

Career Profile: Land Surveyor

Surveying has been practised since early 3000 BC and is referred to as the second oldest profession. In building the pyramids, the ancient Egyptians used surveying. In the Roman Empire surveying was used to establish a tax register of conquered lands. Surveying was one of the first professions to be licensed.

Land surveyors are measurement specialists who are legally responsible for all surveys involving boundaries and land title. Land surveying falls within the broader discipline of Geomatics. It focuses on acquisition, processing, management, presentation and dissemination of information about the features of fixed locations on the earth's surface.

One of the important areas of surveying is called cadastral surveying, derived from the word 'cadastre' which means to register. In English usage it means a property register. When engaged in cadastral surveying the land surveyor is concerned with locating the exact position of property boundaries and representing them through an accurate plan or diagram which can then be registered in a property register. In addition to land, buildings can also be surveyed (sectional title) to delimit property boundaries and/or rights to property. A land surveyor employs the techniques used in cadastral surveying in compliance with the legislation that guides cadastral surveys.

A land surveyor can specialise in:

1. *engineering surveying*: taking measurements for the design, setting out and monitoring of roads, freeways, railways, bridges, tunnels and large structures.
2. *geodetic surveying*: involves ascertaining the size and shape of planet earth in order to provide a framework of accurately coordinated and heighted beacons and benchmarks to which other surveys and maps can be connected.
3. *cartography*: photogrammetry is usually used to obtain map data which are then processed cartographically for reproduction and distribution. The products make information available to the user in understandable and useful form.
4. *hydrographic and oceanographic surveying*: mapping the marine environment and inland bodies of water.

The day-to-day tasks a land surveyor would be expected to carry out would include a combination of field work and office work:

- planning a project
- carrying out fieldwork to measure the relevant terrain
- processing the information and the development back in the office
- doing further field work to confirm measurements and designs

- preparing diagrams, maps and reports.

Education Requirements

National Senior Certificate (NSC)

For a career in surveying students are advised to select Mathematics, Physical Science and English, and to add to this a selection from the *designated* subjects. These are subjects that are particularly suitable for tertiary study.

Bachelor Degree

A Bachelor of Science degree in Geomatics within which Land Surveying is located, is only presented at two universities in South Africa. It is a four year degree.

Offered at:

- [University of Cape Town](http://www.ebe.uct.ac.za/departments/apg)¹ (School of Architecture, Planning and Geomatics)
- [University of KwaZulu-Natal](http://engineering.ukzn.ac.za/HomePage8859.aspx)² (Faculty of Engineering)

National Diploma / BTech

National Diploma Surveying (3 years)

Bachelor of Technology: Surveying (1 year)

A combined four year degree programme over five years that focuses on surveying and is comprised of both theoretical and practical components.

Offered at:

- [Tshwane University of Technology](http://www.tut.ac.za/students/facultiesdepartments/)³ (Faculty of Engineering and the Built Environment, Department of Surveying)

Students who register for the Bachelor's Degree in Technology: Surveying must register as technicians-in-training with the South African Council for Professional Land Surveyors and Technical Surveyors (PLATO).

¹ <http://www.ebe.uct.ac.za/departments/apg>

² <http://engineering.ukzn.ac.za/HomePage8859.aspx>

³ <http://www.tut.ac.za/students/facultiesdepartments/>

Possible Employers

- Government departments: Water Affairs, Transport, Provincial Administration, Surveys and Mapping, offices of the Surveyor-General, SANDF
- Consulting engineers
- Construction companies
- Private land surveyors' firms
- Own surveying business.

Find out more

Find out more about surveying and other aspects of geomatics.

- [South African Council for Professional and Technical Surveyors](#)⁴ (PLATO)
- [Career and bursary information](#)⁵ at Surveys and Mapping on cartography and surveying.
- Some useful information on surveying as a career from the [South African Geomatics Institute](#)⁶ (SAGI).
- [National Spatial Information Framework](#)⁷.
- [Notes for guiding professional land surveyors in training](#)⁸.
- An interesting description by an [American land surveyor](#)⁹ of his work and equipment.

⁴ <http://www.plato.org.za/>

⁵ http://w3sli.wcape.gov.za/SURVEYS/MAPPING/bursary_career.htm

⁶ <http://www.sagi.co.za/landsurvey.php>

⁷ <http://nsif.dla.gov.za/>

⁸ http://www.plato.org.za/html/plato_notes/NOTES%20-%20PLST%202000.doc

⁹ <http://www.johann-sandra.com/surveying/land-surveying-geomatics.htm>

Are you suited to this career?

This quick quiz can help you to identify whether you are suited for this occupation. The questions are based on interests, characteristics and values typical of people who work as agricultural economists.

| Quiz | Yes | No |
|---|-----|----|
| Do you enjoy working out of doors? | | |
| Are you prepared to cope with sometimes extreme weather conditions? | | |
| Are you passionate about working with computers and other electronic equipment? | | |
| Are you physically robust and fit? | | |
| Do you enjoy calculations and working with figures? | | |
| Are you able to get on easily with other people? | | |
| Are you confident in your ability to make responsible decisions? | | |
| Are you systematic, detailed and organised in your work? | | |
| Do you enjoy solving problems? | | |
| Are you able to communicate well verbally and in writing? | | |

If you have mainly yes answers it may be an indication that this is an occupation to consider.