

GUIDELINES FOR MENTORS

Published by the **South African Institution of Civil Engineering (SAICE)**

In collaboration with the **Engineering Council of South Africa (ECSA)**



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Preamble

The Registration Process described in these Guidelines became effective from 1 January 1998. Since this new process incorporates some principles that are new in South Africa, there will be a “settling in” period where finer details of the process may require revision as experience is gained. The principles adopted have, however, been in operation in other countries for some time and have proved successful and effective. A major reason for adopting this new process is to bring the South African processes into line with international trends.

This document as a 2ND Edition will inevitably require refinement over time. Should you have any comments or suggestions, kindly address them to SAICE National Office at the address given on the flysheet.

These Guidelines are to be read in conjunction with the following documents:

Published by SAICE:

- ***Guidelines for Professional Registration of Civil Engineers***
(Ref No - E&T 101)

Published by ECSA:

- ***Policy Statement R2/1A – Acceptable Engineering Work for Candidate Engineers for Registration as Professional Engineers***
- ***Discipline Specific Guidelines: Civil Engineering***
- ***ECSA Application Form for Registration as a Professional Engineer***

1. DEFINITIONS, TERMINOLOGY AND ABBREVIATIONS

The following definitions are given here in order to simplify and clarify the document. As acronyms are extensively used, it is considered useful to have these all in one section.

CPD	Continuing Professional Development - This term is preferred to others such as Continuing Engineering Education, Continuing Learning, etc. and may include courses, self-study, technical conferences, seminars, symposia, organised site visits, and meetings of professional bodies.
CPD Logbook	A booklet published by SAICE, which provides a convenient means of recording CPD activities done through a person's whole career.
CU	Commitment and Undertaking , is an agreement registered with ECSA by an employer to assist young engineers (Candidate Engineers) with their training in a structured manner so that ECSA's requirements can be met for registration as a professional engineer.
Candidate	Refers to any person applying to ECSA for registration as a professional engineer and to SAICE for membership.
Candidate Engineer	Candidate Engineer (CE) who is registered as such with ECSA.. This term replaces "Engineer-in-training" (EIT).
E&T	Education & Training . Covers a broad spectrum of activities spanning a person's whole career. It comprises career guidance, tertiary education, professional development up to the point of professional registration, and life-long professional development after registration.
EA	Experience Appraisal (described fully in the " <i>Discipline Specific Guidelines: Civil Engineering</i> ")
ECSA	Engineering Council of South Africa
Mentor	<p>A person who guides and advises CEs through their training period to achieve maximum possible professional development and professional registration in the shortest possible time. A Mentor must be registered as a Professional Engineer There can be Internal and/or External Mentors.</p> <p>An Internal Mentor is a person in the service of, and nominated by, a particular employer, having registered a CU with ECSA, and whose name is listed by ECSA against the particular CU.</p> <p>An External Mentor is a person not in the service of the employer concerned but whose services as a Mentor have been solicited by the employer. His/her name is listed by ECSA against a CU registered by the employer.</p>
PAC (Civils)	Professional Advisory Committee (Civil Engineering) . This is a Committee of ECSA dealing with all the aspects related to setting of standards, processing of applications, and approval or otherwise of applications in the branch of Civil Engineering.

PR	Professional Review (described fully in the “ <i>Discipline Specific Guidelines: Civil Engineering</i> ”)
Referee	<p>Provides an opinion on an CE's professionalism at any stage during his/her training and is not responsible directly for guiding CEs in their professional development. They should be persons who are well placed to express an opinion without necessarily having a holistic view of the CE's training.</p> <p>A Referee generally <u>must</u> be a Professional Engineer. ECSA requires at least two referees of whom at least one must be a professional engineer and the other one at least a person registered in terms of the Act (e.g. Pr Tech Eng) or foreign equivalents.</p> <p>More information on the roles and responsibilities can be obtained from the “<i>Policy Statement R2/1A</i>” document.</p>
SAICE	South African Institution of Civil Engineering
SCE	Supervising Civil Engineer. This is a person the CE reports to directly and on a daily basis. CEs will probably have several SCEs during their training period as they move from one section of an organisation to another. The SCE need not necessarily be an engineer, but could be a professional technologist or professional technician. The SCE can also be a Mentor and vice versa.
Training Schedule	Schedule given in the “ <i>Discipline Specific Guidelines: Civil Engineering</i> ” published by ECSA (Form AC7). This gives the core elements and competency levels that must be achieved by candidates before they can be considered for registration.
Training Period	This is the period between graduation and application for Professional Registration. This period may not be less than 36 months.

2. INTRODUCTION

These guidelines have been drawn up by SAICE in collaboration with ECSA. They are for Mentors who are assisting CEs through their training period so as to achieve Professional Registration through ECSA and Corporate Membership of SAICE.

It is recommended and preferred for a trainee engineer to be registered with ECSA as a Candidate Engineer, to be a Graduate Member of SAICE, and to do his/her training with an employer that has registered a CU with ECSA. These guidelines are written with the preferred model in mind, because it offers the maximum benefit to candidates. There are other combinations that CEs may follow, but the principles remain the same for any of the combinations. Mentors must therefore make their own adaptations for other combinations so that the principles are applied appropriately. The combinations are fully described in §3.1 of the *“Guidelines for Professional Registration of Civil Engineers”* document.

It is preferred that employers register a CU with ECSA. In so doing employers must nominate Mentors in their organisation, and the Mentors are then referred to as Internal Mentors. These guidelines are written so as to be wholly applicable to Internal Mentors. External Mentors must therefore apply the principles appropriately in their particular situation.

As CEs are individuals, they are unique and should be respected as such. Each CE will have his/her own qualities, aspirations, etc. and his/her training should take these and any other relevant factors into account. These guidelines cannot therefore be specific and are couched in general terms so as to give Mentors as much guidance as is possible.

3. CHECKLIST FOR MENTORS

The following checklist is given to provide guidance for Mentors. The checklist is given early in the document so as to “set the scene”. More details on the required actions are given in the sections that follow.

The checklist is given as a GUIDE ONLY and cannot be taken as exhaustive. It remains the personal responsibility of the Mentor to ensure that his/her individual responsibilities are carried out to his/her own satisfaction.

Checklists for CEs and SCEs are given in the *“Guidelines for Professional Registration of Civil Engineers”* document.

Checklist for Mentors:

- Be aware of your roles and responsibilities as described in this document and other relevant documents.
- Ensure regular discussions are held with each CE for whom you are responsible. (Although the CE should initiate these discussions, you should follow up with the CE if planned dates are not met).
- Assist and guide each CE in developing his/her own training plan. The plan must link into the Training Schedule and include CPD activities.
- Assist and guide each CE in reviewing his/her training plan throughout his/her training period to ensure the objectives and achievement levels in the Training Schedule are met.
- Liaise with the various SCEs to ensure the CE is afforded sufficient opportunity to develop the required levels of competency throughout the training period.
- Approve and sign each CE’s training reports, CPD logbook, and interview records where appropriate.

- Write reports on each CE as necessary. It is important that a “Referee’s Report” (Form A4.1/2) be completed and returned directly to ECSA when requested by the CE.
- Assist each CE in his/her final stages of training to prepare for the PR and essays

In addition, Mentors are expected to assist with the development of Training Programme/s in the organisation, as well as monitor, review, amend and improve the Programme/s as is necessary.

4. ROLES AND RESPONSIBILITIES OF MENTORS

Background

- 4.1 It is essential that Mentors are completely familiar with the contents of all the documents referred to in the Preamble. Mentors must be fully committed to the outcomes-based philosophy and in addition have a thorough understanding of the principles outlined.
- 4.2 Professional Registration is the point at which the standard of competence is set for persons entering the profession. It is therefore vital that the registration process functions effectively to ensure that only individuals who are fully competent and have the required degree of professionalism become registered. The image and status of civil engineers is determined by the manner in which civil engineers conduct themselves in society (both individually and collectively) and the future of the profession will to a large degree depend on the qualities of individuals entering the profession.
- 4.3 In terms of the process that has been developed for the registration of civil engineers, the Mentor is the person (apart from the CE) who will play the most significant role in ensuring that each CE who applies for professional registration has developed and acquired the necessary range and level of competencies. In preparing a CE for registration, the ultimate result of the Mentor’s actions is ensuring the ongoing sustainability of the profession, and consequently the image and status that civil engineers will have in the future.
- 4.4 When processing the CE’s application, ECSA will place much value on the opinion of the Mentor as to the registrability of each CE.

Roles and Responsibilities

- 4.5 As stated previously, these documents only cover the preferred option of an Internal Mentor.

In the preferred option, the Mentor and SCE will be part of the same organisation and each can be regarded as representing the employer in their own areas of responsibility. As employees they would both have various functions within their organisation, and a common one would be the effective education and training of CEs.

The **Mentor** should maintain a "birds eye view" of the organisation's training programme where CEs are placed, where and when they should move and each CE's needs and aspirations.

The **SCE** on the other hand, should have a more focused view of ensuring the level and quality of output of his/her section is maintained, while simultaneously giving exposure and responsibility to CEs in his/her particular area of civil engineering.

The Mentor's roles and responsibilities can be condensed into the following three main areas.

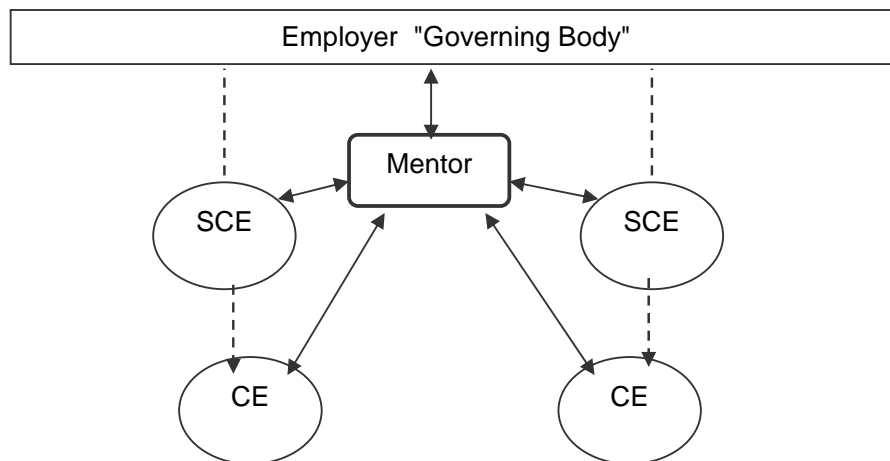
- Develop a Training Programme or Programmes in the organisation and make amendments as necessary to ensure their ongoing suitability and effectiveness.
- Assist each CE for whom the Mentor is responsible with the development of his/her Training Plan and through monitoring assist him/her in continuously reviewing the plan and implementation thereof to ensure he/she acquires at least the required range of competencies and to the required level.
- Certify on the appropriate documents that the requirements specified have been met for each CE for whom the Mentor is responsible.

While the CE will always be ultimately responsible for his/her successful training, the Mentor has a moral and professional responsibility in terms of the CU registered by the Mentor's organisation, to coach and guide successfully the CE through the Training Period.

The short-term end-result of the Mentor's actions during the Training Period will be the successful registration of the CE. The longer-term end-results are an engineer who enjoys a rewarding career, enhances the status of engineers in society and continues the mentoring process through his/her career.

Relationships

- 4.6 A Mentor must maintain several relationships and manage these to ensure that the often-conflicting needs of each are reasonably satisfied. The main relationships can be shown diagrammatically.



Mentor – Employer: The Mentor must ensure the Employer's obligations in terms of the CU are fulfilled, and simultaneously ensuring that any disruption in the organisation is minimised.

Mentor – SCE : The Mentor must liaise often with the SCE to ensure the SCE maintains a reasonable balance between output and training objectives.

Mentor – CE : The Mentor must assist the CE to define his/her needs, and ensure these are met as far as possible within the context of the organisation.

Training Programmes

- 4.7 In order to ensure that CEs develop the required range of competencies and each to the required level in a reasonable period of time, it is necessary that employers have Training Programmes that are well structured and monitored. This is especially true today and will be more so in the future as a result of rapidly changing technology and the associated specialisations.
- 4.8 Reference is made to §4.6 to §4.12 in the “*Guidelines for Professional Registration of Civil Engineers*” document regarding the development of Training Programmes. It is strongly recommended that the appointed Mentors in an organisation be made responsible for drawing up and monitoring Training Programmes. In terms of the outcomes-based approach, ECSA will only monitor the end results, rather than approve and monitor Training Programmes as was done in the past. Therefore the only criterion against which the success or otherwise of a Training Programme will be measured, is the level of competence of engineers exiting the programme.
- 4.9 The Training Schedule is the mechanism by which the minimum range of competencies and level of each will be measured. It is the Mentor's responsibility to sign off each element of an CE's schedule and the Mentor's signature will indicate his/her satisfaction that the CE has achieved the level required for the particular element.
- 4.10 The Mentor therefore has the onerous task of both developing the Training Programme, and certifying that its end results have been met. There will however be at least three “checks” on the end results after the Mentor, which are the Professional Review, approval by PAC(Civils) and approval by the Registration Committee (Professional Engineers) of ECSA. These checks do not derogate from the Mentor's role, and are merely there to ensure standards are reasonable and consistent.

Training Plans for CEs

- 4.11 As stated in the Introduction above, each individual's needs should be respected and accommodated whenever possible. On the other hand it is impractical for employers to have an individual Training Programme for each person. A balance should be reached between these conflicting interests and the Mentor is the best person to establish this balance.

The following sections regarding Training Plans are therefore couched in general terms so as to provide guidance to Mentors, so that a balance can be achieved.

- 4.12 The early stages of a CE's Training Plan would probably be structured to fit closely with the organisation's Training Programme, so that a basic grounding is achieved. In later stages, once the CE has established some preferences, the Training Plan could become more specific and individual, but always within limits set by the organisation.
- 4.13 Each Training Plan must include CPD activities and Mentors must convey to CEs the importance of CPD. Further information on CPD is given in §5 of the “*Guidelines for Professional Registration of Civil Engineers*” document.
- 4.14 CEs must record CPD undertaken and the Mentor must assess the relevance of each activity. The Mentor must assess and certify the number of days credited for each activity. The CPD Logbook published by SAICE provides a convenient means for this recording and certification.

It is important to accept that CPD is not only lecture courses, but includes a wider spectrum of activities such as self-study, technical conferences, seminars, symposia, organised site visits and actively serving on technical or professional committees.

- 4.15 Regular discussions should be held between the CE and Mentor to review progress and to amend the Training Plan as necessary. It is the CE's responsibility to initiate these discussions, however the Mentor should follow up with the CE if planned dates are not met. (It will generally be easier for the Mentor to manage this process as he/she will generally be a senior person in the organisation).
- 4.16 It is strongly recommended that discussions be held at least every three months. It is also recommended that Mentors insist that immediately prior to each discussion, each CE provide a short report on his/her activities and development since the last discussion. The reports should be commented on by the Mentor and signed by both the CE and the Mentor. The signed reports should be retained by the CE for record purposes. At the end of each discussion, the Interview Record (Form AC8) should be completed and signed.
- 4.17 In the last year of training, the CE needs to prepare for the PR and the essays. Mentors are expected to assist CEs and need to ensure that the training plan for each CE takes cognizance of this preparation. CEs may form discussion groups and arrange briefing sessions where mentors or other knowledgeable individuals can interact with the group.

Certifications

- 4.18 The processes referred to above provide a convenient basis on which the Mentor can complete all the necessary certifications that are required. At least the following forms must be considered on a regular basis and initialed to indicate his/her satisfaction with the content, relevance and progress;
- Interview Record (Form AC8)
 - CPD record
 - All relevant elements of the Training Schedule (Form AC7)
- 4.19 Before an CE sits his/her Professional Review, his/her Mentors must be satisfied that the CE has acquired the required range of competencies and level of each as specified in the Training Schedule (Form AC7). A Mentor will indicate his/her satisfaction by having certified all the elements of the Training Schedule.
- 4.20 On completion of a CE's training, the Mentor will be requested by the CE to complete a confidential "Referees Report" (Form A4.1/2). This report must be submitted in a sealed envelope directly to ECSA. In this report, Mentors must express freely their judgement on the particular CE's competence, development and professionalism.
- 4.21 Each CE is required to submit a 4000 word Project Report describing a project or parts of projects in which the CE played a major role. The Mentor will be required to sign this report verifying that the work reported on was the CE's own work. Mentors should call on SCEs to assist in this verification process.

5. ATTRIBUTES OF MENTORS

- 5.1 It is compulsory that each Mentor be registered with ECSA as a Professional Engineer.
- 5.2 Mentors must have a thorough knowledge and understanding of the ECSA Code of Conduct, the SAICE Code of Ethics, the Engineering Profession of South Africa Act and the relevant ECSA and SAICE policy documents.
- 5.3 Each Mentor must be capable of fulfilling the required mentoring functions in a professional manner, as well as be willing to commit him/herself over a sustained period. This is necessary in order to advise and guide adequately each CE for whom he/she is responsible, so that the CE can not only successfully achieve professional registration, but progress to a successful and rewarding career.
- 5.4 Each Mentor must have a reasonable knowledge of the civil engineering professional environment, so as to be in a position to inform CEs on the various elements covered in Section 1 of the Training Schedule. The information documents referred in Section 1 of the Training Schedule may be available from the various organisations. In any event, the Mentor is best placed to inform CEs on these elements.

6. LIAISON WITH SUPERVISING CIVIL ENGINEERS

- 6.1 Each Mentor must ensure that for various tasks and at different times, suitably qualified and experienced Supervising Civil Engineers (SCEs) are made responsible for the control of the detailed training and day to day work of each CE.
- 6.2 §3.8 of the *"Discipline Specific Guidelines"* is particularly relevant and is repeated for ease of reference.
"It is not expected of Mentors to take responsibility for the day to day supervision and training of CEs. Mentors/employers should, however, ensure that competent persons, preferably registered with ECSA, are available to oversee this function. Mentors should satisfy themselves as to the competency of these persons. In civil engineering, these persons are referred to as "Supervising Civil Engineers (SCEs)".
- 6.3 It is therefore vital that good liaison and communication be established between the Mentor and the various SCEs in an organisation. This is to ensure that each CE is given the appropriate guidance, direction and exposure in his/her day to day work. In addition SCEs are best placed to give feedback to the Mentor on the Training Programme developed in the organisation.

7. TRANSFERS OF CANDIDATE ENGINEERS

- 7.1 When a CE for whom a Mentor is responsible, changes employers, the Mentor must assist the CE by providing all necessary certifications for the period the Mentor has been responsible.
- 7.2 In addition, the Mentor is advised to complete a Referee Report (Form A4.1/2) for the period he/she has been responsible and retain it until such time as the CE applies for registration and requests that the form be sent to ECSA. It is considered advantageous for the Mentor to do the report while the CE's work is fresh in his/her mind.

8. CONCLUSION

- 8.1 It is hoped that a constructive relationship is built up between a Mentor and a CE, which is based on mutual respect, and that lifelong friendships evolve from the mentoring process.
- 8.2 Both ECSA and SAICE are mindful of the vital and significant role that Mentors are expected to fulfil in the registration process and the consequent future of the profession. Their contribution is both valued and respected.