

South African Council for Professional Engineers

Policy Statement no. 1/3

1. TRAINING IN ENGINEERING WORK FOR ENGINEERS IN TRAINING

1.1 *Registration as engineer in training*

An engineering graduate who has passed an examination recognised by the Council¹ is eligible for registration as an engineer in training in terms of the Professional Engineers' Act². Application forms can be obtained from the Registrar.

1.2 *Training requirements for registration as Professional Engineer*

The Act requires that an applicant for registration as a Professional Engineer shall, for a period determined by the Council³, have performed engineering work which in the opinion of the Council is of sufficient variety and of a satisfactory nature and standard. In essence the Council requires that a prospective applicant be trained to its satisfaction in the application of engineering principles and methods within his branch of engineering, and be given progressively more responsibility until he is capable of accepting professional responsibility in making and executing engineering decisions.

The minimum training period required will normally be three years after graduation, provided that the applicant has been registered as an engineer in training for at least two years. Applicants not so registered will also be considered, but in such cases an extended period of training may be required.

In assessing training the Council will take the following factors into consideration:

- (a) the nature of training (paragraph 1.3)
- (b) the standard of the training (paragraph 1.4)
- (c) advanced study during or before the training period (paragraph 1.5)
- (d) applicable pre-graduation experience (paragraph 1.7)

1.3 *Nature of training*

The training shall include all the elements of engineering work set out in section 2 below, and follow the guidelines which the applicable recognized professional engineers' institute⁴ has developed in collaboration with the Council.

Training shall take place under the general (not necessarily direct) supervision of a registered professional engineer, to whom the engineer in training must report regularly. Preference is given to a system of training where the engineer in training reports to more than one (say two or three) supervising or guiding professional engineers successively during his training period.

1.4 *Standard of training*

Before registering an applicant as a profes-

sional engineer the Council has to be satisfied that the applicant's training included all the required elements at an acceptable level and that he applied himself to his work with sufficient diligence so that at the end of the period he was capable of accepting professional responsibility in making and executing engineering decisions in a sufficient variety of work in his branch of engineering.

1.5 *Recognition of advanced study*

The prescribed period may be reduced in the case of an applicant who —

- (a) in addition to passing a recognised examination has, after at least one year of post-graduate study, passed an appropriate post-graduate examination recognised by the Council for this purpose; or
- (b) is the holder of a degree at an advanced level, which requires at least five years of full-time post-matriculation study, and which is recognised by the Council for this purpose.

As a general guideline, Council would be prepared to consider an early application from an applicant who has had —

- (i) two and a half years of accelerated training after obtaining a first recognised qualification and has during this period obtained, through part-time study, an advanced degree at honours level, or
- (ii) two years of accelerated training after obtaining a recognised South African degree at an advanced, i.e. honours or master's level, which requires at least five years of full-time post-matriculation study.

Accelerated training shall contain all the elements normally acceptable but with less time spent on the various aspects. The Council accepts that the holders of an advanced degree should be capable of obtaining the requisite training in a shorter time than normally required. This will have to be demonstrated to the Council's satisfaction in each case.

Appropriate research work will be considered to be engineering work.

1.6 *Recognition of National Service*

As a general guideline Council will consider an application from an applicant who has during his prescribed period of National Service performed work relevant to the training requirements set out in this Statement of Policy and has had a period of acceptable complementary training. The period of such complementary training required will normally need to be of about two years' duration and will depend upon the work done during National Service.

1.7 *Pre-graduation experience*

Engineering work, other than course work or

prescribed vacation training, performed prior to passing a recognised examination, may be taken into account partially.

Normally, credit for not more than twelve months of such work will be considered, and only if the nature of the work and the level of responsibility was that expected of an engineer in training whilst being satisfactorily trained. In exceptional cases applicants who have already been working for more than the normal three years at the level required of a professional engineer, and who satisfy the examiners that they are at the Part Three¹ examination level, may be registered forthwith as professional engineers.

1.8 *Training outside the Republic of South Africa*
Applicants who have received their training in engineering work in a foreign country, will be considered in accordance with the principles embodied herein.

1.9 *Date of registration and registrability*
The date on the certificate of registration as a professional engineer is that on which registration was approved by the Council. This date would normally be somewhat later than that on which the applicant first met all the requirements for registration. The Council is prepared on request to advise an applicant of this earlier date of registrability.

If the application is successful, the date of registrability will be deemed to be the date on which the full completed application together with the prescribed registration fee, was received by the Council. In the case of a registered engineer in training, however, the date of registrability, after taking into consideration all the factors discussed in this Statement, may be earlier than the date of application by a period of normally not more than 12 months.

1.10 *Application for registration as Professional Engineer*

A complete application for registration as a professional engineer must include the items listed in Appendix B.

1.11 *Interview*

Should the Council consider it necessary, an applicant for registration as a professional engineer may be required to attend an interview. Normally all applicants who submit early applications will be interviewed, as well as applicants who have not been registered as engineers in training.

1.12 *Responsibility of engineers in training*

An engineer in training should appreciate that the onus is on himself to ensure that the training he receives will meet all the requirements set out in this Statement of Policy. Council prefers that he should follow a training programme that has been accepted in principle by the relevant professional engineer's institute and the Council⁵.

Should the engineer in training experience difficulties with his training, he should attempt to resolve them through the normal channels with his employer, or with the professional engineer responsible for his guidance. The relevant engineering institutes recognised under the Act⁴ have indicated their willingness to assist engineers in training to ensure satisfactory training.

The engineer in training must maintain the requisite training reports as set out in Appendix B.

1.13 *Responsibilities of Professional Engineers guiding engineering training*

Should he be asked to do so, a professional engineer is under an obligation both morally and professionally, to assist in the training of engineers in training where possible. This responsibility could for example be met by —

1.13.1 agreeing to guide an engineer in training in his professional development;

1.13.2 receiving and critically appraising progress reports by an engineer in training;

1.13.3 reporting on the progress which an engineer in training has made during the period under his guidance.

1.14 *Responsibility of employers*

It is recommended that an employer of engineers in training should, as a matter of policy, draw up a general training programme, which could form the basis of schedules of training for individual engineers in training. (See Appendix A).

A programme should be submitted to the relevant recognized engineering institute for comment and guidance and thereafter the Council's acceptance in principle should be obtained. Such acceptance will be conditional upon actual performance of trainees complying with this Statement of Policy and the relevant institute's guidelines.

The employer is expected to ensure that the engineer in training is always under the general guidance (not necessarily the direct supervision) of a registered professional engineer in his employ.

2. ESSENTIAL ELEMENTS OF ACCEPTABLE TRAINING

Acceptable training in engineering work shall give the engineer in training satisfactory experience in the application of the engineering principles and methods learned during his academic education and shall include —

Problem Solving

2.1 Work requiring the solution of problems in connection with engineering tasks or projects, involving engineering judgement, in:
problem identification and formulation;
finding, selecting and effective use of relevant information;

analysis of factors affecting possible solutions:
 relevant scientific and engineering principles;
 practical, economic, social and statutory requirements and constraints;
 checking of data and conclusions;
 creative synthesis of possible solutions;
 deciding on the solution to adopt (even when only limited information is available); e.g. the preparation of a conceptual plan or a process design.

Planning Design Communication

2.2 Work on the development of the proposed solution to a communicable, detailed form for those who have to execute it, e.g. by means of plans, detailed designs, specifications, reports, or other means of communication; estimating.

Execution

2.3 Work on the executing of tasks or projects, e.g. construction, manufacture, operation or maintenance, involving the effective employment of men, materials, machines and money, with due cognisance of their interaction.

Responsibilities

The work shall involve progressively greater responsibilities until the engineer in training is demonstrably capable of accepting professional responsibility in making and executing engineering decisions. The degree of responsibility carried by the engineer in training on each project should be indicated in the report accompanying the application.

3. PROFESSIONAL ETHICS

Conduct

The applicant must be able to satisfy Council that he understands and is committed to honouring the Code of Professional Conduct.

4. DATE OF ISSUE

This statement supersedes Policy Statement No. 1/2 and is effective as from 1 January 1979.

REFERENCES

1. An examination recognized by SACPE in terms of Section 18 (2) (b) of the Act. The minimum requirement is a four-year engineering degree of a South African University, or its equivalent. (This includes Part 3 of the Council's Examinations.) A list of examinations recognized by the Council is available. (Document E2/2.)
2. The Professional Engineer's Act no. 81 of 1968, Section 18 (3) as subsequently amended.
3. Section 18 (2) (d) of the above Act.
4. The following are the recognized professional engineers' institutes; most have drawn up guidelines for training in collaboration with the Council; all are prepared to assist.
 S.A. Institute of Agricultural Engineers: P.O. Box 719, Silvertown, 0127.
 S.A. Institution of Chemical Engineers: P.O. Box 61019, Marshalltown, 2107.

S.A. Institution of Civil Engineers: P.O. Box 61019, Marshalltown, 2107.

S.A. Institute of Electrical Engineers: P.O. Box 61019, Marshalltown, 2107.

S.A. Institution of Mechanical Engineers: P.O. Box 61019, Marshalltown, 2107.

S.A. Institute of Mining and Metallurgy: P.O. Box 61019, Marshalltown, 2107.

S.A. Association of Consulting Engineers: Private Bag 2, Saxonwold, 2132.

Engineers' Association of South Africa: P.O. Box 26189, Arcadia, 0007.

5. A list of employer organizations who offer training programmes in the various branches of engineering that are acceptable in principle to the Council (conditional upon satisfactory implementation) is published from time to time, and is available on request from the registrar.

APPENDIX A

Training Programmes

A.1 An acceptable training programme should contain an undertaking that the employer will provide training to comply with this Statement of Policy and the training guidelines developed by the relevant recognized professional engineering institute⁴ in collaboration with the Council. It should include, briefly —

- (a) an indication of the time to be spent on each function and the level of responsibility envisaged;
- (b) the level of technical involvement in each function;
- (c) the guidance to be provided by professional engineers;
- (d) the reports to be required from the engineers in training and from the guiding engineers and other personnel.

An appendix may be added, listing the engineering work to be performed.

A.2 The general planning and co-ordination of training should be the responsibility of a mentor who should preferably be a senior engineer in the employer's organisation. The mentor could also be involved in drawing up schedules of training for individual engineers in training based on the training programme, adjusted to suit the particular circumstances.

The employer, acting through the mentor, or otherwise, should ensure that guiding or supervising engineers are appointed for each phase of the training, and given the necessary guidance.

If the requisite guiding engineers or mentors are not available within the firm or organisation, it is recommended that the employer obtain the assistance of a registered professional engineer not in his employ to guide the engineer in training. The relevant engineering institute⁴ may assist in this regard.

A.3 The employer should keep a record of the training given and furnish the engineer in training with a report which must accompany his application for

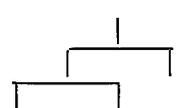
registration as a professional engineer. The report should indicate the extent to which the work actually done complied with the requirements for acceptable training.

APPENDIX B

Documents to be Included in an Application

Application and other relevant forms and instructions are obtainable from the registrar. Briefly the following items will be required:

- B.1 a completed application form (form A.1/2), with passport photo and copies of qualification diplomas, attested as required;
- B.2 the prescribed registration fee;
- B.3 a Summary Report (using form A.1/2/1), giving for each separate phase of the training, with dates, the names of the supervising or guiding professional engineer(s), and a resumé of the tasks performed. The statement must, where possible, be signed by the supervising or guiding professional engineer.
- B.4 a short Report of not less than 1500 or more than 2000 words on the training with particulars of the engineering work performed by the applicant, in sufficient detail to enable the Council to assess the extent to which his training complies with the Council's requirements as set out in section 2. This report should indicate, for each assigned job:
 - (a) the kinds of work performed which require the application of basic engineering principles;
 - (b) expenditure on projects undertaken, where applicable;
 - (c) qualifications, nature and number of personnel controlled;
 - (d) description of any design or major project undertaken by the applicant. (If any drawings or calculations are required this will be requested by the Council);
 - (e) a diagram of responsibility as shown, clearly indicating the applicant's level for each job change, must also be given;
- B.5 reports by supervising or guiding professional engineer(s) or mentors (See A.2) indicating the nature and level of work performed (form A/1/2/2).
- B.6 reports by the applicant's employer(s) indicating nature and level of work performed.



APPENDIX C

Code of Professional Conduct

- E.1 A professional engineer or an engineer in training shall, in carrying on his profession, comply with the following code of conduct:-
 - (a) He shall, in his responsibility to his employer or client and to the profession, have full regard to the public interest.
 - (b) He shall order his conduct so as to uphold the dignity, standing and reputation of the profession.
 - (c) He shall discharge his duties to his employer or client in an efficient and competent manner and with complete fidelity.

- (d) He shall not undertake work of an engineering nature for the execution of which his training and experience have not rendered him competent.
- (e) He shall disclose to his employer or client, in writing, any substantial interest he may have in any company, firm or person carrying on any contracting, consulting or manufacturing business which is or may be involved in the work to which his employment relates.
- (f) He shall not receive, directly or indirectly, any royalty, gratuity, commission or other remuneration on any article or process used in or for the purposes of the work in respect of which he is employed, unless or until such royalty, gratuity, commission or other remuneration has been authorised, in writing, by his employer or client.
- (g) He shall neither personally nor through the agency of any other person, whether or not such person is in his employ, canvass or solicit professional employment nor offer, by way of commission or otherwise, to make payment for the obtaining of such employment.
- (h) He shall not advertise his professional consulting services in a self-laudatory manner or any other manner derogatory to the dignity of the profession.
- (i) He shall not use the advantages of a salaried position to compete unfairly with other professional engineers.
- (j) He shall order his conduct in connection with engineering work outside the borders of the Republic of South Africa to the rules in this regulation in so far as they are applicable: Provided that where there are recognised standards of professional conduct in a country outside the Republic, he shall adhere to those standards.
- (k) He shall not invite or submit priced proposals under conditions that constitute price competition for professional consulting services.
- (l) He shall not maliciously or recklessly injure, whether directly or indirectly, the professional reputation, professional prospects, or business of any other professional engineer.
- (m) He shall not attempt to supplant another professional engineer in a particular engagement after definite steps have been taken towards the latter's employment.
- (n) He shall not review the work of another professional engineer for the same client, except with the knowledge of such professional engineer, unless the engagement of such professional engineer on the work which is being reviewed has been terminated.
- (o) He shall not, in his capacity as a professional engineer in private consulting practice, enter into partnership or other association with any person other than a professional engineer except with the prior approval of the Council.
- (p) He shall not, except with the authority and on behalf of his employer or client, place contracts

or orders, nor shall he be the medium of payments on his employer's or client's behalf, but he shall only issue certificates to his employer or client for payment.

- (q) He shall not engage in private consulting practice under the style of a limited liability company or under the protection of limited liability nor shall he practice in association with a

limited liability company purporting to do work which has been prescribed in terms of section 7 (3) (c) of the Act: Provided that he may, on the prior approval of the Council having been obtained, associate with a limited liability company as aforesaid on such terms and conditions as the Council may impose.

Suid-Afrikaanse Raad vir Professionele Ingenieurs

Beleidsverklaring no. 1/3

1. OPLEIDING IN INGENIEURSWERK VIR INGENIEURS-IN-OPLEIDING

1.1 *Registrasie as Ingenieur-in-opleiding*

'n Gegradueerde ingenieur wat in 'n eksamen geslaag het wat die Raad erken¹, is registreerbaar as 'n ingenieur-in-opleiding kragtens die Wet op Professionele Ingenieurs². Aansoekvorms kan van die Registrateur verkry word.

1.2 *Opleidingsvereistes vir registrasie as professionele ingenieur*

Die Wet vereis dat 'n aansoeker vir registrasie as 'n professionele ingenieur, vir 'n tydperk deur die Raad³ bepaal, ingenieurswerk moes verrig het wat na die mening van die Raad van voldoende verskeidenheid en bevredigende aard en standaard was. In wese vereis die Raad dat 'n voorgename aansoeker tot die Raad se bevrediging opgelei word in die toepassing van ingenieursbeginsels en -metodes binne sy vertakking van ingenieurswese, en in 'n toenemende mate meer verantwoordelikheid gegee word totdat hy bevoeg is om verantwoordelikheid vir die neem en uitvoering van ingenieursbesluite te aanvaar.

Die minimum opleidingstydperk wat vereis word sal normaalweg drie jaar na graduering wees, met dien verstande dat die aansoeker vir minstens twee jaar as 'n ingenieur-in-opleiding geregistreer was. Aansoekers wat nie aldus geregistreer was nie, sal ook oorweeg word maar in sulke gevalle mag 'n langer tydperk van opleiding verlang word.

By beoordeling van opleiding sal die Raad die volgende faktore in ag neem:

- (a) die aard van die opleiding (paragraaf 1.3)
- (b) die standaard van die opleiding (paragraaf 1.4)
- (c) gevorderde studie gedurende of voor die opleidingstydperk (paragraaf 1.5)
- (d) toepaslike voorgraadse ervaring (paragraaf 1.7)

1.3 *Aard van opleiding*

Die opleiding moet al die elemente van ingenieurswerk gemeld in afdeling 2 hieronder insluit, en die riglyne volg wat die betrokke erkende professionele ingenieursinstituut in samewerking met die Raad opgestel het.

Opleiding moet onder die algemene (nie noodwendig direkte nie) toesig van 'n geregistreerde professionele ingenieur geskied, aan wie die ingenieur-in-opleiding gereeld verslag moet doen. Voorkeur word gegee aan 'n stelsel van opleiding waarvolgens 'n ingenieur-in-opleiding agtereenvolgens aan meer as een (sê twee of drie) toesighoudende of leidinggewende professionele ingenieurs verslag doen gedurende sy opleidingstydperk.

1.4 *Standard van opleiding*

Voordat 'n aansoeker as 'n professionele ingenieur geregistreer word moet die Raad tevrede wees dat die aansoeker se opleiding al die vereiste elemente op 'n aanvaarbare vlak bevat en dat hy homself met voldoende toewyding op sy werk toegelê het om aan die einde van die tydperk bevoeg te wees om professionele verantwoordelikheid te aanvaar vir die neem en uitvoer van ingenieursbesluite in 'n voldoende verskeidenheid van werk in sy vertakking van ingenieurswese.

1.5 *Erkenning van gevorderde studie*

Die voorgeskrewe tydperk kan verkort word in die geval van 'n aansoeker wat —

- (a) benewens 'n erkende eksamen, na minstens 'n jaar van nagraadse studie geslaag het in 'n toepaslike nagraadse eksamen wat die Raad vir die doel erken; of
- (b) die houer is van 'n graad op 'n gevorderde vlak, wat minstens vyf jaar voltydse studie na matrikulasie verg en wat die Raad vir die doel erken.

As algemene riglyn sal die Raad bereid wees om 'n vroeë aansoek te oorweeg van 'n aansoeker na —

- (i) twee en 'n half jaar van versnelde opleiding na verwerwing van 'n eerste erkende kwalifikasie, indien hy gedurende hierdie tydperk deur middel van deeltydse studie 'n gevorderde kwalifikasie op honneursvlak behaal het, of
- (ii) twee jaar van versnelde opleiding na verwerwing van 'n erkende Suid-Afrikaanse graad op gevorderde, d.w.s. honneurs- of meestersvlak, wat minstens vyf jaar voltydse studie na matrikulasie verg.