

# **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), now replaced by the South African Geomatics Council in terms of Act 19 of 2013, have been compiled with a view to assisting persons who intend qualifying for registration as GISc Technologist in terms of Section 13 of the Geomatics Profession Act, 19 of 2013. Adherence to the requirements as set out below, will assist materially in avoiding unnecessary delays.

### **1.1. Definitions**

The “Council” means the South African Geomatics Council established in terms of Act 19 of 2013, 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

“SAGC” means the South African Geomatics Council established in terms of Act 19 of 2013, 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 13 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 13 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.

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	<b>DATA COLLECTION AND CAPTURE:</b> 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	<b>DATA MANIPULATION:</b> This includes data processing; transformations; spatial data cleaning; data editing; attribute data cleaning; basic data classification; capture	15

	and metadata maintenance; working with database files; performing queries; data integration merging, splitting and aggregations.	
iii	<b>REPRODUCTION PROCEDURES:</b> This includes the reproduction of prints by multi-colour printing on different output devices and other methods of output.	<b>5</b>
iv	<b>DATABASE AND SPATIAL MODELLING:</b> This includes working with different data models; designing feature classifications and definitions, design of symbology types, styles and colour.	<b>15</b>
v	<b>MAP PRODUCTION</b> 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.	<b>20</b>
vi	<b>SPATIAL STATISTICS AND INTERPOLATION:</b> This includes working with centre of gravity, distance calculations and interpolations.	<b>5</b>
vii	<b>SPATIAL ANALYSIS:</b> This includes cartographic modelling, topological, buffer and Boolean type analysis for vector data.	<b>10</b>
viii	<b>REMOTE SENSING AND PHOTOGRAMMETRY:</b> This includes an UNDERSTANDING of basic digital image analysis, and image ortho-rectification.	<b>10</b>
ix	<b>PROJECT MANAGEMENT:</b> This includes project planning, costing, determination of work procedures, resource allocation, project control, progress monitoring and reporting.	<b>20</b>
	<b>TOTAL</b>	<b>120</b>

### 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)

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**

- 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 May 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%.

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

#### **4.6 Information to be Examined on during the Law Examination**

Both papers will be written consecutively on the same day with a half hour break in between.

09:00 – 11:30 Geomatics Profession Act, Code of Conduct & Draft Regulations – Paper A (2½ hour Open book format)

12:00 – 15:00 GISc Legislation - Paper F (3 hour Closed book format)

**N.B. Most of the relevant legislation can be down-loaded from the Internet Website: [www.polity.org.za/govdocs/legislation](http://www.polity.org.za/govdocs/legislation) or [www.sagc.org.za](http://www.sagc.org.za)**

Or can be obtained from : LexisNexis on Johannesburg 011-784-8009, Durban 031-2683111 or Cape Town 021-5558900.

## **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 consist 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.

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 13 of Act 19 of 2013 and will request the applicant to make 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.

*April 2019*

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