



The South African Council for Professional and Technical Surveyors

Die Suid-Afrikaanse Raad vir Professionele en Teaniese Oometers

NOTES FOR GUIDANCE FOR REGISTRATION AS A GEOGRAPHICAL INFORMATION SCIENCE (GISc) TECHNOLOGIST.

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1. INTRODUCTION

These notes, which have been approved by the South African Council for Professional and Technical Surveyors (PLATO), have been compiled with a view to assisting persons who intend qualifying for registration as GISc Technologist in terms of the Professional and Technical Surveyors Act, [Act 40/1984]. Adherence to the requirements as set out below, will assist materially in avoiding unnecessary delays.

1.1. Definitions

The “Council” means the South African Council of Professional and Technical Surveyors established in terms of Act 40 of 1984, or such agent acting on its behalf.

“GISc” Geographical Information Science refers to the science and technology of collection, measuring, processing, analysing, displaying interpreting, disseminating, utilising, evaluating and managing geographically related and spatially referenced information

“Mentor” refers to a practising, registered Professional GISc Practitioner or Technologist GISc Practitioner who act as guide and advisor to young entrants to the profession

“PLATO” means the South African Council of Professional and Technical Surveyors established in terms of Act 40 of 1984, or such agent acting on its behalf.

2. STATUTORY REQUIREMENTS

A candidate who wishes to register as a GISc Technologist must normally first register in terms of Section 23 of the Act as a Candidate. After obtaining a recognised GISc qualification or an equivalent qualification approved by Council, the candidate may apply for registration as a GISc Technologist if he or she has complied with the requirements of Section 22[1][a][i] to [iv] of the Act.

A candidate who wishes to qualify for registration as a GISc Technologist and who will be entitled to carry on his/her calling without supervision, shall undergo work integrated learning (WIL) as set out in Paragraph 3, successfully pass an examination on the relevant legislation concerning GISc and related matters and may have to complete a practical test determined by the Council. Part of the practical test could be an interview or oral examination.

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A candidate who wishes to qualify for registration as a GISc Technologist and who has gained a variety of prior work experience as contemplated in Paragraphs 3 must submit an application to the Council in terms of Paragraph 5. Where it is not possible to obtain certificates of employment or submit exact schedules of training and experience an affidavit detailing all such training and experience, may be acceptable.

3. WORK INTEGRATED LEARNING

3.1. Period of Learning

The period of WIL for registration as GISc Technologist is a minimum of 220 working days.

The training must usually be continuous. A break in training of more than one month will only be condoned under exceptional circumstances.

3.2. Nature of Learning

Learning must be varied covering a wide range of work, and can include surveying, remote sensing, land use and environmental studies and other relevant applications of spatial information. The learning must be undertaken under the personal supervision of a Professional GISc Practitioner or GISc Technologist registered in terms of the Act, or such other person whom the Council considers suitable.

3.3. Compulsory WIL

120 Working days in GISc which comprises:

	TYPE OF WORK	WORKING DAYS
i	DATA COLLECTION AND CAPTURE: This includes digitising from map compilation or ortho-images; data capture from co-ordinates or general plans; metadata capture and maintenance; map projections, re-projections and data maintenance. This may also include position fixing using surveying techniques [GPS etc]. field recording of data by direct observation and by annotation of aerial photography and satellite imagery,	20
ii	DATA MANIPULATION: This includes data processing; transformations; spatial data cleaning; data editing; attribute data cleaning; basic data classification; capture and metadata maintenance; working with database files; performing queries; data integration merging, splitting and aggregations.	15
iii	REPRODUCTION PROCEDURES: This includes the reproduction of prints by multi-colour printing on different output devices and other methods of output.	5

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iv	DATABASE AND SPATIAL MODELLING: This includes working with different data models; designing feature classifications and definitions, design of symbology types, styles and colour.	15
v	MAP PRODUCTION This includes map production and report writing. Both line [vector] and images [raster] work to be included. Of this work at least 10 days must be spent using digital techniques/procedures.	20
vi	SPATIAL STATISTICS AND INTERPOLATION: This includes working with centre of gravity, distance calculations and interpolations.	5
vii	SPATIAL ANALYSIS: This includes cartographic modelling, topological, buffer and Boolean type analysis for vector data.	10
viii	REMOTE SENSING AND PHOTOGRAMMETRY: This includes an UNDERSTANDING of basic digital image analysis, and image ortho-rectification.	10
ix	PROJECT MANAGEMENT: This includes project planning, costing, determination of work procedures, resource allocation, project control, progress monitoring and reporting.	20
	TOTAL	120

3.4. Additional Learning

Not less than 100 working days in the following types of work, of which not less than 10 days or more than 40 days in any one category can be included, with the provision that work in at least three of the categories must be included:

- a) Data collection, capture and processing (Additional to above)
- b) Spatial Data Modeling (Additional to above)
- c) Spatial information management, manipulation and recovery. (Additional to above)
- d) Spatial data quality assessment and error management (Additional to above)
- e) Spatial Statistics and Analysis. (Additional to above)
- f) Project Management (Additional to above)
- g) Remote sensing and Image Processing (Additional to above)

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The number of days quoted in paragraphs 3.3 and 3.4 includes both office and field work, of which not more than 10% may be field work. The work should include problem solving and report writing.

A detailed daily diary of all work undertaken during the learning period must be kept. This diary must give an adequate description of the work done, the dates and the category of work with the number of working days in each category.

A candidate already in possession of an accredited or equivalent qualification who wishes to qualify for registration as a GISc Technologist and who has gained a variety of prior work experience as contemplated in Paragraphs 3 must submit an application to the Council in terms of Paragraph 5. The provisions of Paragraph 3 shall be used to assess the GISc work including variety of work performed in terms of Section 22[1][a][ii] of the Act by a candidate who has gained more than 2 years practical experience. Where it is not possible to obtain certificates of employment or submit exact schedules of training and experience an affidavit detailing all such training and experience, may be acceptable.

3.5. WIL Schedule

When applying to the Council for registration, the applicant shall supply a WIL Schedule as an extract from the diary and prepared in the form of the attached specimen. The schedule must be compiled in chronological order and each page must be signed by the candidate and the mentor under who's supervision the candidate has learned.

4. LAW EXAMINATION FOR GISc TECHNOLOGIST

4.1 A candidate who wishes to register as GISc Technologist must apply to the Registrar to write a Law examination after he/she has completed the compulsory training.

4.2 Law examinations are scheduled to take place twice annually, usually **in March and November**, at the offices of the Surveyors-General or any other venue(s) approved by the Council.

4.3 The candidate will be expected to have a comprehensive knowledge of the laws relating to registration of GISc Technologists. He or she should also be acquainted with certain aspects of related legislation as set out in the list to be provided by the Registrar.

4.4 The law examination consists of two written papers as outlined on the list. The pass mark is 65%.

The papers will consist of questions on the Act and Rules where applicable as outlined in the list.

4.5 The Registrar will notify the candidate of a pass or failure.

The law exam consist of the following parts (2 hours each):

Exam A

PLATO Act and rules: 2 hours open book:

Professional and Technical Surveyors' Act 40/1984.

Written by candidates for professional land surveyors, GISc technologists, GISc technicians, survey technicians and mine surveyors. Also written by applicants for registration as a GISc technologist, surveyor and professional engineering surveyor who have not previously written this exam.

Exam B

Land Survey Act (8/1997) and Deeds Registries Act (47/1937): 2 hours open book.

Written by candidates for registration as professional land surveyors.

Exam C

Other acts and court cases as marked for **PLS** on the previous pages: 2 hours closed book. In most cases only an overview of the act is required. Completion of trial survey.

Written by candidates for registration as professional land surveyors.

Exam D

Other acts marked as **Sur.** on the previous pages: 2 hours closed book. In most cases only an overview of the act is required.

Written by candidates for registration as surveyors. Also written by applicants for registration as professional engineering surveyor who have not previously written this exam.

Exam E

Mining related acts marked as **Min** on the previous pages: 2 hours closed book.

Written by candidates for registration as Mine surveyors and Prof. Mine surveyors.

Exam F

Other acts as marked for **GISc** on the previous pages: 2 hours closed book. In most cases only an overview of the act is required.

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Written by candidates for registration as GISc professional practitioner and GISc technologist.

Candidates will therefore write the following exams:

1. Professional Land surveyors:	A, B, C
2. Professional Engineering surveyors:	A, D (if they have not previously written it)
3. Surveyors:	A, D
4. Survey technicians and GISc Technicians:	A
5. Mine surveyors and Prof. Mine surveyors:	A, E
6. GISc Professional Practitioners and GISc Technologist :	A, F

N.B. Most of the relevant legislation can be down-loaded from the Internet Web-site:
www.polity.org.za/govdocs/legislation

Or can be obtained from : **LexisNexis** on

Johannesburg 011-784-8009,

Durban 031-2683111

Cape Town 021-5558900.

Plato website www.plato.org.za/6legislation.php

5. APPLICATION FOR REGISTRATION

When the candidate is of opinion that the requirements set out in Paragraph 3 and 4 has been met, the candidate should apply to the Council for registration in the GISc Technologist category.

The application must be accompanied by:

- a) An application form and the relevant fee;
- b) The Schedule of WIL referred to in Paragraph 3.5;
- c) A certified copy of approved or equivalent qualification(s); and
- d) A Certificate of Employment as prescribed in the Rules. A separate Certificate of Employment is required in respect of each mentor with whom the candidate has served.

“Certified” means certified to be a true copy by a Commissioner of Oaths or a Justice of the Peace.

5.1. Details of Practical test

The practical test may consists of the completion of a task or tasks to the satisfaction of an Examiner. A detailed requirement to this effect will be drawn up and provided to each applicant where deemed required.

A task could include:

- a) Planning a project, specifying each procedure/task/methodology, specifications, resource determination and allocation.
- b) Design of a data model, cartographic model and data structures.
- c) Design and specification for the representation of geo-spatial information.

The average candidate will need no more than two to three weeks for completing the practical test. Continuity of the work is essential and a break will only be condoned in exceptional circumstances due to factors beyond the control of the candidate.

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Any specific project undertaken by the candidate during his/her period of WIL in the form of practical experience which might demonstrate his/her ability to perform some of the tasks set out in paragraph 3, may be submitted to the Examiner for a decision as to whether it would be accepted as part of the practical test.

6. COMPLETION OF REGISTRATION PROCEDURE

Evaluation of the practical test will take place as soon as possible after completion of the work. The applicant will be informed of the time, date and place of an interview, if required. The Registrar will then issue a compliance certificate and forward the result to the Council in regard to the acceptance, or otherwise, of the application.

The Registrar will issue a certificate of compliance with the requirements of Section 22[1][a][i], [ii] and [iii] of Act No. 40 for 1984 and will request the applicant to make [in terms of Section 22[1][a][iv] of the Act] an oath or affirmation in relation to his or her calling. The relevant registration fees will also be required.

When these formalities have been completed the candidate will be registered as a GISc Technologist with the Council.

APPROVED :

APPLICATION FOR REGISTRATION AS A
GISc TECHNOLOGIST IN TERMS OF SECTION 22 (1)(A) OF THE
PROFESSIONAL AND TECHNICAL SURVEYORS' ACT, 1984
(ACT 40 OF 1984)

The Registrar

The South African Council for Professional and Technical Surveyors

I the undersigned, (Full Names) -----

of (Address) -----

hereby apply for registration as a GISc Technologist.

I swear/make affirmation* and declare that the contents of this application, as presented by this form and the accompanying **Form G2**, are true, and further :

- a) That I am the person mentioned on the certified copies of qualifications which I wish to be entered in the Register and which are hereby submitted in support of my application;
- b) That I am not according to law detained as a mentally ill person;
- c) That I have never been convicted of an offence and sentenced in respect thereof to imprisonment without the option of a fine;
- d) That I have never been removed from an office of trust on account of improper conduct;

That I am/am not* insolvent and that I have/have not* assigned my estate for the benefit of creditors, and that I have/have not* compounded with my creditors.

Place

Date

Signature

NOTE : *This must be signed before a Commissioner of Oaths /Justice of Peace.*

FORM G 1

I certify that before the despondent made the oath/affirmation* I asked him/her* the following questions and wrote down his/her* answers in his/her* presence:

a) Do you know and understand the contents of this declaration?

Answer:

b) Do you have any objection to taking the prescribed oath/making the prescribed affirmation*?

Answer: _____

c) Do you consider the prescribed oath/affirmation* to be binding on your conscience?

Answer: _____

I certify that the despondent has acknowledged that he/she* knows and understands the contents of this declaration, which was sworn to/affirmed* before me, and that the respondent's signature was placed thereon in my presence.

Commissioner of Oaths / Justice of Peace: _____

Designation (Rank): _____

Date: _____

* Delete whichever is not applicable.

APPLICATION FOR REGISTRATION AS A
GISc TECHNOLOGIST IN TERMS OF SECTION 22 (1)(A) OF THE
PROFESSIONAL AND TECHNICAL SURVEYORS' ACT, 1984
(ACT 40 OF 1984)

PERSONAL INFORMATION

- a) Full Name(s) of Applicant _____
- b) Postal Address _____

- c) Telephone ; (W) _____ Fax ; _____
- d) Cell _____ e-mail _____
- e) Date of Birth _____ Identity Number _____
- f) Current Employer _____
- g) Present Position _____
- h) Date Appointed _____
- i) Previous Employer(s) _____

j) Higher Education Qualifications:

Qualification	Institute	Date Completed

k) Signature of Applicant: _____ Date: _____

CERTIFICATE OF EMPLOYMENT

I,

a (Designation)at (Organisation)..... do hereby
certify that

..... has been

engaged in GISc work under my personal supervision for the following periods and performing work in the
following categories :

Periods	Category (e.g. Map Production, data capture etc.)

PARTICULARS OF WHICH IN REGARD TO THE TIME AND NATURE OF THE WORK,
ARE ANNEXED.

Signed at on theday of

Signed :

(Designation)

PLATO

WORK INTEGRATED LEARNING FOR GISc TECHNOLOGIST

Full Name of candidate:.....

Dates	Work description	No. of Working days											
		Data collection and capture	Data manipulation	Reproduction procedures	Database and Spatial modelling	Map production	Spatial statistics and interpolation	Spatial analysis	Remote sensing and photogrammetry	Project management	Spatial information management.	Spatial data quality assessment and	
Compulsary Training (CT): 120 working days		CT20	CT15	CT5	CT15	CT20	CT5	CT10	CT10	CT20	AT	AT	TOTAL
Additional Training (AT): Not less than 100 working days in at least three of the following, provided that not less than 10 working days or more than 40 are done in any one of the categories.													
TOTAL													220

I certify that the training indicated above has been performed under my personal supervision.

Signed by Mentor:

Date

Print name:.....

PLATO registration:

Candidate signature.....

Date

Each page must be signed by the Mentor and the Candidate

Addendum

Notes to candidate:

1. Training:

The number of days quoted for compulsory training (CT) and for additional training (AT) in the training schedule, includes both office and field work provided that the field work will not exceed 10% of the work. The work should include problem solving and report writing.

A detailed daily diary of all work undertaken during the training period must be kept. This diary must give an adequate description of the work done, the dates and the category of work with the number of working days in each category.

The use of modern technology is essential and the candidate must be proficient with this technology.

2. Experience / Training Schedule:

When applying to the Council for evaluation of his/her training, the candidate shall supply a Training Schedule as an extract from the diary prepared in the form of the attached specimen. This schedule must be compiled in chronological order and totalled. Each page must be signed by the mentor (with whom the candidate has trained) and the candidate.

The training schedule must contain an adequate description of the work performed to enable the Council to evaluate the type and scope of the work completed.

The detailed day to day diary from which the training schedule is an extract must be retained by the candidate in the event of the Council requiring more detailed information.

Should the Council be of the opinion that the training is inadequate or does not cover a wide scope of work, it may require the candidate to undergo further training.

3. Mentor:

A mentor must be a registered, practising Professional GISc Practitioner who has been practising as such for a minimum period of five years. Provided that the Council may, on written application by the mentor, relax the requirement of the five years experience. Provided further that where the experience to be gained is in a field of expertise that could not normally be

obtained under the guidance of a Professional GISc Practitioner then, with the consent of the Council, such experience may be obtained under the personal supervision of a suitably qualified person.

Every mentor must provide, directly to the Council, a confidential written assessment on the competency of the candidate which assessment must include, inter alia, the type of experience gained by the candidate while in his or her employ, with emphasis on the professional aspects such as dealings with clients, attitude to senior and subordinate co-workers and assistants, punctuality and reliability and management skills acquired.

A person who has been found guilty of improper conduct or is practising under threat of a suspended sentence may not act as a mentor.