



ECOSA

ENGINEERING COUNCIL OF SOUTH AFRICA



An Effective Regulator Assuring Engineering Excellence

Criteria for Accreditation of Engineering Programmes

E-03-CRI-P

REVISION 5: 23 October 2024

ENGINEERING COUNCIL OF SOUTH AFRICA

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QM-TEM-001 Rev 2 – ECSA Policy/Procedure

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DEFINITIONS


The definitions for terms used in the E-series policy documents are listed in document E-01-POL.

ABBREVIATIONS

The abbreviations used in the E-series policy documents are listed in document E-01-POL.

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BACKGROUND

Figure 1 defines the documents that comprise the Engineering Council of South Africa (ECSA) system for accreditation of programmes that meet the educational requirements for Professional Categories. The illustration also locates the current document.

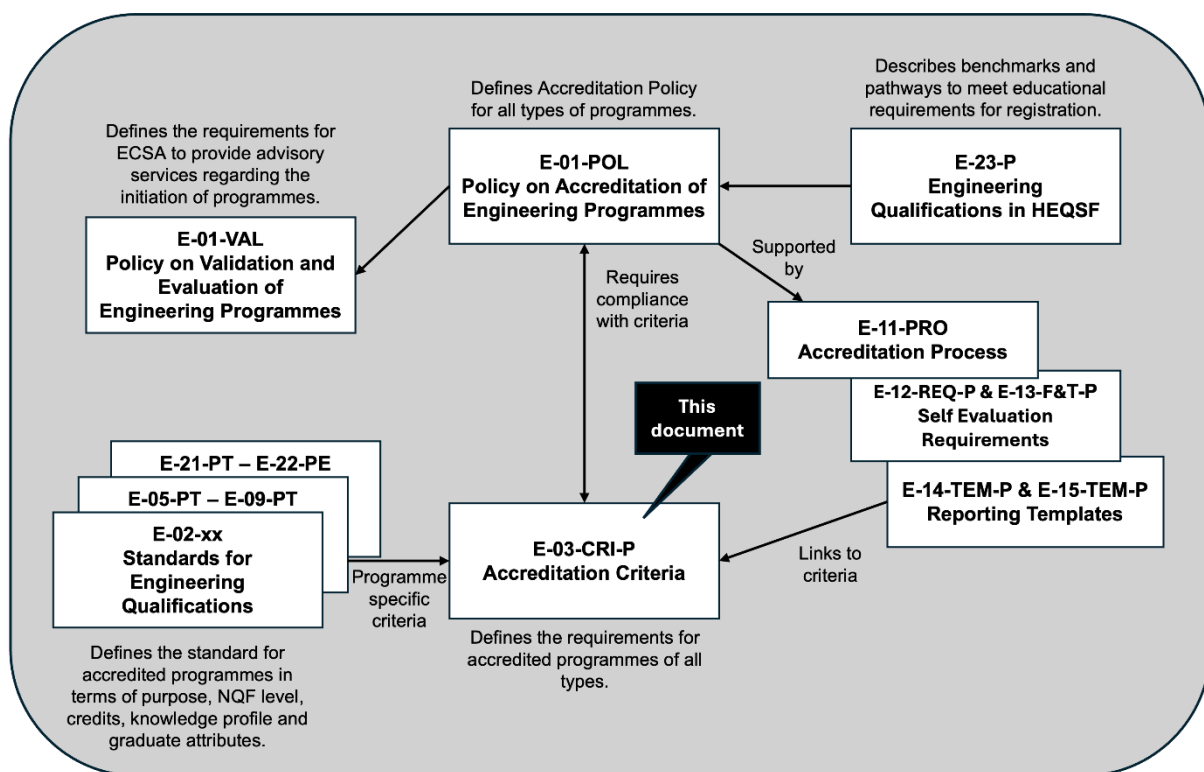



Figure 1: Documents defining the ECSA Accreditation System

1. POLICY STATEMENT

ECSA develops and operates a quality assurance system that leads to the accreditation of several engineering educational programmes. The standards, criteria, policies and procedures that define the accreditation system are defined in this set of documents.

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2. PURPOSE OF THIS DOCUMENT

This document defines the criteria for accrediting engineering programmes, namely:

- BSc (Eng) / BEng programmes, combination of BEng Tech, PG Dip (EngTech), MEng and a combination of BEngTech, BEngTech (Hons) and MEng programmes meeting Stage 1 requirements towards registration as a Professional Engineer and registration as a Candidate Engineer.
- BTech / BEngTech / Adv. Dip. (Eng) programmes, meeting Stage 1 requirements towards registration as a Professional Engineering Technologist and registration as a Candidate Engineering Technologist.
- ND / Dip. (Eng) / Adv. Cert. (EngTech) / Adv. Cert. (Eng) / Dip. (EngTech) programmes, meeting Stage 1 requirements towards registration as a Professional Engineering Technician and registration as a Candidate Engineering Technician.

The criteria for programme accreditation are generic and are applied to the different programmes by referencing the relevant standard, norm and code or by peer judgement. The standards that are applicable to each type of programme are identified in Schedule 1.


Accreditation criteria are defined for three stages in a programme life cycle: Planning; Students at Halfway Point; and Graduate Production. The criteria that must be satisfied by an existing programme that has produced graduate cohorts are defined in Section 3.

Section 4 defines the requirements for a previously implemented programme that has not yet produced graduates but has students who have completed half of the credits towards the qualification.

Section 5 defines the way in which the criteria are applied to a proposed new programme.

Proposed and developing programmes must be planned to meet these accreditation criteria.

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3. CRITERIA FOR ACCREDITATION OF PROGRAMMES THAT HAVE PRODUCED GRADUATE COHORTS

3.1 Criterion 1: Credits, knowledge profile and coherent design

The programme must be planned, and must demonstrate the primary purpose of meeting the educational requirements for an identified engineering role, including:

- The total credits specified in the relevant standard
- A knowledge profile defined in the relevant standard
- A coherent core appropriate to the purpose of the programme defined in the relevant standard
- The specialist study as required in the relevant standard
- Designation (qualifier) consistent with the purpose of the programme and the content of engineering science
- Explicit rules of combination and progression
- Explicit horizontal and vertical articulation options.

The relevant standards referred to in Criterion 1 and Criterion 2 are listed in Schedule 1.

3.2 Criterion 2: Assessment of graduate attributes


The assessment process within the programme must:

- Ensure that all graduates satisfy each graduate attribute defined in the relevant standard
- Use a documented set of assessment criteria and processes that together demonstrate that outcomes are satisfied at the level indicated by the range statement.

Note: Providers are accorded flexibility in using either the set of exemplary assessment criteria in the relevant standard (if any) or an alternative and fully documented set that demonstrates achievement of each of the learning outcomes at the specified level.

3.3 Criterion 3: Quality of teaching and learning


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The programme must provide an effective teaching and learning process towards achievement of the learning outcomes, evidenced by the following:

- The content, learning objectives, expected outcomes and method of assessment for each module of the programme are defined and documented and are available to staff and students
- For each graduate attribute, the information provided in the point above clarifies:
 - The modules in which assessment at the exit-level takes place
 - The method of assessing the graduate attributes
 - The level of achievement required of the students
 - The consequence for the student of not satisfying the exit-level outcome or graduate attribute
- The teaching and learning strategy and methodology is designed to achieve the learning outcomes of the programme with students who meet the stated admission criteria
- Suitable learning opportunities are provided to facilitate the development of knowledge and skills specified in the programme outcomes
- The programme is effectively co-ordinated
- The learning process encourages independent learning attitudes and abilities, and an appropriate mix and balance between different teaching and learning methods is maintained to encourage the active participation of students in the teaching and learning process
- The learning progress of students is appropriately monitored and academic development support is provided to students through structured and monitored interventions where necessary
- Assessment practices and procedures provide feedback to students at regular intervals
- An internal process, including moderation, ensures that all forms of summative assessment of student performance within the programme are effective, fair and rigorous and address the stated learning objectives and outcomes
- Exit-level assessment is subject to external moderation
- The teaching and learning process is monitored by an effective quality assurance

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process that supports continuous improvement

- Student retention and throughput rates are monitored, and measures are taken to identify and address the factors that adversely affect overall throughput and the throughput of distinct groups
- Where work-based learning is required for credit towards the qualification, the academic provider ensures that learning is executed effectively and includes the following:
 - The learning objectives and outcomes to be achieved are defined and accepted by the workplace provider
 - Effective placement of students in the workplace with ongoing communication taking place
 - Suitably qualified mentors who are technically competent in the discipline and the art of mentoring are available in the workplace
 - Students are mentored in the workplace, and their performance is monitored and recorded in relation to objectives
 - The student's performance and competence are assessed through a rigorous process; this assessment is the responsibility of the academic provider
 - Quality assurance of work-based learning processes by the academic provider ensures achievement of stipulated objectives.


Note: The graduate attributes defined for the qualification include those of work-based learning where applicable.

3.4 Criterion 4: Resourcing and sustainability of the programme

The programme must be adequately planned, resourced, led and executed to ensure that it is sustainable over the period of accreditation. This will be evidenced by the following:

- The level of selection of students is commensurate with the programme's academic requirements
- The number of students admitted is guided by the capacity of the programme to offer good quality education and to meet professional requirements
- The selection and admission of students is linked to the institution's equity and diversity


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plans

- In line with the requirements of the Identification of Engineering Work regulations, any person who oversees the planning, design and delivery of education and training programmes accredited by ECSA and assessment of students at the engineering exit level at a higher education institution must be registered with ECSA in the appropriate Professional Category
- A strategy for recruitment, development and retention of academic staff is in place and is aligned with the diversity plan of the institution
- The academic staff responsible for the programme are suitably qualified, have assessment competence and possess sufficient and relevant knowledge and teaching experience
- The number of academic and support staff is sufficient for the programme
- The academic staff members have the range of specialities and abilities to teach at the fundamental and specialist levels that are required by the programme
- Staff members have research profiles relevant to the programme (see Schedule 2: Research Criteria)
- Appropriate research development opportunities and programmes for staff members that are consistent with Schedule 2 are in place
- The allocation of funds and necessary resources to the school or department where the programme is located and the appropriate utilisation of these resources by the school or department form part of the institutional planning and quality assurance processes
- Budgetary allocations for the programme are adequate and are effectively utilised, this applies to:
 - Staffing budgets and resulting packages
 - Laboratory equipment
 - Computing and networking
 - Operating expenses
 - Library facilities
 - Work-based learning where applicable

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- Office, teaching and laboratory space and equipment are adequate
- Studies on the effectiveness of the programme in meeting its objectives are undertaken at regular intervals. The results are used to improve programme design, delivery and resourcing and for staff development and student support where necessary
- Where academic development programmes for students are either offered or are associated with the programme:
 - The programmes must be designed to match the students' state of preparation and progression towards the main programme
 - Staff responsible for the academic development programmes must be adequately qualified, experienced and skilled
 - Funding for the programmes must be adequate
 - Realistic criteria must be applied for acceptance of students into the academic development programmes
 - The academic development programmes must be quality assured.

Note: Academic development programmes may be either: Foundational (prior to entry into the main programme) or Extended (integrated with the main programme).

3.5 Criterion 5: Response to previously identified deficiencies and concerns, capacity for improvement and programme review


In the case of deficiencies and concerns identified during the previous accreditation, such deficiencies and concerns must be adequately addressed.

4. CRITERIA FOR PROVISIONAL ACCREDITATION OF DEVELOPING PROGRAMMES THAT HAVE NOT YET PRODUCED GRADUATE COHORTS

These criteria apply to programmes that have not yet produced graduates but have students who have achieved at least half of the academic credits for the programme.

To be granted provisional accreditation, the programme must:

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- Satisfy Criterion 1 as demonstrated by the implemented programme and documented by the programme not yet implemented
- Present a detailed assessment plan that demonstrates how the programme intends to satisfy Criterion 2
- Present evidence of teaching and learning effectiveness against the sub-criteria of Criterion 3 that is:
 - Drawn from the part of the programme already implemented
 - Details a plan for achieving effective teaching and learning for the remainder of the programme
- Present evidence of adequate resourcing and the sustainability of the programme against the sub-criteria of Criterion 4. In particular, the resources (once-off and ongoing) that are already available, committed and requested for the programme against the sub-criteria of Criterion 4 must be adequate
- Demonstrate the effectiveness of measures taken to address concerns raised during the Initial Evaluation as in the third item of the list in Criterion 5 below.

5. CRITERIA FOR NEW PROGRAMMES SUBMITTED FOR INITIAL EVALUATION


The terms Initial Evaluation and Desktop Evaluation are defined in document **E-01-POL**,

An Initial Evaluation of a new programme considers the extent to which the programme:

- Satisfies Criterion 1 as judged from a fully detailed proposed programme
- Presents a detailed assessment plan that demonstrates how the programme intends to satisfy Criterion 2
- Presents a detailed plan for achieving teaching and learning effectiveness against the sub-criteria of Criterion 3
- Presents evidence of planning and institutional commitment to the programme against the sub-criteria of Criterion 4 and allocates adequate resources for both the start-up and ongoing phases of the programme.

6. CRITERIA FOR PROGRAMMES SUBMITTED FOR DESKTOP EVALUATION

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A programme submitted for Desktop Evaluation is judged against Criteria 1 to 4, and against Criterion 5 if a resubmission is under consideration.


7. SCHEDULE

Schedule 1: Standards applicable to programmes accredited by ECSA

Programmes leading to:	Standard	Purpose and pathway
BSc (Eng) / BEng	E-02-PE	Meets educational requirements for Engineer Registration
Combination of BEngTech, PG Dip (EngTech) and MEng	E-02-PT E-09-PGDip E-22-PE	Meets educational requirements for Engineer Registration
Combination of BEngTech, BEngTech (Hons) and MEng	E-02-PT E-09-PT E-22-PE	Meets educational requirements for Engineer Registration
BEngTech	E-02-PT	Meets educational requirements for Technologist Registration
BTech	E-02-PT (old)	Meets educational requirements for Technologist Registration
Combination of Dip. (Eng) and Adv. Dip. (Eng)	E-05-PT E-02-PN	Meets educational requirements for Technologist Registration
Dip. (Eng)	E-02-PN	Meets educational requirements for Technician Registration
Dip. (EngTech)	E-08-PN E-21-PN	Requires additional Work Integrated Learning for Technician Registration
Combination of Adv. Cert. and H. Cert.	E-06-PN E-07-PN/SC	Requires prior Higher Certificate and additional Work Integrated Learning for Technician Registration
H. Cert.	E-07-PN/SC	Level 5 qualification for proceeding to Advanced Certificate or articulating into Diploma or Diploma in Engineering Technology

Staff teaching on engineering programmes should meet the research achievement benchmarks according to the guideline of the Department of Higher Education and Training.

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REVISION HISTORY

Revision Number	Revision Date	Revision Details	Approved By
Draft 1	15 Oct 1999	Initial draft	Accreditation Policy Working Group
Draft 2	28 Nov 2005	First working group revision	Accreditation Policy Working Group
Rev. 0: Concept A	16 Feb 2006	Second working group revision Assigned provisional S&P number	Accreditation Policy Working Group
Rev. 0: Concept B	22 Feb 2006		Accreditation Policy Working Group
Rev. 0: Concept C	22 May 2006	Comments of CHE incorporated	Accreditation Policy Working Group
Rev. 0: Concept D	22 Aug 2006	Editorial changes; new document identifier	Accreditation Policy Working Group
Rev. 0: Draft A	30 Oct 2006	Minor editorial changes; converted to draft status for referral to EPAC and TPAC.	Accreditation Policy Working Group
Rev. 0: Draft B	30 Nov 2006	Reordered sub-criteria into logical groups	EPAC
Rev. 0: Draft C	24 May 2007	Moved reference to HEQC criteria to the appendix	Accreditation Policy Working Group
Rev. 2: Draft A	22 Apr 2014	See marginal notes for changes	EPAC Working Group
Rev. 2: Draft B	3 June 2012	Incorporated changes resulting from consultations with deans and ESGB incorporated EPAC	EPAC – Recommendation for approval
Rev. 2	31 July 2014		Approved by Council
Rev. 3: Draft A	12 Feb 2018	Minor corrections made to incorporate new programmes	Working Group
Rev. 3	22 May 2018	Approval	PDSGC
Rev. 4 Draft A	28 Sept 2020	Re-align E-series documents	Working Group
Rev. 4 Draft B	01 Oct 2020	Review by Education Business Unit	Education BU
Rev. 4	02 Oct 2020	Review by the Executive	RPS Executive: EL Nxumalo
Rev. 4	15 Oct 2020	Approval	RPSC

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Rev 5 Draft A	01 Oct 2024	The document has been revised to ensure alignment with changes on E-01-POL, and reflect the changes implemented in the processes and procedures for accreditation of Engineering programmes Figure 1 has been update to add qualification standards and to remove the E-16-PRO document Appendix A has been removed, and a thorough check made on another related document to ensure where the appendix is referred is removed	Working group
Rev 5 Draft B	01 Oct 2024	The document was sent to Accreditation and Training BU for inputs and comments.	Accreditation and Training BU
Rev 5 Draft C	04 Oct 2024	Document reviewed with WG and RI BU	RI BU and WG
Rev 5 Draft D	09 Oct 2024	Document submitted to the IEA Task Team for alignment to the IEA	IEA Review Task Team
Rev 5 Draft E	11 Oct 2024	Reviewed and checked	Executive: RPSC
Rev 5	23 Oct 2024	Approval	RPSC

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Criteria for Accreditation of Engineering Programmes

Revision 5 and consisting of 15 pages dated 23 October 2024 has been reviewed for adequacy by the Business Unit Manager and is approved by the Executive: Regulatory Services & International Relations (**ERSIR**).


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Business Unit Manager

10/12/2024
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Date


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Executive: **RSIR**

2024/12/10
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Date

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