



The South African Council for Professional and Technical Surveyors

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# **NOTES FOR GUIDANCE FOR REGISTRATION AS A GEO-INFORMATION SCIENCE (GISc) TECHNOLOGIST.**

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# **1. INTRODUCTION**

These notes, which have been approved by the Geo-Information Society of South Africa (GISSA) and 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.

“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.

“GISSA” refers to the Geo-Information Society of South Africa.

“NQF” National Qualification Framework as defined by SAQA.

“SAQA” The South African Qualification Authority.

“US” Unit standards, used to define modules of NQF GISc qualifications.

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

“Mentor” refers to a practising, registered GISc practitioner (at least Technologist or Professional) who act as guide and advisor to young entrants to the profession

# **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 GISc Technician-in-Training or in terms of Section 22[1][a] of the Act as a GISc Technician.

After obtaining a recognised degree or NQF level 6 GISc Qualification or an equivalent qualification approved by Council, may apply for registration as a GISc Technologist if he or she has complied with the requirements of Section 22[1][a][iii] and [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 the training as set out in Paragraph 3, successfully pass an examination on the laws concerning GISc and related matters and 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, prior to the commencement of the Act, undergone training in the form of practical experience 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. TRAINING IN THE FORM OF PRACTICAL EXPERIENCE**

#### **3.1. Period of Training**

The period of practical training for registration as GISc Technologist is a minimum of 400 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 Training**

Training 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 work 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 Training

180 Working days in cartography/geo-spatial information management which comprises:

	<b>TYPE OF WORK</b>	<b>WORKING DAYS</b>
I	<p><b>DATA COLLECTION AND CAPTURE:</b></p> <p>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,</p>	<b>40</b>
ii	<p><b>DATA MANIPULATION:</b></p> <p>This includes data processing; transformations; spatial data cleaning; data editing; attribute data cleaning; basic data classification; capture and metadata maintenance; map projections and re-projections; working with database files; performing queries; data integration merging, splitting and aggregations.</p>	<b>40</b>
iii	<p><b>REPRODUCTION PROCEDURES:</b></p> <p>This includes the reproduction of prints by multi-colour printing on different output devices and other methods of output.</p>	<b>5</b>
iv	<p><b>SPATIAL MODELLING:</b></p> <p>This includes working with different data models; designing feature classifications and definitions, design of symbology types, styles and colour.</p>	<b>20</b>
V	<p><b>MAP PRODUCTION</b></p> <p>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.</p>	<b>15</b>
Vi	<p><b>SPATIAL STATISTICS AND INTERPOLATION:</b></p> <p>This includes working with centre of gravity, distance calculations and interpolations.</p>	<b>10</b>
Vii	<p><b>SPATIAL ANALYSIS:</b></p> <p>This includes cartographic modelling, topological, buffer and Boolean type analysis for vector data.</p>	<b>20</b>
Viii	<p><b>REMOTE SENSING AND PHOTOGRAMMETRY:</b></p> <p>This includes an UNDERSTANDING of basic digital image analysis, and image ortho-rectification.</p>	<b>10</b>
Ix	<p><b>PROJECT MANAGEMENT:</b></p> <p>This includes project planning, costing, determination of work procedures, resource allocation, project control, progress monitoring</p>	<b>20</b>

	and reporting.	
	<b>TOTAL</b>	<b>180</b>

### 3.4. Additional Training

Not less than 220 working days in the following types of work, of which not less than 10 days or more than 120 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.

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.

When training in the form of practical experience has been undertaken prior to the commencement of the Act, the provisions of Paragraph 3 shall not necessarily apply but shall be used to assess the practical geo-information work performed in terms of Section 22[1][a][ii] of the Act by a candidate who has completed more than 6 years of training in the form of practical experience and whose qualification has been recognized.

### 3.5. Training Schedule

When applying to the Council for registration, the candidate shall supply a Training and/or Experience Schedule as an extract from the diary and prepared in the form of the attached specimen. This schedule must be compiled in chronological order and each page must be signed by the mentor with whom the candidate has trained, and by the candidate.

## **4. LAW EXAMINATION**

A candidate for registration as a GISc Technologist must apply to the Registrar to write a Law Examination.

Law examinations can be written in most major centres twice a year. Candidates will be notified of the time and venue for each examination accordingly.

The candidate will be expected to have a comprehensive knowledge of the laws relating to registration of GISc technologist. He or she should also be acquainted with certain aspects of related legislation as set out in the details below.

The law examination consists of two written papers. The first paper will be of 2-hour duration and open book format and the second paper will be of 3-hour duration and closed book format. The first paper will consist of questions on the Professional and Technical Surveyors Act [40 of 1984] and Rules. A pass mark of 65% is required for this paper.

The second paper will consist of questions on legislation related to GISc. A pass mark of 65% is required for this paper.

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

## **5. APPLICATION FOR PRACTICAL TEST**

When the candidate is of opinion that he or she has met the requirements set out in Paragraph 3 or 4, he or she 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 Training referred to in Paragraph 3.5;
- c) An certified copy of his or her PLATO approved qualification; 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 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 candidate.

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 his or her 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 training 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 candidate will be informed of the time, date and place of an interview, if required. The Registrar will then issue a practical test certificate and forward his/her decision to the Council in regard to the acceptance, or otherwise, of the application.

The Registrar will notify the candidate that he or she complies with the requirements of Section 22[1][a][i], [ii] and [iii] of Act No. 40 for 1984 and will request him or her 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.

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