex and possibly incomplete, requiring validation and critical analysis;
- Solutions are based on theory, use of first principles and evidence, (which may be incomplete) together with judgment where necessary; and
- Involves a variety of interactions which may impose conflicting constraints, premises, assumptions and / or restrictions.

Graduate Attribute 2: Application of Scientific and Engineering Knowledge.
Demonstrate competence to apply knowledge of mathematics, natural science and engineering sciences to the conceptualization of engineering models and to solve *complex engineering problems*.

Range Statement: Mathematics, natural science and engineering sciences are applied in formal analysis and modelling of engineering situations, and for reasoning about and conceptualizing engineering problems. Characteristics of knowledge in different areas are defined in Section 6.2

Note: Problems used for assessment may provide evidence in the application of one, two or all three categories of knowledge listed in 6.2. It also requires working across engineering disciplinary boundaries through cross disciplinary literacy and shared fundamental knowledge.

Graduate Attribute 3: Engineering Design.

Demonstrate competence to perform creative, procedural and non-procedural design and synthesis of components, systems, engineering works, products or processes of a *complex* nature.

Range Statement: Design problems used in assessment must conform to the definition of a *complex* engineering problem.

- A major design problem should be used to provide a body of evidence that demonstrates this outcome; and
- The problem would be typical of that which the graduate would participate in a typical employment situation shortly after graduation.

The selection of components, systems, engineering works, products or processes to be designed is dependent on the discipline or sub-discipline.

Graduate Attribute 4: Investigations, Experiments and Data Analysis.

Demonstrate competence to conduct investigations of *complex engineering problems* including engagement with the research literature and use of research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

Range Statement This qualification includes conducting and reporting research under supervision, worth at least 30 credits, in the form of a discrete research component that is appropriate to the discipline or field of study. The following needs to be noted:

- The balance of investigation and experiment should be appropriate to the discipline; and
- An investigation or experimental study should be typical of those in which the graduate would participate in an employment situation shortly after graduation.

Note: An investigation differs from a design in that the objective is to produce knowledge and understanding of a phenomenon.

Graduate Attribute 5: Engineering Methods, Skills and Tools, Including Information Technology.

Demonstrate competence to use appropriate techniques, resources, and modern engineering tools, including information technology, prediction and modelling, for the solution of *complex engineering problems*, with an understanding of the limitations, restrictions, premises, assumptions and constraints.

Range Statement: A range of methods, skills and tools appropriate to the discipline of the program including:

- Discipline-specific tools, processes or procedures;
- Computer packages for computation, modelling, simulation, and information handling;
- Computers and networks and information infrastructures for accessing, processing, managing, and storing information to enhance personal productivity and teamwork; and
- Techniques from economics, management, and health, safety and environmental protection.

Graduate Attribute 6 Professional and Technical Communication.

Demonstrate competence to communicate effectively, both orally and in writing, with engineering audiences and the community at large.

Range Statement: Material to be communicated is in an academic or simulated professional context; and

- Audiences range from engineering peers, related engineering personnel and lay persons.
- Appropriate academic or professional discourse is used.

Methods of providing information include the conventional methods of the discipline, for example engineering drawings, as well as subject-specific methods

Graduate Attribute 7: Sustainability and Impact of Engineering Activity.

Demonstrate knowledge and understanding of the impact of engineering activities society, economy, industrial and physical environment.

Range Statement The combination of social, workplace (industrial) and physical environmental factors must be appropriate to the discipline of the qualification. Evidence may include case studies typical of engineering practice situations in which the graduate is likely to participate. Issues, risks and impacts to be addressed:

- Could be outside of standards and codes of practice; and
- Involve a diverse group of stakeholders with widely varying needs; and
- May have significant consequences that are far-ranging.

Graduate Attribute 8: Individual, Team and Multidisciplinary Working.

Demonstrate knowledge and understanding of engineering management principles.

Range Statement:

- May apply to one's own work, as a member or leader in a multidisciplinary project;
- The ability to manage a project should be demonstrated in the form of project indicated in Graduate Attribute 3 and 4; and
- Tasks may require co-operation across at least one disciplinary boundary.

Co-operating disciplines may be engineering disciplines other than that of the programme or may be outside engineering.

Graduate Attribute 9: Independent Learning.

Demonstrate competence to engage in independent and life-long learning through well developed learning skills.

Range Statement: The learning context is complex and ill defined. Information is also drawn from research literature.

Graduate Attribute 10: **Engineering Professionalism**.

Comprehend and apply ethical principles and commit to professional ethics, responsibilities and norms of engineering practice.

Range Statement: Evidence includes case studies typical of engineering practice situations in which the graduate is likely to participate.

8. Contexts and conditions for assessment

Graduate Attributes defined in 7 above are stated generically and may be assessed in various engineering disciplinary or cross-disciplinary contexts in a provider-based or simulated practice environment.

Providers of programmes shall in the quality assurance process demonstrate that an effective integrated assessment strategy is used. Clearly identified components of assessment must address summative assessment of graduate attributes. Evidence should be derived from major work or multiple instances of limited scale work.

9. Award of the qualification

The qualification may be awarded when the qualification standard has been **met or exceeded**.

10. Progression

A Bachelor Honours Degree is a requirement for admission to a Masters Degree or Postgraduate Diploma.
A qualification may not be awarded for early exit from a Bachelor Honours Degree.

11. Guidelines

11.1 Pathway

This qualification lies on a HEQSF Professional Pathway.

11.2 Definition of terms

Complementary Studies: cover those disciplines outside of engineering sciences, natural sciences and mathematics which are relevant to the practice of engineering including but not limited to engineering economics, management, the impact of technology on society, effective communication, and the humanities, social sciences or other areas that support an understanding of the world in which engineering is practised.

Computing and Information Technologies: encompasses the use of computers, networking and software to support engineering activity and as an engineering activity in itself as appropriate to the discipline.

Engineering fundamentals: engineering sciences that embody a systematic formulation of engineering concepts and principles based on mathematical and natural sciences to support applications

Engineering Management: the generic management functions of planning, organising, leading and controlling, applied together with engineering knowledge in contexts including the management of projects, construction, operations, maintenance, quality, risk, change and business.

Engineering Design and Synthesis: is the systematic process of conceiving and developing materials, components, systems and processes to serve useful purposes. Design may be procedural, creative or open-ended and requires application of engineering sciences, working under constraints, and taking into account economic, health and safety, social and environmental factors, codes of practice and applicable laws.

Engineering Discipline (=Branch of engineering): a generally-recognised, major subdivision of engineering such as the traditional *disciplines* of Chemical, Civil, or Electrical Engineering, or a cross-disciplinary field of comparable breadth including combinations of engineering fields, for example Mechatronics, and the application of engineering in other fields, for example Bio-Medical Engineering.

Engineering Sub-discipline (=Engineering Speciality): a generally-recognised practice area or major subdivision within an engineering discipline, for example Structural and Geotechnical Engineering within Civil Engineering.

Engineering Sciences: have roots in the mathematical and physical sciences, and where applicable, in other natural sciences but extend knowledge and develop models and methods in order to lead to engineering applications and solve engineering problems.

Engineering Speciality: the extension of engineering fundamentals to create theoretical frameworks and bodies of knowledge for engineering practice areas.

Mathematical Sciences: an umbrella term embracing the techniques of mathematics, numerical analysis, statistics and aspects of computer science cast in an appropriate mathematical formalism.

Natural Sciences: physics (including mechanics), chemistry, earth sciences and the biological sciences which focus on understanding the physical world, as applicable in each engineering disciplinary context.

11.3 International Comparability

International comparability of engineering education qualifications is ensured through the Washington, Sydney and Dublin Accords, all being members of the International Engineering Alliance (IEA).

The graduate attributes and level descriptors defined in this qualification are aligned with the International Engineering Alliance's Graduate Attributes and Professional Competencies (See www.ieagreements.org).

ANNEXURE A

NQF LEVEL DESCRIPTORS

The qualification is awarded at **level 8** on the National Qualifications Framework (NQF) and therefore meets the following level descriptors:

a. Scope of knowledge, in respect of which a learner is able to demonstrate knowledge of and engagement in an area at the forefront of a field, discipline or practice; an understanding of the theories, research methodologies, methods and techniques relevant to the field, discipline or practice; and an understanding of how to apply such knowledge in a particular context.
b. Knowledge literacy, in respect of which a learner is able to demonstrate the ability to interrogate multiple sources of knowledge in an area of specialisation and to evaluate knowledge and processes of knowledge production.
c. Method and procedure, in respect of which a learner is able to demonstrate an understanding of the complexities and uncertainties of selecting, applying or transferring appropriate standard procedures, processes or techniques to unfamiliar problems in a specialised field, discipline or practice.
d. Problem solving, in respect of which a learner is able to demonstrate the ability to use a range of specialised skills to identify, analyse and address complex or abstract problems drawing systematically on the body of knowledge and methods appropriate to a field, discipline or practice.
e. Ethics and professional practice, in respect of which a learner is able to demonstrate the ability to identify and address ethical issues based on critical reflection on the suitability of different ethical value systems to specific contexts.
f. Accessing, processing and managing information, in respect of which a learner is able to demonstrate the ability to critically review information gathering, synthesis of data, evaluation and management processes in specialised contexts in order to develop creative responses to problems and issues.
g. Producing and communicating information, in respect of which a learner is able to demonstrate the ability to present and communicate academic, professional or occupational ideas and texts effectively to a range of audiences, offering creative insights, rigorous interpretations and solutions to problems and issues appropriate to the context.
h. Context and systems, in respect of which a learner is able to demonstrate the ability to operate effectively within a system, or manage a system based on an understanding of the roles and relationships between elements within the system.
i. Management of learning, in respect of which a learner is able to demonstrate the ability to apply, in a self-critical manner, learning strategies which effectively address his or her professional and ongoing learning needs and the professional and ongoing learning needs of others.
j. Accountability, in respect of which a learner is able to demonstrate the ability to take full responsibility for his or her work, decision-making and use of resources, and full accountability for the decisions and actions of others where appropriate.

ANNEXURE B: Exemplified Associated Competency Indicators

The assessment criteria presented here are typifying, not prescriptive.

Graduate Attribute 1:

1.1 The problem is analysed and defined and criteria are identified for an acceptable solution.
1.2 Relevant information and engineering knowledge and skills are identified for solving the problem.
1.3 Possible approaches are generated and formulated that would lead to a workable solution for the problem.
1.4 Possible solutions are modelled and analysed.
1.5 Possible solutions are evaluated and the best solution is selected.
1.6 The solution is formulated and presented in an appropriate form.

Graduate Attribute 2:

2.1 An appropriate mix of knowledge of mathematics, numerical analysis, statistics, natural science and engineering science at a fundamental level and in a specialist area is brought to bear on the solution of *complex* engineering problems.
2.2 Theories, principles and laws are used.
2.3 Formal analysis and modelling is performed on engineering materials, components, systems or processes.
2.4 Concepts, ideas and theories are communicated.
2.5 Reasoning about and conceptualising engineering materials, components, systems or processes is performed.
2.6 Uncertainty and risk is handled.
2.7 Work is performed within the boundaries of the practice area.

Graduate Attribute 3:

3.1 The design problem is formulated to satisfy user needs, applicable standards, codes of practice and legislation.
3.2 The design process is planned and managed to focus on important issues and recognises and deals with constraints.
3.3 Knowledge, information and resources are acquired and evaluated in order to apply appropriate principles and design tools to provide a workable solution.
3.4 Design tasks are performed including analysis, quantitative modelling and optimisation of the product, system or process subject to the relevant premises, assumptions, constraints and restrictions.
3.5 Alternatives are evaluated for implementation and a preferred solution is selected based on techno-economic analysis and judgement.
3.6 The selected design is assessed in terms of the social, economic, legal, health, safety, and environmental impact and benefits.
3.7 The design logic and relevant information is communicated in a technical report.

Graduate Attribute 4:

4.1 Investigations and experiments are planned and conducted within an appropriate discipline.
4.2 Available literature is searched and material is critically evaluated for suitability to the investigation.

4.3 Analysis is performed as necessary to the investigation.
4.4 Equipment or software is selected and used as appropriate in the investigations.
4.5 Information is analysed, interpreted and derived from available data.
4.6 Conclusions are drawn from an analysis of all available evidence.
4.7 The purpose, process and outcomes of the investigation are recorded in a technical report or research project report

Graduate Attribute 5:

5.1 The method, skill or tool is assessed for applicability and limitations against the required result.
5.2 The method, skill or tool is applied correctly to achieve the required result.
5.3 Results produced by the method, skill or tool are tested and assessed against required results.
5.4 Computer applications are created, selected and used as required by the discipline

Graduate Attribute 6:

6.1 The structure, style and language of written and oral communication are appropriate for the purpose of the communication and the target audience.
6.2 Graphics used are appropriate and effective in enhancing the meaning of text.
6.3 Visual materials used enhance oral communications.
6.4 Accepted methods are used for providing information to others involved in the engineering activity.
6.5 Oral communication is delivered fluently with the intended meaning being apparent.

Graduate Attribute 7:

7.1 The impact of technology is explained in terms of the benefits and limitations to society.
7.2 The engineering activity is analysed in terms of the impact on public and occupational health and safety.
7.3 The engineering activity is analysed in terms of the impact on the physical environment.
7.4 Personal, social, economic, cultural values and requirements are taken into consideration for those who are affected by the engineering activity.

Graduate Attribute 8:

8.1 The principles of planning, organising, leading and controlling are explained.
8.2 Individual work is carried out effectively, strategically and on time.
8.3 Contributions to team activities, including at disciplinary boundaries, support the output of the team as a whole.
8.4 Functioning as a team leader is demonstrated.
8.5 A design or research project is organised and managed.
8.6 Effective communication is carried out in the context of individual or team work.

Graduate Attribute 9:

9.1 Learning tasks are managed autonomously and ethically, individually and in learning groups.
9.2 Learning undertaken is reflected on and own learning requirements and strategies are determined to suit personal learning style and preferences.
9.3 Relevant information is sourced, organised and evaluated
9.4 Knowledge acquired outside of formal instruction is comprehended and applied.
9.5 Assumptions are challenged critically and new thinking is embraced

Graduate Attribute 10:

10.1 The nature and complexity of ethical dilemmas is described.
10.2 The ethical implications of decisions made are described.
10.3 Ethical reasoning is applied to evaluate engineering solutions.
10.4 Continued competence is maintained through keeping abreast of up-to-date tools and techniques available in the workplace.
10.5 The system of continuing professional development is understood and embraced as an on-going process.
10.6 Responsibility is accepted for consequences stemming from own actions.
10.7 Judgements are made in decision making during problem solving and design are justified.
10.8 Decision making is limited to area of current competence.

HIGHER EDUCATION QUALIFICATIONS SUB-FRAMEWORK

STANDARDS DEVELOPMENT: POLICY AND PROCESS

Explanatory Notes

In terms of the National Qualifications Framework (NQF) Act, 67 of 2008, the Council on Higher Education (CHE) is the Quality Council (QC) for Higher Education. The CHE is responsible for quality assurance of higher education qualifications.

Part of the implementation of the Higher Education Qualifications Sub-Framework (HEQSF) is the development of qualification standards. Standards development is aligned with the *nested approach* incorporated in the HEQSF. In this approach, the outer layer providing the context for qualification standards are the NQF level descriptors developed by the South African Qualifications Authority (SAQA) in agreement with the relevant QC. One of the functions of the QC (in the case of higher education, the CHE) is to ensure that the NQF level descriptors 'remain current and appropriate'. The development of qualification standards for higher education therefore needs to take the NQF level descriptors, as the outer layer in the *nested approach*, into account. An ancillary function is to ensure that they 'remain current and appropriate' in respect of qualifications awarded by higher education institutions.

A secondary layer for the context in which qualification standards are developed is the HEQSF. This framework specifies the types of qualification that may be awarded and, in some cases, the allowable variants of the qualification type. An example of variants is the provision for two variants of the Master's degree (including the 'professional' variant).

Another example is the distinction, in the Bachelor's degree type, between the 'general' and 'professionally-oriented' variants. The HEQSF also specifies the purpose and characteristics of each qualification type. However, as indicated in the *Framework for Qualification Standards in Higher Education* (CHE, 2013), neither NQF level descriptors nor the HEQSF is intended to address, or indeed capable of addressing, fully the relationship between generic qualification-type purpose and the specific characteristics of that qualification type in a particular field of study. One of the tasks of standards development is to reconcile the broad, generic description of a qualification type according to the HEQSF and the particular characteristics of qualifications awarded in diverse fields of study and disciplines, as defined by various descriptors and qualifiers.

Development of qualification standards is guided by the principles, protocols and methodology outlined in the *Framework*, approved by the Council in March 2013. The focus of a standards statement is the relationship between the purpose of the qualification, the attributes of a graduate that manifest the purpose, and the contexts and conditions for assessment of those attributes. A standard establishes a threshold. However, on the grounds that a standard also plays a developmental role, the statement may include, as appropriate, elaboration of terms specific to the statement, guidelines for achievement of the graduate attributes, and recommendations for above-threshold practice.

Revision History

Version	Date	Revision Authorized by	Nature of revision
Rev1	14 September 2012	Technology SGG Working Group	Reconfiguration of document approved by Council to align with E-02-PE
Rev2	14 March 2013	ECSA Council	Editorial improvements
Rev 3 Draft A	27 November 2015	SGG draft for submission to EPAC and ESGB	Revision 2 converted to new CHE format
Rev 4 Draft A	23 January 2016	Revised SGG draft for submission to the ESGB	Revision 3 revised (in red underlined) and CHE objection against the use of their logo and ECSA using the wrong procedure to register the standard addressed
Rev 4 Draft A	2 March 2016	Amended and Approved by ESGB	Minor Editing. Final submission to Council.
Rev 4	24 March 2016	Approved by Council	No amendments
ECSA CONTROLLED COPY		**Executive: Policy Development and Standards Generation**	 John Cato **2016-08-17** Date