ECSA

ENGINEERING COUNCIL OF SOUTH AFRICA

An Effective Regulator Assuring Engineering Excellence

Processing of Applications for Registration of Candidates and Professionals

R-03-PRO-PC

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ENGINEERING COUNCIL OF SOUTH AFRICA
Tel: 011 607 9500 | Fax: 011 622 9295
Email: engineer@ecsa.co.za | Website: www.ecsa.co.za

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BACKGROUND

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

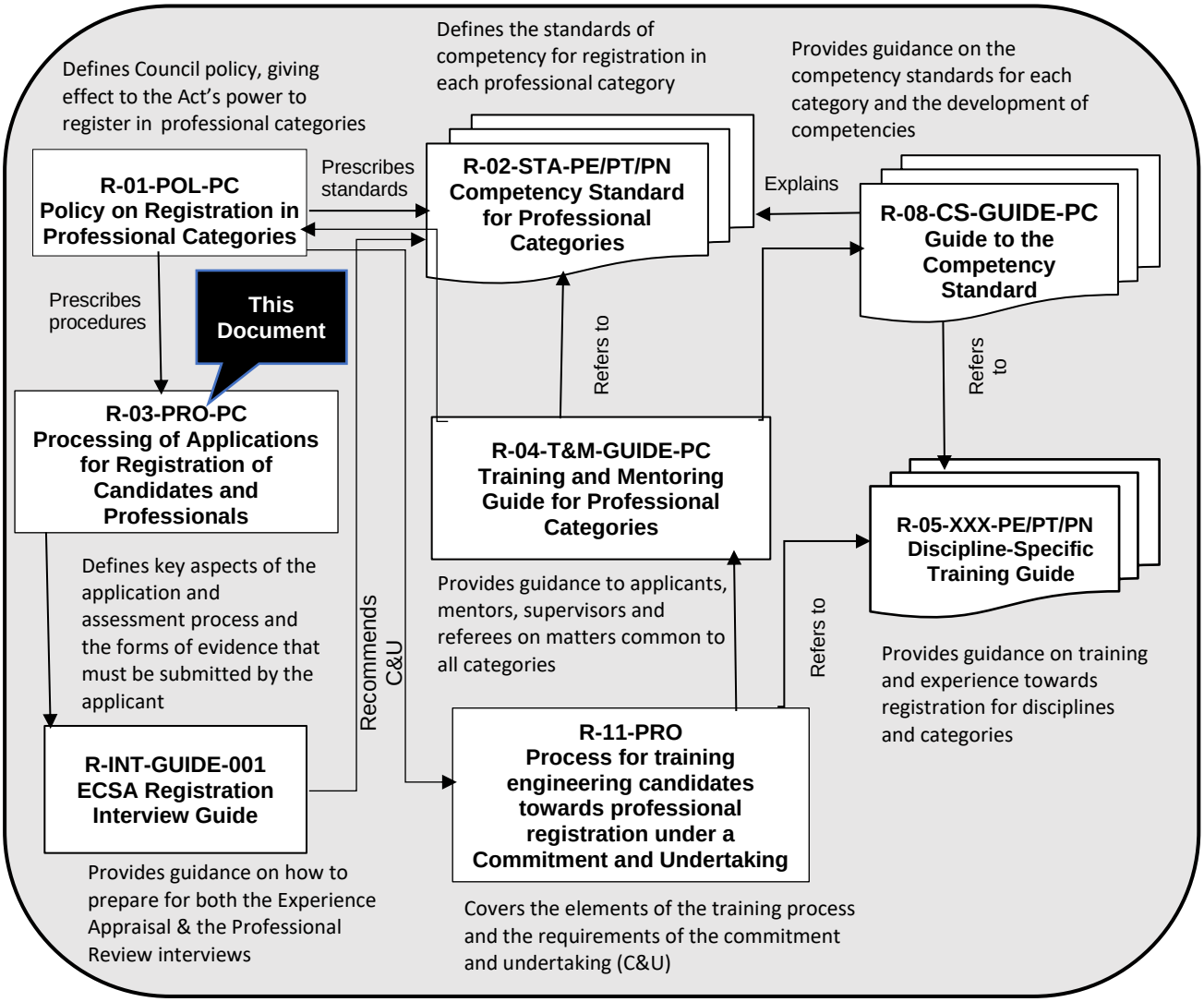

Figure 1: Documents defining the ECSA registration system

1. PURPOSE OF THIS DOCUMENT

This document defines the process flow used by ECSA to process and make decisions regarding applications for registration as a Candidate Engineer, a Candidate Engineering Technologist and a Candidate Engineering Technician or as a Professional Engineer, a Professional Engineering Technologist and a Professional Engineering Technician.

These processes are carried out under the authority of the Engineering Profession Act, 2000 (Act No. 46 of 2000) (EPA) and the registration policies, processes, guidelines and standards defined in document **R-01-POL-PC.** This document supports the management of the registration process and the assessment of applicants against the competency standard **R-02-STA-PE/PT/PN** and **R-02-STA-PCE** which provides a high-level definition of the registration process that results from implementation of the policy defined in document **R-01-POL-PC**.

2. CHANGES INTRODUCED IN THIS DOCUMENT

The ECSA approved *Registration Policies*, the *Competency Standards* and *Education Evaluation Policy* and the processes defined in this document bring about a number of changes to the registration system and provide greater clarity on and improvements to the application and assessment process. The main changes are summarised in **Table 1** of this document. In summary:

- It is not the intention to change the standard required for registration but to define it better in terms of the outcomes produced and the level of competence required. Table 1 compares the specifications supplemented by the *Discipline-specific Training Guide* (DSTG) and the *Competency Standards* identified in **R-02-STA-PE/PT/PN** and **R-02-STA-PCE.**
- The forms of evidence of competence have been made uniform across the disciplines and they provide evidence against all the outcomes (see the relevant appendix for the role of each form of evidence in relation to individual outcomes).
- The assessment process is uniform across the disciplines.

Additional changes in this document are summarised below:

- The revised process flow diagram for registration.
- The process to be followed for applicants who do not have benchmark qualifications in technologist and technician categories (alternate route applicants).
- The revised maximum word count required in the Training and Experience Report (TER) for engineering technologists and engineering technician's applications.
- The maximum word count required for Engineering Report (ER) for engineering technologists and engineering technician applications.
- The updated application forms for categories of registration: engineers, engineering technologists and engineering technicians.
- Maintaining a consistent source of evidence against the outcomes for professional engineers, engineering technologists, and engineering technicians' applications.

3. PROCESS OUTLINE

The processes defined below are designed to manage the various cases that may arise on the route to registration. These processes consider that applicants for professional registration do not necessarily register in a candidate category and that the educational requirement may be satisfied by several mechanisms, including educational evaluation.

The registration process is divided into two main sections:

- A secure system for entering the necessary data and uploading documents as required. Acceptance of application through the online registration system for candidates and professionals to be considered for registration in various categories of registration. Online portal for submission of applications for candidates to be submitted throughout the year, whereas the applications for professionals to be submitted during an allocated cycle for an application submission window, determined by the Registration Business Unit (RBU).
- The core assessment process that encompasses the Experience Appraisal, Professional Review, Panel of Moderators and Administrative Finalisation.

Table 1: Changes introduced by 2011 policy, standards and procedure

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
Registration Policy	Embedded in Policy **R2/1A**: *Acceptable Work for Candidate Engineers*; does not explicitly consider other classes of applicants.	• Single, integrated policy **R-01-POL-PC**, defining registration and education policy and linking with standards (**R-02-STA-PE/PT/PN, R02-STA-PCE**) and processes (this document); applies to all applicants.	Embedded in Policy **R2/1B**: *Acceptable Work for Candidate Engineering Technologists*; does not explicitly consider other classes of applicants	Single, integrated policy **R-01-POL-PC**, defining registration and education policy and linking with standards (**R-02-STA-PE/PT/PN, R02-STA-PCE**) and processes (this document); applies to all applicants.	Embedded in Policy **R2/1C**: *Acceptable Work for Candidate Engineering Technicians*; does not explicitly consider other classes of applicants.	Single, integrated policy **R-01-POL-PC**, defining registration and education policy and linking with standards (**R-02-STA-PE/PT/PN, R02-STA-PCE**) and processes (this document); applies to all applicants.
Educational Requirements Policy	Accredited or recognised qualification or prior evaluation of qualification(s) as meeting educational requirements.	• No change to accredited or recognised qualifications. • Accelerated evaluation of listed qualifications. • Evaluation criteria defined in document **E-17-PRO** for qualifications and assessed learning.	Accredited or recognised qualification or prior evaluation of qualification(s) as meeting educational requirements.	• No change to accredited or recognised qualifications. • Accelerated evaluation of listed qualifications. • Evaluation criteria defined in document **E-17-PRO** for	Accredited or recognised qualification or prior evaluation of qualification(s) as meeting educational requirements.	• No change to accredited or recognised qualifications. • Accelerated evaluation of listed qualifications. • Evaluation criteria defined in document **E-17-PRO** for

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
				qualifications and assessed learning.		qualifications and assessed learning.
Standard of Competency for Registration	Training requirements for Candidate • Engineers in R2/1A, with further requirements in the **R-05-PE** DSTG • Professional attributes in Section 5 for seven disciplines.	• Competency standard for registration as a professional engineer in document (**R-02-STA-PE/PT/PN, R02-STA-PCE**) • 11 outcomes, with definitions for the level of problem-solving and engineering activities. • Professional attributes included in standard. • Level descriptors differentiate categories.	Training requirements for Candidate Engineering Technologists in **R2/1B,** with further requirements in the **R-05-PT** DSTG.	• Competency Standard for registration as a Professional Engineering Technologist in document (**R-02-STA-PE/PT/PN, R02-STA-PCE**) • 11 outcomes, with definitions for the level of problem-solving and engineering activities. • Professional attributes included in the standard. • Level descriptors differentiate between categories.	Training requirements for Candidate Engineering Technicians in **R2/1C,** with further requirements in the **R-05-PN** DSTG.	• Competency Standard for registration as a professional engineering technician in document (**R-02-STA-PE/PT/PN, R02-STA-PCE**) • 11 outcomes, with definitions for the level of problem-solving and engineering activities. • Professional attributes included in the standard. • Level descriptors differentiate between categories.

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
Seeking registration without normal qualification	• Only the engineer 'Alternative Route' available (ND or equivalent plus 10 years working at level of Pr.Eng.; Experience Appraisal, followed by final-year examinations).	• Criterion-based method of meeting educational requirements by evaluation and assessment defined in document **E-17-PRO**. When educational requirements are complete, apply for registration in normal way. Identified methods of further learning and assessment.	• The technologist 'Alternative Route' allows experience of a defined standard, duration and Initial Professional Development (IPD) achievement to be accepted in lieu of academic qualifications. • Development assessed on educational outcomes based on competency claim submitted by the candidate.	• Criterion-based method of meeting educational requirements by evaluation and assessment defined in document **E-17-PRO**. When educational requirements are complete, apply for registration in normal way. Continuation of assessment of educational competency development (Interim). • Identified methods of further learning and assessment.	• The technician 'Alternative Route' allows experience of a defined standard and duration to be accepted in lieu of academic qualifications. • Development assessed on educational outcomes based on competency claim submitted by the candidate.	• Criterion-based method of meeting educational requirements by evaluation and assessment defined in document **E-17-PRO**. When educational requirements are complete, apply for registration in normal way. Continuation of assessment of educational competency development (Interim). • Identified methods of further learning and assessment.

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
Evidence of Training/ Competency	For all disciplines: • Training and Experience Summary (TES) • Training and Experience Reports (TERs) Varying requirements across disciplines: • Project Report (a) • Essay Test (b) • Claim to Competency (c) • Presentation (d)	Uniform requirements across disciplines: • TES • TERs • Training and Experience Outlines (TEOs) (e) • Engineering Report (f) • Presentation at Professional Review • Pre-registration of Continuing Professional Development (CPD)-type activity	For all disciplines: • TES • TERs • Project Report • Referee Reports • Educational Development Report for Alternative Route applicants • IPD Report • Presentation at Professional Review	Uniform requirements across disciplines: • TES • TERs • TEOs (a) • Engineering Report (b) • Referee Reports • Pre-registration CPD-type activity – IPD • Educational Development Report for Alternative Route applicants (Interim) • Discretionary interview in individual cases	For all disciplines: • TES • TERs • Project Report • Referee Reports • Educational qualification • Development Report for Alternative Route applicants • IPD Report • Discretionary interview in individual cases	Uniform requirements across disciplines: • TES • TERs • TEOs (a) • Engineering Report (b) • Referee Reports • Pre-registration CPD-type activity – IPD • Educational Development Report for Alternative Route applicants (Interim) • Presentation at Professional Review

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
Assessment of Competency	Two different assessment instruments used in professional reviews • Civil (including essay) and Electrical • Other disciplines	• Policy (document **R-01-POL-PC**) defining main stages and permitted decisions in the assessment process. • Common assessment instruments addressing the outcomes and an integrative judgement providing consistent trails through all stages.	• Assessment against outcomes and criteria, applying evidence submitted mainly in the Project Report, Educational Development Report (if applicable) and IPD Report and supplemented by the Experience Reports and Referee Reports. • Interviews if necessary.	• Policy (document **R-01-POL-PC**) defining main stages and permitted decisions in the assessment process. • Common assessment instruments addressing the outcomes and an integrative judgement providing consistent trails through all stages.	• Assessment against outcomes and criteria, applying evidence submitted mainly in the Project Report, Educational Development Report (if applicable) and IPD Report and supplemented by the Experience Reports and Referee Reports. • Interviews if necessary.	• Policy (document **R-01-POL-PC**) defining main stages and permitted decisions in the assessment process • Common assessment instruments addressing the outcomes and an integrative judgement providing consistent trails through all stages
Decision-making	Delegation of decision to register or defer to the Professional Advisory Committee (PAC); reserve refusal to Central Registration Committee	Delegation to register or to refuse to the Panel of Moderators	Delegation of decision to register or defer to the Registration Committee; reserve refusal to Central Registration Committee	Delegation to register or to refuse to the Panel of Moderators	Delegation of decision to register or defer to the Registration Committee; reserve refusal to Central Registration Committee	Delegation to register or to refuse to the Panel of Moderators

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
Application	Manual (paper-based)	Online (Transitional paper-based)	Manual (paper-based)	Online (Transitional paper-based)	Manual (paper-based)	Online (Transitional paper-based)
Process Definition	Embedded in part in other documents	• High-level process definition (this document) • Process flow	Embedded in part in other documents	• High-level process definition (this document) • Process flow	Embedded in part in other documents	• High-level process definition (this document) • Process flow
Training and Mentoring Guidelines	Discipline-specific guidelines having force of standards/policy. Three variants: • Chemical • Civil • Remaining seven disciplines	Layered set of guidelines: • Training and mentoring (all categories) (document **R-04-T&M-GUIDE-PC**) with defined responsibility levels • Guide to Competency Standards for Professional Engineers (document **R-08-CS-GUIDE-PE/PT/PN**) • DSTG (document **R-05-XXX-PE**)	Discipline-specific guidelines having force of standards/policy	Layered set of guidelines: • Training and mentoring (all categories) (document **R-04-T&M-GUIDE-PC**) with defined responsibility levels • Guide to Competency Standards for Professional Engineering Technologists (document **R-08-CS-GUIDE-PE/PT/PN**)		Layered set of guidelines: • Training and mentoring (all categories) (document **R-04-T&M-GUIDE-PC**) with defined responsibility levels • Guide to Competency Standards for Professional Engineering Technicians

	Professional Engineer		Professional Engineering Technologist		Professional Engineering Technician	
Aspect	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**	**Prior to this policy**	**Under this policy**
				• DSTG (document **R-05-XXX-PT**)		(document **R-08-CS-GUIDE-PE/PTPN**) • DSTG (document **R-05-XXX-PN**)
Notes	• Different formats across the disciplines. • Civil Engineering only. • Electrical Engineering only. • Defined short form of TER, with clear rules regarding a TEO substitution by experienced applicant. • Engineering Report replaces Project Report. • When seeking registration without the normal qualification, the process will be held in abeyance and will only resume once the qualification assessment and evaluation is complete.		• Defined short form of TER, with clear rules regarding a TEO substitution by an experienced applicant. • Replaces Project Report; emphasis on demonstrating the applicant's engineering ability. • When seeking registration without the normal qualification, the applicant should be requested to apply via alternate route, by completing Education Development B18 or refer to education evaluation through **E-17-PRO** to be evaluated if qualification being equivalent to an accredited South African qualification.		• Defined short form of TER, with clear rules regarding a TEO substitution by an experienced applicant. • Replaces Major Task Report; emphasis on demonstrating the applicant's engineering ability. • When seeking registration without the normal qualification, the applicant should be requested to apply via alternate route, by completing Education Development C18 or refer to education evaluation through **E-17-PRO** to be evaluated if qualification being equivalent to an accredited South African qualification.	

Core process for candidacy and professional registration

The process in Figure 2 gives effect to the *Registration Policy* in document **R-01-POL-PC**. The assessors for the Experience Appraisal are selected, and the appraisal starts. A provisional selection of reviewers and a date for the Professional Review are established (to be confirmed or cancelled later). This takes into account the timelines as stipulated in the acknowledgement letter.

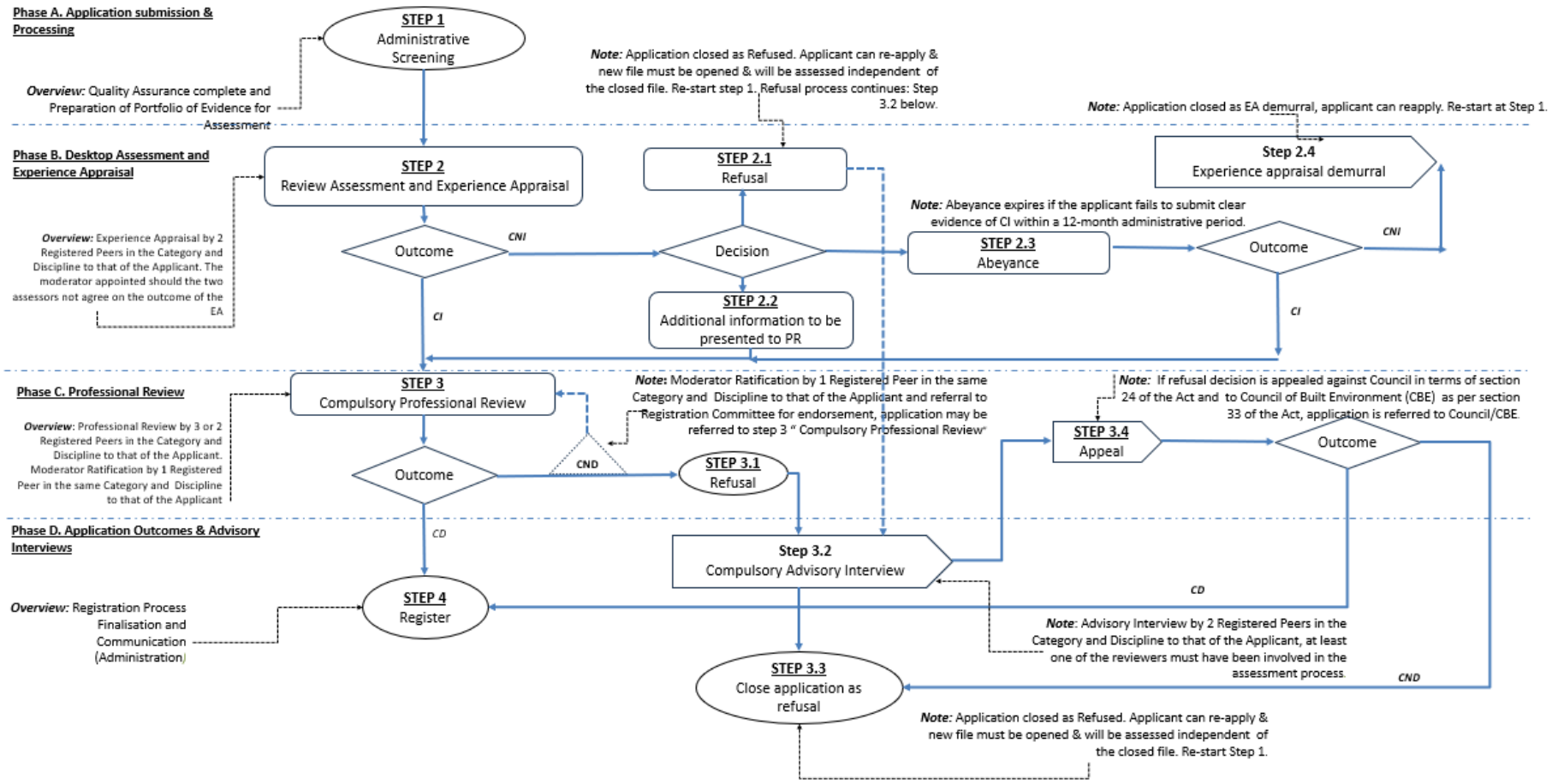

Figure 2: Process flow-diagram of Registration

The process flow is in accordance with the policy presented in document **R-01-POL-PC** which includes the following main elements:

1. Experience Appraisal: An assessment of the applicant's competence using the submitted documentation which includes TES, TER, ER, referees reports, IPD and supervisors check list.
    - The EA must not be conducted by less than two Assessors selected from Virtual Panel Member (VPM) pool.
    - The assessor must assess each of the 11 outcomes and provide a score and concomitant motivation for each outcome, while cross-referencing the portfolio of evidence provided by the applicant.
    - Each assessor must provide an overall score for their assessment with reasons considered. A reason for the score allocation must be provided avoiding copy and paste score allocation.
    - Each assessor must assess the applicant for Competence Indicated (CI) or Competence Not Indicated (CNI).
    - The test for Competence Demonstrated (CD) or Competence Not Demonstrated (CND) is undertaken at compulsory Professional Review stage and may not be evaluated at experience appraisal stage, only competence Indication (CI) or Competence not Indicated (CNI) is required at Experience Appraisal Stage.
    - If competence is indicated against prescribed standard in relevant category, proceed to Professional Review.
    - If competence is not indicated against prescribed competency standard in relevant category, refer to the Panel of Moderators.
    - Incomplete/incorrectly completed assessment forms must be returned to the respective assessor/reviewer/moderator for completion/rectification. Any missing information may be elicited through written submission.

2. If the Experience Appraisal is not indicative of competence, the Experience Appraisal moderators must adopt one of the following measures:
    - Recommend that the applicant be interviewed by the reviewers to elicit further information.

- Request additional information to be submitted, giving the applicant the opportunity to gain experience and fulfil outstanding competency requirements for a minimum period of 12 months.

3. Professional Review
   - If competence is confirmed, through demonstration of competencies, recommend registration to Panel of Moderators.
   - If competence is not confirmed, recommend refusal of registration to Panel of Moderators.

4. Consideration of reports by the Panel of Moderators with the following possible outcomes:
   - Register applicant.
   - Refuse applicant.
   - Refer the application back for consideration in accordance with **R-01-POL-PC** policy document.

4. EVIDENCE AND ASSESSMENT FOR REGISTRATION AS A CANDIDATE OR PROFESSIONAL ENGINEER, ENGINEERING TECHNOLOGIST OR ENGINEERING TECHNICIAN

Table 2: Forms and documents (Applicable Registration System)

Ref.	Components of application	For registration as a candidate or professional engineer		For registration as a candidate or professional engineering technologist		For registration as a candidate or professional engineering technician	
		Candidate	Professional	Candidate	Professional	Candidate	Professional
	Online application form	X	X	X	X	X	X
	Declaration signed by applicant and Commissioner of Oaths	X	X	X	X	X	X
	Proof of identity (SA ID book or SA ID national card or foreign passport)	X	X*	X	X	X	X
TES	Summary of Training and Experience Reports		X		X		X
TER & TEO	Training and Experience Reports (generally more than one) – individual reports to be signed by supervisor. Training and Experience Outlines may be used where permitted		X		X		X
ER	Engineering Report (incorporating self-assessment)		X		X		X
IPD	Record of IPD (Pre-registration CPD)		X		X		X
EDR	Interim Educational Development Report until ECSA examinations can be conducted for Alternative Route applicants only (Voluntary – evidence of development)				X		X
	Proof of Voluntary Association (VA) membership (Copy of certificate or letter)	X	X	X	X	X	X

Ref.	Components of application	For registration as a candidate or professional engineer		For registration as a candidate or professional engineering technologist		For registration as a candidate or professional engineering technician	
		Candidate	Professional	Candidate	Professional	Candidate	Professional
	Qualification certificates (if not already submitted)	X	X*	X	X	X	X
AR	Academic Record/transcript (List of Subjects and Grades)	X	X*	X	X	X	X
RR/REF	**Professional Engineers:** Referee Report must be completed and signed by two referees. The applicant must, with the permission of the persons concerned, supply the Council with the names and addresses of two referees who have personal knowledge of the applicant's professional performance and engineering experience. One referee must be registered with ECSA as a professional engineer or professional certificated engineer (BSC or BEng Degree in Engineering). Under certain circumstances, foreign equivalents to the above categories may be accepted. **Professional Engineering Technologists:** Referee Report must be completed and signed by the referees. A minimum of two referees is required, who have personal knowledge of the applicant's work and registered with ECSA as a professional engineering technologist, professional certificated engineer or a professional engineer, of which one should be a direct supervisor. **Professional Engineering Technicians:** Referee Report must be completed and signed by the referees. A minimum of two referees are required, who have personal knowledge of the applicant's work and registered with ECSA as a professional engineering technician, a professional engineering technologist, professional certificated engineer or a professional engineer, of which one should be a direct supervisor.		X		X		X

4.1 Professional engineer

4.1.1 General requirements for registration

Assessment of an applicant for registration as a Professional Engineer must incorporate the requirements stipulated in the Competency Standard, document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**:

- Competence must be demonstrated within *complex engineering activities* by integrated performance of the outcomes at the level defined for each outcome. Required contexts and functions may be specified in the applicable DSTG.
- The evidence used to demonstrate competency must, therefore, address the defined outcomes in the *Competency Standard* and indicate the level at which outcomes are achieved.

4.1.2 Required information and evidence of competency

Table 2 lists the information and the forms of evidence the applicant must provide for registration as a candidate or professional engineer, candidate or professional engineering technologist and candidate or professional engineering technician.

4.1.3 Training and Experience Summary (Appendix C)

The Training and Experience Summary (TES) is a record of distinct phases of training and work experience during the applicant's career until the time of application. The TES must identify each phase of training and experience and the Level of Responsibility.

A phase of training and experience corresponds to a period in which particular high-level training objectives are fulfilled or a major task or project is completed. A phase typically ends when new training objectives are set, the type of work changes, the expected level of achievement changes, employment is terminated, or engineering work is interrupted. See **Table 3** for a list of events that demarcate a period of training and experience.

The degrees of responsibility defined in document **R-04-T&M-GUIDE-PC** are presented below (and in the TERs).

Level A	Being exposed
Level B	Assisting
Level C	Participating
Level D	Contributing
Level E	Performing

Degree of Responsibility Level E means performing at the level required for registration. This corresponds to the range statement in Outcome 10 of the Competency Standard, document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**, which requires the applicant to display responsibility 'for the outcomes of significant parts of one or more complex engineering activities.

4.1.4 Training and Experience Reports (Appendix D)

Two templates are available for reporting on an applicant's training and experience; their use depends on the length and nature of the training and experience.

1. In general, an applicant must complete and submit a TER for each phase of training and work experience from graduation to application for registration. TERs covering at least one year working at the Degree of Responsibility Level E (Performing) must be submitted. Such phases need not include the last period(s) in the applicant's TES.
2. The requirement above is relaxed in the case of an applicant who has at least 10 years engineering training and experience after completing the educational requirement and reports at least 3 years at the Degree of Responsibility Level E (Performing) in detail in the TERs that are signed by the supervisor. Such periods need not include the last period(s) in the applicant's TES. Such an applicant may submit Training and Experience Outlines (TEOs) for the remaining periods or groups of related periods. Training and Experience Outline (Appendix E): **Table 3** below presents the information that is required in the TERs and TEOs.

Information to be provided in Training and Experience Reports and Outlines for registration as a professional engineer.

Table 3: Information required in TERs and TEOs for registration as a professional engineer

Aspect	Training and Experience Report (TER)	Training and Experience Outline (TEO)
Supervisor's signature	Required (indicates agreement with levels of responsibility A–E inserted in header).	Not required (covered by general declaration by applicant).
A period ends when:	• The work environment has changed (e.g., a major training phase or task ends). • The type of work has changed. • The responsibilities or level of function has changed (e.g., a promotion, change of employer). • Training or employment is interrupted (e.g., by study, unemployment or prolonged illness).	• The Level of Responsibility changes from Level B to Level C. • The Level of Responsibility changes from Level D to Level E. • A promotion is received. • There is a change of employment. • Training or employment is interrupted. • Nature of work changes significantly.
Position in organisation	Supply an organogram showing supervisors, co-workers and persons you supervised (if any). Show two levels above and below if possible.	Simplified organogram: Identify yourself, your supervisor and state the number and level of persons supervised.
Reporting format	• Write in the first person. • Construct proper paragraphs and address key aspects from the list below.	Use bulleted format and cover the items below.
Topics to be covered (Elements marked * are mandatory, others as applicable)	Objective of training or major work phase*	Nature of the training/work phase or related phases
	• Nature of problem(s) addressed* • Method of analysis* • Method used in developing solution* • Criteria used in evaluating solution*	Typical problems addressed*
	• Documentation, reports, presentations prepared • Interaction with clients, stakeholders and other disciplines • Management of materials, machines, manpower, methods or money, contracts • Interaction with clients, stakeholders and other disciplines	• Responsibilities for communication and documentation • Management responsibilities

Aspect	Training and Experience Report (TER)	Training and Experience Outline (TEO)
	• Health and safety considerations • Hazards and environmental considerations • Other legislation	Legal and impact analysis
	• The applicant's contribution to the task* • Nature of the applicant's responsibility (in addition to levels A–E)* • Completion of any courses relevant to your professional development	Applicant's role and responsibility (in addition to levels A–E)*
Length limit	Do not exceed 2 000 words in total (all TERs)	Summary of training and experience in bullet points per TEO.

***Mandatory fields**

An applicant whose training and experience history is less than 3 years and who has less than one year working at the Degree of Responsibility Level E (Performing) will be notified that the application is premature and will be invited to submit further TESs as they become available and be placed in abeyance for a minimum period of reaching the required experience post benchmark qualification or 12 months. The information to be provided in the TER and TEO format is defined in **Table 3** above.

4.1.5 Engineering Report (Appendix F)

Each applicant must submit an Engineering Report covering aspects of work at a performance level that demonstrates the applicant has fulfilled the required outcomes. This report must be specifically written for the application; the document is not 'simply a report on a specific project'. While the Engineering Report may be based on a major project or a series of projects, it is a report in which applicants reflect on their engineering activity that demonstrates the required level of competence. The work presented in the report does not need to be project based; in an operational engineering work environment, problem solving and engineering management may provide evidence of performance against the required outcomes.

The report should be reflective rather than purely narrative and should cover the following:

- The engineering and contextual knowledge and understanding required for effective performance of the work that was gained in the applicant's education and acquired thereafter.
- The theoretical and practical methods used to analyse and solve engineering problems encountered in the work.
- The planning, organising, leading and controlling of human and other resources to achieve the goals of the engineering work.
- The management of regulatory considerations on impacts of the work that were not necessarily covered by regulation and ethical issues and the recognition of obligations to society, the profession and the environment.
- The risks and uncertainties associated with the work and its product.
- The recommendations, judgement calls and decisions that the applicant had to make and in which the applicant's leadership skills were exercised.
- The nature of the responsibility carried by the applicant and the identification of persons for whom the applicant was responsible.

The report must be written in the first person and in the English language and must demonstrate proper structure and style. A template for the heading and closure of the report is provided. The report body, including headings and sub-headings, should be approximately 6 000 words. Diagrams, tables and pictures appropriate to the purpose defined above must not exceed 4 A4 pages in total. The report is a test of written communication ability from a structural, stylistic and linguistic aspect and must demonstrate logical development.

4.1.6 Referee Report (Appendix G)

The Referee Report draws on observations of the applicant's performance under work conditions to obtain information on the applicant's competency. The referee is asked to identify periods in the applicant's career as itemised in the TES for which the referee feels able to comment on the applicant's attributes. In relation to these periods, the referee is required to:

- rate the applicant's problem analysis and solution synthesis abilities in relation to the desired level (complex engineering problems)

- rate the applicant's knowledge of engineering principles and of the wider context of the engineering work.
- comment on the applicant's engineering management ability, that is, the ability to ensure the achievement of engineering results through management methods.
- rate the applicant's communication ability.
- comment on the applicant's abilities to manage the regulatory, economic, social and environmental issues arising from engineering activity.
- comment on the applicant's understanding of ethics and ethical behaviour in relation to engineering work.
- Rate the applicant's judgement in decision making and acceptance of responsibility.
- comment on the applicant's willingness and capacity to accept responsibility; and
- comment on the applicant's commitment and attention to competency and career development.

4.1.7 Academic Report (Appendix H)

The Academic Record (AR) outlines the tertiary qualification of the applicant. All subjects credited to the applicant, marks attained if available and the year obtained for alignment of the contextual knowledge with the engineering evidence provided. Extra subjects passed for incomplete qualification may be considered for contribution to IPD.

4.1.8 Initial Professional Development Report (Appendix I)

The IPD Report is a factual record that serves as evidence of proficiency development through CPD-type activities of Category 1 and other formal learning activities prior to registration.

4.1.9 Supervisor's checklist (Appendix J)

The supervisor's checklist is completed by the supervisor to confirm knowledge and supervision of the applicant.

4.2 Professional engineering technologist

4.2.1 General requirements for registration

The assessment of applicants for registration as professional engineering technologists must incorporate the requirements stipulated in the *Competency Standard*, document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE:**

- Competence must be demonstrated within *broadly defined engineering activities* by integrated performance of the outcomes at the level defined for each outcome. Required contexts and functions may be specified in the applicable DSTG (Refer to Appendix A: Tables A1 and A2).
- The evidence used to demonstrate competency must, therefore, address the defined outcomes in the *Competency Standard*.

4.2.2 Required information and evidence of competency

Table 2 above lists the information and the forms of evidence an applicant must provide for registration as a candidate engineering technologist or professional engineering technologist.

4.2.3 Training and Experience Summary (Appendix C)

The TES is a factual record of distinct phases of training and work experience during the applicant's career until the time of application (see Appendix C). The TES must identify each phase of training and experience and the Level of Responsibility.

Periods during which the applicant was not engaged in an activity that contributed to professional development must also be indicated and reasons for the inactivity must be given.

The nature of the work and the degrees of responsibility defined in **R-04-T&M-GUIDE-PC**, *(Progression Throughout the Candidacy Period)* are presented below in Table 4 (and in the TERs).

Table 4: Nature of engineering work and Degree of Responsibility applicable to professional engineering technologists

A: Being exposed	B: Assisting	C: Participating	D: Contributing	E: Performing
Undergoes induction; observes processes and work of competent practitioners.	Performs specific processes under close supervision.	Performs specific processes as directed with limited supervision.	Performs specific work with detailed approval of work outputs.	Works in team without supervision; recommends work outputs; responsible but not accountable.
Responsible to supervisor.	Limited responsibility for work output.	Full responsibility for supervised work.	Full responsibility to supervisor for immediate quality of work.	Level of Responsibility to supervisor is appropriate to that of a registered person; supervisor is accountable for applicant's decisions.

Degree of Responsibility Level E means performing at the level required for registration. This corresponds to the range statement in Outcome 10 of the Competency Standard, document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**, which requires the applicant to display responsibility 'for the outcomes of significant parts of one or more broadly defined engineering activities.

4.2.4 Training and Experience Reports (Appendix D)

The TERs provide a factual record of the main periods in the applicant's development from graduation to application for registration and to identify the periods in which the applicant took responsibility at the required level, providing evidence of meeting the required outcomes during these times. Reference must be made to the Engineering Report and to the specific outcome that has been met. It is imperative to adhere to the maximum word count per TER/TEO of 430 words when completing application form **B2.1-TER**. The total word counts for all TER/TEO should not exceed 2 000 words.

Two templates are available for reporting on the applicant's training and experience; their use depends on the length and nature of the relevant training and experience.

Table 5: Information required in TERs and TEOs for registration as a professional engineering technologist

Aspect	Training and Experience Report (TER)	Training and Experience Outline (TEO)
Supervisor's signature	Required (indicates agreement with inserted Level of Responsibility A–E)	Required (indicates agreement with inserted Level of Responsibility A–E)
A period ends when:	• The work environment has changed, (e.g., when a major training phase, task ends). • The type of work has changed. • The responsibilities or level of function has changed (e.g., In a promotion). • The employer has changed. • Training or employment is interrupted (e.g., by study, unemployment or prolonged illness).	• The Level of Responsibility changes from Level B to Level C. • The Level of Responsibility changes from Level D to Level E. • A promotion is received. • There is a change of employment. • Training or employment is interrupted. • Nature of work changes significantly.
Position in organisation	Supply an organogram showing the names, position and registration (if any) and qualification (if not registered) of supervisor(s), co-workers and persons you supervised (if any). Show two levels above and below if possible. Always show the supervisor.	Simplified organogram: Identify yourself and your supervisor and state the number and level of persons supervised.
Reporting format	• Write in the first person • Construct proper paragraphs and address the key aspects from the list below	• Use bulleted format and cover the items below
Topics to be covered (Elements marked * are mandatory, others as applicable)	Nature of training or experience*	Nature of the training or work phase or related phases
	Discipline of engineering and discipline-specific fields*	Discipline of engineering and discipline-specific fields*

Aspect	Training and Experience Report (TER)	Training and Experience Outline (TEO)
	• Nature of problem(s) addressed • Method of analysis • Solution development and evaluation*	• Nature of problem(s) addressed • Method of analysis • Solution development and evaluation*
	• Management of materials, machines, manpower, methods or money, contracts	Management responsibilities
	Interaction with clients, stakeholders and other disciplines	
	Health and safety considerations; hazards; environmental considerations; other legislation*	Legal and impact analysis*
	• The applicant's contribution to the task* • Nature of the applicant's responsibility (in addition to levels A–E)*	• The applicant's contribution to the task* • Nature of the applicant's responsibility (in addition to levels A–E)*
Length limit	Word count per TER should not exceed 430 words. Do not exceed 2 000 words in total (all TERs)	Summary of training and experience in bullet points per TEO. The total word count of the TEO or word contribution to TER and TEO should not exceed 2000 words.

See Appendices D and E

4.2.5 Engineering Report (Appendix F)

Each applicant must submit an Engineering Report covering aspects of work at the performance level that demonstrates that the applicant has fulfilled the required outcomes. This report must be specifically written for the application; this document is not 'simply a report on a specific project'. While the Engineering Report may be based on a major project or a series of projects, it is a report in which applicants reflect on their engineering activity that demonstrates the required level of competence. The work presented in the report does not have to be project based; in an operational engineering work environment, problem -solving and engineering management may provide evidence of performance against the required outcomes.

The report should be reflective rather than purely narrative and should cover the following:

- The engineering and contextual knowledge and understanding required for effective performance of the work that was gained in the applicant's education and acquired thereafter.
- The theoretical and practical methods used to analyse and solve engineering problems encountered in the work.
- The planning, organising, leading and controlling of human and other resources to achieve the goals of the engineering work.
- The management of regulatory considerations impacts of the work that were not necessarily covered by regulation and ethical issues and the recognition of obligations to society, the profession and the environment.
- The risks and uncertainties associated with the work and its product.
- The recommendations, judgement calls and decisions the applicant had to make and in which the applicant's leadership skills were exercised.
- The nature of the responsibility carried by the applicant and identification of the persons for whom the applicant was responsible.

The report must be written in the first person and in the English language, demonstrating a proper structure and style. A template for the heading and closure of the report is provided. The report body, including headings and sub-headings in the application form, Form **B2.3 ER** which stipulates that there should be at least 100 words per criteria under outcomes 1 to 11 on the recent engineering task for which the applicant has made significant contribution. The analysis indicates 28 criteria, therefore the maximum word count for the Engineering Report should be 2 800 words. Diagrams, tables and pictures appropriate to the purpose defined above must not exceed 4 A4 pages in total. The report is a test of written communication ability from a structural, stylistic and linguistic aspect and must demonstrate logical development.

Applicants should adhere to cross-referencing requirements in the application form **B2.3 ER**, which is essentially about making connections, it is a way to make it easy for the applicant and the assessors/reviewers/moderators to see how experiences have built skills, by directly linking each claim made to a real example or evidence from the past work and learning.

4.2.6 Referee Report (Appendix G)

The Referee Report draws on observations of the applicant's performance under work conditions to obtain information on the applicant's competency. The referees are asked to identify periods in the applicant's career as itemised in the TES on which the referee feels able to comment on the applicant's attributes. Regarding these periods, the referee is required to:

- rate the applicant's problem analysis and solution synthesis abilities in relation to the desired level (broadly defined engineering problems)
- rate the applicant's knowledge of engineering principles and of the wider context of the engineering work
- comment on the applicant's engineering management ability, that is, the ability to ensure the achievement of engineering results through management methods.
- rate the applicant's communication ability.
- comment on the applicant's abilities to manage the regulatory, economic, social and environmental issues arising from engineering activity at a broadly defined level as well as the risk management strategy adopted.
- comment on the applicant's understanding of ethics and ethical behaviour in relation to the engineering work.
- rate the applicant's judgement in decision-making and acceptance of responsibility for engineering work at a broadly defined level.
- rate the applicant's willingness and capacity to accept responsibility for engineering work at a broadly defined level.
- comment on the applicant's commitment and attention to competency and career development.

4.2.7 Academic Record (Appendix H)

The Academic Record (AR) outlines the applicant's tertiary qualifications. All subjects credited to the applicant, marks attained if available and the year obtained for alignment of the contextual knowledge with the engineering evidence provided. Extra subjects passed for incomplete qualification may be considered for contribution to IPD.

4.2.8 Initial professional development – IPD Report (Appendix I)

The AR and the IPD Report are factual records that serve as evidence of proficiency development from an academic base through the CPD-type activities of Category 1 and other formal learning activities including in-house training prior to registration. Reported activities do not require CPD validation. Appendix I specifies the information required for each activity.

4.2.9 Educational Development Report (Appendix J)

- Applicants not in possession of an ECSA-accredited B Tech Degree in engineering or B EngTech or Advanced Diploma in engineering should complete this work-based (experience) learning report. WRITE A REPORT IN ABOUT 100 WORDS ON EACH CRITERION LISTED.
- Reports must include reference to any broadly defined practical examples in the workplace and demonstrate how the competencies were satisfied. The report is not restricted to a single task or project. (Additional supporting evidence may be attached if necessary but must not exceed two A4 pages.)
- The information can be obtained from education or experience or a combination of both.
- The applicant and supervisor must sign the completed report.

4.2.10 Supervisor's checklist (Appendix K)

The supervisor's checklist is completed by the supervisor to confirm knowledge and supervision of the applicant.

4.3 Professional engineering technicians

4.3.1 General requirements for registration

The assessment of applicants for registration as professional engineering technicians must incorporate the requirements stipulated in the *Competency Standard*, document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**:

Competence must be demonstrated within *well-defined engineering activities* by integrated performance of the outcomes at the level defined for each outcome. Required contexts and functions may be specified in the applicable DSTGs (refer to Appendix A: Tables A1 and A2).

The evidence used to demonstrate competency must therefore address the defined outcomes in the *Competency Standard*.

4.3.2 Required information and evidence of competency

Table 2 above lists the information and forms of evidence the applicant must provide for registration as a candidate engineering technician or professional engineering technician.

4.3.3 Training and Experience Summary (Appendix C)

The TES is a factual record of distinct phases of training and work experience during the applicant's career until the time of application. The TES must identify each phase of training and experience and the Level of Responsibility.

Periods during which the applicant was not engaged in an activity that contributed to professional development must also be indicated, and reasons for the inactivity must be given.

A phase of training and experience corresponds to a period in which particular high-level training objectives are fulfilled or a major task or project is completed. A phase typically ends when new training objectives are set, the type of work changes, the expected level of achievement changes, employment is terminated, or the engineering work is interrupted. See **Table 6** for a list of events that demarcate a period of training and experience.

The nature of work and the degrees of responsibility defined in **R-04-T&M-GUIDE-PC** *(Progression Throughout the Candidacy Period)* are presented below (and in the TERs).

Table 6: Nature of engineering work and Degree of Responsibility applicable to professional engineering technicians

A: Being exposed	B: Assisting	C: Participating	D: Contributing	E: Performing
Undergoes induction, observes processes and work of competent practitioner	Performs specific processes under close supervision	Performs specific processes as directed with limited supervision	Performs specific work with detailed approval of work outputs	Works in team without supervision; recommends work outputs; responsible but not accountable
Responsible to supervisor	Limited responsibility for work output	Full responsibility for supervised work	Full responsibility to supervisor for immediate quality of work	Level of Responsibility to supervisor is appropriate to that of a registered person; supervisor is

				accountable for applicant's decisions

Degree of Responsibility Level E means performing at the level required for registration. This corresponds to the range statement in Outcome 10 of the Competency Standard, document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**, which requires the applicant to display the Level of Responsibility 'for the outcomes of significant parts of one or more well-defined engineering activities. The applicant may not, however, assume accountability for the work, since applicants are expected to conduct the engineering work under supervision of registered person.

4.3.4 Training and Experience Reports (Appendix D)

The TER provides a factual record of the main periods in the applicant's development from graduation to application for registration and to identify the periods in which the applicant took responsibility at the required level, providing evidence of meeting the required outcomes during these times. Reference must be made to the Engineering Report and the specific outcome that has been met. It is imperative to adhere to the maximum word count per TER/TEO of 280 words when completing application form **C2.1-TER**. The total word counts for all TER/TEO should not e**x**ceed 2 000 words.

Two templates are available for reporting on the applicant's training and experience; their use depends on the length and nature of the relevant training and experience. The information to be provided in the TER and TEO is defined in **Table 7**.

Table 7: Information required in TERs and TEOs for registration as a professional engineering technician

Aspect	Training and Experience Report (TER)	Training and Experience Outline (TEO)
Supervisor's signature	Required (indicates agreement with inserted Level of Responsibility A–E)	Required (indicates agreement with inserted Level of Responsibility A–E)
A period ends when	• The work environment has changed (e.g., a major training phase or task ends). • The type of work has changed. • The responsibilities or level of function has changed (e.g., a promotion).	• The Level of Responsibility changes from Level B to C. • The Level of Responsibility changes from Level D to E. • A promotion is received. • There is a change of employment.

Aspect	Training and Experience Report (TER)	Training and Experience Outline (TEO)
	• The employer has changed. • Training or employment is interrupted (e.g., study, unemployment or prolonged illness).	• Training or employment is interrupted. • The nature of the work changes significantly.
Position in organisation	Supply an organogram showing the names, position and registration (if any) and qualification (if not registered) of supervisor(s), co-workers and persons you supervised (if any). Show two levels above and below if possible. Always show the supervisor.	Simplified organogram: Identify yourself, your supervisor and state the number and level of persons supervised.
Reporting format	Write in the first person. Construct proper paragraphs and address the key aspects from the list below.	Use bulleted format covering the items below.
Topics to be covered: (elements marked * are mandatory, others as applicable)	Nature of training or experience*	Nature of the training or work phase or related phases*
	Discipline of Engineering and discipline specific fields*	Discipline of Engineering and discipline-specific fields*
	• Nature of problem(s) addressed • Method of analysis • Solution development and evaluation*	• Nature of problem(s) addressed • Method of analysis • Solution development and evaluation*
	Management responsibilities	Management responsibilities
	Interaction with clients, stakeholders and other disciplines	Interaction with clients, stakeholders and other disciplines
	The applicant's contribution to the task* Nature of the applicant's responsibility (in addition to Level A–E)*	The applicant's contribution to the task* Nature of the applicant's responsibility (in addition to Level A–E)*
Length limit	Word count per TER should not exceed 280 words. Do not exceed 2 000 words in total (all TERs).	Summary of training and experience in bullet points per TEO. The total word count of the TEO or word contribution to TER and TEO should not exceed 2 000 words.

***Mandatory fields**

See Appendices D and E

4.3.5 Engineering Report (Appendix F)

Each applicant must submit an Engineering Report covering aspects of work at the Performance Responsibility Level E to demonstrate that the applicant has fulfilled the required outcomes.

While the report may be based on a major task, a series of tasks or a project, the Engineering Report is a report in which applicants reflect on their engineering activity that demonstrates the required level of competence.

The work drawn on for the report does not have to be project based. In an operational engineering work environment, problem solving and engineering management may provide evidence of performance against the required outcomes.

The report must be based on problem solving and activities at a well-defined level, applying technician -level educational theory. Calculations at this level done by the applicant must be attached to the report.

The report should be reflective rather than purely narrative and should cover the following:

- The engineering and contextual knowledge and understanding required for effective performance of the work that was gained in the applicant's education and acquired thereafter.
- The theoretical and practical methods used to analyse and solve engineering problems encountered in the work.
- The planning, organising, leading and controlling of human and other resources to achieve the goals of the engineering work.
- The management of legislative considerations on the impacts of work that were not necessarily covered by regulations and ethical issues and the recognition of obligations to society, the profession and the environment.
- The risks and uncertainties associated with the work and its product.
- The recommendations, judgement calls and decisions that the applicant had to make in which the applicant's leadership skills were exercised.
- The nature of the responsibility carried by the applicant and identification of the persons for whom the applicant was responsible.

The report must be written in the first person (except when describing the actions of another person or agency) and in the English language, demonstrating proper structure and style. A template for the heading of the report is provided. The report body, including headings and sub-headings in the application form, Form **C2.3 ER** which stipulates that there should be at least 100 words per criteria under outcomes 1 to 11 on the recent engineering task to which the applicant has made significant contribution. The analysis indicates 23 criteria, therefore the maximum word count for Engineering Report should be 2 300 words. Diagrams, tables and pictures appropriate to the purpose defined above must not exceed four A4 size pages in total. The report is a test of written communication ability from a structural, stylistic and linguistic aspect and must demonstrate logical development.

4.3.6 Referee Report (Appendix G)

The Referee Report draws on observations of the applicant's performance under work conditions to obtain information regarding the applicant's competency. Referees are asked to identify periods in the applicant's career as itemised in the TES for which the referee feels able to comment on the applicant's attributes. In relation to these periods, the referee is required to:

- rate the applicant's problem -analysis and solution -synthesis abilities in relation to the desired level (well-defined engineering problems)
- rate the applicant's knowledge of engineering principles and of the wider context of the engineering work.
- comment on the applicant's engineering management ability, that is, the ability to ensure the achievement of engineering results through management methods.
- rate the applicant's communication ability.
- comment on the applicant's abilities to manage the regulatory, economic, social and environmental issues arising from engineering activity at a well-defined level.
- comment on the applicant's understanding of ethics and ethical behaviour in relation to the engineering work.
- rate the applicant's judgement in decision-making and acceptance of responsibility for engineering work at a well-defined level.
- rate the applicant's willingness and capacity to accept responsibility for engineering work at a well-defined level.

- comment on the applicant's commitment and attention to competency and career development.

4.3.7 Academic Record (Appendices H)

The AR outlines the tertiary qualification of the applicant. All subjects credited to the applicant, marks attained if available and the year obtained for alignment of the contextual knowledge with the engineering evidence provided. Extra subject passed for incomplete qualification may be considered for contribution to IPD.

4.3.8 Initial Professional Development – IPD Report (Appendix I)

The IPD Report are factual records that serve as evidence of proficiency development from an academic base through the CPD-type activities of Category 1 and other formal learning activities including in-house training prior to registration. Reported activities do not require CPD validation. Appendix I specifies the information required for each activity.

4.3.9 Educational Development Report (Appendix J)

- Applicants not in possession of an ECSA-accredited National Diploma in Engineering should complete this work-based (experience) learning report. WRITE A REPORT IN ABOUT 100 WORDS ON EACH CRITERION LISTED.
- Reports must include reference to any well-defined practical examples in the workplace and demonstrate how the competencies were satisfied. This report is not restricted to a single task or project. (Additional supporting evidence may be attached, if necessary but must not exceed two A4 pages.)
- The information can be obtained from education or experience or a combination of both.
- The applicant and supervisor must sign the completed report.

4.3.10 Supervisor's checklist (Appendix K)

The supervisor's checklist is completed by the supervisor to confirm knowledge and supervision of the applicant.

REVISION HISTORY

Revision number	Revision date	Revision details	Approved by
Draft A	26 October 2018	Merging of R-03-PE/PT/PN	RPS BU
Draft B	13 November 2018	Verification of registration process by Registration BU	RPS BU
Draft C	10 December 2018	Verification of updated registration process by Registration BU	RPS BU
1	29 January 2019	Approval	RPSC
Rev 2	23 March 2020	Specifying number of Referees required for each professional category.	EL Nxumalo
Revision 2	09 June 2020	Round robin approval	RPSC Members
Revision 2	18 June 2020	Final Approval	RPSC
Revision 2	16 September 2021	Figure 2 aligned to the Road to Registration (Candidacy and Professional)	Registration and RDD&R BU
Rev. 3 Draft A	20 November 2022	Document reviewed to remove the professional technologist from signing the referee report on behalf of a professional engineer	RPS BU
Rev. 3 Draft B	24 January 2022	Review and Recommendation for Approval	Executive RPS: EL Nxumalo
Rev. 3	09 February 2022	Approval	RPSC
Revision 4 Draft A	30 September 2024	Under the Purpose of the document, it has been indicated that these processes are carried out under the authority of the	Working Group

Revision number	Revision date	Revision details	Approved by
		Engineering Profession Act, 2000 (Act No. 46 of 2000) The number of Assessors to conduct the EA has been changed from four to two Assessors selected from the VPM pool. Figure 2: The Process Flow Diagram for registration has been revised as follows: • The EA interview in Phase 2 has been removed. • Phase 2 now leads to a three-step decision: Refusal, Additional Information to be presented to PR, or Abeyance and Experience Appraisal Demurral. • A Compulsory Advisory Interview has been added in Phase 3. A panel of moderators has been revised to a moderator. Exemplar of application forms under Appendices have been updated to align with the application forms with regards to the number of words for the different reports.	
Rev. 4 Draft B	18 Sept 2024	Document reviewed with WG and RI BU	RI BU and WG
Rev. 4 Draft C	30 Sept 2024	Document sent to Registration BU for inputs and comments	Registration BU

Revision number	Revision date	Revision details	Approved by
Rev. 4 Draft D	31 Jan 2025	Reviewed and checked	Executive: RSIR
Rev. 4	12 Feb 2025	Approval	RPSC

The Processing of:

Applications for Registration of Candidates and Professionals

Revision 4 dated 12 February 2025 and consisting of 45 pages reviewed for adequacy by the Business Unit Manager and is approved by the Executive: Regulatory Services & International Relations **(ERSIR)**.

…… 02 April 2025

Business Unit Manager Date

……. 2025/04/08

Executive: RSIR Date

This definitive version of this policy is available on our website

APPENDICES FOR PROFESSIONAL ENGINEERS

Appendix A: What changes with the introduction of *Competency Standards*?

Prior to the introduction of the *Competency Standards*, the requirements were expressed in terms of criteria for acceptable training in the ECSA policy, document **R2/1A**. The requirements defined in Section 5 of **R2/1A** are summarised in Column 1 of the following table. The outcomes embedded in the training requirements are presented in Column 2. The formal outcomes indicated in document **R-02-STA-PE/PT/PCE/PN** and **R-02-STA-PCE** are stated in Column 3, while the level descriptor is presented in Column 4. **Table A 1-a** relates to the Group A outcomes while **Table A 2-a** relates to the outcomes of groups B, C and D.

Table A 1-a: Transition from input-based training specifications to output-based competency specifications in Group A

1: R2/1A Essential Elements of Acceptable Practical Training	2: Outcomes Embedded in Training Elements (Column 1) defined in Discipline-specific Guidelines	3: Corresponding Competency Standard Outcome	4: Level descriptors for Column 3
Common requirement in Section 1.1 of DSGs Persons wishing to become registered as a professional engineer must demonstrate that they have been trained to an acceptable level of competence in defined elements for at least 3 years and display the attributes of a professional person.		**Requirement (PE):** Competence must be demonstrated within *complex engineering activities* (described below) by the integrated performance of the defined outcomes at the level indicated for each outcome. **Note:** Outcomes are defined below. Attributes of a professional person are defined in outcomes.	
5.1 Problem investigation The work must be aimed at investigating engineering problems for which engineering judgement is required. The following practical engineering functions are contained in such	The applicant must demonstrate the ability to investigate engineering problems at a level that requires engineering judgement through performing the following functions:	**Group A: Engineering Problem-Solving** 1: Define, investigate and analyse *complex engineering problems* **Note**: Engineering judgement is specified in Group D, Outcome 8.	***Complex Engineering Problems*** have the following characteristics: a) require in-depth fundamental and specialised engineering knowledge *and one or more of the following:* b) are ill-posed, unfamiliar and under

work to a greater or lesser degree: a) Problem identification and formulation b) Finding and selecting relevant information c) Evaluating, investigating, testing and research d) Analysis of all factors that influence the solution such as relevant engineering and scientific principles.	a) Identify and formulate a problem b) Find and select relevant information c) Evaluate, investigate, test and research d) Analyse all factors that influence the solution, including relevant engineering and scientific principles	*3: Comprehend and apply advanced knowledge comprising principles and specialist, jurisdictional and local knowledge	or over specified, requiring identification and refinement c) are high-level problems comprising component parts or sub-problems d) involve infrequently encountered issues *and one or both of the following:* e) solutions are not obvious, require originality or analysis based on fundamentals f) are outside the scope of standards and codes g) require information from a variety of sources that are complex, abstract or incomplete h) involve wide-ranging or conflicting issues: technical, engineering and interested or affected parties *and one or both of the following:* i) require judgement in decision-making in uncertain contexts j) have significant consequences in a range of contexts.
5.2 Problem Solution The work must be aimed at the full development of the suggested solution to the problem through a process of synthesis, with the application of all information acquired during the problem investigation and the use of design, development and communication. This includes the drawing up of plans, detailed designs, reports, specifications and the adjudication of tenders, taking into account all practical, economic, social, environmental, quality assurance, safety and statutory factors.	The applicant must demonstrate the ability to: a) develop the suggested solution to the problem through a process of synthesis and design by applying all information acquired during the investigation of the problem b) communicate by drawing up plans, detailed designs, reports, specifications, etc. and adjudicating tenders c) take into account all practical, economic, social, environmental, quality assurance, safety and statutory factors.	2: Design or develop solutions to *complex engineering problems* Note: Communication in Outcome 5 Note: Impacts in Outcome 7	

Table A 2-a: Transition from input-based training specifications to output-based competency specifications in groups B, C and D

5.3 Execution / Implementation The work must be aimed at the execution of engineering tasks or projects (e.g., construction, manufacturing, transformation, processing, production, commissioning, testing, certification, quality assurance, operation, maintenance and closure) and encompass the efficient utilisation of people, materials, machines, equipment, means and funding with due regard for their interaction to achieve the end result within the set parameters.	The applicant must demonstrate the ability to: a) execute engineering tasks; b) make efficient use of people, materials, machines, equipment, and funding; c) manage interactions; and d) achieve end results within set parameters. **DSTG 5.2:** Demonstrate that their engineering work required them to understand and to consider the financial, economic, commercial and statutory elements **DSTG 5.3:** Develop the ability to communicate lucidly, accurately and confidently **DSTG 5.4:** Demonstrate to their mentors that they: • understand the engineering procedures of the discipline; • know the legislation applicable to engineering and the discipline; • understand the Code of Conduct; • understand the role and relationships of the (professional) organisations in their discipline; and • are familiar with the requirements for registration.	**Group B: Managing Engineering Activities** **4:** Manage part or all of one or more ***complex engineering activities*** **5:** Communicate clearly with others in the course of his/her engineering activities **Group C: Impacts of Engineering Activities** **6:** Recognise and address the reasonably foreseeable social, cultural and environmental effects of *complex engineering activities* **7:** Meet all legal and regulatory requirements and protect the health and safety of people in the course of his/her *complex engineering activities*	*Complex engineering activities* in which competence is exercised demonstrates several of the following characteristics: a) *Scope* of activities may encompass entire complex engineering systems or complex subsystems. b) A *context* that is complex and varying is multidisciplinary, requires teamwork, is unpredictable and may need to be identified. c) Activities require diverse and significant *resources*, including people, money, equipment, materials and technologies. d) Significant *interactions* exist between wide-ranging or conflicting technical, engineering or other issues. e) Activities are *constrained* by time, finance, infrastructure, resources, facilities, standards and codes, and applicable laws. f) Activities have significant *risks* and *consequences* in a range of contexts.
5.4 Responsibility The work must be aimed at increasing engineering and managerial responsibility until Candidate Engineers are clearly able to accept professional responsibility for taking engineering decisions. Part of their responsibilities should be to ensure that sufficient cognisance is taken of	The applicant must demonstrate the ability to: a) accept professional responsibility for taking engineering decisions b) ensure that sufficient cognisance is taken of economic considerations, social circumstances, environmental factors, quality assurance and safety and legal aspects	**Group D: Exercise judgement, take responsibility and act ethically** **8:** Conduct engineering activities ethically **9:** Exercise sound judgement in the course of *complex engineering activities* **10:** Be responsible for making decisions on part or all *complex engineering activities*	

economic considerations, social circumstances, environmental factors, quality assurance, safety and legal aspects and the code of professional conduct.	c) follow the code of professional conduct. **DSTG 5.1:** Demonstrate the ability to work satisfactorily on one's own, to have taken responsibility and to have achieved a satisfactory outcome. **DSTG 5.2:** Demonstrate that the engineering work required independent technical judgement and acceptance of responsibility	***Group E: Manage Own Development** **11:** Undertake professional development activities sufficient to maintain and to extend competence *No direct counterpart in R2/1A work requirements	

Appendix B: Sources of evidence against outcomes for professional engineers

Note: *Complex* is the level identifier defined for the professional engineer category in document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**

No.	Outcome	Training and Experience Reports	Engineering Report Incl. Self-assessment	Referee Reports (2)	IPD Report		Presentation	PR Interview	
A1	Define, investigate and analyse *complex engineering problems*	Factual/Verified	Reflective / Not Verified	Evaluative		**Information to the left is considered in the Experience Appraisal**		Evaluative/Verified	**All information is used by Professional Reviewers when making their recommendation to the Assessing Committee**
A2	Design or develop solutions to *complex engineering problems*	Factual/Verified	Reflective / Not Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/Verified	
A3	Comprehend and apply advanced knowledge comprising principles and specialist, jurisdictional and local knowledge	Factual/Verified	Reflective / Not Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/Verified	
B4	Manage part or all of one or more *complex engineering activities*	Factual/Verified	Reflective / Not Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/Verified	
B5	Communicate clearly with others in the course of his/her engineering activities	Tests concise writing	Tests analytical writing	Evaluative			Tests synthesis, oral, graphic	Evaluative/Verified	
C6	Recognise and address the reasonably foreseeable impacts of *complex engineering activities*	May not be covered	Reflective/ Not Verified	Evaluative				Evaluative/Verified	
C7	Meet all legal and regulatory requirements and protect the health and safety of persons in the course of *complex engineering activities*	Factual/Verified	Reflective / Not Verified	Evaluative				Evaluative/ Verified	

No.	Outcome	Training and Experience Reports	Engineering Report Incl. Self-assessment	Referee Reports (2)	IPD Report		Presentation	PR Interview	
D8	Conduct engineering activities ethically	May not be covered	Reflective / Not Verified	Evaluative				Evaluative/Verified	
D9	Exercise sound judgement in the course of *complex engineering activities*	May not be covered	Reflective / Not Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/ Verified	
D10	Be responsible for making decisions on part or all of *complex engineering activities*	Factual/Verified	Reflective / Not Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/ Verified	
E11	Undertake professional development activities sufficient to maintain and to extend competence		Reflective / Not Verified	Evaluative/ Verified (Commitment)	Factual			Evaluative/Verified (Commitment)	

Appendix C: Training and Experience Summary

Surname and Initials: _____

Discipline of Engineering: _____(e.g. Civil / Mech etc.)

Period No.	Dates From:	To:	No. of weeks	Employer	Post held	Subject and type of work
Total Weeks:						

Signature of Applicant: _____ **Date:** _____

Appendix D: Training Experience Report

Surname and Initials:

_____

Discipline of Engineering: _____
(e.g. Civil/Mech etc.)

Training and Experience Report

Applicant's Name				**Applicant's Signature**	**Date:**	
Period No:	**Start date:**	**End date:**	**No of weeks:**	**Position held:**		
Employer's Name and Address for this period: (This is the employer and site at which the work took place, e.g., the site the applicant has been seconded to).				**Did you train under a Commitment and Undertaking (CU)?**	**Yes** **No**	
				If yes, provide number of CU:	**No:**	
Supervisor's Name and Address: **ECSA Registration No. (If not registered, qualify):**				**Supervisor's Signature:** **Date:**		
Discipline of Engineering:						
Discipline Specific Field:						
Organogram showing supervisor (person signing this report), co-workers and those you supervised (if any). Show two levels above and below, if these exist. Give names, positions, qualification and registration (if any)*****. Please do not colour in blocks. *****Mandatory fields						
Report: (Write in proper paragraphs in the first-person singular in less than 430 words)						**Refer to Engineering Report Outcome**
Nature of training or experience ***** (stated in 20–30 words)						Outcomes: Criteria:
Nature of problem(s) addressed in this period; method of analysis, developing solution and evaluation (stated in 120–150 words)						Outcomes: Criteria:

Management of materials, machines, manpower, methods or money, contracts (stated in 40–50 words)		Outcomes: Criteria:
Interaction with clients, stakeholders and other disciplines (stated in 40–50 words)		Outcomes: Criteria:
Health and safety considerations; hazards and environmental considerations; other legislation* (stated in 40–50 words)		Outcomes: Criteria:
Describe role and responsibility* (stated in 80–100 words)	Degree of responsibility:	Tick one only*
	A. Being exposed, under full supervision	
	B. Assisting, responsibility limited	
	C. Participating, supervision limited	
	D. Contributing, performs work, detailed approval	
	E. Performing, limited guidance	

Appendix E: Training and Experience Outline

Surname and Initials: _____

Discipline of Engineering: _____
(e.g. Civil/Mech etc.)

Training and Experience Outline (for applicants with more than 10 years' experience)

Applicant's Name				**Applicant's Signature**	**Date:**
Period No:	**Start date:**	**End date:**	**No. of weeks:**	**Position(s) held:**	
Employer's and Supervisor Name and Address:				**Did you train under a Commitment and Undertaking (CU)?**	**Yes** / **No**
ECSA Registration No. (If not registered, qualify):				**If yes, provide number of CU:**	**No:**

Discipline of Engineering:	
Discipline Specific Field:	

Organogram identifying yourself, your supervisor and persons supervised*. Please do not colour in blocks.

Outline Report: (Use bulleted format in 430 words)	**Refer to Engineering Report Outcome**
Nature of training or experience in the period(s) (stated in bullet format in 20–30 words)*	Outcomes: Criteria:
Nature of problem(s) addressed in this period; method of analysis, developing solution and evaluation (stated in bullet format in 120–150 words)*	Outcomes: Criteria:
Management responsibilities (stated in bullet format in 40–50 words)	Outcomes: Criteria:
Interaction with clients, stakeholders and other disciplines (stated in bullet format in 40–50 words)	Outcomes: Criteria:

Legal and impact analysis (stated in bullet format, in 40–50 words)*		Outcomes: Criteria:
Describe role and responsibility (stated in bullet format in 80–100 words)*	Degree of responsibility:	Tick one only*
	A. Being exposed, under full supervision	
	B. Assisting, responsibility limited	
	C. Participating, supervision limited	
	D. Contributing, performs work, detailed approval	
	E. Performing, limited guidance	

Appendix F: Engineering Report

<table>
<tr><td colspan="4">Engineering Council of South Africa
Engineering Report
as part of Application for Registration as Professional Engineer</td></tr>
<tr><td>Applicant:</td><td colspan="2"></td><td>Self- evaluation</td></tr>
<tr><td rowspan="2">In terms of my general declaration, I confirm that this report was written by me for the purpose of this application</td><td colspan="2">Signature:</td><td rowspan="2"></td></tr>
<tr><td>Date:</td><td>Word Count:</td></tr>
<tr><td colspan="3"></td><td></td></tr>
<tr><td colspan="4">Holistic self-evaluation</td></tr>
</table>

Signature of Applicant: _____ **Date:** _____

Signature of Mentor / Supervisor: _____

Name of Mentor / Supervisor (printed): _____**Tel. No.:** _____

Appendix G: Referee Report

Please complete this after consulting the attached guideline (Sheet AN6).

The Engineering Council of South Africa agrees that it owes a duty of confidence to all referees in terms of the Promotion of Access to Information Act, 2000

1. Name of Applicant: **Address:** _____

2. General Information:

(a) My **personal** knowledge of the applicant's engineering training extends from _____

to _____ (month and year to the best of my memory).

(b) My association with the applicant was that of: (Please tick √ appropriate block)

Mentor *	Colleague	Supervisor	Employer	Other *(Describe)*

* If the association with the applicant was that of a mentor, provide the C&U No: _____

(c) Are you related to the applicant by birth or marriage? Yes _____No _____

If yes, please state relationship _____

3. Evaluation of the Applicant's Competence or state of Development:

Outcomes	Rating	Reason
Group A: Engineering problem solving		
1: Define, investigate and analyse complex engineering problems		
2: Design or develop solutions to complex engineering problems		
3: Comprehend and apply advanced and local knowledge of the widely applied principles underpinning good practice that is specific to the jurisdiction in which the Engineer practices.		
Group B: Managing engineering activities		
4: Manage part or all of one or more complex engineering activities		

5: Communicate clearly using multiple media and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.		
Group C: Risk and impact mitigation		
6: Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of complex engineering activities seeking to achieve sustainability		
7: Meet all legal and regulatory requirements and protect the health and safety of persons during all complex engineering activities		
Group D: Act ethically, exercise judgment and take responsibility		
8: Conduct engineering activities ethically		
9: Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of complex engineering activities		
10: Be responsible for making decisions on part or all of complex engineering activities		
Group E: Initial professional development		
11: Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.		

4. **Optional: Further comments** or additional information on the Applicant's ability to assume responsibility as a Professional Engineer, his/her competence, development and limitations:

_____

_____

5.

Viewed Holistically:		
The applicant has demonstrated **competence** to be registered as a **Professional Engineer**		

6. Declaration by referee

I hereby confirm that I am conversant with the Council's requirements for registration as set out in Competency Standard **R-02-STA-PE/PT/PN** and **R-02-STA-PCE**, as well as the instructions on this referee report, and that I am prepared to substantiate my view expressed herein at an interview, should the Council require me to do so. I also confirm that I submit this information to ECSA on the understanding that it will be treated as confidential. I solemnly declare that, to the best of my knowledge, all the information contained in the referee report is true and correct.

Signature: _____

I hereby certify that the Referee has acknowledged that he/she knows and understands the contents of this declaration which was sworn to and signed before me at _____on this.....day of.....**20..,** the regulations contained in Government Notice No. R1258 dated 21st July 1974, as amended, having been complied with.

Commissioner of Oaths/ Justice of Peace:

……
PRINT NAME

……
SIGNATURE

(Commissioner's stamp)

Name of Referee: _____**Title of Position held:** _____

Qualifications: _____

ECSA Registration: _____**Registration No:** _____

Employer: _____**Tel/Cell. No:** _____

Signature of Referee: _____ **Date:** _____

Please email to:
engineer@ecsa.co.za

Appendix H: Academic Record

Detailed information on

TERTIARY ENGINEERING QUALIFICATIONS
As part of the Application for Registration as a Professional Engineer

Name of Applicant:
Name of Qualification:

All subjects passed	Year Obtained	Marks obtained *(if available)*
Extra subjects passed for incomplete qualifications		
Total Credits		

_____ _____

Signature of Applicant **Date**

Appendix I: Initial Professional Development (IPD) Report

INITIAL PROFESSIONAL DEVELOPMENT REPORT (IPD)
As part of the Application for Registration as a Professional Engineer

Name:

Discipline:

Itemise courses, workshops, conferences, symposia or congresses attended.
List these under the separate headings of engineering, management and computer courses.

Name or subject of item	• *Course Provider*	• *Dates attended*	SAQA NQF level if available	Duration in hours	Credits	For use of Assessor
Engineering Courses						
Management Courses						
Computer Courses						

_____ _____

Signature of Applicant **Date**

Appendix J: Supervisor's checklist

The Supervisor Checklist must be filled out by the supervisor to confirm their knowledge and oversight of the applicant. It serves as a definitive record of the supervisor's awareness and supervision of the applicant's work. Additionally, the checklist can be used as a second report by a supervisor or anyone who is familiar with the applicant's work.

Supervisor Information	
Name:	
Title:	
Company/Organisation:	
Email Address:	
Date:	
Applicant Information	
Name:	
Title/Organisation:	
Attestation	
Introduction:	
Competence and Skills:	
Performance and Contributions:	
Professional Qualities:	
Conclusion:	

APPENDICES FOR PROFESSIONAL ENGINEERING TECHNOLOGISTS

Appendix A: What changes with the introduction of competency standards?

Prior to the introduction of the *Competency Standards*, the requirements were expressed in terms of criteria for acceptable training in the ECSA policy, document R2/1B. The requirements defined in Section 5 of R2/1B are summarised in Column 1 of the following table. The outcomes embedded in the training requirements are presented in Column 2. The formal outcomes indicated in document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE** are stated in Column 3, while the level descriptor is presented in Column 4. Table A1-b relates to the Group A outcomes while Table A2-b relates to outcomes in groups B, C and D.

Table A1-b: Transition from input-based training specifications to output-based competency specifications in Group A

1: R2/1B Essential Elements of Acceptable Practical Training	2: Outcomes Embedded in Training Elements (Column 1) defined in DSG	3: Corresponding Competency Standard Outcome	4: Level descriptors for Column 3
Practical training judged by peer evaluators as acceptable must provide satisfactory experience for Candidates in the application of engineering principles and methods. Training must include the practical training elements as stated in clauses 8.1.1 to 8.1.4 at the Level of Responsibility indicated in the Discipline -Specific Guide. Outcomes expressed in the criteria are to be met.		Requirement (**PT**): Competence must be demonstrated within *broadly defined engineering activities* (described below) by the integrated performance of the outcomes at the level indicated for each outcome. **Note:** Outcomes are defined below. Attributes of a professional person are defined in outcomes.	
8.1.1 Problem Investigation The work must be aimed at investigating engineering problems for which engineering judgement is required. The following practical engineering functions are contained in such work to a greater or lesser degree: a) problem identification and formulation	The applicant must demonstrate the ability to investigate engineering problems at a level that requires engineering judgement by performing the following functions: a) Identify and formulate the problem. b) Find and select relevant information. c) Evaluate, investigate, test and research. d) Analyse all factors that influence the solution,	**Group A: Engineering Problem-Solving** **1:** Define, investigate and analyse *broadly defined engineering problems*. ***3:** Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems or methodologies and those specific to the jurisdiction in which he/she practices.	*Broadly defined engineering problems* have the following characteristics: a) Require coherent and detailed engineering knowledge underpinning the applicable technology area. *and one or more of the following:* b) Are ill-posed, or under or over specified, require identification and interpretation into the technology area.

b) finding and selecting relevant information c) evaluating, investigating, testing and research d) analysis of all factors that influence the solution such as relevant engineering and scientific principles e) taking into account all practical, economic, social, environmental, quality assurance, safety and statutory factors.	including relevant engineering and scientific principles.		c) Encompass systems within complex engineering systems. d) Belong to families of problems that are solved in well-accepted but innovative ways. *and one or more of the following:* e) Can be solved by structured analysis techniques. f) May be partially outside standards and codes (justification to operate outside must be provided).
8.1. 2 Problem Solution The work must be aimed at the full development of the suggested solution to the problem through a process of synthesis, with the application of all information acquired during the problem investigation and the use of design, development and communication. This includes the drawing up of plans, detailed designs, reports, specifications and the adjudication of tenders, taking into account, all practical, economic, social, environmental, quality assurance, safety and statutory factors.	The applicant must demonstrate the ability to develop the suggested solution to the problem through a process of synthesis and design by a) applying all information acquired during the problem investigation b) communicating and drawing up plans, detailed designs, reports and specifications c) adjudicating tenders d) taking into account all practical, economic, social, environmental, quality assurance, safety and statutory factors.	**2:** Design or develop solutions to *broadly defined engineering problems*	g) Require information from practice area and sources interfacing with practice area that is complex or incomplete. h) Involve a variety of issues that may impose conflicting constraints: technical, engineering and interested or affected parties. *and one or both of the following:* i) Require judgement in decision-making in practice area and consider interfaces with other areas. j) Have significant consequences that are important in the practice area but may extend more widely.

Table A2-b: Transition from input-based training specifications to output-based competency specifications in groups B, C, D and E

<table>
<tr>
<td>8.1. 3 Execution / Implementation
The work must be aimed executing engineering tasks or projects (e.g. construction, manufacturing, transformation, processing, production, commissioning, testing, certification, quality assurance, operation, maintenance and closure) and encompass the efficient use of people, materials, machines, equipment, means and funding with due regard for their interaction to achieve the end result within the set parameters.</td>
<td>The applicant must demonstrate the ability to:
a) Execute engineering tasks.
b) Make efficient use of people, materials, machines, equipment and funding.
c) Manage interactions.
d) Achieve end results within set parameters.</td>
<td>Group B: Managing engineering activities
4: Manage part or all of one or more broadly defined engineering activities.
Engineering activities
5: Communicate clearly with others in the course of his/her engineering activities.
Group C: Impacts of engineering activities
6: Recognise and address the reasonably foreseeable social, cultural and environmental effects of broadly defined engineering activities
7: Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his/her broadly defined engineering activities</td>
<td rowspan="3">Broadly defined engineering activities are characterised by several or all of the following:
a) Scope of practice area is linked to technologies used and changes made through adoption of new technology into current practice.
b) Practice area is located within a wider, complex context that requires teamwork and demonstrates interfaces with other parties and disciplines.
c) Activities involve the use of a variety resources (including people, money, equipment, materials, technologies).
d) Resolution of occasional problems arising from interactions between wide -ranging or conflicting technical, engineering or other issues may be required.
e) Activities are constrained by available technology, time, finance, infrastructure, resources, facilities, standards and codes and applicable laws.
f) Activities have significant risks and consequences in the practice area and related areas.</td>
</tr>
<tr>
<td>8.1. 4 Responsibility
The work must be aimed at increasing engineering and managerial responsibility until Candidates are clearly able to accept full professional responsibility for engineering decisions. Part of their responsibility should also be to ensure that sufficient cognisance is taken of economic considerations, social circumstances, environmental factors, quality assurance, safety and legal aspects and the Code of Conduct.</td>
<td>The applicant must demonstrate the ability to:
a) accept professional responsibility for engineering decisions
b) ensure that sufficient cognisance is taken of economic considerations, social circumstances, environmental factors, quality assurance and safety and legal aspects
c) follow the code of professional conduct.</td>
<td>Group D: Exercise judgement, responsibility and act ethically
8: Conduct engineering activities ethically
9: Exercise sound judgement in the course of broadly defined engineering activities
10: Be responsible for making decisions on part or all broadly defined engineering activities
*Group E: Manage own development
11: Undertake professional development activities sufficient to maintain and to extend competence</td>
</tr>
</table>

Appendix B: Sources of evidence against outcomes

Notes: (a) *Broadly defined* is the level identifier defined for the Professional Technologist category in document **R-02-STA-PE/PT/PN** and **R-02-STA-PCE .**

(b) Engineering Report claims are verified by the applicant's supervisor.

No.	Outcome	Training and Experience Reports	Engineering Report incl. claim to competency	Referee Reports (3)	IPD Report		Presentation	PR Interview	
A1	Define, investigate and analyse *Broadly defined engineering problems*	Factual/Verified	Factual/Verified	Evaluative		**Information to the left is considered in the Experience Appraisal**		Evaluative/ Verified	**All information is used by Professional Reviewers when making their recommendation to the Assessing Committee**
A2	Design or develop solutions to *broadly-defined engineering problems*	Factual/Verified	Factual/Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/ Verified	
A3	Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems or methodologies and those specific to the jurisdiction in which he/she practises	Factual/Verified	Factual/Verified	Evaluative	Factual: Knowledge enhancement			Evaluative/ Verified	
B4	Manage part or all of one or more *broadly defined engineering activities*	Factual/Verified	Factual/Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/ Verified	
B5	Communicate clearly with others in the course of his/her engineering activities	Tests concise writing	Factual/Verified	Evaluative			Tests synthesis, oral, graphic	Evaluative/ Verified	

No.	Outcome	Training and Experience Reports	Engineering Report incl. claim to competency	Referee Reports (3)	IPD Report		Presentation	PR Interview	
C6	Recognise and address the reasonably foreseeable impacts of *broadly-defined engineering activities*	May not be covered	Factual/Verified	Evaluative				Evaluative/ Verified	
C7	Meet all legal and regulatory requirements and protect the health and safety of all persons in the course of *broadly defined engineering activities*	Factual/Verified	Factual/Verified	Evaluative				Evaluative/ Verified	
D8	Conduct engineering activities ethically	May not be covered	Factual/Verified	Evaluative				Evaluative/ Verified	
D9	Exercise sound judgement in the course of *broadly defined engineering activities*	May not be covered	Factual/Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/ Verified	
D10	Be responsible for making decisions on part or all *broadly defined engineering activities*	Factual/Verified	Factual/Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative/ Verified	
E11	Undertake professional development activities sufficient to maintain and to extend competence		Factual/Verified	Evaluative / Verified (Commitment)	Factual			Evaluative/ Verified (Commitment)	

Appendix C: Training and Experience Summary

Surname and Initials:

Complete the Training and Experience Report Form B2.1 TER or a Training and Experience Outline Form B2.1 TEO for each period

No	From	To	Weeks	Work Details		Responsibility A–E
1				Employed by:	Post held:	
				Type of Work:		
2				Employed by:	Post held:	
				Type of Work:		
3				Employed by:	Post held:	
				Type of Work:		
4				Employed by:	Post held:	
				Type of Work:		
5				Employed by:	Post held:	
				Type of Work:		
6				Employed by:	Post held:	
				Type of Work:		
7				Employed by:	Post held:	
				Type of Work:		
8				Employed by:	Post held:	
				Type of Work:		
9				Employed by:	Post held:	
				Type of Work:		
n				Employed by:	Post held:	
				Type of Work:		

When an applicant is not engaged in training and experience towards registration, the period must be reflected as follows:

X				Employed by: ***Not active***	Post held:	
				Type of Work: ***Insert reason here***		
Total period (years, months):						

Signature of Applicant: _____ **Date:** _____

Appendix D: Training and Experience Report

Training and Experience Report

As part of the Application for Registration as Professional Engineering Technologist

Applicant's Name				**Applicant's Signature**	**Date:**	
Period No:	**Start date:**	**End date:**	**No of weeks:**	**Position held:**		
Employer's Name and Address for this period: (This is the employer and site at which the work took place, e.g. the site the applicant has been seconded to).				**Did you train under a Commitment and Undertaking (CU)?**	**Yes** **No**	
				If yes, provide number of CU:	**No:**	
Supervisor's Name and Address: **ECSA Registration No. (If not registered, qualify):**				**Supervisor's Signature:** **Date:**		

Discipline of Engineering: (Aeronautical, Agricultural, Chemical, Civil, Electrical, Industrial, Mechanical, Metallurgical, Mining)	
Discipline Specific Field: (e.g. Power Transmission, Electronic Communication, Transportation, Structures, Automotive, Roads, etc)	
Organogram showing supervisor (person signing this report), co-workers and those you supervised (if any). Show two levels above and below, if these exist. Give names, positions, qualification and registration (if any)*****. Please do not colour in blocks.	

Report: (Write in proper paragraphs in the first-person singular in less than 430 words)	**Refer to Engineering Report Outcome**
Nature of training or experience (stated in 20–30 words)*****	Outcomes: Criteria:
Nature of problem(s) addressed in this period; method of analysis, developing solution and evaluation (stated in 120–150 words)*****	Outcomes: Criteria:
Management of materials, machines, manpower, methods or money, contracts (stated in 40–50 words)	Outcomes: Criteria:
Interaction with clients, stakeholders and other disciplines (stated in 40–50 words)	Outcomes: Criteria:

Legal and impact analysis (stated in 40–50 words)*		Outcomes: Criteria:
Describe role and responsibility (in 80–100 words)*	**Degree of responsibility:**	Tick one only*
	A. Being exposed, under full supervision	
	B. Assisting, responsibility limited	
	C. Participating, supervision limited	
	D. Contributing, performs work, detailed approval	
	E. Performing, limited guidance	

*Mandatory

Appendix E: Training and Experience Outline

Training and Experience Outline (for applicants with more than 10 years' experience)

As part of the Application for Registration as Professional Engineering Technologist

Applicant's Name		**Applicant's Signature**	**Date:**	
Period No:	**Start date:**	**End date:**	**No of weeks:**	**Position(s) held:**

Employer's and Supervisor Name and Address:	**Did you train under a Commitment and Undertaking (CU)?**	**Yes** / **No**
ECSA Registration No. (If not registered, qualify):	**If yes, provide number of CU:**	**No:**

Discipline of Engineering: (Aeronautical, Agricultural, Chemical, Civil, Electrical, Industrial, Mechanical, Metallurgical, Mining)	
Discipline Specific Field: (e.g. Power Transmission, Electronic Communication, Transportation, Structures, Automotive, Roads, etc.)	

Organogram identifying yourself, your supervisor and persons supervised*. Please do not colour in blocks.

Outline Report: (Use bulleted format in 430 words)	**Refer to Engineering Report Outcome**
Nature of training or experience in the period(s) (stated in bullet format in 20–30 words)*	Outcomes: Criteria:
Nature of problem(s) addressed in this period; method of analysis, developing solution and evaluation (stated in bullet format in 120–150 words)*	Outcomes: Criteria:
Management responsibilities (stated in bullet format in 40–50 words)	Outcomes: Criteria:
Interaction with clients, stakeholders and other disciplines (stated in bullet format in 40–50 words)	Outcomes: Criteria:
Legal and impact analysis (stated in bullet format in 40–50 words)*	Outcomes: Criteria:

Describe role and responsibility (stated in bullet format in 80-100 words)*	Degree of responsibility:	Tick one only*
	A. Being exposed, under full supervision	

	B. Assisting, responsibility limited	
	C. Participating, supervision limited	
	D. Contributing, performs work, detailed approval	
	E. Performing, limited guidance	

*****Mandatory fields

Appendix F: Engineering Report

Use this form to submit a report in about 100 words per criterion under Outcomes 1 to 11 below on recent engineering work to which you have made a significant contribution. The report may cover conceptualisation, design and analysis, specification, tendering and adjudication, manufacturing, project and construction management, commissioning, maintenance, measurement and testing or planning at a broadly-defined level. Please cross-refer the item reported upon to the relevant evidence in the Training and Experience Report (B2.1 TER) or Training and Experience Outline (B2.1 TEO). Provide sample relevant calculations and drawings as an addendum.

Use Appendix A of the Discipline Specific Training Guide R-05-xxx-PE/PT/PN to assist in the interpretation of the criteria

Name of Applicant: _____

Consult the Information Sheet (Sheet B2) before completing this report.

Area of Employment: (<15 words)	
Dates Undertaken:	
Engineering brief and objective: (<30 words)	
Environment: (Industry; Laboratory; Theory; Simulation) (<15 words)	
Short Summary: (State engineering problems; solutions in < 30 words)	
Budgets☹<10 words)	

Broadly-defined engineering problems (BDEP)*have the following characteristics:*

a) require coherent and detailed engineering knowledge underpinning the applicable technology area;
and one or more of:
b) are ill-posed, under- or over specified, requiring identification and interpretation into the technology area;
c) encompass systems within complex engineering systems;
d) belong to families of problems which are solved in well-accepted but innovative ways;
and one or more of:
e) can be solved by structured analysis techniques;
f) may be partially outside standards and codes; must provide justification to operate outside;
g) require information from practice area and sources interfacing with practice area that is complex and incomplete;
h) involves a variety of issues which may impose conflicting constraints: technical, engineering and interested or affected parties;
and one or both of:
i) requires judgement in decision making in practice area, considering interfaces to other areas;
j) have significant consequences which are important in practice area, but may extend more widely

Broadly-defined engineering activities (BDEA) have several of the following characteristics:

a) *Scope* of practice area is linked to technologies used and changes by adoption of new technology into current practice;
b) Practice area is located within a wider, complex *context,* requires teamwork, has interfaces with other parties and disciplines;
c) Involve the use of a variety *resources,* including people, money, equipment, materials, technologies;
d) Require resolution of occasional problems arising from *interactions* between wide-ranging or conflicting technical, engineering or other issues;
e) Are *constrained* by available technology, time, finance, infrastructure, resources, facilities, standards and codes, applicable laws;

f)	Have significant *risks* and *consequences* in the practice area and in related areas.

Outcomes and Criteria		Cross-reference to B2.1 TER or B2.1 TEO
Outcome 1: Define, investigate and analyse broadly defined engineering problems.		
1.1 State how <u>you</u> performed or contributed in defining engineering problems leading to an agreed definition of the problems to be solved.		Period No:
1.2 State how <u>you</u> performed or contributed in investigating engineering problems including collecting, organising and evaluating information.		Period No:
1.3 Describe how <u>you</u> performed or contributed in analysing engineering problems, using conceptualisation, justified assumptions, limitations and evaluation of results.		Period No:
Outcome 2: Design or develop a solution to broadly defined engineering problems.		
2.1 Describe how <u>you</u> designed or developed solutions to broadly defined engineering problems.		Period No:
2.2 Indicate how <u>you</u> systematically synthesised solutions and alternative solutions or approaches to the problem by analysing designs against requirements, including costs and impacts on outside parameters. (requirements).		Period No:
2.3 State <u>your</u> part in the drawing up of detailed specification requirements and design documentation for implementation to the satisfaction of the client.		Period No:
Outcome 3: Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems and methodologies that is specific to the jurisdiction in which the Engineering Technologist practices.		
3.1 State what engineering principles, practices, technologies, including the application of BTech theory <u>you</u> apply in your practice area.		Period No:

3.2 Indicate your working knowledge of areas of practice that interact with your practice area to underpin teamwork.		Period No:
3.3 Describe your applied related knowledge of finance, statutory, safety and management.		Period No:
Outcome 4: Manage part or all of one or more *broadly defined engineering activities*.		
4.1 State how you managed yourself, people, work priorities, processes and resources in broadly-defined engineering work.		Period No:
4.2 State your role in planning, organising, leading and controlling broadly-defined engineering activities.		Period No:
4.3 State your knowledge of conditions and operation of contractors and the ability to establish and maintain professional and business relationships.		Period No:
Outcome 5: Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.		
5.1 Demonstrate your ability to write clear, concise, effective technical, legal and editorially correct reports.		Period No:
5.2 Indicate your ability to issue clear instructions to stakeholders using appropriate language and communication skills.		Period No:
5.3 State any oral presentation you have made using structure, style, language, visual aids and supporting documents appropriate to the audience and purpose.		Period No:
Outcome 6: Recognise and address the reasonably foreseeable social, cultural and environmental effects of broadly-defined engineering activities seeking to achieve sustainability.		
6.1 Describe your ability to identify interested and affected parties and their expectations in regard to interactions between technical, social, cultural and environmental considerations.		Period No:
6.2 State what measures you have taken to mitigate the		Period No:

negative effects of engineering activities.		
Outcome 7: Meet all legal and regulatory requirements and protect the health and safety of persons during all *broadly defined engineering activities*.		
7.1 State where you have identified applicable legal and regulatory requirements including health and safety requirements for the engineering activity.		Period No:
7.2 State in what circumstances you have assisted in, or demonstrated awareness of the selection of save and sustainable materials, components and systems and have identified risk and applied risk management strategies.		
Outcome 8: Conduct engineering activities ethically.		
8.1 Confirm that you are conversant and operate in compliance with ECSA's Rules of Conduct for registered persons.		Period No:
8.2 State how you identified ethical problems, the affected parties and select the best solution to resolve the problem.		Period No:
Outcome 9: Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of *broadly defined engineering activities.*		
9.1 Within the application of your technologies and their interrelationship to other disciplines and technologies, state what judgement you exercised in arriving at a conclusion.		Period No:
9.2 State what factors you took into consideration bearing in mind, risk, consequences in technology application and affected parties.		Period No:
Outcome 10: Be responsible for making decisions on part or all of broadly defined engineering activities.		
10.1 In discharging your responsibilities for significant parts of one or more activities, please state what engineering, social, environment and sustainable development you took into consideration.		Period No:
10.2 State what advice you sought from a responsible authority on matters outside your area of competence.		Period No:

10.3 State what academic knowledge of at least BTech level combined with past experience you used in formulating your decisions.		Period No:
Outcome 11: Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.		
11.1 State what strategy you have independently adopted to enhance your own professional development.		Period No:
11.2 State your philosophy in regard to your professional development.		Period No:
Evidence of your competency development plan and independent learning ability must be given in the Initial Professional Development Report, Form B5.		

Signature of Applicant: _____ **Date:** _____

Signature of Mentor / Supervisor: _____

Name of Mentor / Supervisor (printed): _____**Tel. No.:** _____

Appendix G: Referee Report

Referee report on an application for registration as professional engineering technologist										
Applicant's name										
Referee name:		**ECSA Registration Category (e.g. PrTechEng):**		**Registration Number:**						
Referee employer:		**Referee cell phone no:**								
		Referee email address:								
My personal knowledge of the applicant's achievements extends:		**From:**		**To:**						
My personal relationship with the applicant is: (Mark one block)		**Unrelated**		**By birth**		**By marriage**				
My professional relationship with the applicant is, for the period shown: (Mark one block)		**Mentor**	**Supervisor**	**Employer**	**Colleague**	**Client**				

Evaluation of the Applicant's Competence or state of Development

The level of competency required for registration as a Professional Engineering Technologist is defined in the Competency Standards, document **R-02-STA-PE/PT/PN**. Competency is defined in terms of 11 outcomes and two level definitions, namely *broadly defined engineering problems* and *broadly defined engineering activities.* The applicant is expected to have demonstrated performance at a degree of responsibility appropriate to a Professional Engineering Technologist (E) for at least one year.

As a referee, you are requested to rate the applicant against the outcomes as well as make a holistic evaluation. Please use the following scale:

CDC: The applicant consistently demonstrates competence
CDI: The applicant demonstrated competence but not consistently
CNDD: The applicant has not demonstrated competence but is developing
CND: The applicant has not demonstrated competence
X: I am unable to comment

Please enter your comments in the third column, giving your reasons for assigning the particular rating. When a rating CDI, CNDD, or CND is given, please clearly state the reason(s) for assigning this rating

Outcomes	Rating	Reason
Group A: Engineering problem solving		
1. Define, investigate and analyse broadly defined engineering problems		
2. Design or develop solutions to broadly defined engineering problems		
3. Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems or methodologies and those specific to the jurisdiction in which he/she practices		
Group B: Managing engineering activities		
4. Manage part or all of one or more broadly defined engineering activities		
5. Communicate clearly with others in the course of his or her engineering activities		

Group C: Risk and Impact Mitigation		
6. Recognise and address the reasonable foreseeable social, cultural and environmental effects of broadly defined engineering activities		
7. Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her broadly defined engineering activities		
8. Conduct engineering activities ethically		
Group D: Act ethically, exercise judgment and take responsibility		
9. Exercise sound judgement in the course of broadly defined engineering activities		
10. Be responsible for making decisions on part or all of broadly defined engineering activities		
Group E: IPD		
11. Undertake professional development activities sufficient to maintain and extend his or her competence		

Optional: Further comments or additional information on the Applicant:

Viewed Holistically:		
The applicant has demonstrated competence to be registered as a **Professional Engineering Technologist**		

Declaration by referee

I hereby confirm that I am conversant with the Council's requirements for registration as set out in Competency Standard **R-02-STA-PE/PT/PN and R-02-STA-PCE**, as well as the instructions on this referee report, and that I am prepared to substantiate my view expressed herein at an interview, should the Council require me to do so. I also confirm that I submit this information to ECSA on the understanding that it will be treated as confidential. I solemnly declare that, to the best of my knowledge, all the information contained in the referee report is true and correct.

Signature: _____

I hereby certify that the referee has acknowledged that he/she knows and understands the contents of this declaration which was sworn to and signed before me at _____on this.....day of.....**20..,** the regulations contained in Government Notice No. R1258 dated 21st July 1974, as amended, having been complied with.

Commissioner of Oaths/ Justice of Peace:

……
PRINT NAME

……
SIGNATURE

(Commissioner's stamp)

Name of Referee: _____ **Title of Position held:** _____

Qualifications: _____

ECSA Registration: _____ **Registration No:** _____

Employer: _____ **Tel/Cell. No:** _____

Signature of Referee: _____ **Date:** _____

Please email to:
engineer@ecsa.co.za

Appendix H: Academic Record

Detailed information on

TERTIARY ENGINEERING QUALIFICATIONS

(As part of the Application for Registration as a Professional Engineering Technologist)

Name of Applicant:

Name of Qualification:

All subjects passed	Year obtained	Mark obtained *(if available)*
Extra subjects passed for incomplete qualifications		
Total Credits		

Signature of Applicant: _____ **Date:** _____

Appendix I: IPD Report

INITIAL PROFESSIONAL DEVELOPMENT REPORT

(As part of the application for registration as a professional engineering technologist)

Name of Applicant:

Discipline of Applicant:

Itemise courses, workshops, conferences, symposia or congresses attended.
List these under the separate headings of engineering, management and computer courses.

Name or subject of item	Course Provider	Dates attended	SAQA NQF level if available	Duration in hours	Credits	For use by Assessor
Engineering Courses						
Management Courses						
Computer Courses						

Signature of Applicant: _____ **Date:** _____

Appendix J: Educational Development Report

A INSTRUCTIONS

Applicants not in possession of an ECSA-accredited BTech (Eng) should complete this work-based (experience) learning report. WRITE A REPORT OF APPROXIMATELY 100 WORDS ON EACH CRITERION LISTED.

Reports must include reference to *broadly defined* practical examples in the workplace that demonstrate how the competencies were satisfied. The report is not restricted to a single task or project. (Additional supporting evidence may be attached if necessary but must not exceed two A4 pages.)

This information can be obtained from education or experience or a combination of both.

The applicant and his/her supervisor must sign the completed report.

The applicant may be invited to an interview to expand and/or to confirm this report.

Broadly defined engineering problems *have the following characteristics:*

a) require coherent and detailed engineering knowledge underpinning the applicable technology area

and one or more of the following:

b) are ill-posed and under or over specified, requiring identification and interpretation in the technology area

c) encompass systems within complex engineering systems

d) belong to families of problems that are solved in well-accepted but innovative ways

and one or more of the following:

e) can be solved by structured analysis techniques

f) may be partially outside standards and codes (justification to operate outside must be provided)

g) require information from practice area and sources interfacing with practice area that is complex and incomplete

h) involve a variety of issues that may impose conflicting constraints (technical, engineering and interested or affected parties).

B. APPLICANT'S PERSONAL DETAILS

Name		Technical Qualifications	

C. EDUCATIONAL DEVELOPMENT REPORT (OUTCOME-BASED, DURING WORK EXPERIENCE)

Exit-Level Outcome 1: The applicant displays understanding and the ability to apply the fundamentals of engineering in a selected sub-discipline together with the underpinning fundamentals of mathematics and the natural sciences.

Item	Criteria	Development Report
1.1	State the mix of mathematical, natural science and engineering knowledge that you applied in the solution of the *broadly defined engineering problem.* State which theories and principles were used.	
1.2	Describe how you analysed and modelled the engineering materials, components, systems and processes that were used and provide the motivation for the specific selection.	

1.3	Describe the procedures applied for dealing with uncertainty and risk applicable to your own theoretical limitations and the use of specialists to perform the work.	

Exit-Level Outcome 2: The applicant displays proficiency in engineering specialist fields of a selected engineering sub-discipline at the exit level.

Item	Criteria	Development Report
2.1	Describe how you analysed and defined a problem and identified the engineering knowledge and skills required for solving the problem.	
2.2	Describe how you generated possible solutions to the problem and how they were modelled, analysed and prioritised.	
2.3	State how you selected, formulated and presented the preferred solution.	

Exit-Level Outcome 3: The applicant displays proficiency in the use of engineering tools and IT support appropriate to the sub-discipline.

Item	Criteria	Development Report
3.1	Describe how you assess methods, skills or tools (including computer applications) for applicability to solving problems.	
3.2	Describe how you applied the method, skill or tool correctly to achieve the required result and how this tested against the required results.	

Exit-Level Outcome 4: The applicant demonstrates design proficiency through substantial project work. The design problem meets the requirements of a broadly defined engineering problem and the design approach is properly structured.

Item	Criteria	Development Report
4.1	Describe how you formulated the design problem and how the design process was managed.	
4.2	Describe how user needs, legislation, standards and resources were acquired and evaluated.	

4.3	Describe how you performed the design task subject to relevant premises, assumptions and constraints and selected the preferred solution from alternatives.	
4.4	Describe how the selected design was evaluated in terms of impact and benefits and how this information was communicated in an Engineering Report.	

Exit Level Outcome 5: The applicant displays proficiency in experimental or investigative and information handling methodology.

Item	Criteria	Development Report
5.1	Describe the plan you devised to perform the investigation and state the information that was used.	
5.2	Describe the methodology you used to perform the analysis, stating how the equipment and/or software was selected and used.	
5.3	From the data that was available, describe how information was derived, critically analysed and interpreted to reach conclusions.	
5.4	Describe how the purpose, process and outcomes of the investigation are recorded in an Engineering Report.	

Exit-Level Outcome 6: The applicant communicates in writing at the exit level of a BTech programme.

No entry required. Assessment will be done against evidence submitted in Item 5 of the Engineering Report (Form **R-03-ER-PT**).

Exit-Level Outcome 7: The applicant explains and analyses impacts of engineering technologies of the sub-discipline.

No entry required. Assessment will be done against evidence submitted in Item 6 of the Engineering Report (Form **R-03-ER-PT**).

Exit-Level Outcome 8: The applicant explains ethical principles and analyses ethical issues.

No entry required. Assessment will be done against evidence submitted in Item 8 of the Engineering Report (Form **R-03-ER-PT**).

Exit-Level Outcome 9: The applicant demonstrates knowledge and understanding of engineering management principles and applies these to his/her own work in the management of projects as a member or leader in a team.
No entry required. Assessment will be done against evidence submitted in item 4 of the Engineering Report (Form **R-03-ER-PT**).

Exit-Level Outcome 10: The applicant engages in independent and life-long learning through well-developed learning skills.
No entry required. Assessment will be done against evidence submitted in the Initial Professional Development Report (Form **R-03-ER-PT**).

Signature of applicant: _____ **Date:** _____

Signature of mentor / supervisor: _____

Name of mentor / supervisor (print): _____ **Tel. no:** _____

Appendix K: Supervisor checklist

The Supervisor Checklist must be filled out by the supervisor to confirm their knowledge and oversight of the applicant. It serves as a definitive record of the supervisor's awareness and supervision of the applicant's work. Additionally, the checklist can be used as a second report by a supervisor or anyone who is familiar with the applicant's work.

Supervisor information	
Name:	
Title:	
Company/organisation:	
Email address:	
Date:	
Applicant information	
Name:	
Title/organisation:	
Attestation	
Introduction:	
Competence and skills:	
Performance and contributions:	
Professional qualities:	
Conclusion:	

APPENDICES FOR PROFESSIONAL ENGINEERING TECHNICIANS

Appendix A: What changes with the introduction of competency standards?

Prior to the introduction of the Competency Standards, the requirements were expressed in terms of criteria for acceptable training in the ECSA policy document R2/1C. The requirements defined in Section 5 of document R2/1C are summarised in Column 1 of the following table. The outcomes embedded in the training requirements are presented in Column 2. The formal outcomes indicated in document **R-02-STA-PE/PT/PN** and **R02-STA-PCE** are stated in Column 3, while the level descriptor is presented in Column 4. Table A1-c relates to the Group A outcomes, while Table A2-c relates to the outcomes in groups B, C and D.

Table A1-c: Transition from input-based training specifications to output-based competency specifications in Group A

1: R2/1C Essential Elements of Acceptable Practical Training	2: Outcomes Embedded in Training Elements (Column 1)	3: Corresponding Competency Standard Outcome	4: Level Descriptors for Column 3
Acceptable practical training must provide satisfactory experience for Candidates in the implementation of novel engineering technology in an innovative manner and must include the practical training elements stated in Clause 3.1 at the level of responsible competence indicated. Outcomes expressed in criteria to be met are judged by peer evaluators.		**Requirement (PN):** Competence must be demonstrated within *well-defined engineering activities* (described below) by the integrated performance of the outcomes defined below at the level indicated for each outcome. **Note:** Attributes of a professional person are defined in outcomes.	
Problem Investigation Not covered by R2/1C	Not covered by R2/1C	**Group A: Engineering Problem Solving** *1: Define, investigate and analyse *well-defined engineering problems*	*Well-defined engineering problems* have the following characteristics: a) Can be solved mainly by practical engineering knowledge underpinned by related theory. *and one or more of the following:* b) Are largely defined but may require clarification. c) Are discreet, focused tasks within engineering systems. d) Are routine and are frequently encountered;
		3: Comprehend and apply the knowledge embodied in established engineering practices and knowledge specific to the jurisdiction in which he/she practises	
Problem Solution 3.3 a) Application of known and novel technology – Involves a variety of	The applicant must demonstrate the ability to develop the suggested solution to the problem	**2:** Design or develop solutions to *well-defined engineering problems*	

activities or functions to carry out engineering works within a specific discipline, sub-discipline or a combination of disciplines of engineering, and these may include specialisation. b) There are a variety of activities or functions that Candidate Engineering Technicians may carry out in the execution of engineering work. These include: (i) Design and draughting, specifying and planning 3.4 c) Problem-solving, requiring the use of fundamental principles, underlying techniques and calculations based on formulas.	through a process of synthesis and design by: a) applying all information acquired during planning b) communicating by drawing up known plans, detailed designs, reports, specifications, etc. c) adjudicating tenders d) taking into account all practical, economic, social, environmental, quality assurance, safety and statutory factors.		may be unfamiliar but in a familiar context. *and one or more of the following:* e) Can be solved in standardised or prescribed ways. f) Are encompassed by standards, codes and documented procedures (authorisation required to work outside limits). g) Information is concrete and largely complete but requires checking and possible supplementation. h) Involve several issues (few of these impose conflicting constraints) and a limited range of interested and affected parties. *and one or both of the following:* i) Require practical judgement in the practice area in evaluating solutions and considering interfaces with other role- players. j) Have consequences that are locally important but not far reaching (wider impacts are dealt with by others).

Table A2-c: Transition from input-based training specifications to output-based competency specifications in groups B, C, D and E

Execution / Implementation 3.3(b) ii) Manufacturing, construction, installation, calibration, commissioning, operating, monitoring iii) Maintenance, modification, development iv) Operational management, economics and resource management 3.3 c) Social, economic, safety, health and environmental issues within engineering practice 3.4 g) Compliance with legislation	The applicant must demonstrate the ability to: a) execute engineering tasks b) make efficient use of people, materials, machines, equipment, funding c) manage interactions d) achieve end results within set parameters.	**Group B: Managing Engineering Activities** **4:** Manage part or all of one or more *well-defined engineering activities* **5:** Communicate clearly with others in the course of his/her engineering activities **Group C: Impacts of Engineering Activities** **6:** Recognise the reasonably foreseeable social, cultural and environmental effects of *well-defined* engineering activities. **7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her *well-defined* engineering activities.	*Well-defined engineering activities* are characterised by several or all the following: a) *Scope* of practice area is defined by techniques applied and changed by adopting new techniques into current practice. b) Practice area is located within a wider, complex *context*, with well-defined working relationships with other parties and disciplines. c) Work involves a familiar, defined range of *resources* (including people, money, equipment, materials and technologies). d) Activities require resolution of *interactions* manifested between specific technical factors with limited impact on wider issues. e) Activities are c*onstrained* by operational context, defined work package, time, finance, infrastructure, resources, facilities, standards and codes, and applicable laws. f) Activities have *risks* and *consequences* that are locally important but are not generally far reaching.
Level of Responsibility 3.3 e) Independent work, teamwork supervision and management. f) Increasing responsibility and accountability for work 3.4 h) Compliance with the code of professional conduct 3.3 Training must be developmental, building upon the knowledge and skill gained through the educational qualification. This is indicated through innovation in the application of technology, the acquisition of knowledge through research, increasing the scope of work, additional studies and continuing professional development. .	The applicant must demonstrate the ability to accept professional responsibility for taking engineering decisions by: a) ensuring that sufficient cognisance is taken of economic considerations, social circumstances, environmental factors, quality assurance and safety and legal aspects b) following the code of professional conduct.	**Group D: Exercise judgement and responsibility and act ethically** **8:** Conduct engineering activities ethically. **9:** Exercise sound judgement in the course of *well-defined engineering activities.* **10:** Be responsible for making decisions on part or all of *well-defined* engineering activities. **Group E: Manage own development** **11:** Undertake professional development activities sufficient to maintain and to extend competence. *No direct counterpart in R2/1C work requirements	

Appendix B: Sources of evidence against outcomes

Notes: (a) *Well-defined* is the level identifier defined for the Professional Technician category in document **R-02-STA-PE/PT/PN** and **R02-STA-PCE** .

(b) Engineering Report claims are verified by the applicant's supervisor.

No.	Outcome	Training and Experience Reports	Engineering Report incl. claim to competency	Referee Reports (2)	IPD Report		Presentation	PR Interview	
A1	Define, investigate and analyse *well-defined engineering problems*	Factual / Verified	Factual / Verified	Evaluative		**Information to the left is considered in the Experience Appraisal**		Evaluative / Verified	**All information is used by Professional Reviewers when making their recommendation to the Assessing Committee**
A2	Design or develop solutions to *well-defined engineering problems*	Factual / Verified	Factual / Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative / Verified	
A3	Comprehend and apply the knowledge embodied in established engineering practices and the knowledge specific to the jurisdiction in which he/she practises	Factual / Verified	Factual / Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative / Verified	
B4	Manage part or all of one or more *well-defined engineering activities*	Factual / Verified	Factual / Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative / Verified	
B5	Communicate clearly with others in the course of his/her engineering activities	Tests concise writing	Factual / Verified	Evaluative			Tests synthesis, oral, graphic	Evaluative / Verified	

No.	Outcome	Training and Experience Reports	Engineering Report incl. claim to competency	Referee Reports (2)	IPD Report		Presentation	PR Interview	
C6	Recognise and address the reasonably foreseeable impacts of *well-defined engineering activities*	May not be covered	Factual / Verified	Evaluative				Evaluative / Verified	
C7	Meet all legal and regulatory requirements and protect the health and safety of persons in the course of *well-defined engineering activities*	Factual / Verified	Factual / Verified	Evaluative				Evaluative / Verified	
D8	Conduct engineering activities ethically	May not be covered	Factual / Verified	Evaluative				Evaluative / Verified	
D9	Exercise sound judgement in the course of *well-defined engineering activities*	May not be covered	Factual / Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative / Verified	
D10	Be responsible for making decisions on part or all *well-defined engineering activities*	Factual / Verified	Factual / Verified	Evaluative	Factual: Knowledge Enhancement			Evaluative / Verified	
E11	Undertake professional development activities sufficient to maintain and to extend competence		Factual / Verified	Evaluative/ Verified (Commitment)	Factual			Evaluative / Verified (Commitment)	

Appendix C: Training and Experience Summary

Surname and Initials:

Complete the Training and Experience Report (Form B2.1 TER) or the Training and Experience Outline (Form B2.1 TEO) for each period.

No.	From		To	Weeks	Work Details		Responsibility A–E
1					Employed by:	Post held:	
					Type of Work:		
2					Employed by:	Post held:	
					Type of Work:		
3					Employed by:	Post held:	
					Type of Work:		
4					Employed by:	Post held:	
					Type of Work:		
5					Employed by:	Post held:	
					Type of Work:		
6					Employed by:	Post held:	
					Type of Work:		
7					Employed by:	Post held:	
					Type of Work:		
8					Employed by:	Post held:	
					Type of Work:		
9					Employed by:	Post held:	
					Type of Work:		
n					Employed by:	Post held:	
					Type of Work:		

When an applicant is not engaged in training and experience towards registration, the period must be reflected as follows:

x				Employed by: ***Not active***	Post held:	
				Type of Work: ***Insert reason here***		
Total period (years, months):						

Signature of Applicant: _____ **Date:** _____

Appendix D: Training and Experience Report

Training and Experience Report

As part of the Application for Registration as Professional Engineering Technician

Applicant's Name				**Applicant's Signature**	**Date:**
Period No:	**Start date:**	**End date:**	**No of weeks:**	**Position held:**	
Employer's Name and Address for this period: (This is the employer and site at which the work took place, e.g. the site the applicant has been seconded to).				**Did you train under a Commitment and Undertaking (CU)?**	**Yes** **No**
				If yes, provide number of CU:	**No:**
Supervisor's Name and Address: **ECSA Registration No. (If not registered, qualify):**				**Supervisor's Signature:** **Date:**	
Discipline of Engineering: (Aeronautical, Agricultural, Chemical, Civil, Electrical, Industrial, Mechanical, Metallurgical, Mining)					
Discipline Specific Field: (e.g. Power Transmission, Electronic Communication, Transportation, Structures, Automotive, Roads, etc.)					

Organogram showing supervisor (person signing this report), co-workers and those you supervised (if any). Show two levels above and below, if these exist. Give names, positions, qualification and registration (if any)*. Please do not colour in blocks.

Report: (Write in proper paragraphs in the first-person singular in less than 430 words)	**Refer to Engineering Report Outcome**
Nature of training or experience (stated in 20–30 words)*	Outcomes: Criteria:
Nature of problem(s) addressed in this period; method of analysis, developing solution and evaluation (stated in 120–150 words)*	Outcomes: Criteria:
Management of materials, machines, manpower, methods or money, contracts (stated in 40–50 words)	Outcomes: Criteria:

Interaction with clients, stakeholders and other disciplines (stated in 40–50 words)		Outcomes: Criteria:
Legal and impact analysis (stated in 40–50 words)*		Outcomes: Criteria:
Describe role and responsibility (in 80–100 words)*	Degree of responsibility:	Tick one only*
	A. Being exposed, under full supervision	
	B. Assisting, responsibility limited	
	C. Participating, supervision limited	
	D. Contributing, performs work, detailed approval	
	E. Performing, limited guidance	

*Mandatory fields

Appendix E: Training and Experience Outline

Training and Experience Outline (for applicants with more than 10 years' experience)

As part of the Application for Registration as Professional Engineering Technician

Applicant's Name		**Applicant's Signature**	**Date:**	
Period No:	**Start date:**	**End date:**	**No of weeks:**	**Position(s) held:**
Employer's and Supervisor Name and Address: **ECSA Registration No. (If not registered, qualify):**		**Did you train under a Commitment and Undertaking (CU)?**	**Yes** **No**	
		If yes, provide number of CU:	**No:**	

Discipline of Engineering: (Aeronautical, Agricultural, Chemical, Civil, Electrical, Industrial, Mechanical, Metallurgical, Mining)	
Discipline Specific Field: (e.g. Power Transmission, Electronic Communication, Transportation, Structures, Automotive, Roads, etc)	

Organogram identifying yourself, your supervisor and persons supervised. Please do not colour in blocks*.

***Outline* Report: (Use bulleted format in 430 words)**	**Refer to Engineering Report Outcome**
Nature of training or experience in the period(s) (stated in bullet format in 20–30 words)*	Outcomes: Criteria:
Nature of problem(s) addressed in this period; method of analysis, developing solution and evaluation (stated in bullet format in 120–150 words)*	Outcomes: Criteria:
Management responsibilities (stated in bullet format in 40–50 words)	Outcomes: Criteria:
Interaction with clients, stakeholders and other disciplines (stated in bullet format in 40–50 words)	Outcomes: Criteria:
Legal and impact analysis (stated in bullet format in 40–50 words)*	Outcomes: Criteria:

Describe role and responsibility (stated in bullet format in 80–100 words)	Degree of responsibility:	Tick one only*
	A. Being exposed, under full supervision	
	B. Assisting, responsibility limited	
	C. Participating, supervision limited	
	D. Contributing, performs work, detailed approval	
	E. Performing, limited guidance	

***Mandatory fields**

Appendix F: Engineering Report

Use this form to report in about 100 words per criterion under Outcomes 1 to 11 below on a recent engineering task, part of a project or complete project to which you have made a significant contribution. The report may cover conceptualisation, design and analysis, specification, tendering and adjudication, manufacturing, project and construction management, commissioning, maintenance, measurement and testing or planning at a well-defined level. Please also provide a sample relevant calculations and drawings as an addendum which is limited to two A4 pages.

Use Appendix A of the DSTG R-05-PN to assist in the interpretation of the criteria

Name of Applicant:

Designation of Work: (<15 words)	
Date of Work:	
Engineering brief and objective: (< 30 words)	
Environment: Industry; Laboratory; Theory; Simulation, etc. in <15 words)	
Short Summary: (State engineering problems; solutions in < 30 words)	
Budget: (<10 words)	

Well-defined engineering problems (WDEP)*have the following characteristics:*

a) can be solved mainly by practical engineering knowledge, underpinned by related theory;
and one or more of:
b) are largely defined but may require clarification;
c) are discrete, focused tasks within engineering systems;
d) are routine, frequently encountered, may be unfamiliar but in familiar context;
and one or more of:
e) can be solved by standardised or prescribed ways;
f) are encompassed by standards, codes and documented procedures; requires authorisation to work outside limits;
g) information is concrete and largely complete, but requires checking and possible supplementation;
h) involve several issues but few of these imposing conflicting constraints and a limited range of interested and affected parties;
and one or both of:
i) requires practical judgement in practice area in evaluating solutions, considering interfaces to other role-players;
j) have consequences which are locally important but not far reaching (wider impact are dealt with by others).

Well-defined engineering activities (WDEA) have several of the following characteristics:

a) *Scope* of practice area is defined by techniques applied; change by adopting new techniques into current practice;
b) Practice area is located within a wider, complex *context,* with well-defined working relationships with other parties and disciplines;

c) Work involves familiar, defined range of *resources,* including people, money, equipment, materials, technologies;
d) Require resolution of *interactions* manifested between specific technical factors with limited impact on wider issues;
e) Are *constrained* by operational context, defined work package, time, finance, infrastructure, resources, facilities, standards and codes, applicable laws;
f) Have *risks* and *consequences* that are locally important but are generally not far reaching.

Outcomes and Criteria	
Outcome 1: Define, investigate and analyse well-defined engineering problems encountered in your work:	
1.1 State how you interpreted the work instruction received, checking with your client or supervisor if your interpretation is correct.	
1.2 Describe how you analysed, obtained and evaluated further clarifying information, and if the instruction was revised as a result.	
Outcome 2: Design or develop a solution to well-defined engineering problems encountered in your work:	
2.1 Describe how you designed or developed and analysed alternative approaches to do the work. Impacts checked. Calculations attached.	
2.2 State what the final solution to perform the work was, client or your supervisor in agreement	
Outcome 3: Comprehend and apply knowledge that is embodied in established engineering practices that is specific to the jurisdiction in which the Engineering Technician practices.	
3.1 State what NDip level engineering standard procedures and systems you used to execute the work, and how NDip level theory was applied to understand and/or verify these procedures.	
3.2 Give your own NDip level theoretical calculations and/or reasoning on why the application of this theory is considered to be correct (Actual examples).	
Outcome 4: Manage part or all of one or more well-defined engineering activities embodied in your work:	
4.1 State how you managed yourself, priorities, processes and resources in doing the work (e.g. bar chart).	
4.2 Describe your role and contribution in the work team.	
Outcome 5: Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	

5.1 State how you presented your point of view and compiled reports after completion of the work.	
5.2 State how you compiled and issued instructions to entities working on the same task.	
Outcome 6: Recognise the reasonably foreseeable economic, social, cultural and environmental effects of well-defined engineering activities seeking to achieve sustainability	
6.1 Describe the social, cultural and environmental impact of this engineering activity.	
6.2 State how you communicated mitigating measures to affected parties and acquired stakeholder engagement.	
Outcome 7: Meet all legal and regulatory requirements and protect the health and safety of persons during all well-defined engineering activities	
7.1 List the major laws and regulations applicable to this particular activity and how health and safety matters were handled.	
7.2 State how you obtained advice in doing risk management for the work and elaborate on the risk management system applied.	
Outcome 8: Conduct engineering activities ethically in executing your work:	
8.1 State how you identified ethical issues and affected parties and their interest and what you did about it when a problem arose.	
8.2 Confirm that you are conversant and in compliance with ECSA's Code of Conduct and why this is important in your work.	
Outcome 9: Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of well-defined engineering activities.	
9.1 State the factors applicable to the work, their interrelationship and how you applied the most important factors.	
9.2 Describe how you foresaw work consequences and evaluated situations in the absence of full evidence.	
Outcome 10: Be responsible for making decisions on part or all of well-defined engineering activities included in your work:	
10.1 Show how you used NDip theoretical calculations to justify decisions taken in doing engineering work. Attach actual calculations	
10.2 State how you took responsible advice on any matter falling outside your own education and experience.	

10.3 Describe how you took responsibility for your own work and evaluated any shortcoming in your output.	
Outcome 11: Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	
11.1 State what strategy you have independently adopted to enhance your own professional development.	
11.2 State the philosophy of your employer in regard to your professional development.	
Evidence of your competency development plan and independent learning ability must be given in the Initial Professional Development Report, Form C5 IPD	

Signature of Applicant: _____

Date:_____

Signature of Mentor / Supervisor: _____

Name of Mentor/Supervisor printed:_____

Tel. No.:_____

Appendix G: Referee Report

Referee Report on an Application for Registration as Professional Engineering Technician										
Applicant's Name										
Referee Name:		**ECSA Registration Category (e.g. PrTechniEng):**		**Registration Number:**						
Referee Employer:		**Referee Cell Phone No:**								
		Referee E-mail address:								
My personal knowledge of the applicant's achievements extends:		**From:**		**To:**						
My personal relationship with the applicant is: (Mark one block)		**Unrelated**		**By birth**		**By marriage**				
My professional relationship with the applicant is, for the period shown: (Mark one block)		**Mentor**	**Supervisor**	**Employer**	**Colleague**	**Client**				

Evaluation of the Applicant's Competence or state of Development

The level of competency required for registration as a Professional Engineering Technician is defined in the Competency Standards, document **R-02-STA-PE/PT/PN**. Competency is defined in terms of eleven outcomes and two level definitions, namely *well-defined engineering problems* and *well-defined engineering activities.* The applicant is expected to have demonstrated performance at a degree of responsibility appropriate to a Professional Engineering Technician (E) for at least one year.

As a referee, you are requested to rate the applicant against the outcomes as well as make a holistic evaluation. Please use the following scale:

CDC: The applicant consistently demonstrates competence
CDI: The applicant demonstrated competence but not consistently
CNDD: The applicant has not demonstrated competence but is developing
CND: The applicant has not demonstrated competence
X: I am unable to comment

Please enter your comments in the third column, giving your reasons for assigning the particular rating. When a rating CDI, CNDD, or CND is given, please clearly state the reason(s) for assigning this rating

Outcomes	Rating	Reason
Group A: Engineering Problem Solving		
1. Define, investigate and analyse well-defined engineering problems		
2. Design or develop solutions to well defined engineering problems		
3. Comprehend and apply the knowledge embodied in established engineering practices and knowledge specific to the jurisdiction in which he/she practices		
Group B: Management of Engineering Activities		
4, Manage part or all of one or more well-defined engineering activities		
5. Communicate clearly with others in the course of his or her engineering activities		
Group C: Impacts of Engineering Activity		
6. Recognise the reasonable foreseeable social, cultural and environmental effects of well-defined engineering activities		

7. Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her well-defined engineering activities		
8. Conduct engineering activities ethically		
Group D: Exercise judgement, take responsibility		
9. Exercise sound judgement in the course of well-defined engineering activities		
10. Be responsible for making decisions on part or all of well-defined engineering activities		
Group E: IPD		
11. Undertake professional development activities sufficient to maintain and extend his or her competence		

Optional: Further comments or additional information on the Applicant:

Viewed Holistically:		
The applicant has demonstrated competence to be registered as a **Professional Engineering Technician**		

Declaration by Referee

I hereby confirm that I am conversant with the Council's requirements for registration as set out in Competency Standard **R-02-STA-PE/PT/PN**, as well as the instructions on this referee report, and that I am prepared to substantiate my view expressed herein at an interview, should the Council require me to do so. I also confirm that I submit this information to ECSA on the understanding that it will be treated as confidential. I solemnly declare that, to the best of my knowledge, all the information contained in the referee report is true and correct.

Signature: _____

I hereby certify that the referee has acknowledged that he/she knows and understands the contents of this declaration which was sworn to and signed before me at _____on this.....day of.....**20..,** the regulations contained in Government Notice No. R1258 dated 21st July 1974, as amended, having been complied with.

Commissioner of Oaths/ Justice of Peace:

……
PRINT NAME

……
SIGNATURE

(Commissioner's stamp)

Name of Referee: _____ **Title of Position held:** _____

Qualifications: _____

ECSA Registration: _____ **Registration No:** _____

Employer: _____ **Tel/Cell. No:** _____

Signature of Referee: _____ **Date:** _____

Please email to:
engineer@ecsa.co.za

Appendix H: Academic Record

Detailed information on

TERTIARY ENGINEERING QUALIFICATIONS

(As part of the application for registration as a professional engineering technician)

Name of Applicant:

Name of Qualification:

All subjects passed	Year Obtained	Mark obtained *(if available)*
Extra subjects passed for incomplete qualifications		
Total Credits		

_____ _____

Signature of Applicant **Date**

Appendix I: IPD Report

INITIAL PROFESSIONAL DEVELOPMENT REPORT

(As part of the Application for Registration as a Professional Engineering Technician)

Name:

Discipline:

Itemise courses, workshops, conferences, symposia or congresses attended.
List these under the separate headings of engineering, management and computer courses.

Name or subject of item	Course Provider	Dates attended	SAQA NQF level if available	Duration in hours	Credits	For use by Assessor
Engineering Courses						
Management Courses						
Computer Courses						

_____ **Date:** _____

Signature of Applicant

Appendix J: Educational Development Report

A	**INSTRUCTIONS** • Applicants not in possession of an ECSA-accredited National Diploma in Engineering should complete this work-based (experience) learning report. WRITE A REPORT OF APPROXIMATELY100 WORDS ON EACH CRITERION LISTED. • Reports must include reference to any *well-defined* practical examples in the workplace, demonstrating how the competencies were satisfied. The report is not restricted to a single task or project. (Additional supporting evidence may be attached, if necessary but must not exceed two A4 pages). • This information can be obtained from education or experience or a combination of both. • The applicant and his/her supervisor must sign the completed report. • The applicant may be invited to an interview to expand and/or to confirm this report.
	Well-defined engineering problems have the following characteristics: a) can be solved mainly by practical engineering knowledge, underpinned by related theory *and one or more of the following:* b) are largely defined but may require clarification c) are discrete, focused tasks within engineering systems d) are routine, frequently encountered and may be unfamiliar but in a familiar context *and one or more of the following:* e) can be solved by standardised or prescribed ways f) are encompassed by standards, codes and documented procedures (authorisation required to work outside limits) g) information is concrete and largely complete but requires checking and possible supplementation h) involve several issues (few of these impose conflicting constraints) and a limited range of interested and affected parties.

B.	**APPLICANT'S PERSONAL DETAILS**			
	Name		**Technical Qualifications**	

C.	**EDUCATIONAL DEVELOPMENT REPORT (OUTCOME-BASED, DURING WORK EXPERIENCE)**
Exit-Level Outcome 1: The applicant displays understanding of and the ability to apply a coherent range of discipline-specific fundamental principles in engineering science and technology that is supported by established mathematical formulas to solve well-defined engineering problems.	

Item	Criteria	Development Report
1.1	State the mix of mathematical, natural science and engineering knowledge that you applied in the solution of the *well-defined engineering problem.* State which principles and laws were used.	
1.2	Describe how you analysed the engineering materials, components, systems and processes used and provide the motivation for the specific selection.	
1.3	Describe the procedures applied for dealing with uncertainty, the risk applicable to your own theoretical limitations and the use of specialists to do the work.	

Exit-Level Outcome 2: The applicant displays proficiency in discipline-specific engineering techniques at exit level.

Item	Criteria	Development Report
2.1	Describe how you analysed and defined a problem and identified the engineering knowledge and skills required for solving the problem.	
2.2	Describe how you generated possible solutions to the problem and how they were analysed and prioritised.	
2.3	State how you selected, formulated and presented the preferred solution.	

Exit-Level Outcome 3: The applicant displays proficiency in the use of engineering tools and IT support that is appropriate to the discipline for the solution of well-defined engineering problems.

Item	Criteria	Development Report
3.1	Describe how you assess methods, skills or tools (including computer applications) for applicability to solving problems.	
3.2	Describe how you applied the method, skill or tool correctly to achieve the required result and how this tested against the required results.	

Exit-Level Outcome 4: The applicant demonstrates procedural design proficiency through project work. The design problem meets the requirements of a well-defined engineering problem, and the design approach is properly structured.

Item	Criteria	Development Report
4.1	Describe how you formulated the design problem and how the design process was managed.	
4.2	Describe how user needs, legislation, standards and resources were acquired and evaluated.	
4.3	Describe how you performed the design task subject to relevant premises, assumptions and constraints and selected the preferred solution from alternatives.	
4.4	Describe how the selected design was evaluated in terms of impact and benefits and how this information was communicated in a technical report.	

Exit-Level Outcome 5: The applicant displays proficiency in standardised experimental and research methodology.		
Item	**Criteria**	**Development Report**
5.1	Describe the plan you devised to perform the investigation and state which information was used.	
5.2	Describe the methodology you used to perform the analysis and state the equipment and/or software used.	
5.3	From the data that was available, describe how information was derived, analysed and interpreted to reach conclusions.	
5.4	Describe how the purpose, process and outcomes of the investigation are recorded in a technical report.	

Exit-Level Outcome 6: The applicant communicates in writing at the exit level of a NDip programme
No entry required. Assessment will be done against evidence submitted in Item 5 of the Engineering Report (Form R-03-ER-PN).

Exit Level Outcome 7: The applicant explains and analyses impacts of engineering activity, addressing issues by defined procedures.
No entry required. Assessment will be done against evidence submitted in Item 6 of the Engineering Report (Form R-03-ER-PN).

Exit Level Outcome 8: The applicant understands and commits to professional ethical principles in engineering.
No entry required. Assessment will be done against evidence submitted in Item 8 of the Engineering Report (Form R-03-ER-PN).

Exit-Level Outcome 9: The applicant demonstrates knowledge and understanding of engineering management principles and applies these to his/her own work in the management of projects as a member or leader in a team.
No entry required. Assessment will be done against evidence submitted in Item 4 of the Engineering Report (Form R-03-ER-PN).

Exit-Level Outcome 10: The applicant engages in independent and life-long learning through well-developed learning skills.
No entry required. Assessment will be done against evidence submitted in Item 11 of the Engineering Report (Form R-03-ER-PN) and the Initial Professional Development Report (Form R-03-IPD-PN).

Signature of Applicant: _____ **Date:** _____

Signature of Mentor / Supervisor: _____

Name of Mentor/Supervisor (print): _____ **Tel. No.:** _____

Appendix K: Supervisor's checklist

The Supervisor Checklist must be filled out by the supervisor to confirm their knowledge and oversight of the applicant. It serves as a definitive record of the supervisor's awareness and supervision of the applicant's work. Additionally, the checklist can be used as a second report by a supervisor or anyone who is familiar with the applicant's work.

Supervisor information	
Name:	
Title:	
Company/organisation:	
Email address:	
Date:	
Applicant information	
Name:	
Title/organisation:	
Attestation	
Introduction:	
Competence and skills:	
Performance and contributions:	
Professional qualities:	
Conclusion:	

NOMENCLATURE FOR APPENDIX TABLES

AR	Academic Record
CI	Competency indicated
CN	Candidate Engineering Technician
CNI	Competency not indicated
ED	Educational Development
ERC	Educational Requirements complete
ERI	Educational Requirements Incomplete
ID	Online user identification
IPD	Initial Professional Development
ME	More evidence
P	Applicable to all professional categories
PN	Professional Engineering Technician
PW	Online password
R	Registration
REF	Referee Report
Rref	Registration refused
TEO	Training and Experience Outline
TER	Training and Experience Report
TES	Training and Experience Summary
TPQEC	Technology Programme Qualifications and Examinations Committee
VA	Voluntary Association